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CONTRACTS, SPECIFICATIONS, AND LAW FOR ENGINEERS

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McGRAW-HILL BOOK COMPANY, INC.
New York     Toronto     London
1958
CONTRACTS, SPECIFICATIONS, AND LAW FOR ENGINEERS

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THE MAPLE PRESS COMPANY, YORK, PA.
Preface

This book has been written for the benefit of practicing engineers, as well as for students of engineering and architecture. The material has been divided into three parts: Part One, explanation of the basic principles of the law of contracts; Part Two, discussion of the application of contract principles to construction contracts in particular, together with data on the preparation of specifications and other materials which form an essential part of such contracts; and Part Three, consideration of miscellaneous fields of law which are regarded as being of special interest to engineers.

The more an engineer or an architect progresses in leadership and executive capacity, the more he needs an adequate breadth of knowledge, and at least some basic understanding of various legal principles, particularly in the area of contracts and specifications. We hope to introduce the reader to some of the many and varied problems of a legal nature which he can expect to encounter, to the end that he will be able to recognize the occasions when he needs a lawyer’s aid, and will be in a position to cooperate intelligently with attorneys who are working with him. By no means have we tried to “teach law” to those who read these pages, but merely to create an awareness and appreciation of pertinent and more or less typical questions which arise in the broad realm of the law.

Under such an extensive topic as contracts, specifications, and law for engineers, so many rules and principles are interrelated that it is difficult to discuss one without at least a reference to some of the others. Therefore, it will be found that, especially in the early portions of this book, discussion of a given topic entails the use of certain terms which themselves have not yet been considered in any detail. In an effort to minimize difficulties arising from the use of terminology unfamiliar to most readers, we have included at the end of the text a glossary of legal terms, and this should be consulted where the technical word or phrase employed in the body of a chapter is not immediately defined.

To the extent deemed feasible, the authors have attempted to state
legal principles simply and clearly, rather than to quote extensively from involved court decisions or complicated documents. Court cases have been used as references and, to some extent, as illustrations. An effort has been made to clarify a great many points by means of illustrations gathered from engineering practice and from actual construction contracts, with the thought that such practical examples would be singularly worthwhile. Fictitious names have been used in the average illustration drawn from fact.

We have, of course, endeavored to credit in the text all sources which are quoted directly. For example, various illustrations have been taken from Engineering News-Record. We have endeavored in each instance of use to cite the date of publication. For the most part, the Engineering News-Record articles which we have drawn upon are those of Mr. I. Vernon Wolvin, New York attorney and civil engineer, who is the author of three books in the general area of engineering law.

Apart from source material expressly acknowledged as such, it is conceivable that an occasional statement or passage in the text will appear to have been taken directly from some other publication. Any such circumstance is entirely unintentional; it can readily be appreciated from the nature of the subject that it is virtually impossible to avoid defining a few technical terms—or once in a while describing a rule of law—in language which closely resembles that which may happen to have been employed by a previous writer in the field. There are, after all, a limited number of ways in which to discuss the basic legal principles which have been known, applied, and talked about for many, many years.

It is natural that this text should reflect the influence of work done by and for certain organizations with which one or the other of the authors has been associated, such as the Bethlehem Steel Company, The Port of New York Authority, the Anaconda Company, The Travelers Insurance Company, and Yale University. We wish to thank the above-named, and all others who have directly or indirectly contributed to the material contained herein and who have helped to develop the background from which this book has been written.

Clarence W. Dunham
Robert D. Young
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CHAPTER 1

Introduction

1-1. A General Picture of Engineering. The field of engineering is tremendous in scope. It involves much more than the mere utilization of materials and machines; human relations are an important part of the picture. As the engineer advances toward the top executive and managerial positions in his particular field of activity, he will require at least basic knowledge in many areas. He must work closely and effectively with businessmen, lawyers, economists, and personnel managers, as well as with his fellow engineers. His degree of success will depend more and more upon his ability to develop qualities of leadership and to guide wisely those who are his assistants in one capacity or another.

Much of an engineer's work involves the drawing of construction contracts and the handling of contractual relationships. He must know how to cooperate with others, how to weigh the advice he is given and the data his research produces, how to make important decisions without inordinate delay, and how to see to it that such decisions are carried into effect promptly. The more progress he makes in the realm of management and supervision, the greater is his need for a broad outlook, a wide experience, a knowledge of business methods, and some generalized understanding of the law.

In college the principal categories of engineering are necessarily separated one from another. The usual departmentalization is chemical, civil, electrical, and mechanical engineering, perhaps together with various others of which the particular institution makes a specialty. In engineering practice, these artificial dividing lines tend to disappear. As a young engineer moves ahead, he gradually acquires useful information in fields of endeavor allied to his particular job. He becomes a "professional engineer" in the truly comprehensive sense of the term.

It is impossible for a man to take a college course in every subject he may later find needful. The development of an engineer is largely a matter of lifetime work and study and of the encouragement of a man's interest in a particular field. An adequate college course in a given
engineering subject helps tremendously in getting a start in the desired direction, but the student must perform continue his study and preparation after he goes out on the job. He should promptly acquire a healthy respect for the know-how possessed by more experienced persons, and he should be willing and eager to learn from them—be they other engineers, lawyers, contractors, and so on.

1-2. Contacts with Lawyers. Among the ways in which an engineer may have occasion to deal with lawyers are the following:

1. The preparation of contract documents and specifications
2. The conduct of contractual relationships and the handling of claims and payments
3. The interpretation of contract clauses and the settlement of disputes arising therefrom
4. The education of attorneys regarding engineering matters and customs
5. The preparation of material for use as trial evidence
6. The serving as an expert witness on technical points at arbitration hearings and court proceedings
7. The settlement of disputes out of court
8. The giving of assistance in tax and valuation problems
9. The handling of engineering matters connected with the purchase and sale of property and goods

At one time or another, the engineer may find himself involved in a variety of legal proceedings, including the following:

1. Regular jury trials
2. Cases heard before one or more judges
3. Hearings before special commissions (such as the Interstate Commerce Commission)
4. Councils of review (e.g., special hearings regarding a city’s building code or zoning ordinances)
5. Arbitration of disputes

Not only the engineer’s knowledge is important at such times, but also his ability to handle himself expertly under trying circumstances and to cooperate fully with the attorneys with whom he is working.

Contract documents\(^2\) relating to construction jobs should be prepared jointly by lawyers, engineers, and architects. These papers are extremely important. Their preparation may become the specialty and even the lifework of certain individuals. Sometimes engineers tend to

\(^2\) Including the specifications.
look upon the writing of such papers as a tedious formality and therefore as a job to be delegated to any young man who is not too busy with something else. Such an attitude is utterly inadvisable and may lead to costly consequences. The preparation of these documents deserves the attention of very competent, highly experienced persons. Engineers, architects, and lawyers, serving as a team, can create eminently satisfactory construction contracts and thus smooth the way for all parties concerned.

1-3. Some Definitions. As used in this text, written information means information typed or printed or recorded in longhand.² The word printed will be broadly used to include information typed, hectographed, mimeographed, blueprinted, photostated, set in type, or recorded in some other manner customarily accepted as the equivalent of actual printing. Of course, photographs represent another type of recorded information.

Drawings are considered a form of writing—a "picture language." This term applies to sketches and line drawings, as well as to any notes of explanation or instruction inserted thereon. Prints and other reproductions of drawings are generally deemed to be the equivalent of the originals from which they are made.³

Owner denotes the individual or organization for whom something is to be built or furnished under contract. He is thus the purchaser, who pays for the goods or services.

Engineer refers to the architect or the engineer (or both) who acts for and in behalf of the owner in the transaction. The term may denote an engineering organization as well as an individual. Sometimes it happens that an individual or organization will occupy the dual role of owner and engineer.

Contractor is the party (either individual or organization) who actually undertakes the construction job or other work for the owner.⁴ In the practice of civil architecture and construction, the contractor not only controls the work of construction but also acts as intermediary between the engineer, who designs the work, and the artisans, who execute it.

The term engineering will be used in an extremely broad sense to include the work of all those engaged in architecture, building, and related activities having a necessary connection with construction contracts.

² With respect to longhand information, recordings in ink are usually considered preferable to those made in pencil because the ink writing does not lend itself readily to alteration.

³ It may sometimes be necessary to have the reproductions signed by a notary public or some other authorized official who will verify their validity.

⁴ The terms constructor and builder are synonymous with contractor.
The glossary which appears at the conclusion of the text gives the meanings of many legal terms employed in the book. Additional words and phrases of a technical nature are defined at the point where they are first used.

1-4. Responsibility of the Engineer. An engineer may be engaged by the owner (and placed temporarily on the latter's payroll) to handle all of the engineering work, including preparation of the contract, for a single, specified job. Or the engineer may perform all these duties on a fee basis in the capacity of an outside consultant, using his own men and facilities. Again, the engineer may be one of the owner's regular staff members, handling whatever engineering work comes along in the course of the owner's business. Whatever the precise nature of the relationship, the engineer should have the owner's interest at heart and conduct himself accordingly. Above all else, he owes the owner a duty of good faith and loyalty. The engineer and the owner ought to deal with one another in complete trust and confidence, one manifestation of this being that the engineer is to pass along any relevant information he acquires which he knows to be of interest and importance to the owner.

By accepting employment with the owner, the engineer implies that he possesses reasonable competence and the diligence needed to produce the kind of work called for. He does not guarantee a perfect building plan or satisfactory end results; neither does he warrant that miscalculations will not occur. But he is required to use all the skill at his command and to be acquainted with whatever engineering techniques are generally known to his profession at the time. The skill and know-how he is supposed to display are on the "professional" level, which is relatively higher than the level which nonskilled persons would be expected to attain.

The engineer or architect may be held liable if the plans he draws prove grossly defective. He is potentially responsible also for damage stemming from his failure to supervise the construction work, if his supervision is required, or for handling his duty in this regard in a negligent manner. Again, if the engineer fraudulently or carelessly underestimates the cost of a project by a substantial amount, thereby causing the owner to go ahead with work which will obligate him to pay costs far beyond his obvious intention to assume, the engineer may lose

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*The owner can collect any resultant damages for fraud practiced upon him by the engineer.

*If, however, the plans themselves are all right but damage is caused by the contractor's failure to carry out the letter of the plans, the engineer is not to blame. For discussion of a series of cases on the subject of an architect's responsibility for defects or insufficiency of work attributable to plans, see American Law Reports, ser. 2, vol. 25, pp. 1085ff.
his right to compensation and may render himself open to a claim for damages.

1-5. Illustrations of the Concept of Responsibility. Consider the four sets of facts described below.

1. An engineer designed a small dam for a reservoir. Borings taken at the site of the dam showed gravelly soil over rock. Through carelessness, no borings were taken elsewhere. Too late it was discovered that the reservoir could not be filled because of leakage through gravelly "hills" alongside the reservoir. Clearly, the engineer was not sufficiently diligent and thorough in his investigation of the site.

2. An engineer designed an earth dam for a reservoir but made the spillway so small that floodwaters overtopping the dam caused a serious washout next to the spillway. The spillway was entirely inadequate for the flood flows which frequently occurred in the particular stream involved. The engineer's performance in this case displayed a lack of the skill requisite to his profession.

3. In a third case, the engineer designed a foundation for a building. The borings which were made seemed adequate. Later, however, during the excavation for the basement, an underground stream was encountered. This discovery necessitated a redesign of the foundation and resulted in a large "extra" payment by the owner to the contractor for the unexpected work. This engineer was unfortunate but does not seem to have been negligent. He made a reasonable number of borings, but none of these happened to reveal the existence of the subterranean stream.

4. In the final situation, the engineer designed a small boiler house to be supported upon a series of strata composed of clay and sand totaling 70 ft in depth. He could use long piles to support the structure, but they would cost many thousands of dollars. As an alternative, he could use a concrete mat under the structure, supporting it directly upon these deep soils and hoping that the settlement would be small, uniform, and therefore harmless. He was faced with a question of judgment: Should he spend the owner's money and use the piles in order to play safe, or should he try to economize and trust the performance of a mat foundation? As it happened, he chose the latter option and the structure proved entirely satisfactory.

Let us now speculate on the fate of the engineers involved in the hypothetical situations just posed. In the first two cases, the owner doubtless would reprimand the engineer severely. Perhaps, if the engineer was a regular employee, he would be discharged or at least not be considered for any key role in future projects. If the engineer was a consultant who had been employed to make this one design, the owner might resolve never to engage him again. However, the owner might
well decide to forgo a suit\(^7\) to recover for losses suffered, since his task of demonstrating in court the engineer's incompetence, carelessness, etc., would be difficult unless the case was a flagrant one.

In the third situation described, the owner, while bemoaning his misfortune, was not really in a position to charge the engineer with any negligence or wrongdoing.

In the fourth case, the typical owner would conveniently overlook the fact that the happy state of affairs was largely the result of the engineer's exercise of good judgment. The successes are taken in stride without fanfare. Too frequently it is only the mistakes which come in for special attention from the owner.

This whole matter of the measure of the engineer's or architect's responsibility is of obvious importance. To illustrate the relevant principles more fully, let us consider the case of *White v. Pallay.*\(^8\) The plaintiff in that action was an architect who had prepared for the defendant certain plans and specifications for the erection of a building. Only a portion of the agreed-upon compensation having been paid, plaintiff sued for the balance. In defense it was argued that the plaintiff had not exercised ordinary skill, with the result that defendant incurred extra costs in correcting defects in the plans; in essence, the defendant contended that an architect necessarily warrants that his plans and specifications will produce success. Defendant's argument was rejected, and the lower court's judgment in favor of plaintiff was affirmed. A portion of the Oregon Supreme Court's opinion reads as follows.

``
... Without dispute, after construction of the building had proceeded to a considerable extent, it began to settle, and it became necessary to take measures to arrest this condition. Accordingly, the walls were shored up by means of jackscrews, and the like, the foundation was enlarged and its strength increased, all at a necessary expense of about $1,700. The theory of the defendant is that he contracted for plans and specifications which, when carried out, would produce a certain agreed result. In substance, his position is that the plaintiff warranted that his plans and specifications would produce that result, and, because they failed and required amendment, and betterment of the foundation became necessary, the plaintiff must respond in damages. The rule on this subject is thus stated in *5 C.J. 269:*

In the preparation of plans and specifications, the architect must possess and exercise the care and skill of those ordinarily skilled in the business; if he does so, he is not liable for faults in construction resulting

\(^7\) An engineering firm can obtain insurance to protect itself, at least in part, against claims for damages stemming from the alleged mistakes of members of the organization if such mistakes are in the realm of negligence rather than of the exercise of poor judgment.

\(^8\) 119 Ore. 97, 247 Pac. 316 (1926).
from defects in the plans, as his undertaking does not imply or guarantee a perfect plan or a satisfactory result, it being considered enough that the architect himself is not the cause of any failure, and there is no implied promise that miscalculations may not occur. Where, however, the architect does not possess and exercise such care and skill he will not only be liable in damages for defects in his plans but he cannot recover compensation for them. ... 

"The precedents cited by defendant treat the question of the liability of the architect as one of fact, and hold that he must act with reasonable diligence in the performance of his duties. The great weight of authority is that this is the measure of the duty of the architect. In the instant case, the question is about whether the foundation of the building was sufficient, considering the nature of the ground upon which it was erected, and there is testimony from which the trier of the fact could determine that the plaintiff exercised reasonable care and diligence in the examination of the site and in the preparation of his plans and specifications. This being true in point of fact, as found beyond our power to gainsay, the plaintiff performed his full duty and is not liable in damages."

On the other hand, when the contractor is obligated to build something "in accordance with the plans and specifications" furnished by the owner, the latter, by implication, guarantees that the plans are "workable and sufficient." Of course, the engineer or architect who prepared the plans is, in turn, responsible to the owner. The intent is that the plans are to be sufficient to enable the contractor to do the work. They are to be prepared with "reasonable care and diligence," but perfection of results is not necessarily guaranteed.

By way of further illustrating the complicated question of "responsibility," consider the following situation. The owner insisted that a large canopy over his store entrance be designed so as to have a structural steel frame with an 18-gauge steel covering welded thereto. The consulting engineer engaged to design the structure objected but finally made the design according to the owner's wishes. Later the contractor sublet the canopy job to a fabricator. A short time thereafter the latter officially notified the engineer and the contractor in writing that he did not believe the thin metal sheets could be welded satisfactorily to the framing because of the likelihood that the 18-gauge steel would melt. The owner thereupon said, in effect, "If you can't do it, I'll get someone who will." Now, what are the engineer and the contractor to do? If they accede to the owner's demand, he, of course, cannot legitimately blame them should the result prove unsatisfactory. But that is not to say that he would not try.

As a practical matter, the engineer sooner or later will have to accept a certain amount of criticism in many such cases, even though his professional conduct was beyond reproach. He should therefore try to forestall difficulty by doing his utmost to see to it that everything will be satisfactory, even if attaining this result entails occasional opposition to the owner's ideas.

The engineer is responsible not only for technical matters of engineering but also for all the multitudinous headaches the contract and specifications may entail. For his own protection, it is apparent that he must take seriously the preparation of the various contract papers.
CHAPTER 2

Law and Courts

2-1. The Law in General. "The law" is such a tremendously broad term that it is difficult to define and describe, especially in a relatively few words. The following statements convey some of the ideas and meanings associated with the term "law":

1. Law means a rule of civil conduct; it commends what is right and prohibits what is wrong.

2. Law constitutes the rules under which civilized individuals and communities live and maintain their relationships with one another. It includes all legislative enactments and established controls of human action.

3. The Winston Dictionary, College Edition, states as follows: Law—"a binding rule of action established by authority with the intent of enforcing justice."¹

4. Law is "a system of principles and rules of human conduct, being the aggregate of those commandments and principles which are either prescribed or recognized by the governing power in an organized jural society as its will in relation to the conduct of the members of such society, and which it undertakes to maintain and sanction and to use as the criteria of the actions of such members."²

5. Law denotes those rules, standards, and principles which are applied by courts in the decision of controversies.

6. Law relates to such rules as are declared and published by government as a means of developing and maintaining order in society.

Law, in its ordinary usage, includes those rules which are produced by court decision as well as those which are created by legislative act. It is arguable, of course, that court decisions are not strictly part of the law,³

² Black's Law Dictionary (3d ed.).
³ See Swift v. Tyson, 16 Pet. 1 (1842), in which the Supreme Court stated:
but, for all practical purposes, "judge-made" rules and principles form
an effective and substantial part of the over-all picture.

2-2. A Few of the Basic Divisions or Topics in the Realm of Law. International law has to do with relations among the countries of the
world. It embraces such obligations as one nation owes to another and
covers as well the conduct of a nation's citizens toward other nations and
their citizens.

The term municipal law is normally intended to refer to the internal
law of a particular nation, as distinguished from international law. The
expression is somewhat confusing, however, because it is also frequently
used to denote those laws which have to do with the local government
of cities, towns, and villages.

Substantive law creates, defines, and regulates duties, rights, and obli-
gations. Adjective or procedural or remedial law, on the other hand,
prescribes methods of enforcing rights and of obtaining redress in case
of their invasion. Adjective law pertains to practice and procedure and
the legal machinery by which substantive law is made effective.

Constitutional law has to do with the organization of government, the
interpretation of constitutions (which represent the fundamental law of
the state and nation), and the validity of statutory enactments as in con-
formity with any pertinent constitutional provisions.

Administrative law, in the ordinary sense of the term, has to do with
rules and regulations established by the executive branch of government
through its various agencies, commissions, and the like.

Criminal law is that portion or branch which defines and prohibits
the several types of crimes, making provision also for their punishment.

The law of the land, broadly speaking, refers to the body of general
public laws binding on all members of the community.

Maritime law (or admiralty law) includes jurisdiction of all trans-
actions and proceedings with relation to commerce and navigation and
in respect of injuries and damages sustained upon the sea. It is a group
of traditional practices and rules distinct from the law of the land. As
far as this country is concerned, the Constitution of the United States
has placed this separate jurisprudence in the sovereignty of the nation,
rather than in that of the several states. Any nation of the world may
adopt the precepts of the maritime law as its own, but each nation is

"In the ordinary use of language, it will hardly be contended that the decisions of
courts constitute laws. They are, at most, only evidence of what the laws are, and
are not of themselves laws. They are often reexamined, reversed, and qualified by
the courts themselves, whenever they are found to be either defective or ill-founded,
or otherwise incorrect. The laws of a State are more usually understood to mean the
rules and enactments promulgated by the legislative authority thereof, or long estab-
lished local customs having the force of laws."
free to incorporate whatever modifications and restrictions it deems advisable.

Commercial law (also known as mercantile law or the law merchant) is a term having reference to the various rules established, more or less on a world-wide basis, for the control of commercial transactions. The general commercial law is said not to be circumscribed within purely local limits but to partake of an international character. Although the laws of civilized countries are in substantial agreement on many questions affecting the property rights and the relations of persons engaged in commerce, it is yet true that commercial law as such cannot truly be separated from the domain of the particular state or nation whose authority makes it effective. The Constitution and laws of this nation have granted aliens as well as its citizens the privilege of enforcing in the courts of the United States those rights which, broadly speaking, they have acquired under the so-called “commercial law.”

2-3. Statute Law. A statute (or statute law) can be defined as a rule of conduct, enacted by the duly authorized legislative authority, which controls the particular case and circumstances to which it relates. A statute represents the express, written will of the lawmaking power and is rendered authentic by promulgation in accordance with certain prescribed formalities. Court decisions, implementing and interpreting a given statute, are of great importance. Such decisions, of course, are not themselves statute law; they belong, rather, in the realm of common law (see Art. 2-4).

The Constitution of the United States is the supreme law of the land, and statutes which contravene same may be declared unconstitutional by the judiciary. Similarly, the constitution of each state serves as the paramount law within that jurisdiction. Apart from constitutions, statutes, and ordinances, the written law in this country—to use the word “law” in a very broad sense—can be said to encompass (1) international treaties (trade agreements and the like); (2) orders and decrees of the executive branch of government, and (3) regulations and rulings by state and federal administrative agencies, the latter typified by the Federal Trade Commission and the Interstate Commerce Commission.

A tremendous quantity of published material is required to handle the ever-increasing volume of the so-called “written law.” The United States Code, whose preface declares that the work “contains a consolidation and codification of all the general and permanent laws of the United States,” is subdivided for convenient reference into fifty titles (e.g.,

4 According to common usage, the term statute applies to acts of Congress and to laws passed by the supreme legislative bodies of the several states. On the other hand, enactments at the municipal level (a municipality being a political subdivision of the state) are referred to as ordinances.
title 35, *Patents*; title 49, *Transportation*). Then, too, there are a great number of statute books carrying the laws passed by state legislatures. Thus, the *General Statutes of Connecticut*, Revision of 1949, consists of four basic volumes kept up to date by means of Supplements. In addition, there is a wealth of miscellaneous published material, embracing such works as administrative regulations, law dictionaries and treatises, textbooks on various subjects in the law. All the foregoing publications are the special concern of the attorney, but the engineer occasionally will have reason to assist the former in researching technical matters.

2-4. **Common Law.** In a general sense, the *common law* comprises those maxims and doctrines which have their origin in court decisions and are not founded upon statute. The rules thus established through the judicial process are not inflexible but lend themselves readily to such modification as a particular fact or situation warrants and as the progress of society over the years may require.

A New Jersey case⁴ outlines the nature of the common law in this fashion.

> “The common law is described by Blackstone as the unwritten law (lex non scripta) as distinguished from the written or statute law (lex scripta), i.e., enacted law. . . . Kent says it includes ‘those principles, usages and rules of action applicable to the government and security of persons and property, which do not rest for their authority upon any express or positive declaration of the will of the Legislature’ (Kent’s Com. p. 471).”

There is no such thing as a *national* common law in the United States distinct from that adopted by the various states, each for itself, except so far as the history of the English common law may be involved in the interpretation of the federal Constitution. The court decisions, usages, and customs of the respective states determine to what extent the common law has been introduced in each. What is the prevailing common law in one state may not be so considered in another.⁶

The United States has primarily a common-law system of jurisprudence, with much of our common law finding its source in that of England—which latter, in its turn, drew heavily upon the old Roman law. In addition to its English heritage, our common law has developed in line with our own usages and customs.

As circumstances change and the need arises, statutes are enacted which result in modifying or in obviating entirely some particular aspect or rule of the common law. Thus, there is the general principle of

⁴ *In re Davis’ Estate*, 134 N.J. Eq. 393, 35 A.2d 880, 885 (1944).
⁶ *In re Dean*, 83 Me. 489, 22 Atl. 385–387 (1891).
common law known as *caveat emptor* ("let the buyer beware"). Continued abuses in the manufacture and sale of food and drugs eventually led to passage of the Pure Food and Drug Act, which was designed to safeguard the public health and welfare. Similarly, questionable practices in the promotion and sale of securities dictated enactment of the so-called "blue-sky laws," aimed at protecting the investor.

To illustrate the operation of judicial precedents and the role of the common law, assume that a dispute arises between an owner and a contractor regarding the meaning of the words "subsurface construction" in a contract. The question is whether this term refers to all construction below the level of the surface of the ground or merely to whatever construction is to be finally covered with earth—the cost being much lower if the former interpretation is adopted. The dispute is taken to court for settlement. The court decides that, under the particular wording of the contract and considering the established intent of the parties, justice demands that the dispute be settled in a certain way and that the contractor and the owner fulfill their respective obligations accordingly. This official decision acquires a name and citation by which it may readily be located in the published reports of cases. Henceforth, if other litigation arises in which all significant circumstances are analogous to those in this previously settled dispute, the prior decision (unless it has been since reversed by a higher court or criticized in other cases) will be treated as a precedent of considerable weight.

It sometimes happens that a particular point in dispute is decided one way by a court in state A and otherwise by a court of equal rank in state B. It is obvious that these two conflicting decisions may well lead to confusion in the future. The lawyer for one side in some subsequent case (in a third state) involving the same point will cite whichever of the prior decisions tends to support his side of the argument, while the opposing attorney, understandably, will cite the contrary holding. The harassed court must then determine whether or not there were any fine points of difference between the two cited cases and whether or not either (or both) is truly applicable to the dispute at hand. Assuming that both prior decisions are relevant and that there is no factual basis for distinguishing between them, the court must choose whichever line of reasoning it thinks superior.7

A reported judicial decision normally gives the pertinent facts involved, explains the applicable law, and states the court's conclusions. The accumulation of published court decisions from throughout the country

7 Note that this analysis presupposes that there are three separate states involved. If, however, the court in the third case happens to sit in state A or in state B, it would, generally speaking, be expected to follow the previous determination arrived at in that jurisdiction.
is so vast as to tax the imagination. An engineer would have infrequent occasion to read the text of an opinion; when he does need to do so, the librarian of a law library can assist him in finding the decision in which he is interested.

25. Equity. Literally, equity means fairness or equality in dealing. The term has been employed in a variety of ways; thus, on the one hand, it is used to refer to a unique system of jurisprudence, and, on the other hand, it is applied to the special doctrines and remedies characterizing that system. The supplementary body of maxims, rules, and forms of action comprising equity grew up as a means of filling certain voids in the common law; a suit in equity would be entertained where the plaintiff could show that a plain, adequate, and complete remedy at law was not available in respect to his particular grievance. For many years this collateral system of jurisprudence was administered by separate courts of equity. These courts exercised broad discretionary powers in granting relief to aggrieved parties where justice seemed to dictate. The equity court decided what rights the respective litigants had and how best such rights could be enforced. Like courts of law, the equity courts were not empowered to create rights, nor could they disregard applicable statutes or constitutional provisions.

Today in the federal-court system of this country and in nearly all the states, separate equity tribunals do not exist, and the ancient and confusing procedural distinctions between actions at law and suits in equity have been largely removed. In today's typical jurisdiction, legal and equitable principles and remedies have been commingled in one form of action, and litigants are thereby given comprehensive relief in a single suit.

The origin and the rather limited role of equity are well described in the following passage from a 1933 Texas case, wherein plaintiff unsuccessfully sought the equitable remedy of injunction.

"The equity system in England grew out of the rigidity and inflexibility of the common law as interpreted by the English judges, and, as modified through the centuries, it has come to America, and its principles, more or less modified, have been adopted in all American courts. Equity, as administered in America at least, is for the purpose of giving aid to the execution of the law according to the principles of justice. It cannot be used to supplant or circumvent the law, but only to give aid and assistance to its higher and better principles. Hence the rule that equity will not interfere when the law provides an adequate remedy for any wrong. Of course, a writ of injunction is an equitable remedy and should not be used except in the execution of law and in the protection of the rights of

*Hinds et al. v. Minus, 64 S.W.2d 1093, 1095 (Tex. Civ. App. 1933).*
the individual. It cannot take the place of the law or be made a substitute for it, but must be used in upholding and aiding in the due execution of the law."

Some of the fundamental principles of equity jurisprudence are embodied in the familiar "maxims of equity," a few of which are set forth below.

1. Equity acts _in personam_ rather than _in rem_.
2. "He who comes into equity must come with clean hands."
3. "Where one of two innocent parties must suffer, he through whose agency the loss occurred must bear it."
4. Where the wrong of the one party equals that of the other, the defendant is in the stronger position.
5. "Equity aids the vigilant" and will deny relief to one who has slept on his rights and has been dilatory in prosecuting his cause of action. The undue delay is technically known as _laches._

The remedies and courses of action which equity makes available are many and varied. Some of the more prominent include (1) injunction, (2) specific performance, (3) subrogation, (4) accounting, (5) rescission of a contract for fraud, and (6) reformation of instruments. Let us consider briefly just one of the foregoing—the injunction. Issuance of a writ of injunction by no means creates any rights but merely protects those already in existence. A preventive injunction requires that the party to whom it is directed refrain from taking certain action. The acts which the injunction is designed to prevent may be only in the stage of anticipation, or they may already have started, in which latter event their continuation or repetition will be the thing precluded. Whether the injunction sought is of the temporary or of the permanent variety, plaintiff must show that irreparable injury to his legitimate interests threatens unless defendant is restrained. Suppose plaintiff seeks an injunction against defendant’s continuing trespass on plaintiff’s land. The petition would presumably contain these elements:

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*Actions in _personam_ and actions in _rem_ differ in that the former are directed against specific persons and seek personal judgments, while the latter proceedings aim at determining rights in particular property as against all the world.*

*In other words, a litigant seeking relief at equity will be denied such if his own conduct has been improper.*

*This decree is appropriate in instances where money damages would be inadequate. Assume, for example, a buy-and-sell agreement concerning a famous race horse. The prospective purchaser is entitled to that particular horse and not merely to a substitute. The subject matter involved is unique, and, should the seller renege, a court would doubtless compel him to go through with his bargain. For further discussion of the remedy of specific performance, see Art. 6-32.*
1. Statement about the jurisdiction of the court to which the petition is directed
2. Allegations about the plaintiff's ownership of the realty in question
3. Facts of the trespass
4. Allegations about the inadequacy of plaintiff's remedy at law and statement to the effect that plaintiff's injury would be irreparable if the trespass was permitted to continue
5. Prayer for relief

One not infrequent utilization of the injunction device arises in cases involving the alleged maintenance of a "nuisance." For example, in a rather exclusive residential section of a Connecticut community, a private home was being operated by its owners as sort of a part-time tavern. The neighbors claimed that this situation constituted a nuisance and were able to procure an injunction preventing the occupants from using the structure in any fashion other than as a dwelling.

2-6. Our System of Courts. The courts are the last resort for the settlement of disputes. It is therefore desirable for an engineer to have some idea of the setup of the various court systems in the United States and of the kinds of matters which the several categories of court handle.

1. The federal courts deal with those civil and criminal cases which involve (a) federal laws or the Constitution, (b) disputes between two or more states, and (c) disputes between corporations or citizens of different states:

   a. Supreme Court of the United States. This court, as its name indicates, has the most authority of any in the country. Much of its business lies in hearing appeals from the decisions of lower courts.

   b. Circuit courts of appeals. There are 10 of these courts in addition to the Court of Appeals of the District of Columbia. These "intermediate" courts, sitting in various cities across the country, hear such cases as are appealed from federal district courts. The decisions of the circuit courts of appeals may go to the Supreme Court for review.

   c. District courts. There are over 100 of these courts in the United States, one or more located in each state. These tribunals exercise a broad original jurisdiction of federal matters; appeals may be carried to the proper circuit court or, in unusual circumstances, directly to the Supreme Court.

   d. Special courts. Examples of such courts, which are generally created by Congress as the need arises, are the Court of Claims, Court of Customs and Patent Appeals, and the Tax Court of the United States.
2. The make-up and jurisdiction of state courts varies widely from one state to the next. Connecticut will serve as a reasonably typical example. Its court system includes the following:

a. Supreme Court of Errors. This is the highest judicial forum in the state and hears appeals from below.

b. Superior court. There is a term of this court in each county of the state. It exercises original jurisdiction in equity and law, if the monetary amount at issue exceeds a stated figure, and has certain appellate jurisdiction as well.

c. Court of common pleas. A term of this court is likewise held for each county, and its original jurisdiction to a limited extent overlaps that of the superior court, although the respective monetary limits differ in the two tribunals. The court of common pleas has, in most civil actions, appellate jurisdiction over judgments of certain municipal courts, justices of the peace, etc. It also has appellate criminal jurisdiction.

d. Municipal courts. These exercise prescribed civil and criminal authority, the extent of the former varying with the population of the community in which the court is established. Any municipal court having civil jurisdiction may set up a small-claims division.

e. Probate courts. These deal with such matters as settlement of estates and commitment of the insane.

f. Minor courts. These include juvenile courts and justice-of-the-peace courts.

Many states have such special forums as traffic courts, domestic-relations courts, and the like.
PART ONE

Law of Contracts

The purpose of Chapters 3 to 7 is to explain the basic principles of law applicable to contracts of whatever nature. Of necessity, the discussion has been condensed so that the reader can secure an over-all view of what is involved without having to read too extensively or be burdened with an undue number of details. Various illustrations have been given and numerous cases cited in order to convey the ideas as clearly and in as interesting a manner as possible. For a more comprehensive treatment of the general subject or any aspect thereof, one may consult any of the standard legal treatises in the field of contracts.
3.1. The Nature of Contract. From the standpoint of the practicing engineer, contracts are perhaps the most important single field of law. The scope of the subject of contract law is vast indeed, and to attempt to follow the topic into all its ramifications would be incompatible with the plan of this book. The effort here will be to treat briefly the descriptions of various kinds of contracts and their interpretation, modification, rescission, performance, or breach.

It should be noted at the outset that the law of contracts undergoes a constant process of evolution, induced by the changing customs and practices of men in the transactions of life. Just as are all rules and doctrines of law, contract principles are subject to a certain number of exceptions and modifications. As might be anticipated, the definitions of "contract" put forth over years of slowly changing usage and convenience are legion. The American Law Institute, in its Restatement of Contracts (1932), Section 1, declares that "a contract is a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty." As will subsequently appear, the contractual arrangement must involve competent parties and be based upon a legal consideration.

Essentially, contract is the result of the concurrence of agreement and obligation. It is an understanding enforceable at law, made between two or more persons, by which rights are acquired on the one side to acts or forbearances on the other. To make that sort of agreement which results in contract, there must, first of all, be an offer; to this offer, an acceptance is necessary; and to the promises which stem from the offer and acceptance the law must attach a binding force so as to invest same with the character of obligation.

The generic term "contract" embraces a rather astounding number of varieties. It would be well, before proceeding further, to attempt definitions of, and distinctions between, the more important types and kinds of contracts which engineers will be likely to encounter.
3-2. Formal and Informal Contracts; Negotiable Instruments. It may be stated as a general proposition that all contracts, whether written or otherwise, are informal\(^1\) unless they qualify as recognizances, contracts under seal, or negotiable instruments. The two types of formal contracts first named are not of sufficient importance nowadays to require any detailed treatment. A recognizance very much resembles a bond but differs from the latter in that an ordinary bond is the creation of a new obligation, while a recognizance is simply the acknowledgement in court of a precedent debt. A contract under seal is one expressed in a writing which is sealed and delivered by the promisor. Traditionally, the seal, which was a particular symbol or physical impression made upon the paper, furnished a presumption of consideration. The law regarding this type of contract has been much changed by statute in many states of the union, about half of which have abolished the distinction between sealed and unsealed writings.

Negotiable instruments form a particularly significant class of contracts in the modern world of business. The several paragraphs which follow will endeavor to outline just a few of the salient features of this extremely complicated subject. For a much more complete picture, the Uniform Negotiable Instruments Act should be read through. The substance of this act, whose purpose was to achieve uniformity in respect to commercial paper, has been adopted in the several states. See, for example, the Negotiable Instruments Law in New York, which is Chapter 38 of the Consolidated Laws of that state.

Negotiability is a highly technical term in mercantile law, intended as the equivalent of "liquidity." A negotiable instrument is one which is freely transferable and assignable, and to which a bona fide purchaser for value\(^2\) can acquire even a better right than had his predecessor in interest—that is to say, the transferee who receives the instrument before its maturity is not subject to whatever equities may have existed between the maker and the original holder. Such things as bills of exchange and promissory notes payable to order or to bearer may be transferred from hand to hand by endorsement and delivery, a process referred to as negotiation.\(^3\) The endorsee secures a right to sue on the contract in his own name.

\(^1\) Loosely speaking, informal contracts are those which need not follow any prescribed form. The elements requisite to an informal contract, whether same is express or implied in fact (see Art. 3-3), are no different from those for a formal contract.

\(^2\) A presumption exists that any negotiable instrument is issued for a consideration and that every person who subsequently signs the instrument becomes a party thereto for value.

\(^3\) An instrument payable to bearer is negotiated by delivery alone.
To achieve negotiability, an instrument must meet each of these prescribed tests.

1. It must run to "order of" or to "bearer."
2. It must be in writing and signed by the drawer or maker.
3. It must call for the payment in money of a definite sum.
4. It must be payable on demand or at a future time which is fixed or readily determinable.
5. The promise (or order\(^4\)) involved must be without any condition not certain of fulfillment---it must, in other words, be absolute.

Perhaps the most common example of a negotiable instrument is a check, signed by the drawer, reciting an unconditional demand (on the named drawee bank) to pay a specified sum to the order of a designated person and automatically payable "on demand," since no set time for payment is stated. Besides checks, the other general classes of negotiable instruments include bills of exchange, promissory notes, bank notes, bonds, and certificates of deposit. Additionally, by statute in many jurisdictions, bills of lading and warehouse receipts, if they run to the order of a designated individual or to bearer, are negotiable.

There are a great many instruments which carry some of the elements of negotiability but which do not meet all the requirements and thus fail to qualify as negotiable instruments. A savings-bank passbook is one example. Among others on the list are a mortgage, an insurance policy, and a conditional-sales agreement.

To illustrate the rights and liabilities of the several parties concerned with a given negotiable instrument, let us consider a typical bill of exchange. Smith addresses an unconditional written order to Jones, directing him to pay $1000\(^5\) "to Brown or order." If Jones, as drawee, declines to accept the bill or, having accepted same,\(^6\) ultimately fails to pay it, the drawer (Smith) is obligated to pay the $1000 to Brown or to any subsequent holder into whose possession the instrument may have come.

To carry the above example a step further, the bill of exchange is then endorsed by Brown. Just what effect this has on the situation depends upon the nature of the endorsement. If he merely signs his name, this

\(^{4}\) Promise, if a note; order, if a bill of exchange. In the latter case, the order should be addressed to a specific drawee named therein.

\(^{5}\) Presumably, Jones has funds belonging to Smith, owes him, or has indicated a willingness to extend credit to him.

\(^{6}\) Such acceptance must be in writing, the acceptor's signature being sufficient. The holder is entitled to demand an acceptance without condition; if he takes one qualified (e.g., in respect to place of payment), this releases from liability the drawer and any endorsers who have signed at that stage of the affair—unless the drawer or endorser(s) agree(s) to the qualification inserted by the drawee.
constitutes a blank endorsement, and the instrument becomes one payable to bearer—i.e., negotiable by delivery alone. On the other hand, Brown may sign his name after inserting the words "Pay to the order of White." This is a special endorsement, the effect of which is to render White's endorsement necessary to the further negotiation of the instrument and to give White the privilege of demanding payment by the drawee (Jones) if the latter has accepted* and when the bill falls due. In the event of default on the part of Jones, White can collect from Smith, the original drawer, or from Brown as endorser. For all practical purposes, Brown's special endorsement puts him in the position of an additional drawer, and this means an extra measure of security for White as holder in due course.

Endorsements are further categorized as qualified, restrictive, or conditional. A qualified endorsement is achieved by adding to the signature some such words as "without recourse." This qualification renders the endorser a mere assignor of title to the instrument; he guarantees the genuineness of the paper and his title thereto but does not guarantee the solvency of the drawer or that payment will be made. A qualified endorsement does not impair negotiability.

A restrictive endorsement, on the other hand, prevents the further negotiation of the instrument. For example, the phrase "for collection and remittance only" constitutes the endorsee the mere agent of the endorser. The endorsee is entitled to receive the proceeds of the instrument, can bring any action on the paper that the endorser could have brought, and may transfer his rights as endorsee—provided the form of the endorsement does not preclude this—but any subsequent endorsee occupies no better position than did his predecessor under the restrictive endorsement.

An illustration of a conditional endorsement would be "Pay to the order of Green, if he sells Blackacre." The party obligated to discharge the instrument may safely ignore the condition and pay Green or his transferee. But the individual receiving the proceeds of an instrument thus endorsed holds same subject to the rights of the party who made the conditional endorsement.

It should be emphasized that the above several paragraphs on negotiable instruments are intended simply to scratch the surface of what is a vast and difficult field of law. For purposes of this book, it does not seem advisable to attempt to go into the subject in any detail.

3-3. Express Contracts and Contracts Implied in Fact. These differing terms are used to indicate not a distinction in underlying principles or in

* If there has not previously been a presentation to Jones for acceptance, White is entitled to call for such acceptance. Should Jones decline, as mentioned earlier, the holder turns to the drawer (Smith).
legal effect but simply a variation in the character of the evidence by which the contract is proved. The same basic elements are essential in both types.

Technically, an *express contract* is one whose terms are declared by the parties in so many words, either orally or in writing, at the time the agreement is made. Thus, an express contract involves an actual promise, while the *implied* type is a matter of inference or deduction from facts and circumstances showing a mutual intention to contract. An implied contract is an *actual* contract, circumstantially proved. To look at the matter from a different angle, the sole difference between an express contract and one implied in fact is that in the former all the terms are set forth by the parties themselves while in the latter the law must imply one or more of the terms from the conduct of the parties. Consequently, where one performs for another with the other’s knowledge such a service as in the ordinary course of events draws compensation and the recipient of the service expresses no dissent or avails himself of the benefits, a promise to pay the reasonable value of the service is implied.

Both express and implied contracts are founded on the agreement of the several parties and require a *meeting of the minds*. Neither should be confused with *quasi contracts* (sometimes called *implied-in-law contracts*, to be discussed in Article 3-4); obligations of the latter type are not, strictly speaking, contracts at all.

3-4. Quasi Contracts. Obligations created by law for reasons of justice are variously termed *constructive contracts, contracts implied in law*, or, perhaps most popularly, *quasi contracts.*

“Quasi contract” is a convenient term for a multifarious class of legal relations which possess this common feature, that without agreement—expressed or unexpressed—and sometimes without delict or breach of duty on either side, party A has been compelled to pay or provide something for which party X ought to have paid or made provision, or X has received something which A ought to have received. The law in such cases imposes a duty upon X to make good to A the advantage to which A is entitled. Such “contracts” are obviously not real contracts at all but fictions of the law, created on principles of unjust enrichment and without regard to any actual or presumed intent of the party held to

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*Of interest to the engineering profession is the fact that, unless specifically required by statute to be in writing, a contract for construction or repair work may be implied. Where, however, a contractor sublets his contract, the law will not imply any agreement on the part of the owner to compensate the subcontractor for the work performed by the latter. The implied obligation of the owner to make compensation to one who improves his property is deemed taken away by the special contract between the contractor and the subcontractor.*
be bound—often, indeed, in the face of his earnest dissent. There is no "agreement" whatever involved, but these quasi-contractual obligations are clothed with the semblance of contract for the purpose of setting up the remedy. The key to the difference between quasi contract and true contract may be said to be this: In the former, the duty defines the contract; in the latter, the contract defines the duty.

3-5. Unilateral and Bilateral Contracts. In a unilateral contract only one of the contracting parties makes a promise, and that promise is exchanged for an executed consideration. Thus, in this type of arrangement, there is but one promisor, and he is the only party under an enforceable legal duty. A bilateral contract, on the other hand, comprises mutual promises, with each contracting party playing the dual role of promisor and promisee. The legal effect of such a contract is that there exist reciprocal duties and obligations. To put the distinction another way, the exchange for the promise in a unilateral contract is something other than a promise, while in a bilateral contract promises are exchanged and there is something on both sides to be done or forborne.

Suppose Lewis offers to sell Martin a load of topsoil for $12. If Martin accepts by sending the $12, a unilateral contract has come into being. If, however, Lewis had asked for a promise of $12 and Martin gives such promise, the contract would be bilateral. Also by way of example, if a baseball fan purchases a reserved-seat ticket for a certain game at Yankee Stadium, the baseball club thereby promises to hold that particular seat for the fan and to let him occupy it at the game in question. The foregoing constitutes a unilateral contract, since the baseball club is the only party with a promise outstanding. On the other hand, if the Yankees contract with the General Electric Company for 500 bulbs for the stadium floodlights at a specified price, the arrangement is bilateral, since the company promises to deliver the bulbs and the Yankees, in turn, promise to pay for them.

As will more fully appear in a subsequent chapter, contracts are often subject to one or more conditions of various types. Here is an example of a perfectly proper bilateral contract containing an express condition. Jones: "I promise to charter the yacht Gadfly to you in the event I buy the ship." Smith: "I promise to hire the Gadfly from you." It is apparent that the duty of Jones to charter is conditional on his purchasing

\(^{9}\) Perhaps the most typical example of a unilateral contract is the option, common to real estate transactions. This option is in essence a contract to give another the right to buy, and the party granting the option thereby binds himself to sell the property at a certain price at any time within a stipulated period, leaving the prospective purchaser with a clear choice in the matter and (having paid something for the option) under no further contractual obligation at all.
the yacht. A fortiori, Smith's promise is meaningless unless Jones has acquired the vessel in question.

3-6. Joint and Several Contracts. Whether the rights and duties created by a particular contract are intended to be (1) joint or (2) several or (3) joint and several is a sometimes difficult question of interpretation. Promises of a number of persons (which promises appear in a single instrument) are presumed to be joint, unless a contrary intention is evident from the inclusion of obvious words of severance. Some states have laws declaring that contracts in form joint shall be in effect joint and several.

Where a contract is joint, the various obligors must all be joined as parties to any action brought upon the agreement, and release by plaintiff of one such obligor discharges the others as well. Contrariwise, each person bound on a several contract has a liability separate from that of any fellow obligor thereunder, and the individual's obligation must be separately enforced.

The distinction between joint and several contracts hinges on the answer to this question: Did all the persons obligated under the agreement promise one and the same performance, or did each one promise only a separate portion of the total? An illustration or two may serve to point up the difference.

Suppose a group of stockholders employ Y on a commission arrangement to procure a purchaser for their aggregate holdings in a certain corporation. Y's services are thus being retained for the joint advantage of all the stockholders involved and not for the particular benefit of any one of them. The contract is joint in the sense that each of the obligor-stockholders is potentially liable for the entire commission. If Y, having performed his part of the bargain, needs to bring suit to recover the stated compensation, he must join as defendants all of the obligor-stockholders. Should any one of the latter group be obliged to satisfy the judgment, he would have available a right of contribution as against his fellows.

The ancient case of O'Connor v. Hooper, 102 Cal. 528, 36 Pac. 939 (1894), will serve as a good example of the opposite type of arrangement. There the contract was entered into between a construction company and certain owners of adjoining property fronting on a street. Each property owner, "contracting severally ... each for himself and not for the others," promised to pay a stated pro rata share of the total cost of the construction company's prospective work. The court took the view that the effect of the contract was the same as if the various

To simplify the consideration of what is at best a tricky concept, we shall refer only to the duty side of the picture. It should be borne in mind, though, that rights under a contract may likewise be joint or several.
property owners had written their promises on separate pieces of paper; the obligations created were several and not joint, each signatory owner having expressly disclaimed responsibility for the promises of any of the others.

Finally, there are such things as joint and several contracts, whereby the obligors are bound separately as individuals and are also bound together for the rendition of one and the same performance. Assume an agreement which reads in part, "We, John Smith and Henry Jones, jointly and severally promise to pay Tom Mason $1000." Upon default, separate actions could be instituted by Mason against Smith and against Jones; the defendants cannot be sued both ways, however—i.e., both jointly and separately.

3-7. Entire and Severable Contracts. A contract is entire when full and complete performance by one party is a condition precedent to the right to require performance of the other party. In such contracts there is no liability for part performance, and failure of one party fully to perform relieves the other of his obligations. Hence, where the drilling of a well is to be performed as a whole and the compensation for such work is to be paid as a whole, the contract is entire, even though the payment is expressed as a stipulated amount per lineal foot. Similarly, a contract for the purchase and sale of 1000 head of cattle for delivery within sixty days is entire, although deliveries of 50 or 100 each were to be made on various occasions within the period of time set in the agreement. And where one party agrees to furnish the other a certain quantity of crushed stone for a fixed price per cubic yard, at a stated rate per day, the contract is entire, requiring full performance before payment of the consideration is due.

Still another example of this type of contract is afforded by the case of Kelly Construction Co. v. Hackensack Brick Co., 91 N.J.L. 585, 103 Atl. 417, 418 (1918). Plaintiff in that litigation had a contract for the erection of a high school. It placed a written order with defendant (accepted by the latter) for the furnishing "and stacking on the job of all the common hard brick required by the plans and specifications for the Englewood High School at $7.00 per thousand; brick to be delivered as required by us and sufficient brick to be kept on the job so that we will always have approximately 50,000 brick stacked until the completion of the job." Neither the order nor the acceptance fixed any time for payment. Defendant, after delivering some of the brick, refused to fulfill the remainder of its obligation, contending that it was relieved of further responsibility by reason of the fact that the brick already delivered in part performance of the contract had not been paid for. The New Jersey court declined to accept this argument, holding that
“where, as here, the sale is of a specified quantity of brick (i.e., sufficient to complete a building according to stated specifications), the contract is entire, and a failure to pay when a part delivery has been made does not excuse the seller from completing delivery; no time for payment being stated in the contract.”

A somewhat different problem—and one much more difficult of solution—is the matter of deciding whether a building contract is entire which provides for the making of so-called “progress payments” to the contractor. This controversial subject is discussed at length in American Law Reports, ser. 2, vol. 22, beginning at page 1343. The New York Court of Appeals has declared the trend of authority to be that contract provisions for installment compensation express an intent that payment be conditioned upon completion of all the agreed work. The case referred to is New Era Homes Corporation v. Forster, 299 N.Y. 303, 86 N.E. 2d 757 (1949), wherein plaintiff had agreed to make extensive alterations to defendants’ home, the contract reference to price and payment reading as follows:

“All above material, and labor to erect and install same to be supplied for $3075.00 to be paid as follows: $150. on signing of contract, $1000. upon delivery of materials and starting of work, $1500. on completion of rough carpentry and rough plumbing, $425. upon job being completed.”

Work was commenced and partly finished, with the first two stipulated payments being made on schedule. Then, when the rough work was done, plaintiff asked for the third installment ($1500); upon defendants’ refusal to pay, plaintiff stopped work and sued for the entire balance, i.e., for $1925. Defendants conceded their default but argued that plaintiff was entitled not to the amount in suit but merely to such amount as it could establish by way of actual loss sustained from defendants’ breach. The court held the contract to be entire, reasoning as follows:

“Did that language make it an entire contract, with one consideration for the doing of the whole work, and payments on account at fixed points in the progress of the job, or was the bargain a severable or divisible one in the sense that, of the total consideration, $1150 was to be the full and fixed payment for ‘delivery of materials and starting of work,’ $1500 the full and fixed payment for work done up to and including ‘completion of rough carpentry and rough plumbing,’ and $425 for the rest? We hold that the total price of $3075 was the single consideration for the whole of the work, and that the separately listed payments were not allocated absolutely to certain parts of the undertaking, but were scheduled part payments, mutually convenient to the builder and the owner. That conclusion, we think, is a necessary one from the very words of the writing,
since the arrangement there stated was not that separate items of work be done for separate amounts of money, but that the whole alteration project, including material and labor, was 'to be supplied for $3075.'"

The decision, favoring defendants' position, was that plaintiff-contractor, on defendants' default, could collect only in quantum merituit\textsuperscript{11} for what had been finished or in contract for the value of what plaintiff had lost—that is, the contract price less payments made and less the cost of completion.

On the other side of the picture, a contract is severable (or divisible) when the part to be performed by one party consists of a number of distinct and independent items and the price to be paid by the other party is apportioned, or is susceptible of apportionment, to each item. An agreement to pay a certain price for every bushel of wheat supplied which corresponds to a given sample is a typical illustration of a severable contract. Another is an agreement to build six houses for a stated sum; a proportionate recovery will be permitted for the actual completion of one or more of the six dwellings. In this severable type of contract, a breach by one party in respect to any one item does not justify the other in repudiating the whole agreement; the latter is still bound to perform, but if he has sustained any injury as a result of the breach, he has a right to recover for such injury in a damages action.

The primary criterion in determining whether a contract is entire or severable is the intention of the parties, and the inquiry comes down to whether the parties reached agreement by regarding the various items as a whole or by regarding each contract item as a separate unit. An excellent illustration of this proposition is afforded by a sort of omnibus insurance policy covering different classes of property, with each class separated from the others and insured for a specific amount; the contract (to accord with the apparent intent) should be treated as severable and not entire, and breach of the contract conditions as regards one class of the insured property will not disturb the remainder of the coverage.

3-8. Executory and Executed Contracts. In the executory type of contract a party binds himself for the future to do (or expressly to refrain from doing) a particular thing—as where an agreement is made to build a garage three months hence. A fully executed contract, on the other hand, is one in which the object of the agreement has been performed and nothing remains to be accomplished by either party—as where an article is sold, handed over, and paid for on the spot.

3-9. Voidable Contracts. Strictly speaking, the word "void" means that which is null and ineffectual,\textsuperscript{12} but very frequently the word is

\textsuperscript{11} Literally translated, this term means "as much as he deserved."

\textsuperscript{12} Illegal agreements, for instance, are void.
construed as having the more liberal meaning of "voidable." Contracts are properly called *voidable* which are fully effectual until affirmatively avoided by some act; i.e., such contracts are prima facie valid but are subject to certain defects of which some party or other has the right to take advantage. By electing to do so, that party may avoid the legal relations which the contract creates or, conversely, may by ratification of the contract extinguish the power of avoidance. Ordinarily, the power in question is confined to one party to the contract, but such is not invariably the case.

Typical instances of voidable agreements are those involving infants or those which were induced by fraud, mistake, or duress.

3-10. Unenforceable Contracts. The law does not enforce such contracts by direct legal proceedings but recognizes them in some collateral way as creating a duty of performance. For example, a perfectly valid contract may become *unenforceable* by virtue of the statute of frauds. If there is nothing in writing sufficient to satisfy the requirements of that statute, the direct judicial remedies at common law are not available to plaintiff, if defendant should choose to take advantage of the statutory provision. The oral agreement, however, is far from being without legal operation. Either party has the legal power to make the contract directly enforceable as against himself by signing a proper written memorandum; he cannot, of course, by such a process make the contract enforceable in his own favor.

3-11. Subcontracts. Where a person has agreed to perform certain work (e.g., to erect a building) and he in turn engages a third party to handle all or part of that which is included in the original contract (e.g., to install the plumbing fixtures), the agreement with such third person is called a *subcontract*. 
CHAPTER 4

Formation Principles

4-1. The Essentials of Contract. An agreement, in order to constitute a binding contract, must be entered into by competent parties who express definite assent in the form required by law. Furthermore, such agreement must be supported by a proper "consideration," must not at the time it is made be obviously impossible of performance, and must not so contravene principles of law or public policy as to be entirely devoid of legal effect. The present chapter will seek to analyze the several foregoing prerequisites to the formation of a valid contract.

COMPETENT PARTIES

4-2. The Contracting Parties. First of all, there must be a definite promisor and a definite promisee, each of whom is legally capable of playing his intended part in the proposed contractual arrangement.

Although any greater number may be involved, a contract requires a minimum of two parties, since it is not possible under existing law for a man to contract with himself, even though a single individual may occasionally be acting in several roles, such as those of trustee and partner. It is a first principle that, regardless of the capacities in which a person may act, he can never contract with himself nor maintain an action against himself.

Moreover, a contract cannot obligate someone who has not the legal capacity to incur at least voidable contractual duties. Certain persons are by law incapable, wholly or in part, of binding themselves by a promise. Such incapacity may stem from one of several causes, the most significant of which are perhaps (1) infancy, (2) marriage, (3) corporate limitations, (4) lunacy, and (5) drunkenness. We shall consider each of these in order.

4-3. Contracts of Infants. As a general rule, a minor's contract (unless it relates to so-called "necessaries") is voidable at his option, and this seemingly inequitable circumstance explains the reluctance of
businessmen and others to enter into contractual relationships with minors. While an infant is empowered thus to renge on his agreements, the party of full age with whom he contracts has no corresponding option. The law has created, in effect, a one-way street.

The basis for the unusual privilege afforded infants by the law of contracts lies, of course, in their supposed immaturity of judgment. Upon exercising his power of disaffirmance, the minor is supposed to return any property or money which may have been turned over by the other party to the repudiated contract; but this requirement in many instances represents but scant satisfaction for such other party, since an infant may disaffirm even though he has previously squandered the consideration received. A reasonably cautious and practical person, before contracting with an individual under the age of majority, will seek protection in the form of a guaranty of performance furnished by a responsible outside party.

Theoretically, the privilege given to minors to avoid contracts made in good faith is to be used solely as a shield, and not as a sword; but this ideal is not always realized, and often the minor calls the tune completely. The following actual case example—while admittedly an extreme one—shows how the tender treatment which the law grants to minors respecting their contractual obligations poses real difficulties as far as the other party is concerned.

Harry Jones, age seventeen, bought a new car from Edwards Motor Company, paying $600 down and signing an agreement to pay the balance on an installment basis. Jones drove away from the showroom and within the hour had the misfortune to run the car over an embankment. The car was demolished, but Jones himself miraculously escaped serious injury and soon was back at the dealer’s office, seeking to disaffirm the purchase contract. What is more, he demanded—and succeeded through the ensuing litigation in getting—the return of his $600.

As might be expected, the passing years have brought a number of qualifications, both statutory and otherwise, upon the minor’s formerly absolute right of express disaffirmance. A discussion of these various limitations would necessarily be too detailed for this general survey of contract law, but it should be noted that a minor will normally be held liable for “necessaries”1 furnished him where the supplier can show that the infant was without funds of his own and was not under the care of a parent or guardian. A good example of statutory limitation that seems eminently fair and reasonable is Section 260 of the New York Debtor and Creditor Law; that section stipulates that a contract made by a minor after he has reached the age of eighteen, which concerned the business

1 Such things as food and apparel.
the minor was then engaged in, cannot be disaffirmed, if such contract "was reasonable and provident when made."

4-4. Contracts of Married Women. By the common law, marriage effected a merger of the contractual capacity of the wife in that of her husband, thus rendering her contracts generally void. Even at common law, however, the wife could invoke her husband's legal duty to support and could bind her husband for necessaries which she purchased.

Numerous state enactments now on the books have rendered the contractual powers of married women substantially as great as those of married men. Women of today have complete freedom to contract with third parties and, subject to certain relatively minor exceptions, with their husbands.

4-5. Contracts of a Corporation; Ultra Vires Concept. The very nature of a corporation—as a unique organizational entity created by law—imposes some restrictions upon its contractual powers (e.g., it obviously cannot contract to marry), and the terms of its incorporation may impose others. Persons having dealings with a corporation should satisfy themselves that its activities are in compliance with the requirements of its charter and that the individuals purporting to act on behalf of the corporation are duly authorized.

If a corporation enters into an agreement which is beyond the scope of its limited powers, such contract is ultra vires and is ordinarily deemed unenforceable. However, many courts have held that a plea of ultra vires will not avail a corporation, with respect to a promised act in exchange for which it has received consideration, in any case where the status quo cannot be restored; in such instances, the corporation is estopped to set up the defense of ultra vires, and the other party can enforce the bargain.

4-6. Contracts of Mental Incompetents. It is essential to the validity of a contract that the parties thereto possess not only a legal status supporting the capacity to contract but also the mental competence affording ability to consent. If there is to be a binding contract, each party thereto must possess sufficient mental capacity to appreciate the import of what he is doing. There is no binding contract where one of the parties was, by reason of physical debility, mental aberration, or other condition, incapable of understanding and appreciating the force and effect of the agreement he is alleged to have made. But mere mental

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2 There is a basic distinction between illegal acts, such as those committed in violation of an express statute or those which offend public policy, and acts merely ultra vires. The latter term is used to denote corporate transactions which are outside the object for which the corporation was created and which are beyond the scope of either the express or the implied powers contained in the corporation's charter.
weakness, falling short of inability to appreciate the business at hand, will not invalidate the contract. Furthermore, the mental incapacity that affects the validity of a contract is that which exists at the very time the transaction occurs, and prior or subsequent insanity does not enter the picture; accordingly, a contract normally is held to be binding if it was entered into during a lucid interval. In any event, an insane person, just as a minor, may be liable for the reasonable value of necessaries supplied him in good faith.

While the contracts of insane persons are voidable and may be expressly disaffirmed by the lunatic on his return to sanity or during a temporary rational period, the sane party does not enjoy a corresponding option of cancellation. However, where there has been no judicial determination of mental incompetence and where the sane party did not (at the time of contracting) have knowledge of the other person's insanity, there are decisions to the effect that the contract is binding upon the lunatic, if it has been so far executed that the respective parties cannot be restored to their original positions.

4-7. Contracts of Intoxicated Persons. A contract made by an intoxicated person is invalid, if the intoxication has rendered him incompetent to appreciate the nature and extent of the contract, or if it is accompanied by fraudulent behavior of the other contracting party. The mere fact that one is under the influence of liquor at the precise time of contracting does not of itself avoid the agreement into which he has entered. The enforceability of contracts made by drunken persons depends primarily upon the degree of intoxication. Again, as with infants and insane individuals, intoxicated persons will be liable for the value of necessaries received.

PROPER SUBJECT MATTER

4-8. A Second Element of Contract Formation. We have seen that a first prerequisite to the formation of a valid contract is having two or more competent parties to the proposed agreement. A second basic need is the presence of definite and lawful subject matter with reference to which the parties desire to contract. Actually, there are two facets to this requirement: The subject matter must be definite and clearly defined, and the object of the contract must not contravene pertinent statutory provisions or violate the fundamental dictates of the common law. The first of these facets permits of ready disposition, while the subject of legality will bear further discussion.

4-9. Subject Matter to Be Definite. An important feature of any contract is that it shall describe what is to be done or what material is to be furnished with sufficient clarity and enough detail to make evident
exactly what is wanted. It is apparent that courts can neither specifically enforce, nor award substantial damages for the breach of, contractual agreements which are wanting in certainty. The terms of a contract must be complete and the various obligations described with sufficient definiteness to enable a court to determine whether or not these obligations have been duly performed.

4-10. Illegal Bargains. All things not forbidden by law may properly become the subject of, or the motive for, contracts; the possible subject matter thus includes such things as future rights and liabilities, pending causes of action, and goods which may be defective or not yet in being.

Every man has the undoubted right to deal or to refuse to deal with his fellow men, but, for the protection of society as a whole, the law imposes some specific limitations upon the freedom of contract. It is a basic principle that a contractual undertaking must have a lawful purpose and that transactions in violation of law cannot be the foundation of a valid contract. An illegal agreement never attains the dignity of a "contract"—as that term is defined in law—because such agreement is void and therefore utterly unenforceable. The taint of illegality may manifest itself in the consideration for the agreement, in a promise expressed in the agreement, or in the purpose to which the agreement is applied. Broadly speaking, therefore, a bargain is deemed illegal if either its formation or its performance is expressly prohibited by statute or seeks to accomplish a purpose which is contrary to law, morality, or public policy. It is not necessary that there exist any corrupt intention on the part of the contracting parties in order to render illegal an agreement in violation of law.

There exists no absolute rule by which to determine what contracts are against public policy, which is a term of obscure origin commonly used for the proposition that courts will look to the interests of the public—for instance, in giving efficacy to contracts. The term does not lend itself to precise definition, but as a rough guide it may be said that an agreement is against public policy if it is injurious to the welfare of the general public or impinges upon some established interest of society. By way of example, an agreement which contemplates procuring personal or political influence to secure acceptance of a bid on a public contract being let by a governmental department does violence to public policy. Similarly, a contract which will inevitably result in stirring up litigation is contrary to public policy. Likewise, any contract which tends to disturb family relations will be regarded as contravening public policy.

Illegal contracts are infinite in number and variety, but a representative list of such might comprise the following: an agreement to commit an act criminal at common law or by statute, an agreement to commit a tort, an agreement to defraud individuals or the public in general, an agreement in restraint of trade or of marriage, an agreement to encourage litigation, an agreement tending to obstruct the administration of justice, an agreement clearly ignoring a fiduciary duty, and an agreement made in obvious violation of a statute or one which cannot be performed without necessarily violating a statute.

So much for the nature and classification of the objects regarded by the law as illegal. The effect of illegality is quite a different problem. Ordinarily, an illegal contract cannot be directly or indirectly enforced by either party; there can be neither damages for breach nor return of benefits through rescission, since the law keeps hands off entirely.

Of real importance from a procedural standpoint is the fact that illegality is one defense a party to the contract is never estopped from pleading as against the other party to the agreement. In other words, the defense of illegality is always available and cannot be effectively waived, even by means of a written agreement of the several parties.

AGREEMENT OF THE PARTIES

4-11. Meeting of the Minds. A third essential in the formation of a valid contract is mutual assent to the terms of the agreement, a circumstance variously termed offer and acceptance or a meeting of the minds. A binding contract presupposes an intended offer by one party and an acceptance by the other. The manifestation of mutual assent usually takes the form of an exchange of oral or written words, though occasionally the assent is indicated in some other fashion. It should be remembered that an actual expression of mutual assent, rather than the mere existence of the assent, is the essential thing.

4-12. The Nature of Offer. An offer may be defined as the signification by one person of willingness to contract with another on certain specified terms; it is a statement by the offeror of what he will give in return for some desired promise or act on the part of the offeree. By means of such offer, the moving party confers upon the offeree the power to create by acceptance binding contractual relations between them. To

There are instances of contracts which clearly restrain trade and yet are held to be perfectly valid; in such cases, the restraint involved is either partial or is otherwise limited in its operation (e.g., in time or place).

The illegality referred to must inhere in the contract itself, rather than merely being collateral to the arrangement.
put it another way, an offer is a conditional promise. When X says to Y, "These golf clubs are yours if you promise me $10 for them," X's promise of the clubs is contingent upon receipt of the desired commitment from Y.

An operative offer must be more than simply an expression of desire or hope that a contract can be effectuated. Preliminary negotiations, invitations to deal, advertisements, and acts evidently done in jest cannot be regarded as offers because the requisite intent to contract is lacking in each of the instances mentioned. Nevertheless, the line of demarcation between preliminary negotiation, on the one hand, and operative offer, on the other, often proves quite difficult to draw. An invitation to enter into negotiations may be just a suggestion advanced with the purpose of inducing offers by others.

Similarly, a mere quotation of price should be distinguished from a real offer; the question of whether a given communication naming a price is meant to be only a quotation or is a full-fledged offer depends upon the prospective vendor's intention as manifested by the facts and circumstances of the particular case. It is impossible to formulate a general principle or criterion for the determination of this question.

Extravagant terms advanced under circumstances of considerable excitement may reveal the absence of any serious intent to make a firm offer. Not what the apparent offeror actually intended but how the recipient of the proposal reasonably interprets the intent thereof provides the real key to the situation.

On occasion the courts have been known to treat a so-called "joke contract" rather seriously, as in Plate v. Durst, 42 W. Va. 3, 24 S.E. 580 (1896), where the defendant had promised the plaintiff $1000 and a diamond ring if she would continue certain services rendered in promoting his business. At the trial he admitted these promises, but claimed they were made in jest. The court stated:

"Jokes are sometimes taken seriously by the young and inexperienced in the deceptive ways of the business world, and if such is the case, and thereby the person deceived is led to give valuable services in the full belief and expectation that the joker is in earnest, the law will also take the joker at his word, and give him good reason to smile."

4-13. Offer to Be Clear and Complete. Since parties must set up their own contractual relationships and courts cannot in any event make the arrangements for them, contract offers should be complete, free from ambiguity in regard to terms, and sufficiently definite so that the duties and privileges of the respective contracting parties can be ascertained with reasonable facility.
4-14. Communicating the Offer. Communication of an offer is necessary so that the intended offeree is cognizant of the proposal and may take appropriate action with respect to it, if he so desires. An acceptance will not convert an offer into a contract unless the existence of the offer is known to the offeree at the time of such acceptance; that is, an offeree cannot "unconsciously" accept an offer (of which he has not been apprised) merely by happening to take certain action which—unknown to him—is prescribed in the offer as the mode of acceptance.

In a typical case of the sort just mentioned, Boyle offered by newspaper advertisement a $100 reward for return of his horse. McAdams, without knowledge of the offer, returned the missing horse and took the magnificent sum of $2 for his efforts. Later he learned of the advertised reward, but the court denied him any contractual rights in the matter, since there had been no timely communication to him of the offer in question.

4-15. Imperfectly Transmitted Offers. With respect to errors occurring in the transmission of offers, it should be noted that, where a person makes use of the mails to send an offer, the post office will be regarded as his agent. The offer is not deemed to have been made when the letter is posted, but rather when it is received, and the offeror, therefore, must suffer any consequences which may arise from delay or mistake on the part of the postal authorities.

4-16. Duration of Offers. The offeror may fix any time he wishes as that within which acceptance must be undertaken. If no time limit is specified in the proposal as communicated, the offeree is justified in assuming that a "reasonable" time is contemplated, and the offer will be given this interpretation by the courts. What constitutes a reasonable time is purely a question of fact, depending on the individual circumstances of the case and any pertinent business customs involved. For instance, an offer in connection with speculative stock might logically be assumed to have a shorter duration than an offer to sell an old rug or an item of used furniture.

Once an offer lapses, it is thereafter incapable of being accepted. Similarly, once an offer is rejected, it ceases to exist as such and cannot later be accepted without an intervening express renewal by the offeror.

4-17. Options. Where a specified time for acceptance is fixed in the offer, this represents an option, and the promise to keep the offer open for the period specified is actually a collateral contract to be supported by some independent consideration. Suppose Smith says to Jones, "I will sell you 1000 shares of common stock at $25 per share any time during the next twenty days, you to pay me $100 for the option." If the offer of the option is accepted, the offer of the shares cannot be revoked within the twenty days.
4-18. Revocation of Offers. In the absence of independent consideration binding the offeror, the law in most jurisdictions permits him to withdraw his offer prior to an unqualified acceptance thereof and prior to the time fixed for its automatic termination. The moving party must, however, bring home to the offeree, expressly or implicitly, notice of revocation. An exception to this rule is to be found where an offer has been made through a public medium; in such an instance, revocation is effective if given the same degree of publication as was afforded the offer itself, even though such revocation does not actually reach all those in the position of offerees.

A sale to B of property covered by a previous offer to A amounts to a revocation of such offer, provided knowledge of the sale reaches A before any attempted acceptance on his part.

In addition to lapse or withdrawal or the situation outlined in the preceding paragraph, revocable offers are generally terminated by the death or insanity of the offeror or offeree prior to acceptance; through outright rejection or counteroffer by the offeree; and where, after the making of the offer and before acceptance, the proposed contract becomes illegal.

4-19. Acceptance. We have seen that an offer, until terminated automatically by lapse of time or for some reason withdrawn, gives to the offeree a continuing power to create by his acceptance a legally enforceable contract. An accomplished acceptance is necessarily irrevocable, for it is acceptance that ultimately binds the contracting parties. Such acceptance must be absolute, unambiguous, and in complete harmony with the terms of the offer to which it refers. It must not fall short of, nor yet go beyond, the terms proposed but must precisely meet them at all points as they stand. The offeror, of course, is entitled to impose any conditions he wishes, and if the offeree attempts to effect any material changes in the pattern presented to him, there is no real acceptance and hence no contract.

4-20. Conditional Acceptance, or Counteroffer. Qualified (i.e., conditional) acceptance is actually a counteroffer, a mere expression of willingness to deal further with respect to the subject matter of the original offer. The submission of a counterproposal by the offeree puts an abrupt end to the negotiations without a contract having been achieved, unless the party making the initial offer renews same or communicates his consent to the suggested modifications.

On the other hand, mere inquiry or request by the offeree for more detailed information about certain of the terms of the proposal does not have the effect of rejecting the offer. Similarly, when the offeree embodies in his acceptance terms which were not spelled out in the offer.
but which the law will imply anyway, the acceptance is not conditional and will effectively bring the contract into being.  

4-21. Silence as Acceptance. The silence of an offeree, unaccompanied by other circumstances (such as exercise of dominion over any of the offeror’s property involved in the proposal), is not an acceptance. Indeed, it has been held that silence alone does not operate as acceptance even though the offeror prescribes it as the desired mode of acceptance, and the offeree, knowing this, intends his silence as an acceptance. Where, however, the relation of the parties, their previous business dealings, or other circumstances are such as to impose an obvious duty to speak, the offeree’s failure to do so (resulting in harm to the other party) can preclude him from later arguing that he never intended his silence as acquiescence.

A famous case illustrating this exception to the general rule is Hobbs v. Massasoit Whip Co., 158 Mass. 194, 33 N.E. 495 (1893). This was an action to recover the price of a consignment of eelskins sent by plaintiff and kept by defendant for some months with no word to plaintiff one way or another regarding acceptance. It seems that plaintiff had made several prior shipments to defendant (which the latter had accepted and paid for) and that there was some sort of vague standing order from defendant for skins of a certain length and quality. It was argued by defendant that one person may not “impose a duty upon another, and make him a purchaser, in spite of himself, by sending goods to him, unless he will take the trouble, and bear the expense, of notifying the sender that he will not buy.” But the court held that the history of prior dealings pertinent to this case created an exception to the general rule advanced by defendant and that, under the circumstances, silence on defendant’s part—coupled with a retention of the skins for an unreasonable time—warranted plaintiff in assuming acceptance. The “proposition stands on the general principle that conduct which imports acceptance or assent is acceptance or assent, in the view of the law, whatever may have been the actual state of mind of the party.”

4-22. Who May Accept Offers. An offer addressed to a particular person is available for acceptance by him only, but a general offer to the public may be accepted by anyone, and an offer to a class or group of persons may be acted upon by any individual in the class described.

4-23. Form and Notice of the Acceptance. The offer in a unilateral contract may call for the performance of an act or for forbearance. In a bilateral contract the offer demands a counterpromise, and that is

*For instance, an acceptance might read, “I accept your offer, if you can convey good title to the house.” Such acceptance is perfectly all right, since the offer to sell the property implicitly included a promise to convey valid title.
what the acceptance must provide. In case of doubt, the law construes an offer as looking toward a bilateral contract; the explanation for this interpretation presumably lies in the fact that there is mutuality of obligation as soon as a bilateral contract is created. With the unilateral type, however, the offeror generally can still revoke even after part performance by the offeree.9

Where a bilateral contract is contemplated and acceptance is to be in the form of a promise, notice of the acceptance must be afforded the other party. But where acceptance of the offeror’s proposal is by an act, the mere performance of the act—without notice—concludes the contract (always assuming that the offeror has not expressly stipulated that some notice independent of the actual performance is given).

If a particular mode of acceptance is prescribed and the offeree nevertheless elects some other method, the offeror is at liberty to treat the purported acceptance as a nullity. If, however, the text of the offer (or the manner of its communication) does no more than suggest a mode of acceptance, the offeree is not strictly limited to such means as the offeror has mentioned. Some other form will be effective, if it is one that does not cause undue delay and if it successfully brings the acceptance to the knowledge of the offeror. In the last analysis, the propriety of the means adopted to communicate the acceptance, where such method differs from that utilized by the offeror in transmitting the proposal, depends upon what would reasonably be expected by persons in the position of the respective contracting parties in view of the prevailing business usages and other surrounding circumstances.

4-24. Point at Which Contract Is Made. When an offer is sent by mail and the offeree is expressly or implicitly invited to reply in kind, the contract is deemed effective as of the date when the letter of acceptance is put out of the offeree’s possession by the act of mailing. And this is so even though in the meantime a letter of revocation has been mailed by the offeror but has not reached its destination before the posting of the acceptance.

4-25. Reality of Consent. Another feature which has to be considered in connection with the formation of contracts is genuineness or reality of the consent involved. Even though there may be an apparent agreement, possessing the various requisites of form and consideration and made between individuals or entities capable of contracting, it is entirely possible that in any given instance the consent of either or both parties was given under circumstances such as to render it not a bona

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9 An exception to this last proposition is posed by the doctrine of promissory estoppel in cases involving charitable subscriptions. Once the charity does anything at all in reliance on an offer to make a subscription, the offeror is no longer entitled to withdraw his offer.
fide expression of intention. For instance, where both sides are under mistaken impressions about the subject matter or about some essential term of the contract, any agreement which they might produce can have no binding legal effect, since there has not been realized an actual accord of the contracting parties with reference to a common object. Or the persons concerned may fail to reach an understanding (effective at law) by reason of misrepresentation, fraud, or duress practiced upon one party by the other, so that the former signed an entirely different agreement or pursued an entirely different course of action from the one he really intended.

In the event of a fundamental mistake by both parties, there can be no true meeting of the minds and the contract will be treated as utterly void. On the other hand, where material misrepresentation, fraud, or duress pertains, the agreement was in fact induced by the improper conduct of one party, and it is voidable at the option of the innocent party.

4-26. Mutual Mistake. The situations in which mistake affects contract are the infrequent exceptions to an almost universal rule that a man is bound by an agreement to which he has expressed a clear assent, uninfluenced by falsehood, violence, or oppression brought to bear from some outside source. It will be found that in many instances where mistake is given as the reason for invalidating a contract the trouble is really caused by the act of a third party, or perhaps by the dishonesty of one of the contracting parties. There are relatively few cases of genuine mutual mistake—where parties might contract for a thing which has ceased to exist or are in error about the identity of one another or about the subject matter of the purported agreement. An English case, often cited to illustrate a perfectly innocent misunderstanding of the parties, is Raffles v. Wichelhaus, 2 Hurl. & C. 906 (Ct. Ex. 1864). The defendant in that action had agreed to buy from the plaintiff a cargo of cotton "to arrive ex Peerless from Bombay." It seems that there were two ships of that name, and both sailed from Bombay—but Wichelhaus meant the Peerless which arrived in October, while Raffles had in mind the Peerless which arrived in December. Each party took his respective position in good faith, and neither acted in a negligent or unreasonable manner in arriving at his particular understanding of the matter. The court held that in the light of the varying interpretations no actual agreement had been reached, and there was hence no enforceable contract in existence.

4-27. Unilateral Mistake. The other principal category of mistake which may affect contractual relations is the unilateral type. One party may not avoid a contract simply by showing he erred in what he promised or did; this is so if there has been no misrepresentation, if there
is no ambiguity in the terms of the contract, and if the other party has no timely notice of the mistake and himself acts in perfect good faith. Subject to certain exceptions, a person must in his contractual dealings shift for himself and must exercise ordinary diligence if he is to avoid undue difficulty. This general doctrine is known as *caveat emptor* ("let the buyer beware"). The courts will not undertake to relieve a party of the consequences, however unfortunate, of his own improvidence or poor judgment. A buyer, for example, who purchases goods without any statement or warranty of quality from the seller and who subsequently finds the goods to be less valuable than he had thought will ordinarily have no recourse against the seller. The buyer cannot logically expect the other party or the court to rectify any error of judgment he may commit in making his bargain.

Along the same line, and for the same broad purpose of affording necessary stability to the law of contracts, is the rule that one who signs an agreement is presumed to know the contents thereof. This presumption very properly aids the other contracting party, who has more than likely shaped his actions and perhaps paid out money in reliance upon the agreement and its enforceability.

But the law will not allow a man to enforce a promise, knowing at the time he accepted that the other party understood the terms of agreement in a completely different sense from that in which he understood them himself. In other words, if either party knows that the other clearly does not intend what his words or acts seem to express, this knowledge prevents such words or acts from operating as an offer or an acceptance; one cannot snap up an offer or bid knowing full well that it was made by mistake.

As an illustration, let us take the celebrated case of *Geremia v. Boyarsky et al.*, 107 Conn. 387, 140 Atl. 749 (1928). In preparing a bid for work to be done in the construction of the plaintiff's dwelling house, the defendants incorrectly added the items contained in their estimate, so that the figure submitted to the plaintiff was $1,450.40, whereas it should have been $2,210.40. Although the plaintiff had good reason to believe that a mistake had been made, he executed a written contract with the defendants based upon their miscalculation. The defendants discovered the error on the same day and immediately proposed to perform the work at their corrected price or at that offered by any responsible contractor, but the plaintiff refused and, having let the work to others for $2,375, which was its reasonable value, brought action for breach of contract. The court held (1) that the mistake was so essential and fundamental that the minds of the parties had never met; (2) that, since the agreement was still executory and the plaintiff had been in no way prejudiced, he would not be permitted in equity to
gain an unfair advantage over the defendants, even though the mistake was unilateral, and that the defendants were entitled to a rescission of the contract; (3) that, while the mistake involved some degree of negligence on the part of the defendants, it was not of that culpable character, amounting to a violation of a positive legal duty, which is regarded as a bar to redress in a court of equity.

4-28. Remedying Mistake. Judicial relief from a mutual mistake is frequently given by a reformation of the contract. Where, however, the mistake is a unilateral one, reformation is not available and any relief must come in the form of rescission. A person who has entered into an agreement unenforceable on the ground of mistake may, if the contract is yet executory, repudiate the understanding and successfully defend any action brought upon it. Or, if he has paid money under such an imperfect contract, the common law permits him a recovery of that consideration. Thus, mistake may be pleaded as a defense to an action based on the contract induced thereby, or it may be used to secure affirmative relief in the form of a return of any consideration paid out.

4-29. Clerical Errors. Where there is a definite and proper agreement between the parties and the sole difficulty is that a simple error of a clerical nature has arisen in committing the understanding to writing, the mistake is not such as will vitiate the contract. In the occasional instance where the parties cannot correct such an error by common consent and one party seeks unfairly to take advantage of the situation, the other may by appropriate court action have the contract enforced in accordance with the actual intent and original understanding of the parties. Courts freely exercise the power to correct clerical mistakes when the available proof leaves no doubt that the real contract was meant to be something quite at variance with what appears in the writing.

4-30. Mistakes about the Law. What has been said up to this point relates to mistakes of fact. A mistake of law is something completely different. Though the question is not entirely free of doubt, the general rule is commonly stated to be that an erroneous conclusion about the legal effect of known facts does not destroy the validity of a contract when there is no concurrent mistake of fact.

4-31. Fraud and Material Misrepresentation. Fraud, the existence of which renders a contract voidable at the election of the victim, constitutes (1) a reckless or intentional misstatement of a material fact, (2) made with intent to deceive, (3) resulting in misleading the innocent party to contract (4) to his detriment. Acting as a reasonable man, the defrauded person must have been entitled in the specific situation to rely on the truth of the assertions made to him. Whether the victim indeed had such a right of reliance will depend on the circumstances
of the particular case, such as the precise form of the representation, the relations of the parties, and their respective means of knowledge in the premises.

An intentionally false statement of a past or existing fact is the basis for a claim of fraud, and such factual representations must be distinguished from a simple expression of opinion about the future. Remember that a misrepresentation may be created just as readily by concealment or suppression of material facts as by affirmative misstatement.

Incidentally, misrepresentation which is perfectly innocent and which falls short of fraud will, if it furnishes a material inducement, render a contract voidable.

4-32. Remedying Fraud. Apart from a tort action, the deceived person has available to him a certain choice of remedy in contract litigation. If he permits the contract to stand (which, of course, he is at liberty to do), he may sue to recover any damages he may have suffered. Or it is possible for the victimized party to rescind the tainted bargain and recover all consideration paid by him, always on the assumption that he is prepared to restore to the wrongdoer anything received pursuant to the contract he is electing to abrogate. Some courts may, at the same time, allow damages resulting from the fraud to flow to the rescinding party in the same action. Generally speaking, the defrauded party may not pursue inconsistent remedies and will be bound by an election once made. Also, such party, upon discovering that he has been hoodwinked, is constrained to act promptly in repudiating the contract, for his right to disaffirmance may be lost by laches.

4-33. Waiver of Fraud. A contract induced by fraud is not absolutely void, but only voidable. The fraud may therefore be waived and the contract ratified. Ratification or its equivalent is shown where the innocent party, having acquired subsequent to date of the agreement actual or constructive knowledge of the true situation, by acts of commission or omission evidences a clear intent to affirm the contract despite the fraud, as, for example, where he accepts the benefits thereof without protest.

4-34. Duress and Undue Influence. An agreement made under compulsion or threat is not binding upon the person whose assent was involuntarily given. Likewise, undue influence, utilized perhaps by a parent or someone in a confidential relationship to the influenced party, will render a contract voidable. When a person takes advantage of mental weakness, of near relationship, or of special confidence reposed in him to influence another to make a contract, the second party has not exercised his own volition and will not be liable on the agreement should he choose to avoid it.

Here is a fairly typical example. Miss Merker, a spinster without
business experience of any sort, has for many years been in the habit of relying in business matters upon the counsel of Witherspoon, a man of affairs. The latter, without the use of any false representations, induces the lady to enter into a certain contract with Morton, a close friend and associate of Witherspoon. Both men know at the time that the arrangement in question is very much to the disadvantage of Miss Merker. Under the foregoing circumstances, the transaction is voidable at her option.

In the case of duress, the victim’s free choice in the matter is overcome by fear of injury, while in the instance of undue influence, it is overcome by importunity. In either event, the resulting contract is voidable, and the victim is empowered to negative the entire transaction.

4-35. Contracts without Assent. There are informal contracts which require neither consideration nor a formal manifestation of mutual assent in order to render them legally enforceable. The formation and scope of such contracts are subject to a number of qualifications too involved to be discussed at length in this general survey of the law of contracts. Suffice it to note that the category of contracts in question includes, among others, the following:

1. A promise to pay a debt dischargeable in bankruptcy proceedings which began before the promise was made.
2. A promise to pay an antecedent debt barred by the statute of limitations.
3. A renewed promise to perform a contractual duty despite the non-occurrence or nonperformance of a condition originally imposed upon such duty.
4. A promise which induces a reasonable man to take certain substantial action in reliance. A typical example might be the situation where a mortgagee, following a default in payments, promises that he will not foreclose for a certain period of time. The mortgagor relies upon such freely given promise and, with the mortgagee’s knowledge, makes expensive repairs to that part of his property concerned. Under these conditions, the mortgagee’s promise, despite the absence of consideration and other normal contract essentials, will be enforced as the logical means of avoiding obvious injustice to the mortgagor.

4-36. Summary on Offer and Acceptance. The principles of offer and acceptance, discussed in the foregoing pages, are frequently difficult to apply in some of the complicated contract situations which arise in the modern business world. It is often a real problem to determine at just what point a series of acts, promises, and negotiations culminates in a binding agreement. Assume, for instance, that Y says to Z, “I will pay you $300 to paint my house two coats by the end of this year.” If
Z promises to take the job and Y thereupon revokes, Z will have no legal recourse, since he should have painted rather than promised in response to Y's offer for a unilateral contract.

There are a number of other possibilities which could arise in connection with Y's initial offer. Here are several of these, with the probable result of each. If Z paints one coat complete and then quits, Y will very likely be unsuccessful in any attempt to sue Z, unless the cost of having another painter take care of the second coat proves to be in excess of $300. Now suppose that Z makes no promise in reply to Y's offer but arrives on the scene with his equipment, looks the job over, and leaves. Quite obviously there is no contract. If, on the other hand, Z gets as far as burning off the old paint before deciding to forget the whole thing, Y would presumably have no recourse against him—providing there is some other competent painter readily available.

Looking at the same general problem from the other side of the fence, if Z, upon receipt of the offer, arrives at the job site with his equipment, he should be permitted a chance to perform the work despite any belated attempt by Y to revoke the proposal. Certainly Y cannot terminate proceedings without penalty if the painter has, for instance, finished one coat before Y calls a halt; under such circumstances, Y has been unjustly enriched, and Z can recover not merely the cost to him of the work done but also any profit he would figure to pocket if the job could have been finished.

CONSIDERATION

4-37. Meaning and Importance. Although the minds of competent contracting parties may have met with reference to a common purpose and the other prerequisites thus far discussed may have been fulfilled, the agreement will not be entitled to treatment as a legal and binding contract unless it successfully meets still another test which the law has imposed. Every enforceable promise must be supported by a consideration.\textsuperscript{10}

By the term consideration is meant something of value received by or given at the request of the promisor in reliance upon and in exchange for his promise. The consideration may be furnished by the promisee or by some other person; similarly, it may run to the promisor or to a third party. In any event, nothing is deemed to be consideration unless it was so regarded by the contracting parties. It must be something they actually bargained for, something they themselves looked upon as an inducement.

\textsuperscript{10} Promises under seal formed an apparent exception to this rule, although, as previously noted, many jurisdictions have by statute abolished the ancient distinction between sealed and unsealed writings.
By way of illustration of the concept of consideration, assume that Smith offers to sell Jones certain property for a stated sum, and, when Jones asks for two weeks’ time in which to consider the offer, Smith promises not to sell to anyone else during that period. Under these circumstances, Smith may nevertheless dispose of the property to a third party, since his promise to Jones was unsupported by any consideration. If, however, Jones pays for Smith’s promise, there is a contract duly supported by a consideration, and Smith must keep the offer to Jones open for the stipulated period. The payment by Jones is known in law as a consideration, or, as it is frequently expressed, as a *quid pro quo*.

Consideration, given in exchange for a promise by the other party, may be either (1) a present act, forbearance, or sufferance or (2) a promise to do, forbear, or suffer sometime in the future. In the first case, the consideration is present, or *executed*, and the contract is unilateral; in the second case, it is future, or *executory*, and the contract is bilateral. The fact that the promise given for a promise may be conditional in nature does not affect its efficacy as a consideration. Not every promise, however, is sufficient consideration for a return promise. The test has been stated to be: Where doing of a certain thing will be a good consideration, a *promise* to do that thing will be so, too.

4-38. The Negative Aspect of Consideration. It frequently happens that the form of the consideration is such that there is no actual benefit apparent for anybody but merely a detriment to the person furnishing the consideration in question. Such detriment exists where the party affording consideration agrees to give up something to which he has an undoubted right (e.g., the use of intoxicating beverages) or to forbear from some action he has a legal right to take. Moreover, the surrender of a legal right is rendered no less valid a consideration by the fact that the right may not come into being for some years.

For excellent illustrations of the surrender of legal rights as fulfilling the requirement of consideration, the reader might well refer to the equally famous cases *DeCicco v. Schweizer*, 221 N.Y. 431 (1917), and *Hamer v. Sidway*, 124 N.Y. 538 (1891). In the latter case, an uncle promised his nephew $5000 if the boy refrained from smoking until reaching age twenty-one. The nephew did as his uncle wished and, when the promised $5000 was not forthcoming, sued for breach of contract. The defense claimed there was no consideration for a binding promise, since the uncle received no actual benefit. The court, however, held that the nephew had given up legal rights and was entitled to recover.

4-39. Further Attributes of Consideration. When mutual promises serve as consideration one for the other, the law will look to see that there is real substance to each promise. Those without substance are
merely illusory promises and of no effect. For instance, an agreement to agree is unenforceable. Similarly, a promise to do what is obviously a physical or legal impossibility is not a true consideration and will not support a binding return promise.

Consideration must be lawful, definite, and certain. A promise which purports to be a consideration may be of too vague and unsubstantial a character to be enforced. For example, a commitment to pay “such remuneration as shall be deemed right” throws upon the courts a responsibility of interpretation which they are not prepared to assume.

The consideration for a contract differs from the motive in that the latter is the underlying cause for entering into the agreement whereas the former is the thing given by one party in exchange for and in reliance upon the other party’s promise.

4-40. Forbearance as Consideration. It is well settled that mere forbearance from exercising a legal right, without any accompanying request to forbear or without any circumstances from which an agreement to forbear may be implied, is not a consideration which will support a promise. When requested, however, forbearance to sue on an enforceable claim may be sufficient consideration for a promise, even though there is no waiver or compromise of the right of action involved and even though forbearance is for a short time only. On the other hand, a promise in consideration of forbearance is not binding if there was originally no cause of action or if the claim threatened to be enforced is invalid and worthless.11

The actual compromise of a suit could without question serve as consideration. Since days of yore, the law has favored any conduct between disputants that will result in precluding litigation. Accordingly, the courts look with great favor on the compromise of suits.

4-41. Adequacy of Consideration. If the parties really intend something as consideration, its apparent “inadequacy,” relative to the value of the promise for which it is exchanged, is of no consequence. If a party gets what he has contracted for, courts will not look into the question of whether such consideration was of a value equivalent to that of whatever the party was obliged to give in return. The law will not attempt to measure the consideration, as long as the recipient thereof is satisfied. “A cent or a peppercorn, in legal estimation, would constitute a valuable consideration.”12

It is the duty of the court simply to interpret and not to redraft the contracts which come before it in litigation. A shrewd businessman is

11 Some authorities, however, have taken the position that, even though such claim is invalid, a promise not to sue on it is sufficient consideration where the promisor has a sincere and reasonable belief in its validity.

12 Whitney v. Stearns, 16 Me. 394, 397 (1839).
entitled to the fruits of his bargain, and the commercial world, which relies upon the stability of contracts, would be in a bad way if courts could freely set aside contracts for what seems to them to be inadequacy of consideration. Accordingly, a court of law will act upon the presumption that parties capable of contracting are likewise capable of regulating the terms of their contracts, and judicial relief is granted only when any obvious unfairness in the bargain is shown to have arisen from mistake, misrepresentation, or fraud. There are occasional instances, of course, where the inadequacy or inequality of consideration is so gross as to amount to proof of undue influence of some sort; under such unusual circumstances, the courts will take a hand.

4-42. The Doctrine of Foakes v. Beer. From one of the most famous contracts cases of all time comes the proposition that, because "a lesser sum of money cannot be a satisfaction of a greater," part payment of a liquidated and undisputed debt already overdue is not valid consideration for a promise of the creditor to accept such payment as in full; the debtor, in rendering the part payment, has suffered no detriment he was not already bound to suffer and has surrendered no legal right he was not already obligated to surrender. Thus, the general rule discussed in Art. 4-41—that the courts will not inquire into the adequacy of consideration—does not pertain to a promise to pay money founded solely on a pecuniary consideration, since that type of consideration is capable of precise measurement and cannot be the subject of any uncertainty about its adequacy or inadequacy. The end result of the rule in Foakes v. Beer—a doctrine which, despite growing criticism, prevails in a great many jurisdictions—is that a creditor can effectively extinguish a $50 debt owed him by accepting in its stead a canary, but he cannot accomplish the same thing by promising to take $49.50 in lieu of the full $50. It is obvious that there are many situations in which application of this rule leads to ludicrous results, and numerous writers have attacked the doctrine as creating real inconvenience in commercial dealings.

4-43. Exceptions to the Foakes Rule. The rule in Foakes v. Beer has been repudiated by court decision in several states and by statute in a few more. The modern trend seems clearly away from the Foakes proposition, but the latter remains the law in many jurisdictions. Since it is undoubtedly true that the Foakes rule is not generally favored in this day and age, it is not surprising to find that courts often exercise extreme ingenuity in efforts to avoid application of the doctrine. Seemingly, they have refused to apply the rule whenever they could discover some circumstance, however trifling, which could be regarded as a tech-

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13 L.R. 9 App. Cas. 605 (House of Lords, 1884).
nical, legal consideration. Thus, an agreement to give a smaller sum of money for a greater, if the time of payment is somewhat anticipated, is binding. One court indicated its reasoning in this connection in rather expressive language: "Peradventure parcel of the sum, before the day, would be more beneficial than the whole sum on the day."14 Similarly, the giving of a negotiable instrument for a money debt or the giving of virtually anything other than money itself will be deemed sufficient consideration to support a release of the entire debt.

Where the amount due is itself open to dispute between the parties, the rule in *Foakes v. Beer* has no bearing. Under such conditions, if the debtor sends the creditor a check marked "in full payment of my account," which check is for a smaller sum than the amount claimed by the creditor, the entire debt, according to majority opinion, is discharged (by what is technically known as an *accord and satisfaction*) when the creditor negotiates the check without protest.15 Further, let us assume that White owes Black $500 and that the debt is past-due. White promises that in thirty days he will turn over his speedboat to Black if the latter will accept same in full payment. Black agrees, but the debtor then fails to deliver as scheduled. Under these circumstances, Black can elect to sue for either the $500 or the speedboat. Black's agreement to accept delivery of the speedboat within the stipulated thirty days constituted what is known as an *accord executory*. If White had turned over the boat as promised, there would have been an accord and satisfaction acting as a bar to any attempt on Black's part to get the $500 as well. Incidentally, it should be noted that White's promise to deliver the boat did not of itself operate to discharge the $500 debt, because Black is deemed to have agreed to take the *boat* in satisfaction, not merely the promise respecting the boat. This is clearly a distinction of significance.

Moreover, cases in various states have held that the payment of only part of a liquidated debt is a good discharge of the whole where the creditor agreed to accept it as such if it was advanced for the purpose by some person *other than* the debtor. Such payment by a third party of a portion of the debt gives the recipient something different from what he was entitled to demand and therefore operates as a valid consideration for his promise to release the actual debtor from the entire obligation.

4-44. Composition with Creditors. A *composition agreement* between an insolvent or financially embarrassed debtor and two or more of his creditors permits the debtor a full discharge upon paying each creditor a smaller sum than that admittedly owed to each. Such an agreement

14 Chicora Fertilizer Co. *v.* Dunan, 91 Md. 144, 46 Atl. 347, 351 (1900).

15 For a leading case illustrating this point, see *Nassoty v. Tomlinson*, 148 N.Y. 326, 42 N.E. 715 (1896).
operates as a notable exception to the rule that a creditor will not be bound by a promise to accept less than the amount of an ascertained debt. Each creditor acts on the commitment of the others to relinquish, in turn, a pro rata part of their respective claims, and the benefit which each may derive from the mutual concession is the consideration or inducement which sustains the agreement.

The composition settlement contemplates an understanding not only between the debtor and his various creditors but also among the several creditors. In this respect it differs from the accord and satisfaction (discussed in Art. 4-43) since the latter is an agreement between the debtor and a single creditor. A distinction should likewise be drawn between the composition agreement and an assignment for the benefit of creditors; only in the former instance is assent of the creditors a requisite.

4-45. Performance of Existing Duty. If a promisor gets nothing in return for his promise but that to which he is already entitled, the consideration is unreal and will not support the promise. For instance, where there is an existing contractual obligation to perform certain services for a stated fee, any promise to pay additional compensation for such obligated performance is made without a valid consideration and will not bind the promisor. But where one party refuses to complete his contract duties by reason of having encountered substantial performance difficulties, unanticipated by the several parties at the contract's inception and casting an additional and totally unexpected burden upon the performer, a promise by the other party of extra compensation to induce completion of the project is generally regarded as supported by a proper consideration. The presumption in the latter case is that the parties by their subsequent actions waived their respective rights and obligations under the original agreement and substituted the new arrangement. Cases of this character are relatively rare and form an exception to the general rule stated at the outset of this article.

Instead of having a contractual duty, a person might be under a pre-existing duty imposed by law to do the very thing he promises to do. In such circumstances, the promise is of no value whatever and is not a proper consideration for a return promise or undertaking. To illustrate,

16 Let us take another commonplace illustration of this point. Assume that Phelps has borrowed $50 from Dodge and without question owes that amount. Dodge is also asserting another claim against Phelps, but the validity of this latter claim and the extent thereof are in dispute. If Phelps pays $50 in return for Dodge's promise to accept this sum in complete satisfaction of both claims, the promise is unenforceable since it is not supported by a valid consideration. Phelps has paid only what he was under an undisputed duty to pay.

17 On the same principle, a promise not to do what a man cannot lawfully do is an insufficient consideration.
a husband cannot make a contract, enforceable against his estate, to pay his wife for services rendered by her in nursing him during his last illness, she plainly being under legal obligation to render such services in any event. Another example is that of a witness who receives a subpoena to appear at a trial; there is no consideration for any promise to pay him something beyond his expenses, since it is his legal duty to come and give evidence.

But the undertaking or doing of anything beyond what one is already bound to do, though of the same kind and in the same transaction, provides a good consideration. To show the application of this principle: A public officer cannot recover a reward if the services he performs come strictly in the line of his official duty, because a contract to award such additional compensation for the performance in question would be both without consideration and against public policy. But it is also true that a contract to grant a public officer special remuneration or reward for services rendered outside, and not inconsistent with, his official duty is valid and may be enforced.

4-46. Mutuality of Obligation. It is often asserted that in bilateral contracts there must be *mutuality of obligation*; that is, both parties must be bound, or neither will be. Actually, of course, there are many situations where only one side is really bound, as, for instance, where one party is an infant or where one party is guilty of fraud or undue influence.

The proposition which requires mutuality of obligation regarding contracts to be performed in the future, where the promise of one party constitutes the sole consideration for the promise of the other, stems from the obvious unfairness of enforcing any contract which would require performance without question by one of the parties while leaving the other party a free choice in the matter. Thus, where one party alone has an arbitrary right to cancel or terminate the contract at any time, mutuality is absent.

Mutuality of obligation involves primarily a question of consideration. If the promises which are to serve as consideration for one another are each binding, there is no lack of mutuality. And nonperformance of one of these enforceable promises does not constitute want of consideration nor lack of mutuality, though the breach itself may well afford grounds for a damages action by the innocent party.

Lack of mutuality occurs perhaps most frequently in agreements to buy or sell goods. Contracts to furnish all of a certain commodity that the buyer "may want" or "may order" are lacking in mutuality because they leave it to the will of the buyer to determine whether he shall want

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*See, on this point, Foxworthy v. Adams, 124 S.W. 381 (Ky. 1910).*
or order any of the commodity in question. It follows that, where X agrees to sell a definite quantity of a certain article at a fixed price, but Y does not agree to purchase any definite quantity—merely promising to buy so much as he "may desire from time to time" and giving nothing else in the bargain—there is no bona fide consideration in the exchange for X's unequivocal promise.

However, a contract to purchase from a single source all that one "will require" in a particular business is a very different thing from a mere undertaking to buy all that one may want or order; the promise to take all that one will need would be broken by purchasing from a third party, and it is this undertaking to buy exclusively from the other party to the contract (whatever supply may prove to be needed) which preserves the element of mutuality of obligation. In such a case, the buyer has fettered his previous freedom to purchase from anyone of his choice and has thus furnished consideration for a return promise by the seller. Thus it is that contracts to supply, on the one hand, and to purchase, on the other, such material as the buyer will need in his business for a specified time are—by the weight of authority—held to provide mutuality of obligation and to bind the respective parties, at least where the nature of the purchaser's business is such as to make the quantity of the article he will need subject to a reasonably accurate estimate.

For two often-cited cases dealing with the subject of mutuality of obligation, the reader is referred to Great Northern Ry. Co. v. Witham, L.R. 9 C.P. 16 (1873) and Lima Locomotive & Machine Co. v. Nat'l. Steel Castings Co., 155 Fed. 77, 79 (6th Cir. 1907). The latter was an action for goods sold and delivered and involved also a cross action for damages for breach of contract. The Castings Company had written the Lima Company to this effect:

"Gentlemen: We make the following proposition for furnishing all your requirements in steel castings for the remainder of the present year at the prices mentioned below, f.o.b. cars at Montpelier, the terms to be thirty days net. You agree to furnish us on or before the 15th of each month the tonnage that you wish to order during the following month. We agree to fill your orders as specified to the amount of this tonnage, and to make such deliveries as you require."

Then followed a schedule of prices per pound of castings. This offer was accepted in a writing duly signed by the Lima Company. One of the arguments advanced during the course of the litigation was that the contract in question was void for want of mutuality. On this point the Circuit Court of Appeals declared as follows:
“We find ourselves unable to agree with the learned circuit judge in respect to the nonmutuality of the contract by which the plaintiff agreed to supply all of the ‘requirements’ of the defendant’s business for the remainder of the year 1902. The defendant was engaged in an established manufacturing business which required a large amount of steel castings. This was well known to the plaintiff, and the proposition made and accepted was made with reference to the ‘requirements’ of that well-established business. The plaintiffs were not proposing to make castings beyond the current requirements of that business, and would not have been obligated to supply castings not required in the usual course of that business. By the acceptance of the plaintiff’s proposal, the defendant was obligated to take from the plaintiff all castings which their business should require. . . . The contract falls under and is governed by the case of Loudenback Fertilizer Co. v. Tennessee Phosphate Co., 121 Fed. 298, 58 C.C.A. 220, 61 L.R.A. 402, where the contract was to sell to a manufacturer of fertilizer ‘its entire consumption of phosphate rock’ for a term of five years. In that case we held that the contract was mutual, and the buyer under obligation to take its entire requirement of phosphate rock from the seller.”

4-47. Past Consideration. Subject to a major exception, shortly to be discussed, it is a general principle that past consideration is insufficient to support a promise; that is, an act or forbearance rendered antecedently and not as the agreed equivalent for a subsequent promise is normally to be regarded as in the nature of a gift and is no consideration at all.

Where, however, an act is done upon definite request, under such circumstances that the law would imply a promise to pay therefor, and an express promise is actually made after the performance has been accomplished, the promise is generally held valid, being supported by what is often called an executed, or past, consideration. In the absence of the express promise, an action will yet lie to recover reasonable value of the requested services; when an actual promise is made subsequent to the performance, it serves as confirmation of the fact that the promisee’s act was completed with the understanding that it was not intended to be gratuitous. It should be borne in mind that a subsequent promise (i.e., one which follows the other party’s performance to which it relates) is binding only when the request, the consideration, and the promise form substantially one transaction. In this view the request can be thought of as virtually the offer of a promise, the precise extent of which becomes apparent only when the promise is actually given (some time after the requested consideration—e.g., performance of a personal service—is forthcoming from the promisee).

4-48. Moral Consideration. Somewhat analogous to the problem of past consideration is that of the so-called “moral consideration.” With the usual crop of limitations and exceptions, it can be stated as a general
rule that a mere moral obligation will not of itself furnish consideration for an executory promise. Thus, if Smith rescues Jones from drowning, the latter is under some measure of moral compulsion to tender at least a nominal reward, particularly if Smith sustained any loss as a result of his act. But, even if Jones, temporarily overcome with gratitude, were to promise to pay a fixed sum as a reward for Smith’s valiant efforts, there could be no legal recovery against Jones for breach of that promise. By the same token, promises or executory contracts made on the basis simply of love and affection—unsupported by a material benefit for which payment might reasonably be expected—create at most bare moral obligations, and a breach of such promises presents no basis for redress by the courts.

But a moral obligation arising from what was once a legal liability—the latter since barred or suspended by operation of some positive rule of law—will furnish a proper consideration for a subsequent executory promise. Where, for example, a person under a legal obligation to pay a sum of money is discharged in bankruptcy or released by the running of a statute of limitations and afterward promises his creditor that the sum will nonetheless be paid, the creditor can recover. Some courts reach this result on the theory that the renewed promise is valid without a new consideration, since a moral obligation sufficient to support the promise survives the bankruptcy discharge. Other courts, while likewise recognizing the validity of the discharged debtor’s subsequent promise, enforce it rather on the ground that the particular circumstances obviate the necessity for a consideration, in that the bankruptcy discharge is merely a defense the law has given the debtor to use or not at his pleasure.

We have seen that at common law the contracts of a minor cannot be enforced against him if he cares to avail himself of the defense of infancy. Upon reaching his majority the infant may decide to validate his previously made contracts, and any new promise to perform in accordance with the original agreement will effectively bind him without the necessity of any new consideration. Such ratification is predicated in a sense upon a moral obligation to go through with the bargain as initially made, and this circumstance may be regarded as exemplifying the principle which admits the sufficiency of some kinds of moral obligation to support a promise.

As in the case of infancy just noted, contracts induced by fraud or duress are regarded as voidable and not entirely void. If with full knowledge of the fraud, the wronged party elects to ignore the obvious defense and makes a new promise to perform in accordance with the antecedent contract, such promise will be enforceable even though there is no consideration given specifically in return for it.
4-49. Estoppel. The view has been taken that the promisor is, under certain unique circumstances, precluded from asserting that a valid consideration is lacking. The classic doctrine, as previously noted, is that the promise and the consideration must be given as the contemplated exchange one for the other. From this traditional theory of consideration, the idea of promissory estoppel represents a radical departure in that it renders a promise binding if the promisee has taken action or suffered some detriment in reliance thereon, even though such detriment was not requested as consideration for the promise. Acceptance of the principle of promissory estoppel has varied widely from one jurisdiction to the next, and often its application has been limited to certain well-defined classes of cases, such as charitable-subscription contracts.

A long and constantly increasing line of decisions in the United States has established the binding character of most charitable-subscription agreements. It is clearly understood that a subscription—rather than being part of a bargain that provides for the exchange of agreed equivalents—is a donation, an outright gift; and yet promises of this kind are now almost universally enforced. The reason most commonly advanced is that the promisee has given consideration by acting in reliance on the subscription and by proceeding to carry out the purposes for which the pledge was solicited and given. For example, perhaps the beneficiary has expended money in building construction before the subscriber makes any attempt to revoke the promise. In some cases different reasons have been given for the enforcement of the subscription obligation. Occasionally, a court will find an implied promise by the trustees of the charity to execute the work contemplated, such promise operating as a consideration. Or it has been held that the promises of several subscribers mutually support each other. Under this last theory, the subscription agreement amounts to a bilateral contract between or among subscribers, of which contract the charitable organization is a donee beneficiary. In any event, regardless of the precise theory adopted, the courts of this country will treat the ordinary charitable-subscription promise as clearly enforceable at law.

4-50. Illegal Consideration. An illegal consideration, which may be defined as any performance or promise which runs counter to law or public policy, will not support an agreement. And, despite some difference of opinion on the point, it is ordinarily said that even partial illegality of the consideration will vitiate the accompanying contract in its entirety.

4-51. Failure of Consideration. Some courts subscribe to a doctrine which they characterize as failure of consideration. Such failure is

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deemed to result when, for some reason or other, the anticipated consideration cannot be supplied or performed, and this unexpected state of affairs renders the contract unenforceable. The failure of consideration is predicated upon the happening of events which materially change the respective positions of the parties and which were not within their contemplation at the time of execution of the contract.

4-52. The Statute of Frauds. A brief comment should be made concerning those statutes which require certain classes of contract to be made in writing or evidenced by some appropriate memorandum. An English law (passed in 1677), entitled "An Act for the Prevention of Frauds and Perjuries," served as the forerunner and model for similar statutes enacted in the various states in this country. Statutes of fraud in the several states differ from one another and from the original English version, but all regulate merely the contract formalities necessary to render the agreement enforceable under the judicial process.

There are many parts to a typical statute of frauds, but several of them are of no real interest to engineers. The following classes of contracts, however, should be noted as representative of those agreements which will not be enforceable unless, in the words of one case, "the same, or some note or memorandum thereof, be in writing and subscribed by the party to be charged, or by his agent":

1. Contracts for the sale of goods valued above a stated amount (which amount varies with the statutes of the several states).
2. Contracts for the sale of interests in land.
3. Contracts not to be performed within one year. Where the contract is not explicit about the time within which performance is expected to be complete, courts supply a liberal construction and hold that the test is the "shortest possible" and not the "probable" time required for performance. Thus, if the contract might be performed in less than a year, it is not within the statute.

There are a number of exceptions and modifications pertinent to the foregoing classifications, but a detailed study of the various statutes of fraud is not in accord with our purposes here. It is sufficient if the reader is aware of the existence of such enactments and has some idea of the broad types of contracts which must be in writing as a result thereof.

20 Of course, even in the absence of such a statutory requirement, because of their complexities and highly technical nature, by far the greatest number of contracts with which the engineering profession is concerned would be put in writing as a matter of common sense and convenience.
21 Contracts which do not fall within the categories to which statutes of fraud apply are, of course, equally binding whether oral or reduced to writing.
CHAPTER 5

Interpretation and Construction

CONDITIONS

5-1. Definition and Classification. A condition may be defined as a proviso upon which the rights and duties of the parties depend. A condition in a contract operates to suspend, rescind, or modify the principal obligation under given circumstances.

Conditions may be express or implied in fact or implied in law. A certain fact may operate as a condition simply because the parties intended that it should and indicated as much in so many words; it is then an express condition. Or it may operate as a condition because the parties intended that it should, such intention being a matter of reasonable inference from conduct other than words; it is then a condition implied in fact. Or it may operate as a condition because the court believes that the parties would have intended it to operate as such if they had thought about it at all or because the court believes that by reason of the mores of the time justice requires that it should so operate; it may then be properly described as a condition implied in law.

Here are a few random examples of implied conditions: (1) in employment contracts, the continued life of both parties is implied; (2) in a contract to sell specific goods, the continued existence of the subject matter is implied; (3) the continued legality of any contract is implied; (4) when a contract is made in reliance upon the happening of a particular event, the actual occurrence of that event is an implied condition of the contract. In Marks Realty Co. v. Hotel Hermitage, 170 App. Div. 484, 156 N.Y. Supp. 179 (2d Dept. 1915), defendant had agreed to place an advertisement in a souvenir program to be distributed in connection with international yacht races. War intervened, and the races were called off, but the program was published anyway, and defendant refused to pay for the advertisement. The court decided that defendant’s refusal was justified, since he would never have contracted unless he and the plaintiff had both assumed the races would be held as scheduled.
The object in mutual contemplation having failed, plaintiff could not exact the stipulated payment.\footnote{The Marks case is still cited as authority in court opinions of today. For a recent sample, see Clark v. Fitzgerald, 197 Misc. 355, 93 N.Y.S.2d 768 (1949).}

5-2. Condition Precedent. Conditions are further classified as precedent, concurrent, or subsequent. A condition precedent arises where a promise is predicated on the happening of a certain event; no obligation to fulfill such promise comes into being unless and until the specified event actually does take place. The employment of such contract terminology as “when,” “if,” or “as soon as” normally points to the inclusion of a condition precedent. Generally speaking, in contracts for services performance is a condition precedent to payment. A rather extreme illustration of this last point is afforded by the case of Coletti v. Knox Hat Co., 252 N.Y. 468 (1930). Plaintiff was employed by defendant as a sales agent on an annual basis and was to receive at the year’s end a percentage of the sales. By mutual consent, the contract was terminated in midyear, without provision for payment of any accrued commissions. Plaintiff sued to recover the difference between the amount of commissions earned and the sums he had been paid on a drawing account and for expenses. The court upheld the defense that employment for a full year was a condition precedent to any liability for commissions and thus determined that defendant’s obligation to pay was merely a contingent one.

5-3. Condition Concurrent. Where performance by both parties is designed to be simultaneous, performance by one is often termed a condition concurrent to performance by the other. For example, a city may specify in a contract for sewer construction that, when the contractor installs the sewer in Maple Street, the work shall be done one block at a time and may agree that each block will be closed to traffic while work is progressing in it. Such closure is then a condition concurrent.

5-4. Condition Subsequent. A condition subsequent is one which relieves the promisor of a liability which has already attached. If such a condition is violated, the promisor’s liability will be annulled. Conditions subsequent are matters of defense to be pleaded and proved by the party seeking release from his previous obligation. There are relatively few bona fide conditions subsequent. One example would be a fire insurance policy clause reciting that no suit may be brought on the contract unless within a stated period of time following a loss asserted to be within the coverage of the policy. The same sort of time limit may be prescribed for claims of a contractor for extra costs occasioned by changes ordered during the course of a job.

Many conditions which appear to be subsequent in nature are in fact conditions precedent. For instance, the recital of obligation in a surety
bond will indicate that the obligation attaches only in the event the principal fails in the specified performance. Default by the principal is therefore seen to be actually a condition precedent to the surety's liability on the bond.

5-5. Personal-taste Contracts. In contracts involving personal taste, an agreement by A to perform to the satisfaction of B places the latter in a dominant position, and A cannot recover his fee until B is in fact satisfied. And any dissatisfaction which B might express, though it may be capricious by ordinary standards, requires only good faith to be effective. A typical case is the situation where one party undertakes to paint a portrait for another or to fabricate some female attire. In such instances the customer's standard of taste is the acid test.

Where personal satisfaction is not involved quite so directly, as in a building contract which contains the common provision that no payments are to be made except on certificate of the architect (or engineer), the fact that the building was erected in a workmanlike manner and precisely according to specifications will be evidence that the architect was acting in bad faith in withholding the certificate.

5-6. Conditions about Time of Performance. As in the case of contractual provisions generally, stipulations about time must be construed in accordance with the intent of the parties as shown by the fair import of the language employed. Completion of a contract within a "reasonable" time is sufficient if no exact time limit has been stipulated. Thus, an agreement to take certain action "as soon as possible" or "forthwith" has been held to require merely that performance be made within a reasonable time under the circumstances of the particular case. The rule is somewhat more strict in connection with those contracts where time is usually deemed to be "of the essence," as, for instance, agreements for the payment of money. In such cases, where no precise time is set, the assumption is normally that the money is payable immediately. Where a contract to render services is silent regarding the time of payment, remuneration is due just as soon as the services have been rendered.

5-7. Conditions about Place of Performance. Where the place of performance has been named by the parties, the courts will give effect to the intention so expressed. If, however, the contract is silent in this respect and there are no circumstances showing that the parties intended performance to be elsewhere, the place of performance is deemed to be the place where the contract was made.

5-8. Conditions about Amount of the Compensation. The express agreement of the parties may be to pay what the services rendered are reasonably worth, and such an understanding will be implied where there is no express agreement about compensation. The matter of price
or remuneration may be affected by previous dealings between the parties. Where, for instance, the amount of compensation is not specified in an oral contract for work similar to that done under a previous written contract between the same parties wherein the compensation was specified, it may fairly be presumed that payment under the new agreement was intended to be at the same rate used for the original work of the same nature.

When there is a contract to perform certain work according to a schedule and that schedule provides for doing the work under the direction of an engineer, variations and additional work ordered by the engineer may be recovered for in an action on the contract. However, when an architect directs extra work to be done and the architect's sole authority is to see that materials and workmanship are in accordance with the specifications, the contractor cannot—in the absence of ratification by the owner—recover for the extra work.

5-9. Failure of Condition. The nonfulfillment of a promise is called a breach of contract and creates in the other party to the agreement a right to damages. On the other hand, nonfulfillment of a condition simply excuses the other party from performing his side of the original bargain but creates no right to damages unless fulfillment of the condition had been expressly guaranteed.

5-10. Waiver of Condition. A condition precedent to a contract duty of performance can without question be effectively waived by a voluntary act of the party who is undertaking the duty. This means that by his own free election he has power to transform his conditional duty into an unconditional one and to carry out the terms of the contract despite failure of the condition upon which his obligation was grounded in the first place.

Here is a typical example of waiver. When an insured submits a claim for a fire loss on other than the precise form stipulated by the carrier but the latter ignores this circumstance in replying and simply notifies the policyholder that it disclaims liability on the ground that the fire had been deliberately set by the insured, the contract condition prescribing definite claim forms is deemed to have been waived.

5-11. Estoppel. If the promisor is himself the cause of the failure of a condition on which his liability hinges, he will be precluded from alleging such failure; his conduct in such a case has made it inequitable for him to insist upon fulfillment of the condition as initially set forth.

In Vandegrift v. Cowles Engineering Co., 161 N.Y. 435 (1899), A was to build a boat for B and to make delivery on a specified date. B's interference prevented the completion and delivery on schedule. It was held that B was estopped from asserting failure of the condition as to
time, for "He who prevents a thing may not avail himself of the non-performance which he has occasioned."²

RIGHTS OF THIRD PERSONS

5-12. The Requirement of Privity. A binding promise may, of course, be enforced by the recipient thereof, and his rights in this regard encompass promises made for the benefit of some third person. Subject to a very significant exception in the case of certain third-party-beneficiary contracts shortly to be discussed, it is a broad general rule that only one who is an actual party to the contract or someone in privity with him may enforce the obligation.³ Privity of contract is a term denoting mutual or successive relationship to the same right of property or to the same subject matter. Thus, the assignee is in privity with his assignor, the donee with his donor, and the lessee with his lessor. Similarly, there is privity of contract between an owner and the general contractor who is erecting a building for him; but there is no such privity between the owner and a subcontractor on the job. A 1941 Delaware case will illustrate the distinction.⁴ Suit was brought by subcontractor against owner to enforce a mechanic's lien for furnishing materials for the construction of a research laboratory. The general contractor was not included as a party defendant. At page 206 of its opinion, the court spoke as follows:

"It should not be contended that a subcontractor can sue an owner under our Mechanics' Lien statute and not make the general contractor a party defendant, especially under the statement of claim as herein filed by the plaintiff. No privity of contract exists between the owner and the subcontractor. The general contractor is the link which connects the owner and the subcontractor. It is manifestly unjust to an owner against whom our statute operates with sufficient hardship, if properly and fairly construed, that, apart from the general contractor, he should be forced to defend against a claim of a subcontractor of which he may know nothing."

An obvious corollary to the above-stated rule, rendering contracts enforceable only by parties thereto or their privies, is that, generally speaking, an action on a contract cannot be maintained against a person who is not a party to the agreement.⁵ There are several variations from

² For a later decision from the same jurisdiction on this matter of interference, see Stern v. Gepo Realty Corp., 289 N.Y. 274 (1942).
³ Justification for the rule lies in the fact that otherwise a man's responsibility for failure to carry out his agreement with another would have no reasonable limits.
⁴ Westinghouse Electric Supply Co. v. Franklin Institute, 21 A.2d 204 (Del. 1941).
⁵ Thus, a subcontractor has been held not liable to the owner for defective work when the owner's negotiations were solely with the general contractor. Kircher v. Hunter, 101 Cal. App. 548, 281 Pac. 1047 (1929).
the general proposition just noted, one of these being that a principal is bound by the contract made for him by his agent (if the latter acted within the scope of his authority), even though such principal is not actually named in the contract nor his interest disclosed. The other side of the same coin, in a manner of speaking, is that one who contracts in a mere representative capacity is not individually liable where, from the manner in which the instrument is executed, it is apparent that it is intended as the obligation of the person represented and that such principal (and not the agent) is the real contracting party.

There is another basic exception to the general rule limiting the defendants in contract actions to those who are parties to the agreement. A third person may become bound under a contract by knowingly accepting benefits when the contract was made in his behalf.

5-13. Third-party Beneficiaries. Right to Sue. Down through the years one of the most controversial subjects in the field of contracts has been whether the old common-law rule that only the promisee can enforce a promise should be applied to cases in which the promise clearly was made for the benefit of a third person. The right of a beneficiary who furnishes the consideration to realize the fruits of the contract in which he has thus invested has long been acknowledged—often on the theory that the promisee acted as agent for the beneficiary in dealing with the promisor—but there was considerable diversity of opinion about the rights of a beneficiary who is a complete stranger to the contract he seeks to enforce.

The prevailing view in this country now permits a third person for whose benefit an agreement was made to sue thereon even though he is a stranger to the contract and to the consideration involved; indeed, several states have gone to the extent of providing by statute that one for whose benefit a promise is made may maintain an action upon such promise. The basis for the proposition permitting the third-party beneficiary to sue has been stated to be that "the law, operating on the act of the parties, creates the duty, establishes the privity, and implies the promise and obligation, on which the action is founded." As a practical matter, of course, the liberal American view permitting the beneficiary to sue makes a great deal of sense because it should make no difference to the promisor—who has received his consideration—whether the enforcement action against him be brought by the promisee with whom he dealt directly or by a third party who is the intended beneficiary under the contract.

It goes practically without saying that the contract upon which the third-party beneficiary seeks to recover must be a valid and binding one (entered into between competent parties, duly supported by a considera-

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*Brewer v. Dyer, 7 Cush. 337 (Mass. 1851).*
tion, and meeting the various other requirements of an enforceable agreement). The beneficiary's rights against the promisor spring from the contract as it was made, and—if it was in its inception void for lack of any essential element—the third party has no rights in the premises. Furthermore, one who sues on a contract made for his benefit must accept such contract as he finds it, and this means that his rights are affected by any infirmities of the contract as between the contracting parties themselves. The rights of a third-party beneficiary are derivative, and his position is consequently analogous to that of an assignee. Generally speaking, therefore, the promisor may interpose against the beneficiary any defenses which would have been available were the action brought by the promisee himself. To illustrate: Where the contract is void or voidable, as against the promisee, on grounds of fraud, mistake, infancy, or insanity, it is so likewise against the third party; or, if the duty of the promisor is subject to a condition precedent, the correlative right of the beneficiary is likewise conditional.

Identification of Beneficiary. It is not regarded as essential that the person to be benefited by the contract be named therein, as long as he is otherwise sufficiently designated as to be readily ascertainable; he may, indeed, be one of a class of persons, if the class is adequately described. Moreover, in order to enable a third person to elect to enforce a contract made for his benefit, it is not necessary that he become aware of the existence of the contract at the time it is made.

Types of Third-party Beneficiaries. For the sake of convenience, third-person beneficiaries of contracts to which they are not parties signatory, so to speak, may be divided into three categories: (1) creditor-beneficiaries, (2) donee-beneficiaries, and (3) incidental beneficiaries. As will be seen below, beneficiaries who comprise category (3) may not maintain an action on the contract. Let us now examine the several classifications of third-party beneficiaries in some detail.

Creditor-beneficiaries. It is the normal holding that where two parties enter into an agreement whereby one promises to pay the other's debt to a third person, such third person may recover against the promisor. In other words, it is usually held that a creditor-beneficiary may enforce a promise to pay a debt owed to him by the person to whom the promise was made. Although not really the initial decision of the sort, the famous case of Lawrence v. Fox, 20 N.Y. 268 (1859), is regarded as the leading authority to the effect that a creditor-beneficiary

Here is a typical example of a creditor-beneficiary situation: Where a mortgagor who is himself personally indebted sells his interest in the mortgaged property to a grantee who assumes payment of the mortgage debt, the mortgagee is a creditor-beneficiary and is almost universally allowed to sue the grantee to secure a personal judgment against him for the amount of the debt.
has an enforceable right. In the cited case Holly owed Lawrence $300, and Holly was ready to pay. Fox borrowed the money from Holly overnight, Fox promising to pay the debt to Lawrence the next day. Despite the absence of any “privity of contract” between them, it was held that Lawrence could sue Fox in enforcement of the latter’s promise to Holly.

A creditor-beneficiary is not bound to enforce the contract obligation against the promisor but is free to rely instead upon his original remedy against his debtor, the recipient of the contract promise. Thus, the creditor-beneficiary is armed with an enforceable claim against each of two individuals and can select the victim. If he sues both and secures two judgments, entire or partial satisfaction of one judgment will preclude to that extent enforcement of the other judgment.

Donee-beneficiaries. A third-person beneficiary under a contract is a donee-beneficiary (sometimes called a “sole beneficiary”) if the purpose of the promisee in obtaining a commitment from the promisor is to make a gift of same to the beneficiary or to confer on him a right against the promisor to some performance neither due nor asserted to be due from promisee to beneficiary. The donee-beneficiary’s ratification of the contract is presumed from the fact of benefit without burden, and his rights arise immediately upon the making of the contract.

Recovery in donee-beneficiary situations formerly was limited to cases where the third party was a close blood relative of the promisee, but the modern tendency is to permit any donee-beneficiary to recover against the promisor when the contracting parties intended to confer a benefit upon him. Besides being thus vulnerable to a suit by the donee-beneficiary, the promisor who breaches is answerable to his promisee.

Incidental beneficiaries. An incidental beneficiary is neither a creditor-beneficiary nor a donee-beneficiary but is simply one who happens to have found in some contract a provision which would inure to his advantage. The incidental beneficiary has no enforceable rights under such a contract, since the contracting parties had no intention of

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4 Not only does the beneficiary have alternate remedies available, but also the promisor finds himself open to two suits at law; both the creditor-beneficiary and the promisee may sue him for any breach of his contractual obligation, although actual recovery by one will bar recovery by the other. The promisee’s damages, of course, in an action against the promisor are the amount of the former’s indebtedness to the third party.

5 In life insurance the beneficiary is usually of the donee classification, and in all jurisdictions he can maintain suit on the policy; in some states this result was attained by statute, and in others by case law.

10 Aetna Life v. Maxwell, 89 F.2d 988 (4th Cir. 1937).

11 In the ordinary case, though, the damages recoverable by the beneficiary of a “gift promise” will be nominal indeed.
benefiting him, and it is the intention rather than the effect that governs. To permit recovery on his part, the intent to benefit the third person must clearly appear from the language of the agreement as a whole, construed in the light of the surrounding circumstances.\(^{12}\)

The case of *Segar v. Irish*, 156 Misc. 714, 282 N.Y. Supp. 450 (1935), affords a good illustration of the incidental-beneficiary proposition. It was held in that case that a carpenter, employed by the contractor in building a school, was at most an incidental beneficiary of the agreement between the contractor and the school district, requiring the former to insure materials used in constructing the building; hence the carpenter could not recover on any theory of third-party beneficiary for the loss of tools in a fire which destroyed the structure.

In the case of public contracts (for instance, one between a water company and a municipality), it has been held necessary for the contracting parties to intend that those of the public injured by a breach of the contract shall be compensated therefor. When members of the public are incidental (rather than intended) beneficiaries, they are not entitled to enforce the contract.

*Rescission of Third-party-beneficiary Contracts.* It is now clear that after the third-party beneficiary has become aware of the contract made for his benefit and has taken some action in reliance on it, the promisee no longer has power to release the promisor from the latter’s duty to the beneficiary. And this is true whether the beneficiary involved comes within the creditor or the donee category. On the other hand, there has always been divided opinion among courts regarding the power of the contracting parties to rescind before the intended beneficiary acquires knowledge of the existence of the agreement and changes his position as a consequence thereof. The weight of authority seems to be that the rights of a donee-beneficiary become indefeasible forthwith upon formation of the contract, while those of a creditor-beneficiary may be lost or qualified by prompt action of the contracting parties before the beneficiary can bring suit or otherwise materially alter his position in reliance on the promise.\(^{13}\)

5-14. The Nature of Assignment.\(^{14}\) An *assignment* by the holder of a right introduces a new party (the assignee) in his place. *Duties* cannot

\(^{12}\) If, however, such intention is indicated with reasonable certainty, an action by the third person should be maintainable even though the idea of benefiting him was only a secondary purpose of the contract.

\(^{13}\) The right of a life insurance beneficiary is generally deemed irrevocable, even prior to any knowledge or assent by that third party, unless the power of revocation has been expressly reserved to the insured in the policy contract itself.

\(^{14}\) Article 2 of Chapter 3 is devoted in part to a discussion of that special class of assignable contracts known as “negotiable instruments.”
ordinarily be effectively assigned. But the expression of intention to pass a right on to someone else is very generally given effect. When such is the case, the assignment extinguishes the right of the assignor against the obligor and substitutes a similar right in the assignee against the obligor.

It should be noted that a contract to assign in the future does not qualify as an assignment, since the latter term has no pertinence if any further action on the assignor’s part will be necessary to complete the right of the assignee. Moreover, assignment should be clearly differentiated from novation. Any contractual duty can be extinguished with the consent of the party who holds the right. If he agrees to the substitution of a new party as the one bound to perform, this arrangement may be effective as a novation;15 it is definitely not an assignment, because the latter term is used to denote a substitution brought about by the action of one party only who does not procure the assent of the other.

5-15. What May Be Assigned. Assuming the parties themselves have not expressly stipulated otherwise, all contract rights are assignable in the absence of a statute to the contrary or unless the contract is of such an unusual nature as to cause an assignment thereunder to conflict with public policy16 or to increase materially the burden imposed upon the contract obligor. A contract clause purporting to forbid assignment is almost invariably taken as having been intended to prevent the delegation of performance rather than to affect assignment of rights arising under the agreement. Thus, if Smith contracts with Jones to have the latter paint the Smith garage and the instrument states that “this contract shall not be assignable,” it should be held to mean that Jones must personally do the work and not that Jones is prevented from assigning his right to the agreed compensation. The right of an assignee under these circumstances would be conditional upon the satisfactory rendering by Jones of the stipulated personal performance.

An assignment is not ineffective simply because it is for any reason conditional or is revocable by the assignor. Generally speaking, an operative present assignment may be made of rights dependent upon a performance not yet due or rendered; but, in order for an assignment to be effective as against the obligor’s other creditors, there must be at the time of the assignment an existing agreement under which the rights are expected to arise.

15 For illustrations of novation and discussion of the principle, see DiFranco v. Steinbaum, 177 S.W.2d 697, 700 (Mo. 1944); and Wright Titus, Inc. v. Swafford, 133 S.W.2d 287, 292–293 (Tex. 1939).
16 For example, considerations of public policy would vitiate an attempted assignment by a government official of any part of his future salary.
5-16. The Delegating of Duties. It is often stated as more or less a truism that "rights may be assigned but not liabilities." A promisor can never escape his contractual duty by assigning it to another or by delegating another to perform it. But performance of duty is not the same thing as duty of performance. A contract requires of the promisor the production of a specified result. Usually there are several ways in which that result can be achieved, and it is immaterial which method is employed. Therefore, a particular duty can often be actually performed by a person other than the promisor himself, and the promisee ordinarily cannot prevent the discharge of his contract right and the promisor's correlative contract duty by such a vicarious performance. Most contracts do not require or envision the personal performance of the promisor. If Y undertakes to do work for Z which requires no special skill and it does not appear that Y has been selected with reference to any personal qualification, Z cannot complain if Y has the work done by an equally competent person. But Y is still liable should the work be poorly done, and Y is the only one who can sue for payment unless he has effectively assigned his right to the compensation stated in the contract.

There are a number of situations, of course, in which the promisor cannot delegate performance of his duty because the promised performance by its specialized nature necessitates his personal attention. To take a fairly obvious example, if Caruso had promised to sing on a given program, he could not have delegated performance to another tenor. The artistry contracted for was that of Caruso, and the work of a substitute would neither discharge Caruso's duty nor create a right to payment of the agreed compensation. Instead, Caruso would be liable in damages for breach of his agreement.

5-17. The Effect of an Assignment. The assignment of a bilateral contract really consists of two phases: (1) a delegation of the power to perform the assignor's contractual obligations, assuming such are not purely personal in nature, and (2) an assignment of such present or future rights as the assignor may have under the terms of the agreement. As we have seen, delegation of performance does not of itself relieve the assignor of responsibility for seeing to it that the stipulated functions are properly accomplished.17

With respect to the assignment feature noted under (2) above, the assignee's rights can be no better than these same rights were in the hands of his assignor, and if for any reason the assignor's claim was voidable or conditional, so also is the assignee's; that is, the assignee's

17If the assignee should fail to perform or should perform in an unsatisfactory manner, the assignor will be liable unless (by novation) the promisee has permitted the assignee to take the place of the assignor as party to the original contract.
claim is subject to all defenses which would have been available against the assignor. It should be mentioned that the assignee may (and by the usual modern statute must) sue in his own name, since he, and not the assignor, is the “real party in interest.”

5-18. Notice to Debtor Regarding Assignment. It is beyond question that if the debtor (obligor under the contract) receives instructions from his creditor to pay the debt to a third person (the creditor’s assignee), payment as directed before notice of countermand will discharge the obligation. On the other hand, it is equally obvious that if the debtor receives no word that the obligation is due to someone other than the party with whom he originally contracted, he is entitled to the benefit of any payment which he may make to his original creditor. Of course, the assignee has certain rights against his assignor when the latter fails to notify the debtor respecting the assignment and wrongfully collects from the debtor. In such a case debtor and assignee are both innocent parties; the debtor consequently is discharged and the assignor may be thought of as holding his ill-gotten gains in trust for the assignee.

5-19. Successive Assignments. When the holder of a contract right makes a second assignment thereof without procuring a release of the first one, it is generally held in the United States that the effective right is in the first assignee. An exception is made, however, when the second assignee in point of time pays value without knowledge of the prior assignment and in reasonable reliance on a document evidencing the existence of the right in the assignor, which document has negligently been left in the assignor’s possession by the prior assignee.

GENERAL RULES OF CONSTRUCTION

5-20. Contract Terminology Given Its Plain Meaning; Exception. The words of a contract are to be given their commonly accepted meaning, absent some evidence of a contrary intent. But technical terms will be construed in a technical sense, and a special and widely adopted trade meaning afforded certain terminology will be taken into account in any interpretation of a contract containing such terminology. Moreover, in construing technical terms utilized in an agreement, a court will ascribe considerable importance to the meaning given those particular terms in the course of any prior dealings between the parties.

5-21. Restrictions on Court Interpretations. A court is not free to disregard contract terminology employed by the parties or ordinarily to insert words which the parties have not themselves utilized; in other

18 Where, however, the assignment was merely as security for the payment of a previous debt due from assignor to assignee, the former retains an interest, and it has been held that in such circumstances suit can be maintained in his name.

19 That is, gives consideration.
words, judicial interpretation of a contract does not include its modification or the creation of a new or different contract.

5-22. Reasonable and Equitable Construction. An interpretation which gives a reasonable meaning to all the contract provisions will be preferred to one which leaves portions of the agreement useless or utterly absurd. Likewise, a court will often make some attempt at a construction equitable to each of the parties, but it cannot ignore or change harsh or even seemingly unreasonable terms which are clearly written into the contract, for passing upon the folly or wisdom of a given contractual undertaking is not within the province of the court.

5-23. Parties' Intent Important. Perhaps the cardinal rule in the interpretation of contracts is that the court must ascertain and give effect to the intention of the parties, as far as this may be accomplished without contravention of legal principles or public policy.

5-24. Clerical Errors. Obvious clerical errors or omissions which are revealed by a perusal of the instrument as a whole can be discounted in determining the intent of the parties. In fact, the court will strike out an improper word or even supply an omitted word if from the entire context it can readily and definitely ascertain what terminology was intended and should have been used.

5-25. Preliminary Negotiations. When preliminary negotiations are consummated by a written agreement or when an oral contract is evidenced by a subsequent agreed memorandum in writing, the latter supersedes any previous understandings, and the intent of the parties must be derived from the writing. In case of real doubt about the contract's meaning, however, all the preliminary negotiations between the parties should be taken into account in giving the final contract a proper construction.

5-26. Parties' Own Interpretation. When the parties to an ambiguous agreement have given it a practical construction by their conduct, as by acts in partial performance, such construction will be considered by the court in determining what the mutual intention was as of the critical time of contracting.

An excellent example of the point just mentioned is afforded by the case of Wiebener v. Peoples, 44 Okla. 32, 142 Pac. 1036, 1039-1040 (1914). Involved there was a contract for the construction of a building, which agreement called for the contractor to furnish all materials and labor and to erect the structure according to plans and specifications. One rather nebulous clause read: "Excavations and foundations complete

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20 Somewhat analogous to this is the proposition that courts will, whenever reasonably possible, so construe a contract as to uphold its legality and validity.

21 The parol-evidence rule, discussed in Art. 5-34, would preclude the introduction of any oral evidence to contradict the terms of the written agreement.
to joist line; will be completed to joist line by owners.” The litigation was concerned with the responsibility for supplying an iron railing required by the contract to be placed above the joist line on an outer retaining wall of a light and air space outside the basement. The builder argued that such outside railing was part of the basement and, as such, came within the exception previously quoted. The court stated that—absent the special interpretation applied to the contract by the parties themselves—it would have held construction of the railing to be a part of the builder’s responsibility and not within the contractual exception. However, the court’s eventual holding favored the builder. The basis for the decision was as follows:22

“It appears that in the construction of the building the parties to this contract mutually understood and construed it as requiring the defendants [owners] to make the excavation and foundations and to complete the entire basement of the building as required by the plans and specifications to joist line; and, in view of such construction by the parties themselves . . . , we hold that the expression ‘excavation and foundations complete to joist line,’ as used in this contract, refers to and means all that portion of the building within the excavations and below the joist line, i.e., the entire basement below that line, although we might be disposed to hold otherwise but for such construction by the parties as there is no other evidence of a technical or special meaning of the language used in this exception and it would not otherwise seem to include stairways leading to and from the basement.”

5-27. Implied Terms. A contract includes not only what is expressly stated therein but also what is necessarily to be implied from the language used. However, courts proceed with considerable caution in supplying by implication provisions omitted from written contracts and will imply an unexpressed term only where the implication arises automatically from the terminology employed in the instrument or is indispensable to effectuate the apparent intention of the parties.

A rather common example of an implied contract term is the case of a person who presents himself as specially qualified to perform work of a particular character. In such an instance there is an implied understanding that his product will prove to be of adequate workmanship and possess reasonable fitness for its intended use. Moreover, one who undertakes to accomplish a certain result agrees by implication to supply all the means necessary to enable him to perform his bargain.23

22 Italics supplied.
23 Thus, in McDonough v. Almy, 218 Mass. 409, 105 N.E. 1012 (1914), it was held that a contract for the removal of traprock by machinery implies an undertaking on the contractor’s part to obtain a license as required by a city ordinance for the use of a stationary engine essential to the performance of the work.
It is said that there can be no implied covenants in a contract in relation to any matter that is specifically covered by the written terms of the agreement itself. In this connection there is a familiar maxim ("Expresso unius est exclusio alterius") that the expression in a contract of one or more things of a certain class implies the exclusion of all things of that class not expressed.\(^\text{24}\)

5-28. Contract to Be Considered as a Whole. It is a fundamental rule of construction that a contract must be interpreted as a whole, with the meaning taken from the entire context rather than from a consideration of particular portions or clauses of the agreement.\(^\text{25}\) In order to determine the intent and significance of any one part, as well as of the entire contract, it is essential to construe all the component parts together.

Similarly, when several instruments are drawn up as part of a single transaction, they will be read each with reference to the other or others. Marginal notes on the contract document or matters contained in separate writings referred to in the contract (when clearly intended as a part of the agreement) may properly be considered in the interpretation of the contract. Thus, it has been held that, in construing a performance bond, the same should be considered in connection with the underlying building contract. See Carolina Builders Corp. v. New Amsterdam Cas. Co., 236 N.C. 513, 73 S.E.2d 155 (1952).

5-29. Construing Installment Contracts. The proper interpretation of installment contracts has proved exceedingly difficult upon occasion. Let us assume that Smith contracts with Jones for the purchase of 500 tons of coal, to be delivered at the rate of 100 tons a month until the entire amount has changed hands, each installment to be paid for on delivery. If the foregoing arrangement is to be deemed a series of separate contracts and not treated as one entire agreement, it follows that a failure by Jones to deliver any particular installment or a failure by Smith to pay for an installment when received would in no way affect the rights of the parties respecting the remaining installments. If, however, the contract is treated as an "entire" one for the delivery of the 500 tons (the stipulations regarding installments being inserted merely for convenience), the question of whether or not a particular installment has been delivered or paid for would have a definite bearing upon the agreement as a whole. What seems to be the majority view

\(^{24}\) Similarly, the fact that a condition is set forth in one of the clauses of a contract is regarded as excluding the idea that the same condition—this time unexpressed—was intended to be declared in another clause as well.

\(^{25}\) If it should appear that two clauses are so repugnant one to the other that they cannot stand together and make sense, the first clause is given effect and the second discarded in the interpretation of the agreement.
is that a contract of the type described in this paragraph should be regarded as one integrated whole, rather than as a series of independent agreements.

5-30. General versus Specific Terms in the Contract. As a rule, where in an agreement there are both general and special provisions relating to the same thing, the special will prevail. That is to say, the specific language will take precedence over the more general wording. Where, however, both the general and special provisions may be given reasonable effect, both are to be retained.

5-31. Writing versus Printing. When a contract is partly printed or typed and partly written and the printed portion cannot be reconciled with the written portion, the latter will prevail. The reason behind this particular rule of construction (which is resorted to only where absolutely necessary) is that the written words are the immediate language and terms chosen by the parties themselves for the expression of their meaning, and accordingly such written words are deemed worthy of greater weight than printed terminology intended for general use without reference to particular objects and aims.

5-32. Words versus Figures. In the event of an inconsistency between words and figures appearing in a contract, the words will govern. This is another in the long list of more or less flexible ground rules which courts will utilize in the interpretation of contract rights and liabilities.

5-33. Construing Vague Terminology against the Draftsman. Ambiguous language in an agreement will be interpreted against the party who employs it, the logical explanation for this state of affairs being that the draftsman is the one responsible for the uncertainties and must himself suffer any difficulties occasioned thereby. The foregoing rule of contract interpretation is most often applied where the contract is on a printed form prepared by one of the parties.

5-34. Parol-evidence Rule. To limit opportunity for fraud and mistake, the law will not allow oral evidence to be introduced to contradict what the parties have agreed to in writing; i.e., evidence to vary the terms of a written agreement is inadmissible. This rule does not, however, prevent the introduction of testimony intended to negative the very existence of the alleged agreement, nor does it preclude oral evidence regarding "supplementary" terms, when the contracting parties have neglected to reduce the entire agreement to writing; in this last instance parol evidence comes in not to vary but simply to complete the written contract. By the same token, certain explanatory evidence may be received orally, as, for instance, when identity of the contracting parties needs to be clarified (for example, when confusion has arisen from similarity of names, or when an agent has signed in behalf of an undisclosed principal).
For additional discussion of the parol-evidence rule, see Art. 26-9.

5-35. Existing Laws as Part of Any Contract. All laws which affect the validity, construction, discharge, and enforcement of a contract and which exist at the time and place of making and of performance of such contract are presumed to enter into and form a part of the agreement as if they were expressly incorporated by its very terms.

5-36. Conflicts of Laws. The general rule is that, as regards their nature, validity, and interpretation, contracts are to be governed by the law of the place where made, unless the contracting parties clearly appear to have had some other law in view. Normally the "place of making" is deemed to be the jurisdiction in which the offer was accepted or in which was accomplished the last act necessary to a meeting of the minds or to completion of the agreement.

Performance of a contract is governed by the law of the place of performance, and procedural matters by the law of the jurisdiction in which any suit is brought.

If the parties fail to designate a place of performance for the contract, performance will be governed by the law of the place where the contract was made.
CHAPTER 6

Performance or Breach of Contract Obligations

PERFORMANCE

6-1. Performance as Condition Precedent to Recovery. When the contractual duties of the respective parties to an agreement are supposed to be performed concurrently, neither party can recover (for breach by the other) without a showing that he has himself performed, has a valid excuse for nonperformance, or has made an effective tender of performance—i.e., has given timely notification to the other party that he is ready, willing, and able to accomplish whatever the agreement may have required of him.

When a contract has been fully performed on one side, the other party’s obligation to do his part is very apparent. But when a given contract is yet completely executory, much depends—as far as the obligation to proceed with performance is concerned—upon the nature of the respective promises involved. When these are independent of one another, a party must undertake timely performance of his particular obligation, regardless of what has been done on the other side. Contrariwise, should the promise of A be so constituted as to depend upon performance by B, A is not obligated to discharge his contractual duty unless and until B has accomplished his part of the bargain.

6-2. Substantial Performance. Generally speaking, of course, performance of a contract must be strictly in accordance with its terms, and a party cannot be compelled to accept performance at variance with that for which he bargained. And this is so even though a tendered substitute might well prove more valuable in a strictly pecuniary sense.

Nevertheless, there is apparent from judicial decisions a definite trend toward requiring merely substantial performance in lieu of absolutely literal compliance with precise contract requirements. The equitable doctrine of substantial performance stems from a desire of the courts
to protect those who have faithfully and honestly endeavored to perform their contractual duties in all material respects and to preserve the right of such persons to compensation despite unimportant defects in the performance involved.

Substantial performance may be defined as the accomplishment of all things essential to the fulfillment of the purpose of the contract, although there may be insignificant deviations from certain contract terms or specifications. While courts will enforce the rights of one who has thus substantially performed, it is equally logical that the other party, who has received something less than what he should have, is entitled to recoupment of some sort. A building contractor, for instance, having substantially but not strictly performed, can generally recover the sum stipulated in the agreement, less any damages occasioned by the minor defects in his performance. In the typical case of Boggs et al. v. Shadbush, 65 Ga. App. 683, 16 S.E.2d 234–235 (1941), builder sued owner to recover the full contract price of a house, and the latter counter-claimed, alleging that builder had not properly graded the yard and had not waterproofed the basement as stipulated in the contract. In discussing the principle of substantial performance, the court had this to say:

"Where a builder has in good faith intended to comply with a contract and has substantially complied with it, although there may be slight defects caused by a misconstruction of the terms of the contract, and the house as built has been received by the owner and is reasonably suited for the purposes intended, the contractor may recover the contract price less the damage on account of such defects. In such case the true measure of damages is the difference between the value of the house as finished and the house as it ought to have been finished under the contract, plans, and specifications."

It is often difficult, of course, to determine what constitutes substantial performance in a given situation. There can be no doubt, however, that the concept was never intended to confer on a party the right freely to deviate from his contractual undertaking or to substitute some material or type of operation he personally may regard as just as good as what is actually called for in the agreement. Moreover, where any deviation from the contract is willful or made in bad faith, the offending party is not entitled to recover at all. It is only where defects are purely unintentional, and not so extensive as to prevent the other party from receiving just about what he bargained for, that the principle of substantial performance comes into play.

^For other representative cases dealing with substantial performance, see Typhoon Air Conditioning Co., Inc., v. Fried et al., 147 Pa. Super. 605, 24 A.2d 926 (1942), and Ylijarvi v. Brockphaler, 213 Minn. 385, 7 N.W.2d 314 (1942).
6-3. Partial Performance. While the term *partial performance* is in some respects synonymous with *substantial performance*, the former is intended here to convey the idea of performance which—while sufficient to confer appreciable benefit on the recipient—falls short of the concept of substantial, or virtually complete, performance.

As thus defined, partial performance of an "entire" contract will not generally support a recovery on the contract.\(^2\) Thus, complete, or at least substantial, performance by one party is a prerequisite to his right to compel performance by the other party, unless the promises of the respective parties are independent of each other.

While the foregoing represents the general rule, there have been a number of cases which have permitted recovery of the fair value of the benefit afforded by the partial performance, particularly when the benefit is of such a nature that it cannot be returned. Naturally, a party who has performed part of his obligation and is prevented or excused by action of the other party from completing the work is entitled to compensation for materials supplied and for that portion of the work done. Similarly (though there is somewhat more doubt on this point than on the preceding one), if completion of performance is obviated by the intervention of an act of God or is prevented by governmental authority, an equitable recovery for the part performance may be had.

6-4. The Time Element. Unless the characteristics of a given contract are such as to render of extreme and obvious importance the performance thereof at the precise time designated (i.e., unless time is "of the essence") or unless the contract itself emphasizes the vital nature of the time element,\(^3\) failure of a promisor to fulfill his particular obligation within the stipulated period will not automatically discharge the other party's duty of performance, though any unwarranted delay will normally subject the delinquent party to damages. It is entirely possible, of course, that the delay might be waived by the promisee or excused in some fashion.

Absent a contract provision to the contrary, it seems that time will not be regarded as of the essence where a typical building contract is concerned. Many such contracts call for a certain amount per day as liquidated damages, to be deducted from the agreed total price in the event the job is not finished on schedule. This understandably serves as an incentive for the contractor to keep the work moving along briskly.

\(^2\) This is not the case, however, with respect to those contracts classified as severable (or divisible). For a consideration of the difference between entire and severable contracts, see Art. 3-7.

\(^3\) Some contracts will expressly provide that "time is of the essence of this agreement." When the parties have agreed to the inclusion of such language, a failure to perform within the time specified represents a material breach of contract and relieves the other party from the necessity of fulfilling *his* promise.
Obviously, it would be unfair to penalize a contractor for delays in his performance occasioned through fault of the other party or of those for whose conduct the latter is responsible. Indeed the innocent party is, in such circumstances, usually held entitled to recover damages. In this connection the case of *Ericksen v. Edmonds School District N. 15, 13 Wash. 2d 398, 125 P.2d 275 (1942)*, sets forth the applicable principles of law, albeit in somewhat an aberrational fact situation. Plaintiff general contractor had been authorized to construct certain additions to a school building. A completion date was set, and liquidated damages provided. One of the contract's general conditions was entitled "Claims for Damages and Extensions of Time" and read in part as follows (at page 278):

"The Contractor shall not be entitled to any claim for damages on account of hindrances or delays from any cause whatsoever, but if occasioned by any act of God, or by any act or omission on the part of the Owner, such act, hindrance, or delay may entitle the Contractor to an extension of time in which to complete the work. . . ."

Contractor failed to finish on schedule and blamed owner for having brought about the delays. In the process of holding that contractor was not justified under the agreement to claim damages but only certain time extensions, the court had this to say (at pages 279 to 280):

"It is undoubtedly the rule in this state, as well as in other states generally, that in the absence of any provision in the contract to the contrary, a building or construction contractor who has been delayed in the performance of his contract may recover from the owner of the building damages for such delay if caused by the default of the owner. . . . The rule rests on what is generally held to be the owner's implied obligation to keep the work of construction in such a state of forwardness as will enable the contractor to complete his contract within the specified time. "Where, however, the contract expressly precludes the recovery of damages by the contractor for delay caused by the default of the owner, that provision will be given full effect."

6-5. Approval of Performance. The authorities are definitely far from unanimous regarding the effect of a contract provision whereby one party agrees to perform to the satisfaction of the other. It is reasonably clear that, in any event, the latter must exercise good faith in evaluating the performance; the difficult question is whether or not his decision must be reasonable.

A distinction is frequently drawn between cases where personal taste or fancy is a factor and those involving only mechanical utility or op-

*Examples would include a contract for the painting of a portrait, the tailoring of a suit of clothes, or the performing of certain personal services.*
erative fitness. In contracts of the former type, where approval depends upon a matter of individual feelings about which there can be no real standard of reasonableness, it has uniformly been held that the party to be satisfied may, simply because of some whim or other, effectively reject what would appear to be a perfectly good performance.

Where no obvious question of personal fancy is concerned, courts have disagreed on whether or not the party whom the contract says shall be satisfied has an absolute right to pass on the character of the performance. A number of cases have held that a promise by one party to perform to the satisfaction of the other will be interpreted literally and that approval may be arbitrarily withheld, as long as any dissatisfaction is bona fide and not merely feigned for purposes of avoiding payment. The difficulties of proof of what constitutes good-faith dissatisfaction are obvious. On the other hand, many courts have inclined to the opinion that a performance which would be satisfactory to a reasonable man suffices. If a contract aims at a fixed mechanical result or at operative fitness—about which other persons can judge as well as could a party to the contract—and especially if the tests of performance are fully set out in the contract so as to be readily applied, the tendency seems to be to hold (in spite of the typical stipulation for satisfaction) that performance is successful if it attains the intended result and fulfills the contractual tests. Under such circumstances, dissatisfaction professed notwithstanding is treated as unreal.

6.6. Satisfying Third Persons; Architect’s Certificate. Contracts of any sort may, and construction contracts normally do, stipulate that all work is subject to the approval of some third person, typically an architect or engineer with expert knowledge in the field. When a contract requires the certificate of an architect as a prerequisite to payment, the contractor must show (1) that such a certificate has indeed been issued or (2) that the designated architect has withheld his approval fraudulently or in the exercise of bad faith or (3) that the owner has somehow waived his right to insist upon presentation of the architect’s written acceptance of the performance.

Where the contracting parties have thus duly constituted an architect, engineer, or some other third person as sole judge of the proper performance of the contract, the ultimate approval or disapproval given is conclusive in the absence of fraud or bad faith. The qualification inherent in the preceding sentence is, however, an important one. If

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the architect or engineer fails honestly to exercise his judgment or makes such gross mistakes as to imply bad faith, his decision about issuance of the certificate will not bind the parties. Refusal to execute a certificate of approval is justified only when there is real and substantial failure by the builder to fulfill his contract duties. In other words, the architect or engineer is not authorized to reject work which complies with contract plans and specifications. The power of approval vested in the third person does not entitle him to exact from the builder performance beyond the plain prescriptions of the contract.

One further limitation on the architect's power merits notice. It has been held that the usual certificate of satisfactory performance binds the owner as regards visible or readily ascertainable defects in the work completed, but not as regards latent flaws.

6-7. Arbitration Clauses. Somewhat analogous to the foregoing discussion is the matter of arbitration provisions. Building contracts almost invariably outline the procedure to be followed in arbitrating disputes which may arise during the progress of the work. The decision of the named arbitrators, where they act within the authority conferred by the contract, is conclusive unless these supposedly neutral persons have, in making their determination, been guilty of fraud, misconduct, or such gross mistake as would imply bad faith or a failure to exercise an honest judgment.

The mere fact that any arbitration award seems erroneous or even unreasonable is not enough to defeat it in court. Before it may be set aside, it must be either actually fraudulent or so obviously fallacious as to be self-impeaching in the light of circumstances and the terms of the contract.

When the arbitrators undertake to pass upon a matter not contemplated by the contracting parties, i.e., when they exceed their authority as it is prescribed in the contract, any action taken by them under such circumstances is not binding, regardless of the motives involved in the taking of that action.

6-8. Waiver of Imperfections in Performance. Not infrequently an owner will consent to certain deviations from contract plans and specifications and will accept incomplete or defective performance as though it were in strict compliance with the terms of the agreement. Whether or not work has been expressly or impliedly accepted and any imperfections waived is a question of fact which often proves difficult to resolve. If the defects are obvious or if circumstances are such that

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10 *In re Lower Baraboo River Drainage Dist.*, 199 Wis. 230, 225 N.W. 331 (1929).
knowledge of the imperfections may be imputed to the owner, his acceptance of the work will obligate him to pay therefor; furthermore, unless he promptly objects to the shortcomings in the work, he would have no right to damages (for instance, an offset against the contract price) for such patent defects in the performance.

Latent defects are something else again. Where, as an example, the deficiencies in a contractor's work are not such as could reasonably have been ascertained when the owner took possession of the structure and made payment under terms of the contract, the latter is clearly entitled to damages upon subsequent discovery of these imperfections within a reasonable time. What constitutes "a reasonable time" will, of course, vary widely with the type and size of structure involved and with other pertinent facts of the particular case.

Apart from the concept of latent defects just discussed, it is not every acceptance which amounts to a waiver of imperfections and entitles the performing party to remuneration. In the absence of substantial performance, acceptance of work for which a contractor seeks recovery must be something beyond merely "keeping and using," where the situation provides no opportunity for the owner to return whatever has been received. In a Wisconsin case involving a defectively constructed roof, use thereof by the owner was deemed not to represent acceptance of the imperfect performance, since the contractor's failures should not put the owner in the unfortunate position of having to abandon his building or to remove the roof in order to avoid paying for the defective work. In dismissing the contractor's action to recover for services rendered, the court had this to say:

"A contractor cannot enter upon the premises of another to perform a contract, ignore its terms, and clumsily or carelessly construct a roof falling far short even of a 'substantial performance,' and impose upon the owner the responsibility of choosing between being charged with the use and acceptance of the roof or going to the expense of removing it. Appellant had the right to use his building, and the breach of contract by respondents could not put upon him the alternative of abandonment of the building or removal of the roof."

EXCUSES FOR DELAY OR NONPERFORMANCE

6-9. Impossibility. Definition and Types. The term impossibility, when used in connection with excuses for nonperformance of contractual obligations, refers not only to literal impossibility but also to impracticability owing to some extreme difficulty encountered; the line of demarcation between impossibility (which may operate as an excuse) and

\[\text{Nees v. Weaver, 222 Wis. 492, 269 N.W. 266, 268 (1936).}\]
mere hardship or inconvenience\textsuperscript{12} (which is never really an excuse) is generally difficult to draw.

Impossibility may be characterized as either subjective or objective. \textit{Subjective impossibility} is due to incapacity of the party who has undertaken the performance; \textit{objective impossibility}, on the other hand, is that type which is attributable to the nature of the thing to be done.

\textit{Subjective Impossibility}. When impossibility of fulfilling a contractual commitment is due entirely to inability of the promisor himself—perhaps because of physical handicap or lack of skill—the nonperformance will not be excused. A party should not obligate himself to performance which is beyond his power and capabilities.

\textit{Objective Impossibility}. This type (1) may be present at the time the contract is entered into or (2) may occur subsequently. The former aspect of objective impossibility may be disposed of quite briefly. Where the impossibility of performance arises from circumstances in existence when the promise was made, performance is excused in the absence of evidence that the promisor intended to assume the risk of impossibility.

All further discussion of impossibility as an excuse for nonperformance of a contractual duty relates to that form of objective impossibility which comes into being after formation of the agreement. There is a notable lack of uniformity (among the reported decisions) about whether performance of an unqualified contract is excused where, by inevitable accident or some unforeseen contingency, it becomes impossible to accomplish what a party has promised. One considerable group of cases has taken the position that, in the absence of an express manifestation to the contrary, a contract will be regarded as subject to an implied condition that, if something necessary in connection with the promised performance goes out of existence through some act of God or other unforeseen occurrence not the fault of the promisor, nonperformance is excused. Even these comparatively liberal decisions recognize that a release from contractual obligation by reason of impossibility is necessarily subject to several qualifications. First, the impossibility involved must be bona fide and not simply a question of hardship or inconvenience. Second (and this has been mentioned before), the promisor seeking to be excused must not in his contract undertaking have assumed the risk of impossibility. Third, the performance will never be excused if the impossibility stems even to a limited extent from negligence or want of diligence on the part of the promisor.

A second basic line of decisions adopted a completely different approach, much less pleasing to promisors caught unawares by supervening objective impossibility. These cases have held that one who uncondi-

\textsuperscript{12} This subject discussed in Art. 6-12.
tionally obligates himself for a certain performance will not be excused by subsequent impossibility brought on by an act of God or other unforeseeable emergency. In other words, a positive commitment to do something possible of accomplishment as of the time of contracting will bind the promisor despite effective interference by some superior agency over which the promisor had no control, but against which interference he might have provided in his contract. The reasoning behind such decisions seems to be that the promisor has dug his own grave by voluntarily contracting to fulfill a certain duty without the reservations or exceptions which he might have included in his agreement had such been his desire. Where one of two innocent parties must sustain a loss, the law will leave the burden where the contract has left it.

Finally, there has emerged a sort of compromise position somewhere between the two extremes discussed in the preceding paragraphs. Cases which take this third viewpoint have excused performance when it has become impossible by an act of God (such as a great storm or an earthquake) but have refused to afford similar relief when the impossibility is occasioned by any lesser accident or unavoidable circumstance. A typical statement in these middle-of-the-road decisions is to the effect that a promisor is presumed, in the absence of an express contrary provision, to have assumed the risk of unforeseen contingencies arising during the course of the work, unless performance is rendered impossible by operation of law, by the other contracting party, or by a true act of God.

Intentions Manifested in Contract. In the last analysis a determination of whether an act of God or an inevitable accident will on the ground of impossibility discharge a contract duty often depends upon an interpretation of the particular contract itself. Frequently, contracts are so written that it is evident a promisor intended to bind himself to do certain things (or to pay damages for nonperformance thereof) notwithstanding the possibility, or even the likelihood, that the promised performance might subsequently become impossible. There can be no doubt that a person may contract to do the impossible as well as the difficult and be liable for failure to perform.

On the other hand, many contracts provide that such things as fire, war, accident, or “other causes beyond the control” of the promisor will obviate the necessity for performance. Where such a provision is not present, courts are prone to answer a promisor’s plea of impossibility or extreme impracticality with the assertion that emergency situations could readily have been guarded against by appropriate stipulation in the contract.

Parties to construction contracts will, in the average case, insert

18 Where performance is prevented by the negligent or wrongful action of the other contracting party, the promisor’s nonperformance is automatically excused.
clauses designed to impose upon one side or the other (or perhaps to apportion in some desired fashion) responsibility for loss resulting from accidental destruction of the building before its completion. Definite provisions such as these eliminate much judicial guesswork about the intentions of the contracting parties and appear to be in great favor with the courts.

Financial Recovery for Defaulting Promisor. Where, after partial performance, subsequent impossibility is deemed to excuse completion of the undertaking, the party benefiting from the partial performance will be obliged to return what he has received or to pay reasonable value of the benefit conferred, unless the contract clearly provides otherwise. In this respect, cases recognizing impossibility as an excuse for non-completion of a promised performance are true quasi-contract cases embodying the principle of unjust enrichment.

Take, for example, a contract for all the plumbing work in connection with a building under construction and a fire which destroys the structure before the plumber has finished his work or received any payment. Although there may be decisions to the contrary, based on odd fact situations or odd contract language, a party in the position of that plumber could normally recover in *quantum meruit*\(^4\) for the value of such work as he had been able to do before the fire.

6-10. Death or Illness of Party. Closely allied to the subject of impossibility as an excuse for nonperformance is death or disabling illness of the would-be performer. Where contracts for strictly personal services are involved, the death, insanity, or incapacitating illness of the party obligated will prevent his failure to perform from operating as a breach;\(^5\) in other words, absent the spelling out of a contrary intention in the agreement itself, contracts of such a nature as to require for performance the continued existence of a particular person will be treated as including an implied condition that the death of such party before any breach on his part will excuse nonperformance of his undertaking.

The above rule is generally limited to contracts of a personal nature and is not applicable where the service involved is of such a character that it may be performed as well by someone other than the promisor or where the contract language indicates that performance by others was contemplated. Thus, the ordinary building contract is regarded as such that the personal representative of the contractor could duly per-

\(^4\) Literally, *quantum meruit* means "as much as he deserved." An action in *quantum meruit* is based on a promise imputed to the defendant (in the absence of an express promise) to pay the plaintiff reasonable value for services rendered or materials furnished by the latter.

\(^5\) The involuntary dissolution by governmental authority of a corporate promisor presents a similar situation.
form all that the contractor himself was bound to do. Should death or incapacity of such contractor intervene, therefore, before he has finished the job, his executor or representative will be obliged to see to it that the work is completed.

6-11. Destruction of Subject Matter. The doctrine of impossibility, as discussed in Art. 6-9, is necessarily intertwined with the subject of the present article, just as it is with various other excuses advanced for non-performance of a contractual duty. Many of these extenuating circumstances are separately treated herein merely as a matter of convenience and not from any feeling that definite dividing lines exist.

The general rule is said to be that, where an obligated performance is such that accomplishment thereof absolutely depends upon the continued existence of a specific thing, the contract must be regarded as implying that, should the aforementioned thing become unavailable (before time for performance and without fault of the promisor), this state of affairs will discharge the duty in question. For instance, if a contractor undertakes to repair or remodel an existing building, the agreement is deemed to carry with it an implied condition that destruction of the building before the work can be done will discharge the contractor's duty, as long as he is not to blame for the mishap.

A 1944 Virginia case affords a fairly good illustration of how destruction of the subject matter of an agreement can relieve innocent parties of their obligations under the contract. Involved there was an undertaking by a public utility to supply natural gas to a housing authority. At the outset of the arrangement it was assumed by all parties concerned that the only known gas deposit in the area was extensive enough to afford an ample supply of fuel; consequently, the written contract contained no statement about the contemplated position of the parties should the source of supply prove inadequate. Eventually the utility was obliged to cease deliveries of the promised quantities because the gas deposit simply was no longer in existence. The court decided that defendant utility could not reasonably be assumed to have taken the risk of such an eventuality, and accordingly excused it from further performance of its contract. In the course of its discussion, the court had this to say (at pages 276 to 278):

"It is, however, fairly well settled that where impossibility is due to ... the fortuitous destruction or change in the character of something

This rule assumes, naturally, that the promisor has not expressly agreed to be responsible for the continued existence of the subject matter involved.

See, in this connection, Tripp et al. v. Henderson, 158 Fla. 442, 28 So. 2d 857 (1947) and American Jurisprudence, vol. 9, sec. 64, p. 46.

Housing Authority, etc., v. East Tennessee L. & P. Co., 183 Va. 64, 31 S.E.2d 273.
to which the contract related, or which by the terms of the contract was made a necessary means of performance, the promisor will be excused, unless he either expressly agreed in the contract to assume the risk of performance, whether possible or not, or the impossibility was due to his fault. . . .

". . . where, from the nature of the contract itself it is apparent that the parties contracted on the basis of the continued existence of the substance to which the contract related, a condition is implied that if performance becomes impossible because that substance does not exist, this will and should excuse such performance. . . .

"Each party to the contract knew that the supply of gas had to come from that specific locality. No other source of supply was available. Each knew that the supply from that field furnished the essential and necessary means of performance, and that the contract could not be fulfilled unless the gas supply continued to exist. They contemplated and assumed its continued existence and contracted with reference thereto as the means of performance."

The terms of a contract may, of course, foreclose any doubt by stipulating that a promisor is bound by his undertaking notwithstanding the untimely destruction of the subject matter through some inevitable accident. It is not particularly unusual to find a provision, for example, making a contractor responsible for repairing or re-erecting at his own expense should fire, storm, or other named cause of damage intervene before completion of the building under construction.

6-12. Hardship or Inconvenience. In its normal connotation, hardship, or severe inconvenience, is not an excuse in any jurisdiction. It is entirely competent for a party to contract unequivocally to do a difficult piece of work in a certain fashion, and the mere fact that the undertaking proves more burdensome than anticipated will not make the contract invalid or relieve the promisor of his obligation. If he wishes to be relieved of the necessity of performing should various contingencies arise, a contractor should have the foresight to assume only a qualified duty, expressly exempting himself from responsibility in certain events.

Almost any contract involves at least a small measure of risk, and in many instances unforeseen difficulties or expense will result in a considerable loss for one party and perhaps for both. A contractor submitting a bid on a construction job has to protect himself against, among other things, possible adverse changes in the cost of labor and materials. If he underestimates on these items and unfavorable circumstances arise, he must nevertheless perform his obligation according to its terms and absorb any resultant loss. And it matters not to what degree (short of absolute impossibility) the promised performance is rendered onerous or unprofitable by surprise troubles of various sorts. Even though a contract is found to be extremely burdensome to one party or the other,
the prerogative of the courts is not to remake the contract in a more equitable pattern but to enforce it as it stands.

Excavation contracts typify agreements whose breach the promisor attempts to justify on the grounds of hardship. Oftentimes the contractor runs into solid rock where he was expecting largely dirt or sand; but this untoward occurrence will not permit him to stop short of a full and substantial discharge of his undertaking.

While not serving as an excuse for nonperformance, severe difficulties which are unforeseen by the parties at the time of contracting and which impose upon one an additional burden not contemplated by either may well support a promise of extra compensation made in order to ensure completion of the contract. That is to say, courts have usually held that such a promise is adequately supported by consideration and will therefore be enforceable.

Likewise, where one party extends time for performance by the other in view of hardship conditions unanticipated by either party, the promise of extra time is generally regarded as supported by a consideration and thus as binding.

6-13. Strikes and Labor Trouble. Unless a contract clearly provides otherwise, delay or nonperformance is not excused just because progress has been impeded by strikes or labor trouble of some nature. This sort of happening is part of a contractor's calculated risk, and his only means of protection is to insert in the contract a stipulation relieving him from the obligation of timely performance if a crippling strike should occur. The practice of inserting just such a contract provision is widespread and familiar. Agreements which do not contain clauses of this type cannot fairly be construed as if they did contain them.

6-14. Supervening Illegality. Apart from the infrequent instance where there is a contract provision to the contrary, any agreement is regarded as carrying with it the implied condition that a promisor's duty will be discharged if, through no fault of his, performance is prevented or prohibited by statutory enactment subsequent to the date of the contract. In other words, frustration of contract by governmental action is a good defense to a claim for breach, and nonperformance will create no right to damages when performance was rendered impossible by a change in the applicable law.

As a practical matter, supervening illegality had to be treated by the courts as a complete excuse for nonperformance of affected contractual obligations. To hold parties as bound to anticipate future legislation would be equivalent to making them subject themselves to performance

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of conditions to be prescribed later on by others—an unhappy situation at best.

It has been held that denial of a necessary license or permit will not discharge a contractor's obligation, although performance is illegal without such governmental permission. The reasoning here is that the contractor assumed the risk that he would be able to procure the needed license.

6-15. Frustration of Object. This is a rather nebulous concept but one which has, in one guise or another, been creeping into the decided cases for many years. Where parties contract with obvious reference to some activity governed by outsiders and that activity fails to develop in the fashion anticipated by such contracting parties, this circumstance may well excuse nonperformance of their respective duties. To effect a discharge, the activity must have been so thoroughly the basis of the contract that, as both parties realized, without it their entire agreement was meaningless.

The principle is best clarified by a rather typical example. Suppose there is an athletic contest of great local interest scheduled for a certain day and that Smith has agreed to purchase advertising space in a souvenir program which Jones has promised to print for distribution at the game. When for reasons completely beyond the control of Smith or Jones the contest is canceled, the entire foundation upon which the Smith-Jones agreement was built has disappeared, and both parties are relieved of their obligated performance.

6-16. Waiver by Other Party. The doctrine is well established that strict performance of a contract duty may be dispensed with by the other party. Sometimes the waiver (which may be conditional in nature) amounts to an outright dispensation of any performance whatever of the obligation involved, but more often it takes the form of acceptance of performance which differs materially from that called for by the contract. A waiver must be manifested in some definite fashion, though meaningful conduct will suffice just as well as an oral or written declaration.

Waiver requires both knowledge and intention, and is definable as the voluntary surrender of a right. The term waiver is often confused with estoppel; while there are similarities, the two are distinguishable concepts. For one thing, any intention to abandon a right is immaterial to estoppel—where the important considerations are (1) prejudice to one party (2) resulting from misleading conduct by the party estopped.

The authorities are not in accord about whether a waiver in order to

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20 It is always open to a particular party expressly to assume the risk of all chance occurrences, and, where he has done so, his duty of performance is not affected by contingencies of any sort.
be binding has to be accompanied by a valid consideration in cases where the elements of estoppel are not present.

6-17. Material Alteration or Fraud by Other Party. In the event one of the contracting parties, without consent of the other, substantially changes the terms of a written agreement, the other party at his option may regard the contract as terminated and his duties thereunder as extinguished. Loosely speaking, fraud by the party otherwise entitled to performance will excuse the other party’s failure to perform.

6-18. Repudiation or Breach by Other Party. It may be stated as a general proposition that, where contractual promises have been exchanged one for the other, a material breach on the part of one party will, unless occasioned by conduct of the adverse party, clearly justify the other’s refusal to perform and will entitle the latter party to any provable damages resulting from said breach. That is to say, if one party is unable or unwilling to perform his part of the contract and thus furnish the agreed-upon consideration for a return performance, such failure of consideration will operate to discharge the obligation of the innocent party. The breach must be substantial if it is to result in excusing subsequent nonperformance by the injured party; an “inmaterial” breach will not terminate the arrangement, and the adversely affected person must yet undertake to fulfill his particular promise, though he retains the right to recover for any loss which the partial breach entails. As might be expected, the standards of materiality vary widely and it is often a close question whether a given breach will justify the other party in treating the contract as at an end. This matter of just what type or degree of breach will discharge the innocent party is further treated in subsequent articles of the present chapter, and also in Art. 7-4.

Prospective failure of consideration is fully as effective as actual failure in excusing the injured person from performing. Thus, where one party to an executory agreement repudiates his own contractual obligations and declines to be bound thereby, the other party, upon being apprised of this state of affairs, will no longer be obliged to render whatever performance he, in turn, had promised. But while outright repudiation obviates the necessity of performance (or tender thereof) by the adverse party, it should be borne in mind that the repudiation must be definite and must go to the essence of the contract. Moreover, the repudiator may nullify the effect of his statement by a timely retraction before the other person has accepted the refusal as final and has acted in reliance thereon.

It has become an almost universal holding that, in the event of re-

21 As previously indicated, negotiable instruments comprise a special category of contractual obligations, and special rules consequently pertain to them. See Art. 3-2.
pudiation before performance by the other party is complete, such other party cannot, by continuing to perform regardless, enhance the measure of damages which the breach has entitled him to recover.

6-19. Prevention by Other Party. Where wrongful conduct of one party has prevented performance by the other, the latter's duty is discharged. Moreover, the wrongdoer has by his interference committed an actionable breach of contract and will find himself liable in damages.

It follows that a building contractor who is delayed or stymied completely by the owner (or by an architect or engineer acting on the job for the owner) cannot be held responsible for failure to complete the work on time, or for outright nonperformance, as the case may be. Under these circumstances, of course, any liquidated damages imposed upon the contractor by the terms of his agreement would not be payable. The owner is in no position to insist upon fulfillment of a contract when he is the party responsible for breach.

Closely allied to the idea of prevention of performance is refusal of tender. Generally speaking, where one party has by act or word unequivocally indicated his unwillingness to accept the obligated performance of the other party if and when tendered, the latter will be excused from performing. After all, the party who stands ready and willing to satisfy his contractual obligation according to its terms cannot force the adverse party to accept performance; therefore, his inability to complete his undertaking is directly traceable to conduct of the other party and is excusable.

6-20. Failure of Condition. The terms of a contract may make it apparent that a particular duty of performance is conditioned upon the occurrence, perhaps at a stated time and place, of a given event. Failure of such a condition would, of course, relieve the promisor of the necessity of performing that particular duty. To use a rather unlikely illustration, suppose Smith promises a car to Jones in return for the latter's promise to pay $500 if it rains on May 30. Smith has an unconditional duty to deliver the vehicle, but Jones's duty of performance is discharged if it should fail to rain on schedule.

THE NATURE OF BREACH

6-21. Definition and Forms of Breach. An actionable breach of contract occurs when a promisor, without sufficient excuse or justification,

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*Every contract contains an implied covenant by each party not to block performance by the other party.

*The general rule is that suit to recover these damages may be instituted even before arrival of the time fixed for performance by the guilty party of his own contract duties.*
fails to perform in accordance with the dictates of his agreement.\(^{24}\) Not every failure to perform stipulated obligations amounts to a true breach, however; as we have seen in some of the preceding articles, there are a number of valid excuses for nonperformance—excuses which operate to discharge contract duties. Where parties enter into an agreement on the expectation that a certain condition will materialize, failure of such condition to occur will not be treated as a breach of contract unless one of the parties has given his enforceable promise that the condition will indeed occur or does actually exist.

While failure to perform an obligation in whole or in part is the most common form of breach, there are several other ways in which a contract may be broken: a party (1) may renounce his duties thereunder or (2) may by his own act make it impossible that he should fulfill them or (3) may prevent or seriously hinder the other party’s performance.

6-22. Total Breach; Partial Breach. Although every breach of a contractual obligation confers upon the injured party a right of action, it does not follow that every breach will discharge the latter from accomplishing whatever he has committed himself to do under the contract. The agreement may have been broken wholly or only in part; if the breach is merely partial, it may or may not be of sufficient importance to terminate the reciprocal duty of the injured party. Where one party is guilty of total breach (or of partial breach which, in the particular circumstances, is material in its scope), the other person may cease performance on his part and obtain a judgment for damages as well.

6-23. Anticipatory Breach. This somewhat controversial doctrine holds that, if a party announces, before his performance is due, his definite unwillingness or inability to fulfill the contract, he thereby admits he is guilty of breach and relieves the adverse party from further obligation, meanwhile affording the latter an immediate right to sue for damages. The repudiation must be positive and unequivocal; a mere threat to abandon the contract will not suffice. As its very name would indicate, a true anticipatory breach requires that the repudiation antedate the time fixed in the contract for performance by the renouncing party.

It has been determined that any proceedings culminating in a bankruptcy adjudication are the equivalent of anticipatory breach, apparently on the theory that every contract carries an implied condition to the effect that a promisor will not allow himself (through insolvency, for example) to reach such a condition that he is unable to perform as scheduled.

\(^{24}\) When time is of the essence of a contract, failure to complete the undertaking within the period specified is a material breach.
6-24. Voluntary Disability as Breach. It is well settled—and makes very good sense—that a person cannot avoid liability for nonperformance of an obligation simply by so maneuvering as to place performance beyond his power. Put another way, a party who deliberately incapacitates himself or renders impossible the proper performance of his contract duties has, in effect, broken his agreement and is liable forthwith in damages.

An old English case\(^25\) well illustrates the point. Franklyn promised to assign to Lovelock all his interest in a certain lease within seven years from the date of the promise. But before the end of the seven years Franklyn assigned his whole interest to a third person. In the course of holding that Lovelock need not wait until the end of seven years to bring suit, the court had these comments:

"The plaintiff has a right to say to the defendant, You have placed yourself in a situation in which you cannot perform what you have promised; you promised to be ready during the period of seven years, and during that period I may at any time tender you the money and call for an assignment, and expect that you should keep yourself ready; but if I now were to tender you the money, you would not be ready; this is a breach of the contract."

6-25. Prevention as Breach. Interference by one party, rendering performance by the other party impossible, will (as previously discussed in Art. 6-19) excuse the resulting nonperformance of the innocent party. Such tactics also constitute a breach of contract on the part of the obstructionist and provide the innocent party with a right of action. Thus, where owner without justification prevents performance by contractor, the latter’s duty is discharged and the owner is liable for breach of contract.

WAIVER OF BREACH

6-26. Definition; Alternatives for Innocent Party. Waiver is essentially a voluntary abandonment of a known right, and, when the term is employed in connection with breach of contract, it means the giving up of a right to treat the agreement as terminated by reason of the other party’s breach of a duty thereunder. Such right to abrogate is deemed to have been waived when the injured party continues to treat the contract as a subsisting obligation, as by expressing willingness to accept further performance by the wrongdoer (or, a fortiori, by actually insisting upon that performance), notwithstanding the breach.

When a particular obligation has been broken in the course of performance of the contract, the injured party is, in the ordinary case, presented with several alternatives. He may elect to treat the entire con-

\(^25\) Lovelock v. Franklyn, 8 Q.B. 371 (1846).
tract as discharged outright because of the default, or he may waive the breach and continue to carry out the agreement according to its provisions. But the innocent party cannot have his cake and eat it, too. Acts evidencing an intent to adopt the waiver alternative will operate as a conclusive election, depriving the innocent party of any excuse for subsequent failure of performance on his own part. If the defaulting party has been induced to carry on with performance or otherwise to alter his position in reliance upon the continued recognition of the contract by the innocent party, the latter cannot subsequently switch signals and assert that the contract was indeed discharged in the first place.

6-27. Elements of Waiver. Courts are inclined to pick their way slowly and carefully whenever a claim of waiver arises, since abandonment of a right to insist on performance strictly in line with the contract amounts in a sense to modification of the agreement. Broadly speaking, to render an alleged waiver binding there must be present something in the nature of consideration or an element of estoppel. Moreover, the party electing to waive must have knowledge of all essential facts surrounding the breach. A Massachusetts case is illustrative of this last point. It was there held that acceptance of highway-repair work did not constitute waiver of subcontractor's failure to erect guard-rail posts reinforced by the number of steel rods prescribed in the specifications, since neither the general contractor nor the state authorities knew that the posts as supplied contained fewer than the required four rods apiece. The following language is from page 643 of the decision:

"Neither can we agree with the plaintiffs' contention that the acceptance of the work by the Commonwealth and its payment therefor to Hosmer were a waiver of the failure of Russo to furnish and erect posts having the required number of rods. There is nothing in the auditor's report that will support a waiver. There is an express finding that neither Hosmer nor the department of public works knew that these posts contained less than four rods. Hosmer on this record cannot be said to have waived a defect that was unknown to him. A waiver is an intentional relinquishment of a known right."

Waiver may be accomplished by express words or by conduct which is inconsistent with an intention to abrogate for breach, but mere silence will not amount to waiver where one is not bound to speak. Whether there has indeed been a bona fide waiver in a given set of circumstances often presents a close question of fact. For example, in one case a

28 Such a waiver does not necessarily preclude the injured party from recovering for any damages occasioned by the partial breach.


subcontract for installing panes of glass in a building obligated the subcontractor to clean the glass before final inspection. Upon his refusal to do so, it became necessary for the contractor himself to perform the work, since the cleaning was a prerequisite to final approval of the entire construction project by the architect and engineer. Under the circumstances, it was held that the general contractor's conduct did not represent a waiver of the duty resting on the subcontractor.

6.28. Mutual Desire to Ignore Repudiation. As previously noted, when one party renounces his contract and refuses to perform same, the other party acquires an immediate right to abandon the agreement and to secure legal redress for the harm done him. The innocent party is not entitled to ignore the fact of renunciation and enhance his damages by continuing to perform regardless. However, where there is mutual consent to do so, the respective parties may forget all about the repudiation and may resume fulfillment of the contract.

REMEDIES FOR BREACH

6.29. General Considerations. It is axiomatic that persons who violate their agreements to the detriment of others with whom they contract must answer in some appropriate way for the injury done. The contract may, and quite commonly does, provide for the precise consequences which shall follow upon breach. Where the parties have stipulated in advance for a particular remedy, that one will be treated by the courts as the exclusive means of redress; the intent of the parties will in every case be determinative as regards the matter of exclusiveness.

Apart from express contract provisions which might readily alter the situation, breach normally presents the injured party with a choice of several possible alternatives. His principal option lies between compensatory damages and restitution. Under certain circumstances, a decree of specific performance or an injunction will be an available recourse.

As has been noted several times before, the general rule is that material breach of contract frees the injured party from any further duty to render the performance required of him by the contract. At the same time, he is privileged to seek redress for the wrong done him, and usually this recovery will take the form of an action for money damages,

29 The repudiation may be nullified by timely withdrawal of the “renouncing” declaration before the other party has become aware of the fact of repudiation and perhaps has changed his position accordingly.

30 The judicial remedies of damages, restitution, and specific performance will all be considered at some length in the articles which follow.
measured, roughly, by the value of the performance he had expected to receive from the adverse party. If, on the other hand, he has himself partly performed at the time breach occurs, he may decide to sue for the reasonable value of what he has supplied or accomplished; if he chooses this remedy of restitution and a recovery in quantum meruit, courts are wont (albeit somewhat loosely) to say he has "rescinded" the contract.

While the injured party usually has such an election of remedies at his disposal, it must be remembered that, once he has manifested his choice and the other party has taken any action in reliance upon that manifestation, the choice is binding and will bar recourse to any alternative.

6-30. Damages. Nominal Damages. As we have seen, a breach of contract invariably creates a right of action in the aggrieved party. Even in those instances where no substantial harm has been done or where no loss whatever is traceable to the breach, and even in those very rare circumstances when the innocent party is actually benefited by the breach, the defaulting party is subject to a judgment for so-called nominal damages. This will mean a very small sum fixed by the court more in recognition of the default in performance than in compensation for any bona fide loss.

Compensatory Damages. Undoubtedly the most common remedy for breach of a valid\textsuperscript{21} contract is the recovery of a sum of money awarded as compensatory damages. In ascertaining the proper measure of such damages, the fundamental consideration is to place the innocent party in the position he would have occupied had the contract been performed according to its terms.\textsuperscript{22} To accomplish this, there should be recompense for loss suffered and gains prevented in consequence of the default. As it has been expressed in a number of decisions:\textsuperscript{23}

"One who fails to perform his contract is justly bound to make good all damages that accrue naturally from the breach; and the other party is entitled to be put in as good a position pecuniarily as he would have been by performance of the contract."

On the other hand, there can be no recovery for purely speculative damages or for elements of damage which were clearly not within the contemplation of the respective parties at the time their agreement was signed. In other words, the injured party is not entitled to better his

\textsuperscript{21} Any suit for damages must perforce be based upon a valid contract. Otherwise, there could be no actionable breach in the eyes of the law.

\textsuperscript{22} This concept differs radically from that of restitution, which seeks—to the extent possible—to restore the innocent party to the position he was in before contracting.

\textsuperscript{23} See, for example, Miller v. Robertson, 266 U.S. 243, 257 (1924).
position from what it would have been had no default occurred. Similarly, damages for breach are intended as compensation, and not as punishment for wrongdoing. Consequently, the injured party may not recover anything in the nature of punitive or exemplary damages, even, as we shall see, if the contract itself prescribes such a consequence for breach.

Expenses incurred by a party in preparation for performance of a contract before its abandonment by the other party are proper elements of damage occasioned by the breach. Generally, where a building contractor’s performance is prevented by the owner’s breach, damages are (1) what has been expended toward the performance plus (2) profits that would have been realized by full performance. 34 Certainly the builder has a right to reimbursement for his out-of-pocket expenditures 35 (as well as to his reasonably anticipated profits), since, had the owner kept his part of the bargain and paid the full contract price, this amount would presumably have sufficed to cover the builder’s expense and his expected profit as well.

On the other side of the picture, if the contractor is the defaulting party, the owner may recover the cost of having the job completed. Likewise, should the contractor himself handle the task in its entirety but it develops that the work is defective, the owner is in a position to require reimbursement of whatever it costs to make the work conform to the contract.

Duty to Mitigate Damages. A party in default on a contract has the right to expect that the adverse party will do everything reasonably possible to minimize damages, and the latter cannot recover with respect to that portion of the loss which he could readily have avoided once the fact of breach became known to him. For example, the measure of damages for default on a contract to deliver goods is ordinarily the difference between the contract price of said goods and the market price at the exact time when delivery should have been effected. If, however, the injured party might have reduced his loss (as, perhaps, by an immediate purchase at a low price of goods to replace those not delivered), his failure to do so will be taken into account in assessing his recoverable damages. What constitutes a reasonable effort at mitigation is a question of fact in each case.

Liquidated Damages. Contracts in general, and building and construction contracts in particular, not infrequently stipulate that a certain

34 Blair et al. v. United States, 147 F.2d 840, 848 (8th Cir. 1945), modified, 150 F.2d 676 (1945).
35 If there remain on hand at the time of breach materials which the builder has purchased for the particular job but which can be utilized by him elsewhere, the value of such supplies should be deducted from the builder’s total expense outlay when damages are being measured.
sum per day shall be paid by way of liquidated damages in the event completion of the work is not accomplished on schedule. Such clauses will be upheld if the sum provided for is commensurate with the extent of injury which could reasonably be anticipated, and if the effect of the provision is compensation for breach rather than exaction of a penalty from the contract breaker. In other words, a stipulation for liquidated damages is enforceable where it is not merely a cloak for a penalty. The real test is whether the amount fixed bears some reasonable relation to the damages likely to result from breach of the contract. Here is quite a typical case illustrating the various aspects of liquidated damages. Contractor agreed to furnish all the material and labor and to erect a store building for owner. The structure was eventually completed, and owner made payments on the contract, withholding a portion of the total contract price as liquidated damages for contractor's failure to finish the work on time. The agreement of the parties had called for $10 for each day that the time consumed in performance exceeded the allowed time of seventy-five days. The building was to house two retail establishments, for which tenants had been secured in advance and were ready to pay rent starting with the scheduled completion date. One of the stores had actually been leased before such completion date.

Under the circumstances as above outlined, the court was convinced that the clause setting the figure of $10 a day for delayed completion was a fair attempt to estimate likely damages and was therefore binding. In the course of its opinion, the court abstracted as follows another Michigan decision:

"'Courts will disregard the express stipulation of parties as to the damages for breach of a contract only in those cases where it is obvious from the contract before them, and the whole subject-matter, that the principle of compensation has been disregarded.

"'In cases where it is difficult to accurately determine the damages which one party may suffer by the failure of the other to perform his contract, the parties themselves may agree upon such sum as in their judgment will be ample compensation for the breach.

"'A provision in a building contract to forfeit $20 per day for failure to complete repairs on a dwelling house within the contract period is not per se excessive so as to amount to a penalty.'"

6.31. Restitution. Where the aggrieved party in a breach situation does not desire compensatory damages but wants merely to recover

It is said that courts "abhor a penalty or a forfeiture"; consequently, they are inclined to examine with a critical eye provisions which purport to set liquidated damages.


whatever he may have parted with in the process of satisfying his own contractual obligations, he is said to seek the remedy of *restitution*. In a sense, he unilaterally "rescinds" the agreement at point of breach and demands the return of money he has paid thereunder or the value of goods he has delivered or of such work as he has done. The usual restitution case does not involve the return by the party in breach of a specific item but rather payment of the reasonable value of whatever consideration he has received under the contract up to the time of the default. In comparing restitution with compensatory damages, it may be said that the former remedy aims at restoring to the injured party the value of performance he has rendered; damages, on the other hand, are designed to secure for the injured party the full value of what the party in breach had undertaken by his contract to accomplish.

In theory, restitution works both ways, and the aggrieved party must himself return or account for any benefits he received before the breach occurred. This requirement is not enforced with unvarying strictness, however, and is presumably never so applied as to make it a shield for wrongdoing. Such restoration by the injured party as is "reasonably possible" and such as "the merits of the case demand" will suffice. For instance, it has been held that the injured party seeking the remedy of restitution need not offer restoration for his own part where what he has received consists solely of money, the amount of which he will be entitled to in any event. The common sense of such a holding is apparent.

6-32. Specific Performance. Under certain rather well-defined circumstances, courts will enforce by a *specific Performance decree* a contract promise to do a given thing, and by an *injunction* a promise to forbear.\(^5\) This particular form of redress is by no means available in all breach situations; some of the more significant limitations are hereinafter mentioned.

Where damages provide an adequate remedy, specific performance will not be granted. As might be expected, the question of adequacy is very often difficult to resolve. In personal-property cases, compensating damages will normally suffice, but there have been a number of instances where specific performance was decreed on the ground that unique chattels of uncertain value were involved.\(^6\) Agreements for the sale of interests in realty, on the other hand, are very commonly enforced by

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\(^5\) Essentially, injunction and specific performance are equivalents, since in either instance the promisor is being required to live up to the bargain he has made.

\(^6\) For an illustration of this, see *Corbin v. Tracy*, 34 Conn. 325 (1887). By that decision a promise to sell a patent was specifically enforced, the theory being that damages could not be readily measured and were thus an unsatisfactory form of relief to the injured party.
specific performance decrees; a specified piece of land is impossible of precise duplication, and money damages in any amount for breach of a contract to sell that particular plot are (in theory, at least) inadequate. The choice of the would-be purchaser may have been dictated by considerations of health, convenience, profit, or any one of a dozen other things. He is entitled to have the exact land for which he contracted.

By its very nature, the remedy of specific performance is largely discretionary with the court before which it is sought. Unless the contract at issue is fair and just and unless its terms are definite and certain, the chances that specific performance will be ordered are slim indeed. The court must be in a position to determine with reasonable assurance what are the contractual obligations of which enforcement is sought and what are the conditions under which performance is supposed to be rendered. It is not necessary, incidentally, that both parties have identical remedies available in the event of breach; consequently, specific performance may be decreed at the instance of one party even though similar redress would not have been open to the adverse party had he been the injured one. \[41\] Moreover, it has been held that specific enforcement of a contractual undertaking is not precluded by the existence of a liquidated damages provision, but the matter cannot be regarded as definitely settled.

Since courts have real discretion in dealing with petitions for specific performance, they are inclined to exercise their prerogative and refuse to grant the requested relief if it appears that the performance entailed is such that extensive and burdensome supervision would be needed for effective enforcement. If, for example, a court endeavored to enforce an agreement for the supply of goods by installment over a long period of time, it is obvious that this would involve the court in a task of superintendence such as it could not conveniently undertake. Partly for this same reason of undue supervisory difficulty and partly because their specific enforcement would amount to involuntary servitude, promises to render personal services will not be handled by affirmative orders of specific performance. Within limits, however, negative promises\[42\] respecting personal services are enforceable by injunction.

\[41\] Suppose that Green agrees to serve as Brown's gardener for the summer in return for Brown's promise to transfer a specified piece of real estate. Green fully performs his part of the contract, but Brown defaults completely. Under the foregoing circumstances, Green would be entitled to specific performance despite the fact that in no event could Brown have secured a similar decree (since obligations to render personal service will not be specifically enforced).

\[42\] That is, promises not to do the work in question for someone other than the promisee. Thus, a great musician might promise his services to a particular orchestra and at the same time covenant that he would not perform with any other musical organization.
With regard to construction contracts as a special category of agreement, it can be said in general that such will not be enforced by specific performance decrees. There are various reasons for this, but the principal one seems to be that damages afford an adequate remedy, regardless of whether the owner or the builder is the party in breach. Also, of course, superintending performance of a construction contract would impose upon the court an extremely difficult, if not impossible, burden.
CHAPTER 7

Termination of Agreements

IN GENERAL

7-1. Means of Discharge. Contracts of any sort may be brought to an end in a variety of ways, with full and satisfactory performance by both sides being the usual mode. Sometimes it seems as though breach is almost as common a cause of contract termination, but this impression stems largely from the fact that broken agreements get more than their share of publicity. Upon default, as we have seen, the contractual ties are loosened, but a new obligation enters the picture in the form of a right of action accruing to the innocent party.¹

A third means of contract termination is mutual agreement,² the same process which created the relationship in the first place. Fourth, a contract may be closed out because it has become impossible of fulfillment, under circumstances which completely excuse the respective parties from their several obligations and duties. Finally, discharge of the contract may be effected through operation of law as, for example, in a bankruptcy situation; the bankrupt party’s trustee is, generally speaking, in the enviable position of being empowered to pick and choose among the bankrupt’s contracts, enforcing those he wishes and repudiating such as appear unprofitable. Contracts “voidable” by reason of fraud, infancy, and the like are, in a sense, discharged through “operation of law” when the party entitled to do so exercises his privilege of terminating the contractual relationship.

¹ This right of action (quite apart from the contract which gave rise to it) may itself be terminated; thus, the judgment of a court of proper jurisdiction rendered in a suit brought upon the right is said to merge such right and, in effect, to discharge same. Somewhat similarly, the several judicial remedies available to the party injured by breach of contract will be barred should the applicable statutory period of limitations run its course before appropriate action is taken to invoke the aid of the courts.

² This may take a number of forms, the principal ones of which are detailed in Arts. 7-7 to 7-12.
TERMINATION THROUGH PERFORMANCE
OR EFFECTIVE TENDER THEREOF

7-2. Type of Performance Required. In order to bring about discharge of the contract in its entirety, the performance must be complete on both sides and must accord with terms and conditions of the agreement. Obviously, if the contract involved is a unilateral one, wherein one party makes a promise in exchange for an executed consideration, fulfillment by the promisor will bring the contract to an end because his was the only obligation outstanding. On the other hand, parties to bilateral contracts have exchanged executory consideration—a promise for a promise—and each must do that which is required of him before the contract can be said to be terminated. Performance by one party only will, of course, discharge his particular obligation, but the contractual duty of the adverse party is still very much alive, and the contract remains in force.

Speaking of the fulfillment of a promised undertaking, effective tender of performance will do just as well as actual performance, where the latter is prevented by the party entitled. An unconditional offer to discharge one’s contractual duty in accordance with its precise definition in the agreement plus the actual present ability to carry out such offer will, if rejected, nonetheless relieve the party tendering of any further obligation.

TERMINATION THROUGH BREACH

7-3. Refinements of Terminology. In general, any substantial default in performance discharges the adverse party and affords him the right to treat the contract as at an end. In other words, material breach can be a means of contract termination. Agreements which have been broken and, in consequence, brought to an abrupt close are variously spoken of as abrogated, avoided, terminated, discharged, rescinded, etc. These words are used interchangeably and normally are intended to convey the same thought. The term rescind is likely to cause some confusion since it is also utilized (somewhat loosely) in connection with the breach remedy of restitution, which, as distinguished from the remedy of damages, entails returning the parties to the position they were in prior to the making of the ill-fated contract. To avoid any misunderstanding, therefore, the discussion of contract termination through breach will eschew use of the word rescind in any form.

7-4. Scope of the Breach an Important Factor. Any material default in performance discharges the other party and affords him the right to

1 The several remedies available to the innocent party upon breach were discussed in Chapter 6.
treat the contract as at an end. But note that the breach, if it is to justify the innocent party in terminating the relationship, must be so material as to defeat or render unattainable the very object of the contract. A default which could be characterized as *casual, technical*, or *insignificant* will not, therefore, suffice.4

An ancient but often-cited Alabama decision5 contains an excellent discourse on the various aspects of the rather involved subject of breach as a reason or excuse for contract termination. There follows an extended passage from pages 743 and 744 of that decision. The passage includes an effective presentation of the distinction between *entire* and *severable* contracts.

"The principal question presented by these pleadings is whether the fact that a small quantity of the ore delivered by plaintiff was not free from foreign substance, and satisfactory to the furnace company receiving it, operated as a discharge of the whole contract, and authorized defendants to terminate it. The effect of a breach of a contract upon the rights and liabilities of the parties depends upon the nature of the agreement. If the contract be entire in the sense that each and all its parts are interdependent, so that one part cannot be violated without violating the whole, a breach by one party of a material part will discharge the whole at the option of the other party; but, if the contract be severable,—susceptible of division and apportionment,—the amount to be paid by the one party depending upon the extent of performance by the other, the mere failure to perform a part of the contract in strict compliance with its terms will not of itself necessarily authorize the party injured to refuse further performance. Whart. Cont. Sec 580; 7 Am. & Eng. Enc. Law (2d Ed.) 150; Johnson v. Allen, 78 Ala. 391. Whether a particular contract is entire or severable depends on the intention of the parties, to be determined from the language employed and the subject-matter. In the contract sued on, plaintiff obligated himself to mine and load on the cars all the ore within a given territory, the ore to be satisfactory to the furnace company to which it might be shipped; but the time and amount of the deliveries and the time of the completion of the contract were left unfixed, and necessarily the aggregate price to be paid for full performance was not named. No particular amount of ore was to be

4 For an illustration of this point, see *Illges v. Congdon et al.*, 248 Wis. 85, 20 N.W.2d 722 (1945), rehearing denied, 248 Wis. 85, 21 N.W.2d 647 (1946), modified and affirmed, 251 Wis. 50, 27 N.W.2d 716 (1947), certiorari denied, 333 U.S. 856 (1948). Involved in this case was an alleged breach of a triparty contract for the logging, sawing, and sale of timber.

5 *Worthington v. Given*, 119 Ala. 44, 24 So. 739 (1898). Plaintiff had agreed to mine and deliver ore to defendants at a specified figure per ton. A negligible quantity of the delivered ore was found to contain "foreign substances," in contravention of the contract specifications; defendants thereupon sought to abrogate the entire agreement.
furnished each month, and a failure to furnish any ore in any one month would not, of itself, amount to a breach of the contract. The defendants' obligation was simply to permit plaintiff to mine all the ore within the territory named, and to pay on the 20th of each month a specified sum for each ton delivered during the previous month. There is nothing in the contract to indicate an intention of the parties that the right of plaintiff to make successive shipments of ore until the contract was completed should be dependent on the mere fact that each and every ton previously mined and shipped was free from foreign substance, and satisfactory to the furnace company receiving it, and had been accepted by defendants. The contract was, in its nature, severable, and not entire, and the rights and liabilities of the parties are to be determined according to the principles applicable to such contracts. Not every breach of such a contract by the one party will authorize the other to abandon the contract, and refuse further performance on his part. The circumstances attending the breach, the intention with which it was committed, and its effect on the other party and on the general object sought to be accomplished by the contract, must be considered in determining whether or not the breach will operate as a discharge. If the circumstances are such as manifest an intention on the part of the party in default to abandon the contract, or not to comply with its terms in the future, or if, by reason of the breach, the object sought to be effected is rendered impossible of accomplishment according to the original design of the parties, the breach will operate as a discharge of the whole contract unless waived; but no such result follows from a mere breach of a severable contract unattended with such circumstances or such effect. The right to claim a discharge of the whole contract depends, not on whether the act constituting the breach was inconsistent with the terms of the contract, but whether it was inconsistent with an intention to be further bound by its terms, or whether the breach was such as to defeat the purpose of the contract. The mere fact that a small quantity of the ore delivered to defendants was not free from foreign substance, and satisfactory to the furnace company receiving it, did not give defendants any right to forbid plaintiff to continue mining ore under the contract . . . Against the natural and ordinary injury flowing from such breach defendants had an adequate protection and remedy,—the refusal to receive and pay for the unsatisfactory ore, or their action for the breach in this respect. If any extraordinary injury arose therefrom, the effect of which was to defeat the purpose of the contract, the pleadings fail to show it, and it cannot be inferred from the nature and subject-matter of the contract."

7-5. Forms of Breach. It will be remembered from some of the discussion in the preceding chapter that a party can commit breach of contract in a variety of ways. Simple nonperformance is one. Another is complete repudiation such as will justify the other party in treating the contract as broken and his own duties thereunder as discharged. Then, too, a party is guilty of breach who disables himself from fulfilling his
own obligation or who prevents performance by the other party; abandon-
dment of the contract by the innocent party as the result of inter-
ference by the other party is entirely defensible and represents merely the acceptance of a situation created by the wrongdoer.  

7-6. Cancellation Clause in Contract. Subcontracts in connection with construction jobs typically contain language permitting the general contractor to terminate the agreement upon giving some stipulated notice if, for instance, the subcontractor fails to show reasonable progress in the work assigned to him. In a recent Wisconsin case, a painting subcon-
tract read in part as follows:

“If at any time during the prosecution of the work of this contract, the Sub-contractor, not being hindered by causes beyond his control, fails to maintain a sufficient working force, or if it shall become evident to the Contractor that the work is not being prosecuted with proper diligence to complete said work so as not to delay the progress of the building, or if the Sub-contractor shows gross carelessness or incompetency, or if the Sub-contractor fails, refuses, or neglects to comply with the contract . . . [the Contractor may elect to terminate the arrangement].”

During the course of the work, it became apparent to the general con-
tractor that the painting subcontractor was not in a position to supply manpower, materials, or equipment sufficient to permit satisfactory com-
pletion of the job in a reasonable time. For instance, the subcontractor furnished only five rolling scaffolds for an undertaking which required at least twelve, allowed its accounts for paint to become delinquent, and failed to meet two of its own payrolls. Consequently, the prime con-
tractor wrote a letter of cancellation, indicating that, in order “not to delay progress of construction, we are forced to invoke clauses in your contract to complete your work with our own forces.” The court deter-
mined that the subcontractor’s breach of contract was a serious one and that the prime contractor’s use of the cancellation provision was justified.

TERMINATION THROUGH AGREEMENT

7-7. Mutual Renunciation (Rescission) of the Contract. Generally speaking, parties to a contract may abrogate it, either wholly or in part, by their mutual consent, if the rights of third persons have not intervened. Put another way, those who are competent to enter into valid contracts in the first place are equally competent to unmake such agree-


Valentine et al. v. Patrick Warren Const. Co., 263 Wis. 143, 56 N.W.2d 860 (1953). This is an interesting and worthwhile case to read.

And there are state laws to this effect. See, by way of illustration, Revised Codes of Montana (1947 ed.), sec. 13-903.
ments, through the same "meeting of the minds" as was needful in the formation stage. So long as it is the joint will of the respective parties to terminate their arrangement, they may accomplish this aim even though the contract itself might contain a provision purporting to preclude its cancellation within a certain period of time or to restrict in some other fashion the right of the parties to cancel by agreement. The mutual consent to terminate need not be express but may be inferred from a course of conduct of the parties which is obviously inconsistent with any intention of proceeding with the contractual relationship. Obviously, however, the question of proof is much less troublesome when the understanding of the parties is reduced to writing or expressed orally before disinterested witnesses. Normally, an agreement to end the contract will include provision for restoration of the status quo as far as feasible, i.e., for restitution, where there has been partial performance on one side or both.

Where it is an entirely executory contract which is being terminated by agreement, the consideration received by each party is the abandonment by the other of his rights under the contract; that is to say, the release of one party from the obligation to perform is adequate consideration for the corresponding release of the other. Contrariwise, where a contract which the parties jointly consent to cancel stands fully executed on one side, some independent consideration must be afforded the party who has thus performed, if his waiver of the other party's obligated performance is to operate as an effectual discharge for the latter.

7-8. Substitution of New Contract. Very closely related to the termination by mutual consent considered in the foregoing article is termination of an existing contract simply as the result of the parties' making a new one inconsistent therewith; the new agreement may or may not expressly repudiate its forerunner. Or, similarly, the original contract will be discharged if the parties agree to such a substantial alteration in its terms as to amount to the replacement of such original contract with a new one.

Suppose, in illustration of this substituted-contract idea, we take the case of Smith, who is contractually obligated to pay a stated sum of money in return for Jones's automobile. Wishing instead to perform certain manual tasks which he knows Jones needs to have done, Smith gets Jones to accept the substitute in lieu of the cash to which the original contract entitles the latter. In this situation the new agreement discharges the old and performance by Smith of the stated tasks will relieve him of all obligation.

Short of canceling the old contract and substituting a new one in its place, the parties may agree that the original understanding merits mod-

*In other words, where there are mutual existing duties as yet unperformed.
ification, as by incorporation of some additional provision. Such modification, like the underlying contract itself, must be supported by consideration.

Also to be distinguished from the concept of substituted contract is the matter of mere technical reformation of an existing document. *Reformation* is the correction of defects so as to conform the contract to the actual intent of the parties, which intent was, through inadvertence, improperly expressed in the instrument as originally drawn. Among the errors which have been held reformable are obvious mistakes of computation in the proposals submitted by building contractors.

7-9. Release; *Covenant Not to Sue*. A *release* is a discharge, by the party entitled, of the right of action which has become his as the result of default in a contractual promise made to him. Release is differentiated from *waiver* in that the latter term normally relates to the abandonment of a stated right before there has been any breach of contract bearing thereon.

The release will fully bind its maker, but, in accordance with the elementary rule of contracts, only if there is a proper consideration in the picture. *Conditional releases* are perfectly valid and will be effectuated according to their precise terms.

There is also such a thing as a *covenant not to sue*. What happens here is simply that one party promises the other that he will not, perhaps for a stipulated period of time or—less likely—forever, bring suit to enforce a given contract right.

7-10. Accord and Satisfaction. There is considerable parallel between the idea of *accord and satisfaction*, to be discussed herein, and that of substituted contract, dealt with in Art. 7-8 above. The principal distinctions appear to be two in number: (1) an accord and satisfaction generally starts with an actual default situation, i.e., where one party is in breach and a right of action consequently accrues to the adverse party; (2) as will shortly be seen, the *accord* itself does not ordinarily discharge the original contract right and correlative duty but simply holds these in abeyance pending *satisfaction* (fulfillment) of such accord.

Under an accord-and-satisfaction arrangement, the party in default promises to render, and the party who holds the right of action agrees to accept, some performance differing from that which was originally contracted for and which might legally have been enforced. An accord and satisfaction is really a compromise and settlement by the substitution of a new contract, and the several requisites of contract formation must be present. Accordingly, the "party obligated" under the original pact must afford a proper consideration to the "party entitled" in order to

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10 Release is differentiated from waiver in that the latter term normally relates to the abandonment of a stated right before there has been any breach of contract bearing thereon.

11 Basic contract principles respecting consideration apply here. Thus, where a liquidated, matured, and undisputed sum of money is due and owing under the prior
support the latter’s agreement to accept a different performance in lieu of his previous contract right. As an example, the *quid pro quo* might be the transfer of a negotiable instrument to take the place of a money payment initially promised.

Typical case-law comments on the concept of accord and satisfaction appear at page 200 of a Texas decision involving termination of a partnership agreement:

"Accord and satisfaction is a well recognized legal method of discharging any kind of a contract or cause of action, 'whereby the parties agree to give and accept something in settlement of the claim or demand of the one against the other, and perform such agreement, the "accord" being the agreement, and the "satisfaction" (being) its execution or performance.' 1 C.J.S., Accord and Satisfaction, Sec. 1, p. 462. See also: 1 T.J., p. 245, sec. 2; 1 R.C.L., p. 177; 1 Am. Jur., p. 215, sec. 1. Although the term or phrase 'accord and satisfaction' contemplates a completed transaction, it is well settled in Texas and in other jurisdictions that a promise to perform the agreement of accord, rather than actual performance thereof, may in and of itself constitute the satisfaction, provided there is an express agreement to this effect or if such is clearly the intention of the parties."

Incidentally, this case held that the parties (who had entered into a partnership agreement whereby they should equally share profits and losses under government contracts) had terminated their relationship by a settlement agreement which constituted an accord and satisfaction in so far as any rights and liabilities arising among themselves under the partnership agreement were involved.

An illustration of the workings of a rather complicated accord and satisfaction (where both parties were in technical breach of their original contract) is to be found in *Davis v. Zaban Storage Co.*, 59 Ga. App. 474, 1 S.E.2d 473 (1939). Plaintiff there was suing for damages sustained on account of the alleged negligence of the defendant warehouseman in not protecting against fire goods stored by her in defendant’s warehouse. The evidence disclosed an agreement whereby warehouseman was released from any claim for fire damage in consideration of his agreement, there is no consideration for the contract creditor’s promise to accept a lesser sum in satisfaction thereof.


24 Actually, under the distinctions drawn in the first paragraph of the present article, since no breach of the original agreement was involved, this settlement agreement comes closer to what we mean by substituted contract than to a true accord and satisfaction.
relinquishment of custody of the goods without payment of storage charges. It was held that this agreement amounted to an accord and satisfaction and that the respective parties were bound by the terms of same.

It should be emphasized that, apart from those relatively rare situations where the parties stipulate that the accord itself operates as satisfaction, the right to enforce the original contract duty is merely suspended, and only so long as there occurs no breach of the new accord. Upon performance of the substituted agreement, of course, the previously existing duty is fully discharged. Where, however, the accord is not followed in due course by performance (i.e., satisfaction), the injured party can sue either upon that accord or upon the no longer suspended original contract duty itself.

7-11. Novation. In an early Washington decision, the court had occasion to discuss at length the subject of novation, both as regards the several forms it may take and as regards its essential elements. Here is some language from page 747 of that opinion:

"The doctrine of novation is so well understood that it hardly seems necessary to cite authorities to define it. Novation means substitution. It may be either the substitution of a new obligation for an old one between the same parties with intent to displace the old obligation with the new, or the substitution of a new debtor for the old one with intent to discharge the old debtor, or the substitution of a new creditor with intent to transfer the rights of the old creditor to the new. The second class is the ordinary case of novation, and is the case involved in the cause on trial. A novation is a new contractual relation. It is based upon a new contract by all the parties interested. It must have the necessary parties to the contract, a valid prior obligation to be displaced, a proper consideration, and a mutual agreement. If A. owes B. a sum of money, and C. agrees to pay the debt of A. to B., and B. agrees to accept C. instead of A. as payor of the debt, and to discharge A. from his original obligation, that is a novation."

It will be seen from the foregoing quotation that substituted contract without change of parties, which was the subject of Art. 7-8, is technically a form of novation but that the ordinary novation arrangement involves a substitution of parties.

To illustrate the difference between (1) simply adding an additional obligor to whom the obligee can look for satisfaction and (2) a true novation, consider the everyday matter of check certification. When the bank certifies a check at the drawer's behest, the drawer is not thereby discharged from his own liability, even though it is true that the certi-
fying bank itself becomes bound. But when the request comes to the
bank from the payee or holder, the certification effects a novation, dis-
charging the drawer from further responsibility on the check and cre-
ating the relationship of debtor and creditor between the bank and the
payee.

7-12. Exercise of Power Reserved. It is not at all unusual to find that
one of the contracting parties has expressly reserved to himself the op-
tion of terminating the contract under certain circumstances or after a
stipulated period of time has elapsed. Typical of this class of contracts
are agreements regarding domestic service. Not infrequently the serv-
ant is specifically empowered to bring the relationship to an end (with
or without cause) upon giving several weeks’ notice. Actual exercise of
such a reserved power effects a complete discharge of the contract and,
in the sense that the power was created by joint consent, can be said
to be a form of termination by agreement. Obviously, though, the ulti-
mate decision to abrogate is unilateral and, as of the time it is reached,
may well prove most distasteful to the adverse party.

TERMINATION THROUGH FRUSTRATION OF
OBJECT, DESTRUCTION OF SUBJECT MATTER, ETC.

7-13. Theory of Frustration. There exists in law the doctrine of
frustration, which holds that, where the existence of a specific thing,
condition, or state of affairs is essential to the performance of the con-
tract, the entire agreement is dissolved when, by reason of circum-
stances beyond the control of either party, the subject matter is no longer
available. Similarly, where the purpose of a contract is completely
defeated and its performance rendered impossible by a supervening
event or factor which was not within the contemplation of the parties,
the contract is deemed discharged. By this frustration concept the law
reads into contracts an implied stipulation designed to regulate a situa-
tion which the parties themselves would presumably have taken care
of by agreement had the necessity occurred to them.

To illustrate the general principle of frustration as one path to con-
tact termination, consider the case of Johnson et al. v. Atkins et al.,
53 Cal. App. 2d 430, 127 P.2d 1027 (1942). The venture involved a pur-
chase of copra in the United States for shipment to named ports in
Colombia and resale to a Colombian buyer. The contracting parties

* Such as the nonfulfillment of a condition precedent or the occurrence of a stated
condition subsequent.

* When frustration occurs, it does not merely provide one party with a defense in
an action brought by the other. It kills the contract by removing its very foundation
and discharges both parties automatically.
realized that goods could not be sent into Colombia without a permit issued under authority of its government and that the entire purpose of their agreement would be thwarted if the permit was not forthcoming. As it happened, the Colombian government did indeed refuse to issue the necessary credentials, and performance of the contract was consequently blocked. In the ensuing litigation, it was held that the whole object of the agreement had been frustrated (by conditions beyond the control of the several parties) and that the contract was therefore discharged.
detail for the potential contractors to prepare their cost estimates. We do not try to specify precisely how these drawings should be prepared or how the information on them should be presented, because such considerations will vary widely with the nature of the project. However, some important points to remember in connection with any drawing are treated in Chapter 9, and particular emphasis is given therein to legal requirements.

The next item on the engineer's agenda, after the contract drawings have been worked in sufficient detail, is the drafting of specifications describing the materials and workmanship which the contractor is to provide. Various principles and ideas to be borne in mind in the preparation of this portion of the contract documents are described in Chapters 10 and 11. A number of sample clauses are included, so that the student can study the wording used as well as the basic propositions involved.

Then it is necessary to draft, for inclusion in the contract documents, a large number of provisions spelling out specific requirements pertaining to the conduct of the work and the obligations of the respective contracting parties. This is done not alone for the protection of the owner; the provisions referred to constitute rules under which all parties in interest are bound to conduct themselves. The considerable importance of such ground rules is apparent when one recalls that the project covered in a given case might involve the expenditure of vast sums of money. So that no one chapter will be excessively bulky, Chapters 12, 13, and 14 are all devoted to explanations and illustrations of some of these contract clauses, including ones having to do with financial matters and the like.

When the drawings, specifications, and miscellaneous contract clauses are fairly well in shape, the owner and the engineer will determine what type of contract is most desirable from the standpoint of the method of payment; e.g., lump-sum or unit-price. After this decision is made, the engineer prepares the form which is to be used by contractors wishing to submit bids on the work. Chapter 15 deals with proposal forms.

Two other important details which must next be settled relate to the performance bond and the bid bond. These matters are taken up in Chapter 16. And there must be incorporated in the contract documents any special requirements affecting the preparation and submission of bids, general information for the guidance of bidders, and a statement about the procedures which will be followed in making the award. Chapter 17 contains instructions for bidders.
APPLICATION TO CONSTRUCTION CONTRACTS

When the contract drawings and all pertinent documents are sufficiently complete to enable the engineer to determine just when such papers may be released to potential bidders, he sets a date for receipt of proposals. It is frequently necessary and almost always desirable to advertise for bids. Chapter 18 concerns the advertisement and problems relating thereto.
CHAPTER 8

Contracts for Construction and Engineering Services

8-1. Application to Construction Industry. The value of annual expenditures for new construction in the United States has recently been exceeding $40 billion. The principles of contracts will be illustrated by application to this great field of activity because the preparation and execution of construction contracts are among the major endeavors of engineers and architects. Once these principles are understood clearly, they can then be applied to other commercial affairs.

A building or construction contract presents no characteristics not common to contracts in general.1 The purpose of a construction contract is to govern the rights, duties, and liabilities of the builder who performs the work, the person or organization for whom the construction is to be executed, and the architects and engineers who design and inspect the work.

Organizations which design a project for the owner generally have the duty of compiling the contract documents. The great importance of these papers is obvious. In this text we shall try to show the reader how such papers are prepared and what sort of information they may contain. We shall illustrate many things which should be provided for and the reasons for them.2 The exact wording to be used in any individual case is something that will be influenced by the particular circumstances and subject matter. The best way to convey the desired ideas will have to be determined by the author of the documents.

8-2. Viewpoint. Since this text is written largely from the viewpoint of the engineer, it may seem to the reader that we imply that the engineer is constantly to be on guard against some misconduct or the seizing

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1 For example, a good consideration is essential to the validity of a building (construction) contract. U.S. v. Cooke, 207 Fed. 682 (Wash. 1913).
2 In effect, we shall try to show the reader how to prevent trouble in contractual relationships.
of some advantage by the contractor which may be to the detriment of
the owner. It is true that the engineer who prepares the contract pa-
papers for the owner ought to have the latter's interest at heart, but it
should not be his purpose to take advantage of the contractor. The
contract should be fair to both sides.\(^1\) Most certainly we do not intend
to convey the idea that all contractors, or even many of them, are un-
reliable, scheming persons who are constantly striving to take advantage
of the owner and the engineer. However, the engineer is to protect the
owner and himself against any contractor who may intentionally or un-
wittingly do something that is not fair to the owner. Through the con-
tract's provisions, the engineer should be able to prevent any unscrupu-
lous contractor from profiting unduly at the expense of the owner and
from failing to produce the proper result.

If the contract is drawn properly, if the specifications are clear and
complete, and if the drawings are both comprehensive and sufficiently
detailed, trouble with the execution of the contract can be minimized
because the contractor will know exactly what is expected of him in the
first place. Should it become necessary, the engineer can resort to the
contract's provisions to force any recalcitrant contractor to abide by its
requirements. The situation is somewhat like having an accident policy
on our lives; we are very careful to have protection, but we sincerely hope
that events will not make it necessary for anyone to collect on the policy.
In the contract we must be sure that we have the right and the power
to secure the desired performance, but we do not want to use the con-
tract provisions as a club unless proper performance cannot be secured
otherwise.

To reiterate, troubles may develop between the contractor and the
engineer or owner when a contract is loosely and poorly drawn, when
the exact scope and character of the work is misrepresented or not shown
properly, when the requirements are unreasonable or injudiciously in-
terpreted, and when modifications are attempted after the contract is
signed. These matters will be discussed more fully in subsequent
chapters.

8-3. Public and Private Construction. Most construction work falls in
one of the two following classifications:

1. Public work, which is performed for some division of the federal
government (which is thus the owner), a state, a city, or a governmental
agency. Examples are highways, bridges, schools, harbor improvements,
and public buildings. The project is paid for by funds raised by or on
behalf of the proper governmental agency.

\(^1\) Both the owner and the engineer should realize that a contractor cannot remain
in business unless he can make some profit.
Art. 8-4  RELATIONSHIP OF PARTIES—ETHICS

2. Private work, which is performed for an individual citizen, a group of individuals, a corporation, or any organization that is or is to be in private business. Some typical projects are private houses, stores, factories, power plants, and warehouses. The project is paid for by private funds.

There are other classifications which may be encountered, such as the following:

1. Military work, which is performed for, and sometimes by, the military forces of the United States.
2. Civil work, which often includes all nonmilitary construction.
3. Quasi-public work, which is done for organizations that are partially of a governmental nature. For example, the Port of New York Authority is an organization that has been authorized by governmental sanction, but it is a self-supporting one and is not financed by public taxes. The George Washington Bridge was built by (or for) the Port of New York Authority as a self-liquidating project.
4. Architectural work, which is generally assumed to mean the planning and design of buildings and other improvements and construction in which the services of an architect are of prime importance.
5. Engineering work, which is usually construction that primarily requires the services of engineers. Examples are power facilities, industrial plants, bridges, highways, hydraulic structures, and port development.

Frequently there are certain legal regulations and restrictions applicable where public work is concerned. These will be explained later on. In private work the owner has more liberty to do as he wishes, even though his action may be unwise, as long as he conforms to all applicable building codes and the like.¹

8-4. Relationship of the Parties—Ethics. The engineer,² the owner, and the contractor are all interested in getting the work done. Not only does the engineer generally have the duty of designing the project and preparing the contract papers, but also he has to see that the work is performed satisfactorily. The engineer's position is one of great responsibility and also one entailing trust and confidence on the part of

¹ When one intends to contract for the performance of work in a foreign country or for the purchase of materials from abroad, he should obtain the assistance of someone who is familiar with the laws of the nation involved and those requirements which may have a bearing upon the proposed transaction. This aid may be especially necessary in such matters as those relating to taxes, use of personnel, methods of measurement, methods of payment, currency used for payment, and withdrawal of funds from the country.
² Meaning the architect, too.
the owner, who must rely upon the engineer's skill and judgment. On the other hand, the contractor's function is to convert the project from plans to reality; and the owner is largely dependent upon the contractor's skill in performing the work.

The conduct of engineering works makes it necessary for the owner, the engineer, and the contractor to be associated intimately and vitally, sometimes under conditions that may tend to cause a strong conflict of interest. Nevertheless, we wish to emphasize that the cooperative efforts of these equally important parties are essential for the successful and happy conduct of affairs in contractual relationships. The engineer should endeavor to aid the contractor as well as to watch out for the interests of the owner.

The persistent application of the golden rule by all concerned is generally good business, because such conduct tends to build one's reputation for fairness. Each party may gain thereby. For example, if the contractor knows in advance that the engineer with whom he will have to deal during a particular job is fair and just, as well as technically capable, the contractor is likely to bid lower on the contract than he would if he expected to be treated antagonistically by the engineer. Although the contractor may know that the engineer will demand fair treatment and proper performance during the contract (because this is the engineer's duty), the contractor will know that the engineer will not take unfair advantage of him. Furthermore, contractors are usually glad to get jobs that are being handled by competent engineers of known high quality of character. Similarly, engineers are glad to be able to let contracts to construction firms whose leaders are known to be competent and who are men of equally high quality.

The following is the Code of Ethics published by the American Society of Civil Engineers:

"It shall be considered unprofessional and inconsistent with honorable and dignified bearing for any member of the American Society of Civil Engineers:

"To act for his clients or for his employers in professional matters otherwise than as a faithful agent or trustee, or to accept any remuneration other than his stated charges for services rendered his clients.

"To attempt to injure falsely or maliciously, directly or indirectly, the professional reputation, prospects, or business of another Engineer.

"To attempt to supplant another Engineer after definite steps have been taken toward his employment.

"To invite proposals for the performance of engineering services or to state a price for such services in response to any such invitation, when there are reasonable grounds for belief that price will be the prime consideration in the selection of the Engineer."
"To compete with another Engineer for employment on the basis of professional charges, by reducing his usual charges and in this manner attempting to underbid after being informed of the charges named by another.

"To review the work of another Engineer for the same client, except with the knowledge or consent of such Engineer, or unless the connection of such Engineer with the work has been terminated.

"To advertise in self-laudatory language, or in any other manner derogatory to the dignity of the Profession.

"To use the advantages of a salaried position to compete unfairly with Engineers in private practice.

"To use undue influence or offer commissions or otherwise to solicit professional work improperly, directly or indirectly.

"To act in any manner or engage in any practice which will tend to bring discredit on the honor or dignity of the Engineering Profession."

Apparently, the preceding code has been drawn up with the consulting engineer in mind, but the principles of fair play apply to engineering practice in general. They apply also to the relations between engineers and owners, between various engineers, between engineers and their staffs, and between engineers and the public.

It is to be borne in mind that the real purpose of any code of ethics should be to serve the public welfare, not to set up a means of benefiting the engineering profession alone or to help some individuals who are in professional activity. Administration and enforcement of the code of the ASCE are largely voluntary; the effectiveness of such rules will be no greater than the determination of the profession to adhere to them.

When an engineer has to give an opinion or a recommendation about a professional matter, he should act strictly in accordance with what he believes to be right, not being influenced by whether or not his decision is what someone wants to hear. For example, assume that a state highway department has asked an engineer to make a study to determine whether or not a toll bridge across a large river is economically justified. After his investigation and analysis, he concludes that the bridge will not earn enough to justify its construction. Therefore, he should report accordingly even though he may lose a consulting job because of his rejection of the project.

Following the ASCE Code of Ethics does not mean that engineers are to have no opinions or to make no decisions that differ from those of other engineers. It means that one engineer is not to defame another engineer or to try to do harm to another engineer, even though he may strongly oppose the other's ideas or recommendations.

This principle of fair play applies to both the owner and the engineer in their dealings with contractors, especially in the despicable practice
of shopping for bids—trying to get contractor A to reduce his bid below that given by contractor B and then trying to get B to underbid the reduced figure given by A. This practice of beating down the bids may even be applied to contracts for engineering services. As one illustration, assume that Doe is in charge of the engineering and construction work for a large organization. He calls in another engineer, Roe, and asks the latter to state his charges for making plans and preparing specifications for a certain project. Roe, after two or three days spent studying the problem, arrives at a cost figure of $30,000 for the engineering work. Doe rejects this offer but says that he will engage Roe to do the job if Roe's figure is reduced to $20,000. Such conduct by Doe violates the Code of Ethics. Actually, it is probably unfair to the owner because, if Roe took the job at such an inadequate figure, he would have to rush out the work hastily. As a result, the owner might have a poorer property or a needlessly expensive one when the structure was finished.

8-5. Contracts for Engineering and Architectural Services. If the owner does not have an engineering and architectural staff of his own but wishes to organize a group to handle his proposed project, one of the first steps for him to take is to engage an individual to take charge of the design and otherwise to handle the project for him. Generally the owner makes a contract with whomever he selects. The terms can be arranged in whatever manner is acceptable to the parties.

In the case of individual houses, stores, apartments, public buildings, landscaping, parks, and other projects where the planning in terms of architectural features is particularly important, an architect may be the one to place in over-all charge of the project. He may then engage and work with engineers in the preparation of the plans and contract.

In the case of industrial projects, bridges, highways, hydraulic structures, public utilities, waterfront construction, and other structures where the engineering features are predominant, an engineer may be placed in general charge, with an architect to assist him.

Sometimes an individual is competent by training and experience in both these fields of professional work and can take charge of all phases directly. There are many cases, too, where the fields of activity of architects and engineers overlap. An owner, in engaging someone to take charge of his project, is therefore to use his judgment regarding whom he considers to be best qualified and otherwise most desirable.

When small jobs are involved, and often when the jobs are to be private work, the owner may not wish to engage the necessary architects and engineers to handle the work. He may find it more desirable to

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6 Another practice that has caused trouble in the past is bid shopping by the contractor in the letting of subcontracts. This matter is discussed further in Art. 12-17.
select some consulting architectural or engineering firm and negotiate a contract with it upon whatever terms are mutually acceptable. This organization is often selected upon the basis of personal acquaintance of the parties, the recommendation of some mutual friend, or the general reputation of the firm.

When public work is involved, if the agency concerned does not have sufficient architectural and engineering staff of its own, and sometimes if the work is too extensive for it to handle, the owner may notify various consulting firms that he is looking for someone to do the architectural and engineering work of the project. The owner may ask these firms to send him a report or brochure showing the works that each has designed in the past, the experience and capabilities of its staff, the manpower that it can devote to the project, and any other data which will show the firm's qualifications for performing the technical work desired. The owner will then choose the firm which seems to be the most desirable one, and he will try to negotiate an acceptable contract with this concern.

The laws in some states have required that competitive bids be submitted for architectural and engineering services for public works just as they are for the construction contracts for these public projects. This practice is contrary to the Code of Ethics previously quoted. Certain features of this procedure are undesirable because they tend to force engineers to state a price (or rate) for their services. This means that they may have to skimp on the quality of service rendered if their price is so low that skimping becomes necessary in order for them to avoid losing money on the job. The quality of the engineering service and of the finished product may suffer. The professional engineering societies are trying to have this bidding for architectural and engineering-design work abolished and to substitute therefor the selection of consulting firms on the basis of their ability and experience.\(^7\)

In some cases, as for certain architectural services, stated fees have been published for the guidance of all those concerned, the fees varying somewhat with the character and magnitude of the proposed project. For example, the fee may be stated as 6 per cent of the "cost" of the structure, 75 per cent of this fee being payable to the architect upon completion of the plans and the letting of the contract, the remainder being payable upon completion of the construction.

\(^7\)In Europe the various contractors often make designs of their own and present their proposals on the basis of these designs. Thus the competition involves both the engineering and the construction. This method certainly brings out very keen competition and many varying ideas in the engineering side of the work. In the United States the bidding is generally confined to the construction. Engineers have varied and emphatic ideas about whether or not the European method is desirable in the United States.
The proper fees for the planning and design of engineering works are difficult to determine, and so are many instances of architectural services. It is perhaps unwise to attempt to set up schedules of fees for such services. Each case may best be left for negotiation between the persons involved.

Here are some of the reasons why it is often difficult to estimate correctly in advance the cost of engineering-design work and the preparation of contracts:

1. The engineers generally will not have control of the basic requirements that will be made by the owner. It is therefore practically impossible to foresee all the work that may be necessary to meet the wishes of the owner.

2. At the start, the basic requirements are usually vague and uncertain.

3. Preliminary engineering studies and the making of alternate plans require an amount of time and cost that is difficult to anticipate. Nevertheless, such studies are usually of extreme importance in determining the best and most economical layout, and they may bring about large savings for the owner. On the other hand, an attempt to minimize engineering costs may result in the adoption of the first design that is at all reasonable because the engineers cannot afford to use more time and money on this phase of the work.

4. The owner frequently changes his mind about what he wants as the design progresses, or, at least, he finds that he wants various modifications and additions. This is natural, and it is his right. It is also his duty, and that of the engineers, to make sure that all work will be satisfactory because the structure probably cannot be revised after it is built, except at considerable cost. The engineers cannot predict how much delay and expense these changes will require.

The pressure caused by the threat of financial loss generally means all the engineers concerned with the design will have to rush out the work without proper care and thought. The end result may be a poorer job and a more costly one than would be attained if the engineering could be done with proper care.

Some persons have prepared graphs, somewhat of the character of that in Fig. 8-1, purporting to show the percentage that should be allowed for engineering services in relation to the cost of the construction of the project. This can be a most undesirable way of determining the proper fees for engineering work. Some of the reasons for this statement are the following:
1. Even though one curve is used for building work, a second for small bridges, a third for large bridges, a fourth for highways, etc., these cannot possibly represent the proper sum to be paid for engineering when the intricacy of the jobs varies widely.⁸

2. If a curve is made for cases in which the engineering work is considerable and complicated, the owner will pay too large a fee when the work is simpler; if made for simple, straightforward work having considerable duplication of parts, the engineer will not be paid adequately for a complicated job where his abilities are most valuable and most needed.

Fig. 8-1. Illustration of the Use of a Graph as a Basis for Determining Fees to Be Paid for Engineering Services

3. When the standard of fees is based upon a high quality of engineering work, the owner may unwittingly engage an engineer who cannot (or does not) render the quality of service intended; then the owner will not get what he pays for. On the other hand, fees based upon too low a standard will prevent the capable engineer from rendering the best service if he is to avoid losing money on the project.

One can also easily see how inadvisable it may be for an engineer to be paid for an engineering job on the basis of a percentage of the

⁸For example, assume that two highways are being designed. The work is comparable except that the first design involves large quantities of expensive rock excavation, whereas the second involves similar quantities of cheaper earth excavation. The engineer who designs the first job will receive far more compensation than will the one who designs the second highway.
cost of the project. If he does his work with painstaking care and thereby produces a design that can be built with a minimum of cost, he automatically receives less compensation for his greater exercise of skill than he would for a hastily designed and perhaps more costly job.

When a great deal of preliminary planning is to be done, it may be desirable for the owner to engage an engineer or architect on the basis of the cost of labor and materials used in the preparation of the plans, specifications, and other contract documents plus a percentage fee for overhead and profit. In this manner, adequate studies can be made without an unfair cost to the designers.

An illustration of the possible value to the owner of making a thorough engineering investigation before going ahead with a project is the result of the studies made on the layout of a large industrial plant for the smelting of copper. Although plans had already been made and tentatively accepted, the chief engineer decided to have the problem studied further by six or eight of his best men. In six months they prepared another design that saved $2 million in estimated construction costs together with a considerable reduction in estimated operating expenses.

Any young engineer who tries to set up his own business in the consulting field will soon learn that, if engineering design services are secured primarily on the basis of the past jobs performed by old, established firms, he will have a hard time securing major contracts for his services. In the contracting field, competition on the basis of price and ability to perform makes a very different situation. The young contracting firm has more chance to get a job, even though its short experience may lead it to make contracts that endanger its financial strength.

On the other hand, how are engineering abilities to be judged price-wise? One good engineering idea may be worth thousands of dollars to the owner; one bad engineering mistake may cause the owner much trouble and expense. It seems that, on the whole, it is a wise and good policy for engineering services to be obtained on the basis of the excellence of the engineering abilities that can be brought to bear upon the project and upon the high quality of the service that can be rendered. Those who engage such services should do so with wisdom and high moral standards.

The services of an individual are sometimes required as a consultant in cases where the owner and his staff wish to have the benefit of the knowledge and experience of a specialist in some particular field. This individual may contract to do this special work on a per diem basis (such as $50 per day), or he may agree to do it for a lump sum which covers all services that are necessary for the completion of the project. Again, he may be retained upon the basis of a stipulated monthly or annual salary.

*The estimated cost of the project at this stage was $17 million.
or fee, with the understanding that he will spend stipulated regular hours upon the work (e.g., one day per week). In the latter arrangement the specialist may be engaged with the agreement that he will spend whatever time is necessary in assisting his client with the latter’s work. In short, the parties can make whatever contract they wish for such special services.

Still another arrangement that may have advantages for the owner and the engineer is the selection of a capable contractor (generally an individual) to act as a consultant during the planning and design of the project. This applies primarily to work that involves unusual difficulties of construction. The contractor, with his superior knowledge of construction procedures and possibilities, is to be an adviser to the engineer, and he is generally engaged upon a per diem basis, or upon a fixed-fee basis. Thus the engineer can have the benefit of this contractor’s knowledge during the work on the preliminary studies, during the development of the design, and during the preparation of the contract documents. In this case, the engineer still retains complete control of the development of the project, but, by securing this advice, he may avoid subsequent revision of the plans because of unanticipated construction difficulties.

Even without a formal contract for their services, many manufacturers and contractors are willing to give their advice about specific points provided they are not imposed upon. For example, during the design of the Bayonne Bridge by the Port of New York Authority, a question arose whether or not any steel company could manufacture the proposed heavy forgings that were planned as a part of the bridge bearings. These forgings were believed to be larger than any that had been made previously. Certain manufacturers were consulted about the possibility of producing these forgings. Upon receipt of their affirmative reply, the final design was made accordingly.

8-6. Contracts for Personal Engineering Services. Contracts for the employment of individuals seldom require any extensive formality, but they should nevertheless be valid contracts. When an employer offers a position to a man, he may do so orally, and the offeree may accept in a similar fashion. Or the employer may write a letter to the individual, making the latter an offer; then, when the offeree accepts it orally or in writing, the contract is consummated. Again, the individual may fill out an application for a position and may state the desired salary; upon acceptance by the employer, the contract comes into existence. It is desirable to have both the offer and the acceptance recorded (confirmed) in writing in order to minimize future misunderstandings about the details of the agreement.

By interview or correspondence the parties to the contract for employment should mutually agree upon what service the prospective employee
is to render in return for a stipulated salary (consideration)—a promise of service in return for a promise of remuneration. There naturally should be a meeting of minds regarding the other obligations of both parties, e.g., the time of starting employment, the working conditions, the duties and responsibilities of the prospective employee, the opportunities that the employee is to be given, the hours of work and other working conditions, the capabilities of the employee, and the duration of the employment, if this is to be specifically limited.

Such a contract may be made contingent upon the rendering of satisfactory service by the employee to the employer. It may also be contingent upon the prospective employee’s satisfaction with the work to which he is assigned and with the organization which he is joining. In some instances the agreement may depend upon the securing of certain work by the employer. If, for example, a stipulated big job is not secured, the prospective employer cannot go through with the contract. Such matters should be clearly understood.

Even such seemingly minor contracts as those for employment should be taken seriously and made carefully. A man should not accept a position and then refuse to go ahead with his agreement just because he subsequently receives a more attractive offer from someone else. Although the prospective employer may not take legal action to collect damages for breach of contract, the breach by the individual may none-theless react against his reputation as a trustworthy person.

8-7. Inspection by the Designer. In making arrangements with the owner for the conduct of design work it is very desirable for an engineer (or consulting firm) to see that he personally, his duly appointed representative, or a resident engineer acting for him is to have charge of the inspection of materials and of all work in the field. Thus he can see that the intent of the plans and specifications is carried out. This agreement should be a part of his formal contract with the owner, and it should be made in advance, even if it is contingent upon whether or not the owner actually goes ahead with the job.

For example, an engineer was engaged to prepare plans for an industrial building. He prepared the specifications, drawings, and contract papers as usual, upon the assumption that he would be responsible for the inspection in the field and for the control of all engineering matters. However, the owner had agreed upon a fee for the design work only. The inspection had been discussed, but no actual contract for it had been signed. Much to the engineer’s chagrin, the owner let the contract but decided to do all inspection and general guidance himself, believing that he would save money thereby. The owner took it upon himself to change the location and the elevation of the structure without realizing that access to a special parking area for office employees, the piping sys-
tem to handle surface drainage, the location of the septic tank, and the required layout of the tile leaching field had really controlled the choice of the location shown on the plans. He also allowed the contractor to make various changes in the design, among them being the elimination of contraction joints in the concrete work. Finally, after approximately 20 per cent of the work was completed, the owner awoke to what was happening. He then came to the engineer with the request that the latter now take over the inspection of the construction work and that he remedy as many of the mistakes as possible.

In another instance, an engineer in charge of public works for a state prepared the design for a large institutional building. The inspection was transferred to another department. The design had called for membrane waterproofing outside the basement walls, as well as an open-joint drain in the ground around the building. The inspector apparently decided that the drainage system alone would be sufficient, and he allowed the contractor to omit the waterproofing. About three years after the completion of the structure the drains clogged with silt, water entered a large portion of the basement, and some of the intended use of the building had to be abandoned. Eventually, extensive and costly measures had to be taken to remedy the situation. Such division of responsibility is not desirable.

8-8. Development of a Project. A large construction project is usually brought about by some need on the part of the owner or by his desire to have something for use or from which to make a profit. Obviously the owner must believe that the structure is worth paying for. Hence he will generally give it considerable study before making up his mind to go ahead, and he must have accumulated, or must believe that he can secure, the necessary money to finance the job.

A few typical illustrations of the development of a project are the following:

1. An industrial corporation may wish to build a branch factory in a specific area in order to be able to sell its products more advantageously in that region or to increase its capacity for production and profits. The proposal may be under study by the corporation’s directors and staff for a long time, perhaps for years. The corporation is free to go ahead or not, as it chooses. However, when the directors finally authorize the project, they usually want it completed in a hurry.

2. A state highway department may have studied a certain major highway project, and it may have made traffic surveys, layouts, and estimates of cost to show the need for this highway and the fact that the benefits to be derived from it are well worth its cost. However, the project may have to be approved by the legislature of the state, or a bond
issue for raising the money may have to be approved by the voters. Furthermore, the location and general details of the project may have to be approved by the cities or towns involved. In other words, many things have to be accomplished before the actual contract work can be started.

3. In the case of emergency, the entire project may develop suddenly. For instance, when the United States entered World War II in 1941 the federal government needed military bases and camps, and there was no time to argue about them. The government had to get work started before the details of the plans were made, or even known. The problem was to get a contractor on the job, then to tell him what to do and to help him get the materials, equipment, and manpower to do it.11

Generally, the raising of the necessary money is the critical obstacle to be overcome before contracts for construction can be prepared.

8-9. Preliminary Investigations and Reports. In almost all construction projects—other than those caused by emergencies—engineering, architectural, and economic studies have to be made as a first step. For example, assume that a municipality is contemplating the construction of a large reservoir and filter plant to augment its water supply. Studies of location, drainage area, runoff, features of construction, cost, real estate, pipelines, and many other factors have to be investigated. A consulting firm may be engaged to make a study of the problem, prepare a preliminary design, make an estimate of cost and revenues, and present a report and recommendation to the board of aldermen. This report, with the drawings and calculations that form a part of it, may then be accepted by the authorities; it may be modified until the aldermen are satisfied with the project and its cost; or it may be rejected as too costly or undesirable for some other reason. At any rate, such preliminary studies and reports are exceedingly important. They generally require a high quality of engineering ability.

If the owner does not have an adequate staff of his own to handle the complete design of the project, the preliminary report may become the basis of a subsequent contract for engineering and architectural services for the development of the project so that construction contracts can be awarded and the project completed. In other cases, the preliminary report may be only a starting point from which further studies can be made until a design is accepted and the project is authorized.

8-10. Some Phases of the Development of Construction Projects. The engineering endeavors that precede the physical completion of a construction project may be divided into the following phases.

Planning. During this first stage are established the broad principles, the general character, and the size or scale of the project. Included also

11 Later, the splendid organization called the Seabees, who were under military authority, performed such work overseas.
are the selection of a site, the establishment of a preliminary layout, a
general estimate of the cost, and the determination of the financial feasi-
bility of the project.

Designing. In a broad sense this stage is the further development of
the general layout and a careful determination of just what is wanted.
Yet to be settled are the details of the flow sheet (sequence of operations
of an industrial plant); the exact locations of structures; adaptation of
the project to suit the topography; planning of the transportation facili-
ties; determination of the sizes and types of structures to be built, to-
gether with the materials to be used for construction; choice of architec-
tural features; investigation of methods and facilities to be used for con-
struction; decisions regarding future expansion; and many other general
features.

Dimensioning. This phase includes the development of detailed
plans for all parts of the project, the dimensioning of all elements of the
structures, and the preparation of drawings.

Preparing the Contract Documents. This stage includes the com-
pletion of contract drawings, specifications, and all other papers contain-
ing data needed to enable contractors to bid on the job.

Awarding the Contract. In this phase, proposals are received from
contractors, the proposals are compared, the successful contractor is de-
termined, and the contract is signed by both parties.

Proceeding with Construction. This step converts the plans into rea-
ality. Involved are a high degree of management and organization and
the utilization of special skills and know-how in the proper handling of
men, materials, and machines. A knowledge of the law of contracts
and of the conduct of business is tremendously important in the conduct
of this phase.

8-11. Components of a Construction Contract. The contract docu-
ments are generally composed of design drawings, specifications, and
what are sometimes called the contract clauses. These are to delineate
and describe the work that is required, the qualities of materials and
workmanship to be furnished, and the various conditions surrounding
the agreement and governing all operations and results to be attained.
The drawings that are thus prepared are often called the contract draw-
ings because they are the ones upon which the contract is based. They
may be amplified or even replaced by additional drawings, which are
often called supplementary drawings, if the contract drawings alone are
not sufficiently extensive and detailed for use in carrying on the contract
work. In some cases reference drawings are used to show the general
character of work required, even though they are not an official part of
the contract.

The plans, specifications, and other writings constituting parts of a
building or construction contract are to be construed together when any
question arises. The contract should state that the engineer has the authority to determine the intent of the contract when the parts differ or conflict in their requirements. As a general principle, what is stipulated in the written documents is likely to have less legal weight than what is shown on the drawings because the latter are usually made especially for a particular project; however, this will depend upon the circumstances.

Precedent and the personal opinions of the engineer are likely to have considerable effect upon where and how certain information is shown in the contract documents. Some persons divide the specifications into two parts, the first containing general clauses which are covenants or agreements, the second containing all technical data. Other persons place these general clauses, covenants, and agreements under what is called the *contract*, or the *contract clauses*. Then the technical instructions affecting materials and workmanship are grouped in the *specifications*. The authors prefer the latter arrangement. However, such details are not of great importance provided that the contract documents contain all the necessary instructions and requirements somewhere and that they are clearly and correctly stated.

It is primarily the lawyers who are to prepare the contract clauses; the engineers are generally responsible for the specifications.

A party to the contract can usually be upheld in any reasonable interpretation of the instrument. The documents should be clear, complete, correct and unambiguous. When ambiguity is present, a court is likely to interpret the writing against the author of it.

8-12. Meeting Legal Requirements. The owner and the engineer are not usually free to plan a project, or even a single structure, to suit themselves alone. Zoning regulations generally control the character of the development that is permissible in various areas. Certain requirements must be met before building permits can be secured. Building codes specify many details of construction. The availability of real estate—especially the right to force the present owners to sell their property—may be a limitation in the matter of location. Provisions for utility services, highway connections, and railroad sidings are likely to require the approval of the respective parties in interest. All these matters should be taken care of and all necessary permits should be obtained before any attempt is made to go ahead with a construction contract itself.

It is generally necessary to file plans of the proposed construction with the proper authorities, who then ascertain whether or not they conform to the building regulations and who may issue the building permit if the plans are satisfactory.

In most states the law requires a professional engineer, an architect,
a land surveyor, etc., to procure a license and a certificate of registration as a prerequisite to practicing in that jurisdiction. This means that a license is needed if the engineer, for instance, is to carry on his professional activities, either in an individual capacity or as the man in charge of an engineering organization. Generally the engineer who is in direct charge of the engineering department of a corporation or of the engineering division of a partnership which carries on engineering work in a particular state will have to have a professional engineer’s license issued by that state, but other top men and those in subordinate positions need not have such a license if the licensed engineer in charge signs all plans or has them issued under his seal. Notice that a subordinate can work for or under the supervision of a licensed engineer without having a license of his own because the employee does not technically assume responsibility; however, it is generally advisable for any such professional employee to secure his license as soon as he can. Possession of this document does not make his work any better, but, in the eyes of the public, it carries weight as a sort of recognized standard of ability and accomplishment.

If an engineer has a license in one state and wishes to extend his practice to another one where authorization is similarly required, he will have to secure a license from the second state. Holding papers in the first state, through reciprocal agreements or custom, assist the engineer in securing his license in the second one, but this circumstance should not be relied upon. He should make advance application to each state in which he expects to do professional work. The initial cost of the license is generally approximately $25. The annual dues to maintain it are perhaps $2 to $5.

Usually, in addition to the financial outlay, the license applicant must have passed an examination of both theoretical and practical nature prepared by the state’s licensing board or other duly constituted authority. Generally, four or five years of acceptable practical experience are also required subsequent to graduation from college before the license will be granted. Many states now permit a graduate of an acceptable college to take his examination in theoretical subjects promptly upon graduation; if he passes this, he becomes an “engineer in training.” When he has accumulated sufficient years of experience and has thereafter passed a practical examination, he is eligible for a professional license and certificate. In some states extensive and excellent practical experience may be substituted in lieu of college training. Thus a man of long experience and excellent reputation may sometimes sidestep the formalized requirements for securing a license.

8-13. Lump-sum Contract. A lump-sum contract, as the name implies, is one in which the contractor agrees to do or to furnish something
for a stated number of dollars. For this compensation he is to fulfill all his obligations under the contract, even though the cost to him in doing so may be greater than the stipulated payment. Actually, as will be explained in Chapter 12, the remuneration may be made in a series of partial payments as work progresses, rather than in one final settlement after acceptance of the contractor's work or material. The point to be emphasized is that he agrees to do his part for the stipulated number of dollars no matter what trouble and expense he encounters in doing so.

From the owner's (buyer's) standpoint, such a contract has many advantages. The bids tell him exactly what the project will cost him, unless he later decides to do something that involves extras. When he is not satisfied with this cost, or when he does not have enough money to pay for it, he need not accept the bid, if he has reserved this right. Furthermore, he need not engage a staff to keep account of exactly what work has been done and materials furnished week after week, except as far as this may be necessary in connection with making partial payments. Of course, the engineer has to keep watch to see that the contract is executed in its entirety exactly as called for by its terms.

All that the contractor is to do must be made very clear and specific before the contract is let. In the purchase of an automobile, a diesel engine, or some other item that is a more or less standard article in the trade, the contract can call for the article by model number, catalogue number, trade name, or some such acceptable and customary designation. In the case of a large construction contract, the owner should have all the necessary plans, contract terms, and specifications complete in every respect. This entails costly and time-consuming work, and often it is difficult to accomplish. If the extent and details of the work are not shown properly, many additional features may have to be determined and provided for as the work progresses, probably resulting in additional costs for such extras.

A lump-sum contract can be used successfully for the construction of schools, mill buildings, warehouses, and similar structures with which contractors have had considerable experience. Although these projects involve a host of various features, a capable contractor can estimate the total cost and prepare his bid with a fair degree of accuracy.

If the work required by the contract is not easily determinable in all its features at the time of bidding, a lump-sum contract should not be used. It would be unfair to the bidders to expect them to bind themselves to the performance of work which is not reasonably predictable in advance. If obliged to bid on such an indefinite project, a bidder would have to protect himself by making his proposal high enough to cover
the cost of whatever increases and uncertainties he thinks may occur. This is a disadvantage to the owner through high costs even though he may think that skimping on the engineering work on drawings, etc., has saved him money.

Some types of work which are unsuited to lump-sum contracts are the following:

1. Difficult foundations for which no one knows how much excavation will be required, how many piles will have to be driven, how difficult the shoring and unwatering of the excavation will be, and how much time will be required to complete the work

2. Contracts involving excavation of uncertain quantity and character, the bidder not knowing how much of the work may be the excavation of rock instead of earth

3. Emergency projects that have to be rushed without time to prepare complete plans prior to obtaining bids

4. Alteration projects that involve the maintenance of operations while the work is being performed

5. Projects that are subject to unpredictable hazards, such as floods, cold weather, and the conduct of persons beyond the contractor's control

In certain respects, however, a lump-sum contract is preferable from the contractor's standpoint unless competition, errors, or unsound judgment have caused him to make a bid that is too low. The reason for this statement is the fact that whatever benefit the contractor can gain by excellent planning and efficient management is his own. He has a specific goal to reach, and any saving that he can devise will add to his profit.

8-14. Unit-price Contract. A unit-price contract is one in which payment for the work is to be made upon the basis of the computed quantities of specifically stated items of work actually performed and materials furnished and used by the contractor in the project, each such quantity being multiplied by the contractor's bid price for that unit. For example, the contract may state that the engineer's estimate of the quantity of reinforced concrete is 10,000 cu yd. If the contractor's bid on that item is $50 per cubic yard, that is the amount that he is to be paid for each cubic yard of concrete placed in the finished work, whether the actual quantity is 11,000 cu yd. or 9000 cu yd.11

11 Notice that the cost of the project depends upon the bid unit prices and the quantities used. The total cost may or may not be less than it would be if a lump-sum form of contract were used and the bids were made on that basis. Furthermore, the contractor's profit does not vary with the form of the contract; his profit depends upon how much his compensation exceeds his expenses.
In order to secure a unit-price bid from a contractor, it is ordinarily necessary to prepare general designs and drawings, together with estimates of quantities, so that he may ascertain the magnitude of the project, the character and difficulty of the work, and the probable cost of performing it. The contractor may properly claim an adjustment in his compensation if the actual work proves to be considerably different in quantity and quality from that indicated by the data presented to him for bidding purposes. This feature will be discussed in Chapter 12. The fact that the contractor will be paid the bid unit price on whatever quantity of that item he actually furnishes or performs is likely to reduce some of the gamble in bidding.

From the owner's standpoint, one disadvantage of such a contract is the fact that he cannot be absolutely sure of the total cost to him until the job is finished. On the other hand, he can avoid the delay that would otherwise be necessary in making a large number of contract drawings to show in detail everything that will be needed, as he should in case of a lump-sum contract. After the contract is let, supplementary drawings can be prepared far enough ahead of time to enable the contractor to secure all the necessary information in time for obtaining materials, making detail drawings, and doing the work.

Of course, both the owner and the contractor will have to do considerable computation and bookkeeping during the progress of the job. It is usual practice for each party to have his own staff make monthly estimates of the amount of materials furnished and work completed during the preceding period, basing their figures upon field measurements or data obtained from the drawings, shipping bills, and similar information. Their estimates are then compared. If there are discrepancies of importance, the computations are checked, and a set of quantities is usually determined and agreed upon as a basis for payment.

It is not customary to have a unit-price item for absolutely everything that goes into a large project. In the preparation of the contract documents, the engineer selects the payment items which he thinks will apply to all major portions of the work, and he includes as many of the minor items as necessary or desirable. He should endeavor to have the list of payment items sufficiently complete to avoid being unfair to either the contractor or the owner, but without having the number of unit prices so great that the list is unreasonable and difficult to use. Furthermore, the units for payment should be definite and readily measurable.

A contract for the foundations and other concrete work of a large industrial project having steel superstructures will serve as an illustration of the selection of the items that are to serve as the basis for payment. The items used in this contract were the following:
1. Earth excavation, per cubic yard
2. Concrete, per cubic yard
3. Cement, per barrel
4. Steel reinforcement, per pound
5. Clearing the site, grading, disposing of excavated material, and cleaning up the site after completion of the foundations, lump sum

The computation of the quantity of excavation was to be based upon the theoretical excavation from the original ground surface down to the elevation of the bottom of the structure or part (as shown on the plans)

Fig. 8-2. Illustration of Payment Lines and Net Lines for Excavation in Earth and Rock. These Are to Show the Bidder the Basis to Be Used for the Measurement of Quantities

(a) Construction in Earth.
(b) Construction in Rock.

and within vertical planes bounding the outline of whatever the part might be. In determining his unit price for this item the contractor was to include whatever he thought the miscellaneous work, shoring, drainage, and backfilling would cost him. The payment for concrete was to include the cost of all materials, forms, placing, curing, and finishing of concrete. Since forms are so costly, it is obvious that the contractor should be given enough data from which to estimate the form costs with reasonable accuracy. The contractor was also to be paid for whatever cement was used. Furthermore, from typical details that were shown on the drawings, the bidder was to make his estimate of the expense involved in cutting, bending, and placing the bars. Detail drawings of the bars were to be furnished by the owner. The use of a lump-sum bid on item 5 above illustrates how one portion of a unit-price contract may be treated as a lump-sum item. This is a convenient way to handle work that would be difficult to classify and to keep track of in the field.
Notice that many things that are necessary in such a job as the one cited above are not directly measurable in any item. For example, all piping and conduits were to be furnished by the owner and placed by the contractor. The same applied to anchor bolts to be set in the concrete. The contractor was supposed to allow for all these features when he made his bid. The contract made this clear, and the drawings showed the nature and magnitude of such special arrangements so that the contractor could include their cost in his bid prices on the payment items.

By no means do we intend to convey the impression that unit-price contracts are generally preferable to lump-sum contracts. Take, for example, a small bridge job costing approximately $40,000. It involves a large variety of materials, but each kind will be used in small quantities. Actual increases in volumes of work done when the estimated quantities are small may lead to unexpected increases in the total cost. Reduction in quantities may lead to claims for extra compensation, as will be explained in Art. 12-13. It may therefore be desirable to use a lump-sum type of contract for building such a structure.

8-15. Cost-plus-percentage Contract. When there is an emergency or any other condition that requires constructing something in a hurry without time to develop plans for it, a contractor cannot safely make a proposal to build it on a lump-sum basis. Neither can he safely do so on a unit-price basis because he cannot foresee all that is required, and the engineer probably cannot tell him all that will be needed either. In such a situation it is possible to engage a contractor to do the work on the basis of the cost plus a percentage of the cost, the owner paying all bills. The percentage of the cost is the payment to the contractor. For example, during World War I the federal government had to rush many projects under emergency conditions. Speed was so essential that time could not be taken to design structures and equipment and then to complete drawings and specifications for bidding. Therefore, contracts were let on the basis of cost plus an agreed percentage of that cost as compensation for the contractor.

Materials, labor, rentals of equipment and property, transportation, and everything else except the salaries of the contractor’s supervisory staff are generally included in the cost item of such a contract. Sometimes even the wages of the contractor’s staff in the field are included as direct costs to which the percentage is to apply, but this depends upon the particular agreement. Ordinarily, the percentage to be paid to the contractor should not be applied to the costs of any portion of the contractor’s general office overhead, postage, traveling expenses, insurance (other than that directly applicable to the job), salaries or portions of salaries of company officials who may visit the job, or charges for the
use of any equipment that the contractor would not customarily use for
the performance of the work. However, all these points should be made
clear in the written agreement.

This is an excellent way to get things done rapidly. Although his pay
is in proportion to the cost, a good contractor will try to do the work
efficiently. Nevertheless, cost is likely to be regarded as secondary to
speedy execution of the work. The contractor does not have to hazard
a bid on the job, but this does not mean that he will make more or less
money on a cost-plus basis than he could if the contract were lump-sum
or unit-price.

A cost-plus contract may be very useful in situations which are not
emergencies. For example, a dam was to be replaced after a washout
resulting from the floods in the Naugatuck River Valley in Connecticut
during the 1955 hurricane. The owner let the contract to a construction
firm on a cost-plus-percentage basis because no one could tell for certain
just what troubles would be encountered in the work. In this way
decisions could be made as the work progressed.

In the accounting, the contractor generally keeps all records of costs,
then presents them to the owner for checking, approval, and payment as
the job proceeds. Thus the owner has to finance the entire project
directly.

To make a cost-plus-percentage contract in an emergency, the owner
may call in several contractors, find out who can and will tackle the job,
make an agreement regarding the percentage to be paid to the contrac-
tor, and see that things start moving at once. While the contractor is
assembling staff and equipment, the owner will try to determine enough
about what is to be done to start the work as soon as the contractor gets
the field staff organized. Thereafter he will try to furnish information
to the contractor as fast as the latter needs it.

8-16. Cost-plus-fixed-fee Contract. An advantageous arrangement or
type of contract for emergency jobs and others involving uncertainties is
one based upon the cost of labor and materials plus a fixed fee as com-
pen.sation for the contractor. This overcomes the possible weakness of
the cost-plus-percentage type of contract. The contractor receives only
the stipulated sum for his part in overseeing and running the job no
matter what the cost of the project may be. If the salaries of his staff
are to be paid out of this fee, the contractor will naturally endeavor to
expedite the project so as to make as much profit as possible. Even if
the salaries of his staff are to be classed as a part of the general costs of

Notice that the same influences apply in the case of engineering services as in
contracting when the work is to be done on a cost-plus-percentage basis. The owner
will rely upon the integrity of the engineer and the contractor to perform efficiently
in both cases and to do what is in the owner’s best interest.
the job, he will still want to rush the work so that his men can be available for another contract and enable him to make additional profit therefrom.

Under this cost-plus-fixed-fee arrangement the owner can select a reliable contractor and engage a capable engineer to design and check the work. All three parties can work in harmony and can accomplish amazingly fine results. The gamble is largely removed for both the owner and the contractor. The latter knows fairly well what his profit will be. The owner knows that his job will be handled expeditiously and that he will get his money's worth.

8-17. Subdivision into Several Contracts. It is sometimes advantageous to split a contract into two or more parts if some portion of the project involves many uncertainties. Here is one example. A large industrial corporation was to make extensive additions to and alterations in the structures and equipment of one of its plants. Foundation conditions were known to be poor and to involve considerable difficulty, and many utilities were to be relocated. All of this construction work was to be done while maintaining production in the existing facilities, and its cost would be very difficult to predict. However, as soon as the foundations and subsurface work could be completed, the superstructure and installation of new equipment could go ahead without such uncertainties. Therefore the engineer decided that the best way to handle this job was to make all foundation construction, utility alterations, and subsurface work a cost-plus-fixed-fee contract and to make the remainder a separate unit-price contract. However, both parts were to be handled by the same contractor, an arrangement that would assure coordination of the work under one head.

Subdivision may also be advantageous in the case of a large project. This procedure enables the engineer to make the plans, specifications, and other written material for one portion of the project at a time and to let a separate contract for each portion as soon as the design is completed. This procedure also saves time, keeps the magnitude of each contract within reasonable limits, and spreads the work among various contractors, each of whom may be especially well qualified for his part.

For example, the work on the Lincoln Tunnel in New York City was subdivided into nearly 100 separate contracts. Typical of these were the following: the caisson for the ventilation shaft on the New York side

33 In using the term cost plus in a contract one must be sure of the exact meaning of this term, and the contract should be clear in this matter. If it states that the compensation is to be on the basis of the cost of labor and materials or on the basis of time and materials plus a percentage or fixed fee, the contractor probably cannot include in the cost such items as overhead. He should therefore set his compensation accordingly because of the restrictions of the wording. All these points should be cleared up before the contract is signed.
of the Hudson River, the New Jersey shaft, the underriver portions of
the south and the north tunnels, each of the three ventilation buildings,
various sections of the tunnel between the river and the portals, each
of the two plazas, and a series of sections of the approach in New Jersey.
This work continued over a period of six or seven years, and the total
cost was more than $100 million.

8-18. Contracts for Combined Engineering and Construction. Some
organizations make a specialty of both designing and building a project.
In other words, they will sign a contract with an owner to make all the
preliminary studies and the final design, then to go ahead and build the
structures involved. Such a contract may be made on the basis of the
cost plus a fixed fee, the cost plus a percentage of the cost, or whatever
arrangement is satisfactory to the parties.

Such a combined contract has been used in industrial projects when
there are specialists in the particular field of endeavor who make this
their business. In some cases, they may even assist in getting the plant
into operation in order to see that everything functions properly. A
manufacturer may also contract to develop the design of an unusual
piece of equipment and then to build it. In the field of small buildings,
there are some contractors who make a specialty of designing and con-
structing what are sometimes called standard buildings.

The proponents of such contracts claim that work can be greatly ex-
pedited in this way because extensive plans and specifications do not
have to be prepared and bids do not have to be submitted before work
in the field can start. Furthermore, there is no division of responsibility.
On the other hand, the contractor prepares the plans and builds the
structures himself, thus really inspecting his own work. If handled by
a skillful, reputable concern, such methods may be efficient. The owner
is, of course, dependent upon the contractor, just as he is dependent
upon his engineer in other cases.

8-19. Construction by Day Labor. Another way to conduct construc-
tion work is to have it done by day labor. Another name sometimes
used for this procedure is force account. This means that the owner
does the work with his own forces, pays for all labor, all materials fur-
nished, and all expenses of any kind that are required for the completion
of the job. He also provides or rents the equipment. The workmen
may be his own regular employees or others whom he has recruited for
the job. The owner may supervise the work directly, handle it through
the services of the engineer, have a superintendent appointed from his
own staff, or hire a superintendent for the job. He may even hire a con-
tractor to do this supervision, paying him a salary or a fee to do so.

This arrangement gives great flexibility to what can be done, because
the owner can develop or modify plans as the work progresses since he
pays all the bills directly. However, he or his engineer assumes all the responsibility for the proceedings and for the results.

If work is done this way, the owner is deprived of the know-how that is one of the great assets of a good contracting organization. Of course, he does not have to pay a contractor a profit on the job, he does not have to prepare a formal contract, and he does not have to pay for other than his own engineering and inspection. However, these seeming savings may be overbalanced by needlessly costly and inefficient work. He may also have a much poorer finished product. It is generally best to have work done by those who are experts at such things—and construction is one activity that requires skill and ingenuity to meet all the exigencies of the job. In fact, most construction work is handled by independent contractors.

8.20. Preparation of Documents. The need for the exercise of wisdom and skill in the preparation of the contract documents of any construction contract should be obvious. However, a little time will be taken here to emphasize this need and to show the reader the careful and critical attitude that he should develop when preparing or examining such papers. This need applies to the contractor in his interpretation of contract clauses and specifications as well as to those who write them.

It is amazingly easy to make a written statement that can be interpreted in a different way from what was intended. The writer of a particular clause knows what he means, and he thinks that he says it clearly. However, someone else may derive another meaning from it. The important thing is what the words mean, not what the writer intended to say. It is helpful if one can compose something, then let it rest for a week or two before checking it, because he is likely to be more critical when examining a statement that he has not seen for some time since writing it. However, when the contract clauses and the specifications are being prepared, the owner is generally eager to have them completed in a hurry.

The following is a list of some points that it is hoped will be helpful to one who is writing contract clauses and specifications:

1. Be sure that the wording is clear and precise. Have it checked carefully by some other person. The readers of the documents see only the words that are written. They do not know the thoughts and intentions of the author.

2. Coordinate the written material with the work of those persons who are making the drawings, and have the latter examine all parts relating to their work.

3. Be sure that the grammar and punctuation are correct.

4. Use short sentences instead of long, involved ones, even if the
former do not sound as attractive. You are writing a legal document in which accuracy and clarity are of vast importance. Make sentences complete; do not use phrases alone.

5. Do not write on a given point if you are not sure of the subject matter.

6. Avoid the use of ambiguous words, words with more than one meaning, and colloquial words. Repeat a word as often as necessary rather than use synonyms, because the latter may have unintended shades of meaning. The vocabulary used should be what is customary in the line of work involved and will be understood clearly by the readers. Complicated, high-sounding words are generally inadvisable.

7. Repeat names as often as necessary. Relative and personal pronouns are likely to cause confusion.

8. Remember that you are giving instructions, not suggestions. You need not explain why you are doing so.

9. Avoid such all-inclusive expressions as “etc.” They have no place in contract documents.

10. Be very careful to make cross references clear by using title and paragraph numbers.

11. Be sure that the requirements are fair, reasonable, and practicable.

12. Reveal all hazards and give all information which may affect contingencies to be provided for by the contractor. Let the bidder make his own interpretation of them.

13. Be careful to examine all the implications of general statements before using such statements.

14. Make an outline of all the parts to be covered. Do this before composing the clauses. Divide the documents into whatever sections are appropriate.

15. Avoid omissions, on the one hand, and irrelevant and repetitious information, on the other.

16. Be careful what you say because you must be prepared to enforce your instructions and to abide by them yourself.

If revisions of or additions to the contract documents are found to be necessary before the bids are received, issue an addendum to all bidders, and demand written acknowledgment of its receipt by all parties who have previously received copies of the contract documents.

**8-21. Examples of Wording.** The following illustrations are given in order to emphasize the importance of careful writing when preparing contract documents. They show the difference in meaning that may arise from the position of a word, the use or omission of a punctuation mark, the use of a connective, and other seemingly minor variations in wording. The key words are in italics.
1. "The Chief Engineer only has the right to authorize extra work."
   This seems to mean that he has no other right. It would be better to say, "Only the Chief Engineer . . . ."
2. "Within the area of the foundation, the Contractor shall remove all compressible soils and blast out all rock above elevation 110."
   This seems to mean that the contractor is to remove nothing below elevation 110. If this is not the intent it would be better to write, "The Contractor shall remove all compressible soil within the area of the foundation, and he shall also blast out and remove all rock above elevation 110 in this area."
3. "The remaining fifteen (15) per cent will be paid at the conclusion of the job on the final approval of the Chief Engineer."
   This seems to mean that the chief engineer is to be approved by somebody. It would be better to state that the money will be "paid to the Contractor after the Contractor has completed the Contract, and after the Chief Engineer has approved the completed work."
4. "Brick masonry shall be laid so that all joints are horizontal and vertical."
   This statement really says that the joints are to be both ways simultaneously—an impossibility. The statement should read, "Brick masonry shall be laid so that the joints between courses are to be horizontal whereas abutting joints are to be vertical."
5. "If an error in the drawings is discovered by the Contractor he is to suspend work until he can get hold of the Chief Engineer."
   Colloquial or slang expressions like "get hold of" may pass in oral statements but are inadvisable in technical writing. Obviously, the contractor is not to wait until he can lay hands on the Chief Engineer but is to establish contact with the latter and obtain his instructions on future action.
6. "The Contractor is to be notified what to do in writing by the Chief Engineer."
   This sentence implies that the contractor will be told what to write about and how to do it. This is primarily a case of improper sequence of words. It is the notification that is to be in writing. The sentence should read, "The Contractor is to be notified in writing by the Chief Engineer regarding what to do."
7. "The Contractor shall make reparation to the Owner due to the mistake."
   Reparation is not owed to the mistake. It would be better to say "because of the mistake" or "for damages caused by the mistake." A word like "due" has a variety of meanings, and its use can lead to misinterpretation.
8. "The Contractor is to report any errors discovered immediately."
The meaning of this sentence is ambiguous. The contractor is to report immediately regarding any error that he may discover, whether discovered early or late.

9. “The Contractor should make a written report to the Chief Engineer on the 15th of each month showing the estimated quantities of work completed during the preceding month.”

The word “should” means that the contractor ought to report but is not compelled to do so. It is better to say “shall” or “is to,” which means he is obliged to do so. Similarly, the word “may” is permissive and should not be used when a specific order is intended. It would also be better to start the sentence with, “On the 15th of each month the Contractor shall . . . .”

10. “The Contractor shall be compensated for any extra time or effort involved.”

This implies that he will be compensated for one or the other, not for both. This situation leads some persons to use “and/or” as a connective in order to cover one or both items. If the statement is “. . . time and effort involved,” it probably will be satisfactory because even though one item is omitted the sum will contain the applicable item.

11. “Final payment shall be made when the work has been completed to the satisfaction of the Engineer and the presentation of costs by the Contractor.”

The word “and” seemingly connects the engineer with the presentation, whereas two separate actions are to be connected. It would be better to change the last part of the sentence to read as follows: “. . . and upon the Engineer’s approval of the Contractor’s final estimate of the cost.” Notice that the sentence as originally worded requires payment regardless of whether or not the final estimate is approved by the engineer, a thing that should not be permitted. Furthermore, it is obvious that the final estimate must be presented before it can be approved. Notice, too, that the possessives are used and that the engineer is specifically named a second time to avoid ambiguity. The approval is to be made by the engineer, not by the contractor.

12. “Upon completion of the installation, the Contractor shall leave the premises in an orderly condition.”

This sentence is actually quoted from a contract. A joker might pretend to wonder whether it is the condition of the contractor or the condition of the premises that is important. The intended meaning is, “Upon completion of this installation, the Contractor shall clean the premises and see that they are in an orderly condition.”
9-1. Purpose. The contract drawings are used to give the contractor needful information which can be transmitted more effectively by picture language than by written description. It is obvious that such data as shapes, sizes, detailed dimensions, relationship of parts, and desired locations for special features would be almost impossible to convey satisfactorily by any means other than drawings.

The preparation of contract drawings is an art in itself, but in this text we are primarily interested in the functional aspect of these drawings as part of the contract documents. The one who makes the drawings has a great deal of responsibility. The contractor has to provide and perform what they call for; what they do not show is by implication omitted from the contract. When arguments arise regarding contractual requirements it is often a question of what the contract drawings really show, not what they should have shown or what the engineer intended. To the extent that they fail to do the job for which they are intended, the owner may be occasioned considerable trouble and expense. The adequacy of the drawings, their clarity, and their detailed accuracy—rather than their beauty—are the really important features. It should be mentioned that, as far as its technical importance as a part of a contract is concerned, a drawing may consist simply of an amateur's freehand sketch made on a piece of wrapping paper; if so, it would be just as binding as though painstakingly made in ink on tracing cloth by an expert draftsman.

It is ordinarily assumed that the plans and specifications, although prepared by the engineer, are to become the property of the owner for whom they were made and who pays for the engineering work. If any other arrangement is intended, it should be definitely agreed upon in advance between the owner and the engineer.

9-2. Tabulation of Drawings. Even though they are not physically attached to the other documents, the drawings should be made an integral part of the contract through what is known as incorporation by refer-
ence. It is customary to have the drawings done on tracing paper or tracing cloth, then to have blueprints made from these originals. Drawings may be of any selected dimensions; 24 by 36 in. is a common size. In view of their considerable size and bulk, the blueprints are usually bound together and kept separate from the contract and specifications. Occasionally, large-size reproductions are folded and bound with the contract and specifications, but the user of these folded reproductions will generally find that this arrangement is inconvenient.

It is desirable to have the clause which states that the drawings are an integral part of the contract accompanied by a table setting forth the date of the drawings, their individual numbers, and their individual titles. For example, the following is part of one possible arrangement for the pertinent portion of a unit-price contract dealing with major highway construction:

**CONTRACT DRAWINGS**

The Contract Drawings which accompany and form a part of this Contract and of the Specifications are dated Nov. 19, 1953. They have the general title “The Connecticut State Highway Department—Route 46 Expressway—John Doe Street to City Line—Bridgeport, Connecticut—Contract No. EX—3.”

The drawings are numbered and separately entitled as follows:

<table>
<thead>
<tr>
<th>Drawing no.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Location Plan and Index</td>
</tr>
<tr>
<td>2</td>
<td>Plan and Profile—John Doe Street to Robert Roe Ave.</td>
</tr>
<tr>
<td>6</td>
<td>Cross Sections</td>
</tr>
<tr>
<td>7</td>
<td>Robert Roe Ave. Bridge</td>
</tr>
<tr>
<td>8</td>
<td>West Abutment at Robert Roe Ave.</td>
</tr>
<tr>
<td>9</td>
<td>East Abutment at Robert Roe Ave.</td>
</tr>
<tr>
<td>14</td>
<td>Connection to Maple St.</td>
</tr>
</tbody>
</table>

The Contract Drawings do not purport to show all the details of the work. They are intended merely to illustrate the character and extent of the performance desired under the Contract; therefore, they may be supplemented or revised from time to time, as the work progresses, by the Engineer or (subject to the approval of the Engineer) by the Contractor. Revisions and additional drawings are to be made as proper illustration of the work requires. All such supplementary and revised drawings automatically become a part of this Contract.

Reproductions of small sketches may be bound directly with these papers, but suitable small-size photostats or photographic reproductions of ordinary large drawings are unduly costly, and, when made the proper size for convenient binding, they are too small to be easily read.
One should be very careful to see that the tabulation of pertinent drawings is complete and correct, since any drawings not listed are deemed excluded. One can easily see why this is so. If a drawing involving a considerable amount of work is omitted, this omission is as serious as the failure to put some specific written material in the contract and specifications. If the drawing is issued later, the contractor can show that such work was not in the contract when he signed it and that, therefore, the performance of the work involved is not required under the contract. If the contractor does perform this extra work, he will be justified in making a claim for extra compensation unless the applicable unit prices cover the cost adequately.

Notice that, in the preceding quotation, the engineer's right to revise the contract drawings and to make supplementary drawings is specifically stated and made a part of the contract.²

The need to amplify the contract drawings by means of supplementary drawings usually arises when a unit-price contract is let on the basis of general design drawings which do not show the required work completely. It often happens that such a contract is let on the basis of several drawings which picture the general scope and character of the project but which do not show the contractor sufficient detailed information to enable him to perform the work. After the contract is awarded, the engineer may have to make from several to a few hundred supplementary drawings in order to portray all the information which is essential for him to furnish to the contractor.³

9-3. Preservation of Contract Drawings. It has already been stated that contract drawings should generally be made on tracing paper or tracing cloth. From such drawings blueprints or white prints can easily be made. If the drawings are made on thin paper, frequent use will

² The handling of revisions will be discussed in Art. 9-6.

³ For example, the unit-price contract for the construction of a $20 million industrial plant was let on the basis of data shown by the following contract drawings.

1. A general plan of the site and a layout of the plant, showing structures, transportation connections, grading, etc.
2. A topographic map of the property.
3. A foundation plan showing footings and locations of piles, plus a few typical details.
4. A floor plan showing the size, shape, and general features of the main plant.
5. Typical framing plans and sufficient details to picture the character of the work.
6. Enough architectural details to show the typical roof, wall, and floor construction.
7. General layout drawings to picture the character of the plumbing, drainage, heating, and electrical installations.

After the contract was awarded, the engineer prepared over 200 supplementary drawings for the contractor's use.
probably cause tearing, wrinkling, or other damage to them. Also, long storage in the owner's files usually causes them to deteriorate. Drawings made in pencil on tracing cloth are much more durable. If ink is used on tracing cloth, the drawings will be easier to read and the line-work and lettering will not smear or fade. However, these tracings will generally be more costly to prepare.

Because revisions of the original tracings are not unlikely, it is desirable for the owner to retain at least one record set of the contract drawings (in the form in which they were initially issued for bidding purposes) for possible use in the event of future disputes. A set of blueprints made on linen and taken from the original tracings may be satisfactory as record prints from the standpoint of durability, but they cannot be reproduced readily in case more copies are desired for reference. Vandyke prints are a form of reproduced drawings from which one can secure additional prints in the future if necessary. On the other hand, these vandykes are made of rather thin, delicate material which will crumple and tear easily; hence they are not very durable if used frequently. Reproduced tracings made on tracing cloth directly from the original ones (before any revisions are permitted) would serve as an ideal record set of drawings.

 Possession of a record set of drawings may prove to be of great value if, for example, the contractor should present claims for extra compensation. Repeatedly this question arises: "What did he bid on?" The answer can be had by reference to the record set, and, by a comparison of these drawings with what was actually built, the validity of the contractor's claims may be ascertained.

In one case the contract drawings showed a detail for a special expansion joint in some heavy-duty crane rails. The draftsman inadvertently omitted the word "thermit" from a note referring to the welding pictured. The contractor consequently assumed that ordinary electric arc welding would be satisfactory. After the contract was signed, the drawing was revised to correct the note. Since the contractor had no facilities for thermit welding, he had to ship the rails to someone else to have this work done. He claimed payment for the extra cost. Reference was made to prints of the original contract drawings, and the contractor's claim was thereupon approved.

These conditions work both ways, of course, and numerous instances might be cited in which the record set of contract drawings has enabled the engineer to prove that extras claimed by the contractor were unwarranted.

9-4. Sources of Trouble. Carelessly or inadequately prepared drawings obviously invite trouble in the performance of a contract and are a fruitful source of claims by the contractor for extra compensation. The
engineer should do his best to convince the owner of this truth. The engineer would be well advised to demand sufficient time and personnel with which to make really suitable contract drawings. He should make them to a scale large enough to facilitate easy utilization of the blueprints to be made from them and used by all who are associated with the conduct of the work.

It is unfortunate that many persons seem to think that one drawing is just as good as another and that the value of contract drawings is strictly proportional to their number or size. In reality, what counts is the accuracy, clarity, and completeness of the data transmitted through the medium of a drawing. It takes considerable time and effort to do the intricate work entailed, and, in practice, the engineer is generally faced with the problem of getting the drawings and other contract documents completed for bidding purposes as fast as he can, usually under pressure from the owner and with limited manpower available for performing the job.

Sometimes unit-price proposals are based upon preliminary drawings purporting to show in a very general way the nature and extent of the project. This is inadvisable. Subsequent development of the design almost always results in the addition of many essential features which add appreciably to the cost of the work. Some claims by the contractor to recover this excess are practically inevitable and usually justified. The owner should realize this when he lets a contract to a bidder who has had to base his proposal upon such vague, inadequate drawings.

One large unit-price job for heavy concrete construction was undertaken on the basis of a few general drawings and a set of prints of a previous contract similar in a broad sense but very different in details. The old prints were used for the limited purposes of (1) showing the bidders some typical drawings turned out by the engineer’s office and (2) picturing the type and general nature of the construction required under the earlier contract. The subsequent development of the job naturally revealed many and extensive differences between the old drawings used for bidding and those ultimately issued after the contract was awarded and actual construction was under way. The contractor’s list of claims for extras turned out to be literally a yard long, and the monetary total was staggering. The owner blamed the engineer for the unfortunate situation, saying, “Why didn’t you convince me that this would be the result?” This example shows how unwise one may be when he asks for proposals without giving the bidders adequate information, even when using a unit-price form of contract.

One principle to remember is that the drawings are not to be in the nature of photographs. Rather, they are to make the subject clear and definite by whatever means the draftsman can devise. On the other
hand, for economic reasons, the preparation of the drawings should not be unduly laborious. Excellent judgment is necessary for one to determine exactly what to show and how to show it. With this principle in mind, notice the use of cutouts to indicate the character and sizes of the reinforcement in the concrete pier of Fig. 9-3.

9-5. Development of Details. The contract drawings are intended to show the general design and enough details regarding the structure, materials, and equipment to enable the contractor to bid on the job. Seldom are the contract drawings entirely adequate for every need in connection with the construction work; it is necessary to amplify the information which they show or imply, supplementing the engineer's drawings with what are variously called detail drawings, shop drawings, construction drawings, or working drawings made by the contractor, or made for him by others. These latter drawings of details are made in order to picture for the contractor everything he needs in order to execute the work.

Thus, the contract drawings (and supplementary drawings also) may show plans for the steel framing of a building. They may consist, in part, of drawings showing the various members by single lines, as illustrated in Fig. 9-1, which is assumed to be a small portion of a contract drawing showing a steel roof truss. Each member is labeled to show the size of the material required for it. The contract drawings should also show all necessary data regarding the prescribed lengths and positions of members. In addition, the engineer may show a few typical details which indicate more precisely the character of the work required. A few such details are shown in Fig. 9-2. These are assumed to apply to the truss shown in Fig. 9-1. It is obvious that a steel-fabricating shop
could not build this truss unless it was given more complete information. Therefore, the contractor for the steelwork will have to make additional drawings giving all the comprehensive information needed to enable the shop to fabricate each one of the members and to build the truss. In addition, he will have to prepare erection diagrams, rivet lists, bills of material for computing weights, shipping bills, and any other miscel-

Fig. 9-2. Details of Connections to Exterior Columns. Scale 1" = 1' - 0"

![Diagram of connections to exterior columns.](image)

laneous papers which may prove necessary. On a large job the detail drawings may be numbered in the hundreds.

Where concrete work is involved, the contractor (or someone else) will have to make detail drawings of all reinforcement, including bending diagrams and bar lists. He will also have to make drawings showing all data needed by the carpenters in building forms. In some cases the contractor will have to make construction drawings showing designs and details for such elements as cofferdams, heavy shoring, arch centering, and other essentials for the actual conduct of the work. Prepara-
Fig. 9-3. Portion of a Contract Drawing of Piers and Beams Supporting Equipment in an Industrial Plant.

**Elevation**
- El. 610
- Sym. ob't E
- 3 @ 3'-0" = 9'-0"
- 1'-6"
- 1'-6"
- 9"
- 4/0" 12" WF 65# continuous
- 3/4" bolts
- 24" WF 76#
- Stilt. Ls 2'-4" x 3' x 3/8"
- Anchor bolts 1", rivets 3/4"
- Masonry pl. 12" x 2" x 1'-0"
- 1" grout
- #3
- #4
- #6 dowels
- 8 - #4 hooked
- Floor
- El. 592.25

**Section A-A**
- 3'-6"
- 1'-6"
- 1'-0"
- 6'-6"
- 4'-6"
- 1'-0"
tion of all these papers involves a tremendous amount of labor and engineering.

The form and size to be used for all shop and detail drawings for a given contract should be determined (and approved by the engineer) before the contractor or any subcontractors make these drawings and should thereafter be adhered to closely. This is because miscellaneous sketches, odd sizes, and a careless numbering system may well lead to confusion and to difficulty in filing the drawings in the engineer's and owner's offices and in locating them once they have been filed.

Figures 9-3 to 9-5 have been prepared to show more clearly the distinction between contract drawings and detail drawings. 4

Figure 9-3 is assumed to be a portion of a contract drawing picturing the concrete piers and steel beams for supporting heavy equipment in an industrial plant. 5 A careful study of this illustration will show that the contractor's men cannot build these piers without having more information, but the size and shape of the concrete are given, the character and size of reinforcement are indicated, and the sizes and spacings of the steel beams are shown. However, other information is to be shown on other drawings in order to give the locations of these piers, the number required, the spacing of piers, etc. From such data, plus the information contained in Fig. 9-3 and in the specifications, the bidder should be able to make his estimate of the cost of this portion of the project so that he can prepare his proposal accordingly.

Next, the reader should examine Fig. 9-4. This pictures a portion of a

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4 Of course, if the engineer wishes to take the time and use the money to make complete detail drawings, these can be used as contract drawings just as well as any others. However, the cost and delay caused by such a course are prohibitive in most construction contracts.

5 The drawing has been modified and simplified somewhat.
shop drawing as it might be made by the draftsmen of a steel-fabricating shop. No attempt has been made to illustrate any particular steel corporation's methods of detailing because each one generally has special short cuts and standard methods of its own. However, the drawing shows the information needed for fabricating the 24-in. beams—sizes, lengths, locations of holes, etc. After the beams have been fabricated they can be delivered to the site and erected in the field.

Finally, examine Fig. 9-5. This shop drawing contains information enabling the men in the field to build the forms for the piers, and either they or some shop men can cut, bend, and mark all reinforcing bars in preparation for their erection. The bar list contains not only the information for performing this work but the numbers of each bar required as well. The locations of all bars are pictured on the drawing so that the steelworkers can place them where they belong in the pier.

Of course, it is possible for the engineer to make the detail drawings for construction purposes. The contract should clearly state whether these detail drawings are to be made by the contractor or the engineer. If the contractor is expected to prepare such drawings, the following points should be clarified for his guidance:

1. The standard size for drawings
2. Instructions about whether paper or cloth is to be used for tracings
3. Instructions about whether pencil or ink is to be used in making the final drawings
4. The number of prints required and the procedure to be followed in submitting drawings for the approval of the engineer
5. The number of prints required for filing purposes by the owner and the engineer and the number to be sent to the inspectors and field staff of the engineer
6. The allocation of responsibility for the correctness of drawings
7. The necessity of and procedure for the submission of preliminary layouts for the approval of the engineer
8. Instructions about whether or not drawings submitted by the contractor for the engineer's approval are to be checked by the former prior to such submission
9. The number of prints of erection diagrams, shipping lists, shop bills, etc., to be furnished to the engineer and his fieldmen
10. The general title to be used for all drawings pertaining to the job
11. The printed forms to be used on the drawings for recording approval and revisions by the engineer

*It is obvious that it would be a tedious and costly job if the men who place the bars in the structure had to take stock lengths of bars (40 ft or more long), then measure, cut, and bend each bar before they could put it in place.
Fig. 9-5. Details of Concrete Pier and Reinforcement
## BAR SCHEDULE FOR ONE PIER - 24 required

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Mark</th>
<th>No. req'd</th>
<th>Bar No.</th>
<th>Type</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>Length</th>
<th>Total lin. ft.</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Footing</td>
<td>S1</td>
<td>6</td>
<td>4</td>
<td>Str.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6'-0&quot;</td>
<td>36'</td>
<td></td>
</tr>
<tr>
<td>Footing</td>
<td>S2</td>
<td>8</td>
<td>4</td>
<td>I</td>
<td>3'-0&quot;</td>
<td></td>
<td></td>
<td></td>
<td>4'-0&quot;</td>
<td>32'</td>
<td></td>
</tr>
<tr>
<td>Footing</td>
<td>S3</td>
<td>8</td>
<td>6</td>
<td>II</td>
<td>3'-0&quot;</td>
<td>6&quot;</td>
<td></td>
<td></td>
<td>3'-4&quot;</td>
<td>27'</td>
<td>A vertical</td>
</tr>
<tr>
<td>S4</td>
<td>2</td>
<td>6</td>
<td>II</td>
<td>6'-3&quot;</td>
<td>2'-9&quot;</td>
<td></td>
<td></td>
<td></td>
<td>10'-10&quot;</td>
<td>22'</td>
<td>A vertical</td>
</tr>
<tr>
<td>S5</td>
<td>2</td>
<td>6</td>
<td>Str.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12'-3&quot;</td>
<td>25'</td>
<td></td>
</tr>
<tr>
<td>S6</td>
<td>4</td>
<td>6</td>
<td>Str.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10'-6&quot;</td>
<td>42'</td>
<td></td>
</tr>
<tr>
<td>S7</td>
<td>4</td>
<td>6</td>
<td>Str.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7'-9&quot;</td>
<td>31'</td>
<td></td>
</tr>
<tr>
<td>S8</td>
<td>12</td>
<td>4</td>
<td>III</td>
<td>1'-2&quot;</td>
<td>2'-8&quot;</td>
<td>2'-8&quot;</td>
<td></td>
<td></td>
<td>6'-6&quot;</td>
<td>78'</td>
<td></td>
</tr>
<tr>
<td>S9</td>
<td>6</td>
<td>3</td>
<td>III</td>
<td>1'-2&quot;</td>
<td>1'-9&quot;</td>
<td>1'-9&quot;</td>
<td></td>
<td></td>
<td>4'-6&quot;</td>
<td>27'</td>
<td></td>
</tr>
<tr>
<td>S10</td>
<td>8</td>
<td>3</td>
<td>III</td>
<td>1'-2&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td></td>
<td></td>
<td>3'-0&quot;</td>
<td>24'</td>
<td></td>
</tr>
</tbody>
</table>

Note: Standard hooks and bends; pin diam. = 6d
12. Any requirements regarding the necessity of using printed forms for drawings

Amplification of the above details is beyond the scope of this book, but it is necessary to emphasize their importance since the detail drawings generally give the information for performance of most of the work.

It is obvious that when the owner engages the engineer, as an independent person or firm, to design the project and to supervise the construction work, the agreement between them should state definitely just what types of drawings the engineer is to make. If the engineer is to prepare all detail drawings, this will require considerably more manpower, and it will involve much more expense than if the engineer is to make only the contract drawings. This point must be clarified between the owner and the engineer and even in the contract documents. For example, if the contractors who are bidding on the job include the

Fig. 9-6. Form for Record of Revisions of a Drawing

<table>
<thead>
<tr>
<th>NO. MADE BY</th>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>NO. MADE BY</th>
<th>DATE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Fig. 9-6. Form for Record of Revisions of a Drawing

This is not only the cost of making the shop drawings in their proposals but, unknown to them, the engineer has contracted to prepare the drawings, the owner will, in effect, pay for the drawings twice.

9.6. Revisions. The mechanics of the revision of drawings is important. One satisfactory system is to proceed as follows:

1. Have a printed form right on the original drawing for use in the recording of any revisions.

2. As a part of this form have space available for inserting the number of the revision, the date on which it was made, the name or initials of the person who made or approved it, and a note or two regarding the nature of the change.

3. On the drawing itself, show in a small circle at the pertinent location the number of the revision. This enables the users of the drawing to determine in what respect it has been revised and to compare the altered version (as described in the printed form previously mentioned) with the original. The encircled number should remain as a permanent record on the tracing.

When a change has been made in a drawing, it is possible to encircle the revisions directly on the tracing, preferably using pencil, and mark-
ing on the back of the drawing so that the added marking will not interfere with the previously penciled or inked information and so that the encircling lines can be erased later without difficulty and without harm to the draftsman's work. However, this general procedure is unsatisfactory when the drawing has to be changed more than once, since the earlier changes are not distinguishable from later ones.

Revisions may be encircled in colored pencil on prints of the drawings. However, this procedure is likely to lead to errors unless all prints are correctly marked. Also, this system does not provide an automatic aid in locating the alterations when prints are taken from the tracings at some later date.

9-7. Notes. Notes on the contract drawings are an integral part of the drawings themselves. The notes are really "specifications," because they give certain information that cannot be shown advantageously—if at all—by the pictures alone. The linework and the notes together are to describe fully the work required.

Notes on the drawings should be clear, specific, complete, and as carefully worded as though they were printed directly in the specifications.

In the preparation of data for any contract, questions will arise about whether particular instructions should be placed in the specifications or shown in the form of notes on the drawings, or both. In many cases it is desirable to show the information on a drawing rather than in the specifications, if the information in question relates directly to what is pictured on the drawing and if this arrangement will be the most convenient from the standpoint of those who will actually have to use the data. The author of the contract documents should bear in mind that when the fieldmen or those in the shop are using blueprints of the drawings in order to detail or to build anything it is advisable to have pertinent notes on the drawings so that the users will be sure to see the information. These persons may not realize that they should search through the specifications to see whether there is some instruction therein which will affect the particular job upon which they are working.

In general, if the instructions are to apply to a few details only, it is desirable to place these instructions in the form of notes on the particular drawing which pictures the matter involved. For example, the note about cambering the roof truss shown in Fig. 9-1 is placed on the drawing because it refers to the truss only. On the other hand, if the same instructions are to be given on a number of drawings, it is probably desirable to place the instructions in the specifications, where they will be applicable to any and all drawings. For example, if certain bolts

If, for example, all trusses are to be cambered sufficiently to counteract their dead-load deflection, such a note might be placed in the specifications.
in one particular connection are to be "shouldered bolts with double nuts," a note to this effect should appear only on the drawing where the details are shown, but if "all field connections are to be high-strength bolts tightened to produce the stipulated unit stress," this information need not be repeated on each drawing. It might well be given in the specifications. However, it is often advantageous to repeat this information in a set of "general notes" which is recorded on one drawing but which is equally applicable to all. The other drawings should then be inscribed as follows: "For General Notes, see Drawing No. _______.

Notes appearing on the drawings themselves are fully as effective as would be the same data placed in the specifications. It is a matter of judgment to decide what method is preferable in a given situation for recording notations and instructions relating to contract drawings.
CHAPTER 10

Specifications for Materials

10-1. Introduction. The proper writing of specifications requires comprehensive knowledge of the particular items to be specified plus an ability to express one's ideas adequately in written form. The variety of subject matter that may have to be covered by a given set of specifications is often extensive, and it cannot be illustrated adequately in a textbook. Each author must learn any particular requirements that affect his special problems. However, the philosophy of specification writing, the rules of proper composition, and the general principles to be borne in mind are substantially the same regardless of the subject matter.

The specifications are not a suitable place for legal phraseology, for broad generalities, or for ambiguous statements. Specifications are to be a clear, concise description of what is to be required of the contractor as far as materials and workmanship are concerned. Their size and comprehensiveness will generally vary with the magnitude and importance of the project. They should be as extensive as necessary, but they should not contain irrelevant material; neither should they repeat what is shown on the drawings or what is covered by the contract clauses. The one who prepares the specifications should constantly bear in mind that the owner as well as the contractor will be bound by the provisions of the specifications, whether for good or for ill.¹

As explained previously, the specifications are only one part of the contract documents. Normally they are supplemented by drawings. Between the specifications and the accompanying drawings, the materials for, and the character and details of, the work to be done are to be made clear and definite for all concerned. The specifications as such are to cover whatever features can best be described in words. Thus,

¹The Construction Specification Institute is a nation-wide organization which is devoted exclusively to the objective of improving specifications for the construction industry. One of the points which this group has emphasized is the importance of having the specifications prepared by very able and experienced persons because the specifications have such an important effect upon the quality and cost of construction.
the specifications are most suitable for prescribing the qualities of the materials and of the workmanship to be required.

The differing functions of the contract drawings and the specifications may be illustrated by referring to Fig. 10-1. Assume that this is a portion of a contract drawing for a large industrial plant. The parts in

Fig. 10-1. Pipe Tunnels

which we are interested here are the pipe tunnels. These are shown by the dotted lines in the plan view, and a typical cross section is pictured in the lower view. Notice that the drawing shows the following:

1. Length of tunnels
2. Elevations of inverts (center line of floor surface)
3. Sizes for the two types of tunnels

*These are sometimes referred to as “design drawings.”
4. Thicknesses of roof, floor, and walls
5. Reinforcement required
6. Waterproofing
7. French drains
8. Inside drainage troughs
9. Spacing of contraction joints

It is left for the specifications to describe the following:

1. Quality of the concrete, aggregates, and cement
2. Workmanship required for mixing, placing, and curing the concrete, including forms
3. Finish required for floor, roof, and wall surfaces
4. Quality of reinforcement
5. Workmanship required for placing and embedding reinforcement
6. Quality of material for dampproofing
7. Workmanship required for application of dampproofing
8. Material and construction requirements for French drains
9. Materials and workmanship required for contraction joints, e.g., keyways, copper waterstops, and painting of surface with asphalt
10. Excavation and backfilling requirements
11. Preparation of soil foundation

It is obvious that the specifications as well as the drawings should be prepared with great care. The engineer and the owner should never forget that, when the specifications fail to show all requirements as adequately as necessary to reveal clearly what is intended, the contractor's obligation is limited to performance of only what is actually called for in such incomplete specifications.

Somewhere in the contract, preferably in some one of the contract clauses, there should be a statement describing the procedure to be followed if it should develop that there are discrepancies between the specifications and the drawings. In the haste with which contract documents sometimes have to be prepared, such inconsistencies unfortunately are likely to occur. They may also arise because of changes which are made in the drawings but which are not made correspondingly in the specifications, or vice versa. Again, discrepancies are likely to be caused when one statement in the specifications is changed but the corresponding revision of another clause relating thereto is overlooked, this being a danger which arises when the requirements for something are specified in more than one place. It is best to state definitely in the contract clauses that, in case of discrepancies between the specifications and the drawings, the engineer is to determine which of the two is to govern.
When something is called for in the specifications but is not included in the drawings, and vice versa, the contractor should furnish or perform that particular thing as though it were covered in both. The contract documents must make this point clear.

At the beginning of the specifications, or perhaps at the beginning of the contract clauses, it is desirable to have a clear statement of exactly what work is to be covered by the contract. The following illustrative material is taken in part from the specifications for a bridge project:

This Contract shall include:

1. One (1) complete superstructure, including asphalt-paved movable span, towers, counterweights, power equipment, hydraulic jacks, signals, safety gates, barriers, machinery house, operator's cab, floormen's houses, and all miscellaneous equipment
2. Two (2) complete abutments with pavements
3. Two (2) complete approaches with pavements
4. Complete removal of the substructure and superstructure of the existing bridge
5. Removal of the piling which supports the substructure of the existing bridge and removal of all existing fender piles
6. Dredging of the channel of the river in the vicinity of the bridge
7. Protection of the sixteen (16) inch water main which crosses the river at this location
8. Maintenance of navigation and compliance with all requirements of the local United States Engineer Office
9. Provision for access during construction to all properties on the site of the Contract for both pedestrian and vehicular traffic
10. Operation of the bridge after completion for seven (7) days under traffic
11. All miscellaneous items of work shown by the Contract Drawings and/or described in the Specifications

10-2. Discretionary Power of the Engineer. There are many materials that can be used for the building of structures, e.g., steel, aluminum, concrete, wood, bricks, stone, tiles, and cinder block. Similarly, there are many manufacturers of electrical, mechanical, and other equipment. These materials and products are competitive and may be substituted for one another to some extent. On the other hand, some may be more suitable than others for use in specific instances. It is the engineer's duty and right to specify the one—or the alternate ones—that he believes to be best for each particular use, article, or structure. This means that he is to be the one to make the selection when the design is made. The responsibility is his alone, just as it is in the determination of the other features of the design of the structure, the machines, or whatever else the project may involve.
Without this discretionary power of the engineer there would be no end of confusion. What would happen if each manufacturer of suitable material that could be used in a project insisted that his product be included as an alternate in the contract and that competitive bids be taken before a decision were made? The choice might then be made upon the basis of the lowest bid price. Such a procedure would be very unsatisfactory. It is usually advisable and often necessary to plan a project in detail so as to suit the use of a particular desired product or material. It would generally be impracticable for the engineer even to try to make the drawings for a project so as to illustrate the multitudinous details that would adapt it to the use of all materials that manufacturers would like to have him use.

The engineer should make thorough studies to ascertain that his final design is the best that can be devised. Naturally, he should consider basic concepts, arrangements, and workmanship. He should also consider the relative costs of materials when making the design. Low first cost alone, however, is not always the feature that should determine his selection of materials, or of anything else, for that matter. Longevity, maintenance charges, operating costs, efficiency, power requirements, safety, and general adaptability for its purpose—all these are to be considered as well.

A threat to this discretionary power of the engineer occurred in connection with the design of the Ohio Turnpike. As we understand it, the commissioners, upon the recommendation of the engineers concerned, specified portland-cement concrete pavement because they believed it to be best under the circumstances. Persons who were interested in having asphalt paving included as an alternate bid brought legal action to force the commission to include this alternate. The Ohio Supreme Court overruled the lower court by a decision to the effect that the commission (and its engineers) had the right to specify what it considered to be best, provided only that its action be taken "in good faith and not in abuse of its discretion." This decision is of great importance to the engineering profession.

10-3. Standard Products. It is often both efficient and desirable to specify a standard product by trade name, catalogue number, or any other suitable reference that is definite enough and is customary usage. For example, one may specify an electric motor as follows: "X Electric Manufacturing Company Type CSP, open, 10 hp, 1200 rpm, frame 326, 440 volt, 3 phase, 60 cycle." Thus, all concerned know exactly what is required, or they can find out about it.

On the other hand, this designation of one specific product is not usually permissible for government work. In such contracts it is usually required that at least three alternate suitable articles be designated, any
one of which will be acceptable. The purpose of this regulation is to avoid what might appear to be favoritism. It is also intended to secure adequate competition in the bidding. That is why, in such contracts, it is generally necessary to avoid specifying a patented product that only one producer can furnish.

Such restrictions do not apply in private work, but it is often advisable to avoid criticism and to promote competition by specifying "so-and-so or approved equal." This tells other manufacturers the kind of product or service that is desired, and it enables each of them to propose a similar product of his own that he considers to be just as good or even better. It sometimes happens that, unknown to the engineer, some new and better article has been developed. In such an event a substitution will be welcomed. However, the engineer's approval is essential; otherwise great confusion would result.

The following clauses illustrate the use of references to manufacturer's products in specifying plumbing and heating equipment:

A Minneapolis Honeywell T-418 B outdoor reset control with outdoor weather bulb and water bulb in a separate well shall be provided to operate the oil burner. Control shall provide 210° F water when outdoor temperature is 0° F.

Provide and install the following fixtures and equipment:

Lavatories .................. Standard F 329 A
Tubs ......................... Standard P 210 5T and P 2100T

All radiation shown shall be Vulcan or approved equal 2 in. I.P.S., 4½-in. square fins, 24 fins per foot, with CS cover, 1-high except as noted, with slide hangers and 4-ft damper sections operated by knob operators.

Here is another illustration:

This specification is intended to cover the complete installation of one (1) Electric Oil-hydraulic (electrically operated hydraulic elevator, using oil as the fluid medium) Passenger Elevator, as manufactured by Rotary Lift Company, Memphis, Tennessee, or equal as approved by the Architect.

The reader will notice that, in such cases as those previously illustrated, it is important to give brand names, pattern numbers, and enough other data to make the requirements very clear and definite. It is also advisable to be sure that the article is a standard one which can be readily secured and that the manufacturer is a reputable concern whose product is trustworthy.
Another way to specify an article without resort to the use of the words "or approved equal" is to list the brand names and other information of a series of articles, any one of which will be acceptable. This procedure is more difficult, and the list, even then, may not be truly complete.

The use of these references to a standard commodity or product is, of course, much easier and safer than the preparation of detailed specifications describing all the desired qualities of the article. On the other hand, when patented or proprietary products are desired but cannot be named in the specifications, it is possible to word the specifications so that the desired product is the only one which completely meets the requirements.

The use of the phrase "or approved equal" may not be strictly correct because articles manufactured by various sources may seldom be exactly alike even though each may serve the desired purpose satisfactorily. The words "or approved equivalent" may be more technically correct. The word "substitute" does not necessarily mean the same quality, and its use is not recommended.

"Or approved equal" is a good illustration of the meaning of words as "used in the trade." A court will ascertain this, and it will construe the phrase as having its customary meaning unless some other statement in the contract contradicts it. The important thing is the requirement that a different article from the specified one is to be used only when approved by the engineer.

On the other hand, there are cases where only one specific article is acceptable. An example of this might be the equipment for an addition to a factory. The owner already has certain machines, motors, etc., in the existing plant. For the pending annex he wants more of the same ones because his maintenance men and operators are familiar with that particular type of equipment and he need not carry replacements and spare parts for a wide variety of equipment types and sizes. In such circumstances he is justified in specifying "more of the same." A wise manufacturer will not try to penalize a customer on the price he asks for his products just because he might have a chance to do so.

It is frequently satisfactory to say in the specifications that a product is to be made "according to the manufacturer's standard." For a motor of certain type and horsepower, for a truck of a specific type, model and capacity, and for a bridge crane of some particular span and capacity, such a specification may be perfectly all right.

Such may not be the case, however, if the article to be purchased has to meet various conditions of special nature. For example, a gantry crane of a particular span, height, speed, and capacity was required, and the specifications used the words "according to the manufacturer's standard" in describing it. When the drawings for the contractor's design
were received, the engineer objected strenuously to certain basic features and to several details of the design because some parts were not sufficiently strong. However, he was at a great disadvantage in securing remedial measures because the manufacturer said: "This is our standard. We have built similar designs for..." In this case as in many others, the opinion of the engineer was based upon his own knowledge and experience of what would be best for long-time service. He could not prove that the manufacturer's design was unsafe, but he wished to have certain parts of the construction detailed in accordance with what he had previously found to be eminently satisfactory.

In the preceding situation, notice that, if the engineer requires particular, detailed revisions of the contractor's drawings and if the contractor carries them out as ordered, the engineer may find himself acting as the employer, whereas the contractor is merely executing the former's instructions. If trouble develops in the future, it may be a question of what caused it and who is responsible.

It has been stated that the engineer is to be the one who is to approve or disapprove any substitution. This is essential. However, if the specifications state that alternate materials will be considered by the engineer, a contractor cannot be certain about what the engineer will accept when the former prepares his proposal. Therefore, if the bidder is to play safe, he will have to base his costs upon what is specified. If he states in his proposal that his bid is based upon certain stipulated substitutions, he will have changed the terms of the contract, and his proposal is likely to be rejected because it is not in proper form and because it cannot be correctly compared with the proposals of other bidders. Substitutions (and any corresponding price adjustments) will usually have to be arranged after the contract is signed, if they are to be resorted to at all.

10-4. Standard Specifications. It is a great help to refer to standard specifications—where applicable ones are available—as a means of specifying materials. The American Society for Testing Materials (ASTM) has prepared volumes of specifications for a wide variety of materials—in fact, for most of the materials used in practice. These specifications are the result of long and intensive study by experts in each field involved and are generally accepted as authoritative. The ordinary engineer cannot hope to sit down and quickly write a perfectly satisfactory specification for even a few basic materials, nor would he want to do so when such excellent ones are readily available to him.

For example, assume that specifications are needed for the steel to be used in a number of large castings. The engineer may state that the material is to conform to ASTM designation A 27-52T, Mild-to-Medium-Strength Carbon-Steel Castings for General Application (Tentative).
Thus, manufacturers who wish to bid on these castings will know exactly what is required as far as the quality of the material is concerned. The title used in this ASTM reference is generally descriptive; the designation is the specific reference. In this particular example the number 52 denotes the year of issue of the specifications by the ASTM organization. The letter T is used when the specification is tentative and has not been formally approved by the committee. In using such a reference the engineer may add "or the latest revision thereof," if he is not sure that the reference volume designated contains the very latest revisions of the pertinent specifications.

As the name implies, the ASTM specifications, in addition to specifying qualities, cover or set up standard procedures for acceptance tests of materials. This is an important matter. One can easily imagine the confusion that would arise if excellent specifications of the chemical and physical properties of a material were issued but each organization or user was left to devise his own methods of testing this material to ascertain whether or not a particular lot would be acceptable. Just a few of these tests as issued by ASTM are the following:

ASTM designation: E8-52T, Tentative Methods of Tension Testing of Metallic Materials
ASTM designation: E16-39, Standard Method of Bend Testing for Ductility of Metals
ASTM designation: C151-52, Standard Method of Test for Autoclave Expansion of Portland Cement
ASTM designation: C88-46T, Tentative Method of Test for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

Notice that the ASTM specifications do not, and should not, prescribe what material to use for a particular purpose or when to use it. These are matters for the individual engineer to determine. If he wants to make an article of cast iron instead of cast steel, the proper reference to the ASTM specifications will enable him to be sure that he is calling for good cast iron. On the other hand, if the brittleness of cast iron should prove to be a disadvantage in service, this is not the fault of ASTM. In other words, the ASTM itself obviously cannot guarantee proper use of its data and of materials.

It is clearly the responsibility of each individual engineer to be sure that he knows the contents of the section of the ASTM specifications that he uses as a reference. Anything that is not covered by same should be specified directly by him. Thus the dimensions and finish of these castings are generally to be given on the drawings, while requirements for annealing and any special methods to be used in making the castings
are to be stated by the engineer in specifications he personally devises or given through references to proper standard specifications.

Furthermore, the ASTM does not undertake to specify unit stresses to be used for design purposes. For example, if the engineer is using structural steel, he (or some governing code) must determine what unit stress and safety factor are to be used. The ASTM will specify only such items as the proper ultimate tensile strength, the minimum yield point, and the required minimum per cent elongation. Again, if the engineer is using concrete in his structure, he is the one to determine whether that concrete is to have a twenty-eight-day ultimate compressive strength of 2500 psi or 4000 psi, and so on.

Besides the ASTM specifications, there are many other materials and workmanship specifications of real help to the engineer as references. These latter are generally prepared by manufacturers of materials or by groups that are interested in particular materials. For example, the Standard Grading and Dressing Rule for Lumber, prepared by the West Coast Lumbermen's Association, is useful when one is to prepare specifications for a timber structure; the Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, prepared by the American Institute of Steel Construction, are very helpful in connection with building jobs; and the Building Code Requirements for Reinforced Concrete (ACI 318-56) of the American Concrete Institute serve a useful purpose in certain phases of concrete work.

The fact that these specifications are prepared by those who are interested in the sales of a particular material does not mean that the specifications are poor or untrustworthy. Not only do these people advocate the use of their materials, but also they want them used properly so that the results will be satisfactory. This is in anticipation of repeat sales.

Design specifications and building codes are in an entirely different category. They do not concern the contract as such, although the structure to be built under the contract may have to be designed in accordance with their provisions. They govern many features of construction. Their use will be illustrated in the next chapter.

Naturally, standard specifications must be correctly used if they are to prove valuable. It is generally better to use them in their entirety than to select pieces of them for quotation. For example, the Steel Products Manual for Hot Rolled Carbon Steel Bars, Section 8, published by the American Iron and Steel Institute in August, 1952, contains, in substance, the following specification for the straightness of reinforcing bars to be used in concrete:

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This rule applies to Douglas fir, Sitka spruce, west coast hemlock, and western red cedar.
1. The offset of any bar from a straight line shall not exceed \( \frac{3}{4} \) in. in any length of 5 ft.

2. In no case shall the offset of any bar from a straight line exceed \( \frac{3}{4} \) in. times one-fifth of the length in feet.

These requirements are pictured in Fig. 10-2(a). A specification was prepared which copied only the first of these items. Figure 10-2(b) shows how; if only this one requirement is stated, the reader may comply with it and yet violate the equally important provisions of the second item. The bars may then be curved excessively but still comply with the specifications.

Notice the following advantageous uses of references to standards for electrical work:

The following industry standards shall be considered minimum requirements under this specification:

1. The standard rules of the American Institute of Electrical Engineers.
2. The rules and regulations of the National Board of Fire Underwriters (National Electrical Code).
3. The rules and regulations of the local utility company and local Electrical Inspection Department.
4. All electrical materials and appliances shall have the listing of the Underwriters Laboratories, Inc., or shall conform to their requirements and shall be so labeled.
5. All work is to be done in accordance with all state and local regulations, and the Contractor is to obtain and pay for any charges for all permits, licenses, etc., in connection with his work.

A paragraph in another specification stated:

All work shall be performed in accordance with the National Electrical Code, American Standard Safety Code, and such state and local codes as may be applicable. The Contractor shall obtain all necessary approvals, and he shall pay for all permits.

The following is an illustration of the use of a reference to a standard specification for plumbing work:

All work shall meet the requirements of the National Plumbing Code, unless otherwise noted.

The reader should remember that standard specifications are generally prepared for use in average or ordinary conditions. When special requirements are to be met, the engineer should not trust standard specifications to cover what he has failed to provide for. It is for him to prepare adequate specifications in order to prescribe exactly what will be required.

10.5. Use of Previous Specifications. Many products that are considered as raw materials for a construction contract are really the finished product of some manufacturer or materialman, and they cannot be described adequately, if at all, by reference to standard specifications. However, use may be made of paragraphs that have been previously prepared by the engineer himself or by others. If none are available, original descriptive data will have to be prepared.

The use of paragraphs or clauses that have been prepared for the specifications of a preceding job may have the advantage of prior experience and testing in practice. However, previous compositions may not be completely applicable to the present case. They may contain inadvisable statements, and they may fail to cover all necessary features. Their big advantage is that they relieve the engineer of the necessity of doing original thinking and creative composition. Their use also helps to avoid overlooking some important feature. On the other hand, utilization of the “shears-and-pastepot” system (which this is often called) may lull the engineer into a false sense of security so that he does not really check to see that all necessary points are covered properly. Often there is a statement in a former writing that refers to some feature of the previous contract that is not applicable to the present one. Again, there may be some different feature in the present contract that the copied clause does not cover at all or, at least, for which it does not prescribe the requirements correctly.
One way for a large organization to handle this matter of the preparation of specifications would be to compose a paragraph or a series of paragraphs covering all the subjects that are likely to be applicable to its future contracts. These can be studied carefully by all concerned. Then mimeographed copies can be prepared for incorporation in future specifications, or a master copy may be used as the original for future copying. Blank spaces may be left for the insertion of any figures or statements that are not constant for all cases. This procedure is likely to be safer than merely cutting paragraphs wholesale from previous specifications.

Another danger inherent in the use of copied material which is incorporated in specifications is the possibility that the author of the original material is thought to be better informed than he really is, or, when preparing the clause, he may have had in mind certain features that are not exactly the same as those of the later case. Consequently, errors or inapplicable statements made by him may be copied automatically. If a master set of specifications is customarily kept up to date and if anything discovered in the course of contract work which affects these specifications is passed on to the one in charge of the master copy so that he can correct the specifications, the repetition of such mistakes may be minimized.

10-6. Specification in Terms of Service. In some cases, such as purchase orders, it may be satisfactory to specify materials and equipment in terms of the service required. The reason may be to secure competition in circumstances such that each of several different products could serve the purpose. The engineer may use this method when he is not sure which particular material or article will be the best and the cheapest and when he wants the recommendations of, as well as prices quoted by, various manufacturers.

It seems that this performance type of specification, which states what is required in the way of performance, qualities, etc., is attaining greater popularity than one which attempts to set down all the detailed requirements for a particular article. This is an especially suitable form of specification when more than one method or commodity may be used satisfactorily for attaining a particular purpose. In this case the manufacturers and contractors are permitted to make their proposals upon the basis of what each one thinks is suitable and best to meet the general requirements. The engineer can then accept or reject any or all proposals if he believes that any or all will not be satisfactory. If the producer guarantees that his product will meet the requirements, then the engineer may select one upon the basis of price, desirability, or whatever other characteristics he thinks best, relying upon the guarantor to make good if necessary.
Let us assume that an engineer is to specify the insulation for the flat roof of a new and very large industrial plant. This will be a separate contract that will include the material and its installation. He may specify the desired resistance to the transfer of heat or may say that the insulation is to be equivalent to a 2-in. layer of foam glass. He may also say whether or not the material is to be rigid, fire-resistant, moisture-proof, and/or nondecaying. The manufacturers can then propose what they recommend, what they will guarantee, and what the cost in place will be. The engineer then has to determine which one of the several possibilities proposed he believes to be best, considering both price and quality.

Again, assume that a mechanical engineer is preparing a requisition for a bridge crane. He might prepare a clearance diagram giving the span, side and vertical clearances, distance of rails above the floor, capacity in tons, auxiliary hook (if any) and its capacity, speed of bridge travel, speed of trolley, voltage to be used for power supply, position of cab, and date of delivery required. Various manufacturers have their own particular designs and details for such a job, or they will make special ones. Each will submit a proposal. The details may vary, but the guarantee of service and quality given by reputable manufacturers can be trusted. The engineer can then accept whichever proposal he thinks is the best.

The following specification is quoted from a contract for some pumps which constituted one part of the equipment to be supplied:

Close-coupled centrifugal raw water booster pump, complete with motor, of capacity and head as given in “Design Conditions” herein, fully assembled and ready for installation.

The pump shall be designed for the following conditions and in accordance with the standards of the Hydraulic Institute.

| Capacity | 20 gpm |
| Static head at suction | About 10 ft |
| Discharge head | 195 ft |
| Water temperature | Approx. 35 to 70°F |

The final pump suction head, discharge pressure, and rotation will be given at time of approving the over-all dimension drawings.

Notice that the preceding specification permits each manufacturer to propose one of his pumps (or to design one) that is suitable for the required service. It does not tie him down to minor mechanical details, although these must be satisfactory to the engineer.

Naturally, this method of specifying service requirements cannot be used for a large construction contract that includes a great many items.
One can realize that the contractor must have a fairly definite knowledge of the requirements of the contract. If the specifications have too many items open to the choice of various materials and products, he cannot tell in advance just what to bid upon, unless he himself can determine what is to be used for each article. This sort of freedom should not be granted to the contractor because it tends to cause confusion.

10-7. Planning Detailed Specifications. It is apparent that one must know considerable about a material in order to write a good specification for it. One should know what qualities to expect in the material, what characteristics he wants for his special purpose, and whether or not (and, if so, how) he can obtain just what he wants without undue trouble and cost.

For purposes of illustration, assume that you are to prepare a specification for the piles and timbers to be used in a wooden pier for docking colliers at a power plant located at tidewater. Assume further that you cannot use references to standard specifications for the purpose. How would you go about accomplishing the work? Here are some of the things that you should think about and cover in your specifications:

A. Piles
1. Kind of material, i.e., Southern yellow pine, oak, spruce, Douglas fir, etc.
2. Variation allowed from the stipulated lengths
3. Straightness
4. Size range, or at least minimum sizes, of tip and butt
5. Removal of bark
6. Limit on knots allowed and trimming of knots
7. Seasoning
8. Creosoting—method to be employed and quantity of creosote to be used
9. Limitations on cracks, shakes, and other imperfections allowed

B. Timber for deck
1. Kind of material
2. Variation allowed from specified lengths, especially underrun
3. Straightness or warp
4. Limit on knots—number, size, and position
5. Seasoning
6. Creosoting
7. Amount of splits, checks, and shakes allowed—length, depth, direction
8. Grade
9. Chemical treatment, if any
10. Kind of finish—rough or dressed
11. Full trimming—no skips
12. Character of stock—fresh, clean, no decay
13. Grain limitations
14. Limit on pitch streaks or pockets and on stains
15. Allowed variation from nominal sizes
16. Limit on worm holes
17. Requirements if tongued and grooved

Actually, especially with timber, the limitations generally vary somewhat with the size and general character of the material. For example, the specifications for 8 by 12 timbers will differ in some details from those for 1 by 6 sheathing.

The reader can easily realize what a task it is to compose all these detailed specifications. He will soon look for some standard references that he can use in preparing the required data. It must be remembered that a misstatement or an omission may cost money and may compel one to accept material that is not as good as he intended.

10-8. Special Items. It is seldom that any ordinary engineer or architect has to compose specifications covering some material that is entirely new or some new combination of materials. However, he may desire some special qualities in or uses for materials. If so, he must specify them by original composition.

To illustrate, suppose that an architect wishes to use a certain unusual type, texture, color, and finish of stones for the exterior portion of the walls of a monumental building. Under the circumstances, it is necessary for him to make a study of exactly what kinds of stone are available and suitable so that he will not specify something that cannot be secured. He must determine whether or not the stone of his choice can be finished in the fashion he desires. This necessitates the preparation of special specifications for this material. The architect, of course, must automatically assume full responsibility for the results.

Sometimes it is desirable to require the contractor to prepare samples of his work or product and to submit them for approval. The specifications should state that the materials furnished under the contract are to match the approved samples.

When it is necessary to specify a material in detail or to specify some commodity, it is essential for the engineer to have a thorough knowledge of the physical, chemical, and other properties of that material. He must then be careful to prepare his specifications so as to include the desired properties but to exclude those that are undesirable.

Provisions should also be made for acceptance tests of materials. Who is to test them? Who is to pay for this work? What are the tests to be? Who is to approve or disapprove the results of these
tests? All these questions should be answered in the contract clauses or in the specifications.

The engineer should also be very careful to see that his specifications are practical and that they can be met without excessive cost and trouble.

When confronted with such special cases, unless he is expert in this particular field himself, an engineer or an architect might well go to the trouble and expense of having some competent person check what he has written in the way of specifications before they are published. A misguided sense of professional pride should not be allowed to prevent this sensible extra step of precaution.
CHAPTER 11

Specifications for Workmanship

11-1. Specifying Procedures. An independent contractor must be free from dictation by the engineer about how the work shall be performed. When the contractor signs the contract, it becomes his duty to produce the desired results. Should the engineer (or the contract documents) specify exactly how the work is to be handled, then the engineer has largely substituted himself for the contractor as far as responsibility for securing the desired results is concerned. This is something about which the owner and his representatives must be extremely careful. A few examples may serve to put the problem in its proper perspective.

Assume that the specifications state that the concrete in a structure is to have an ultimate twenty-eight-day compressive strength of 4000 psi. They also specify the amount of cement, sand, gravel, and water to be used in the mix, together with the time for mixing and the allowable slump. If the contractor follows these last instructions, as he is obliged to do, it will not be his fault should the concrete in its finished form fail to meet the designated strength requirement. The specifications should prescribe the quality of the ingredients and the desired final result—4000 psi—but they should not attempt to tell the contractor exactly how he should go about attaining that result.

Again, let us assume that membrane waterproofing is to be applied over some concrete construction and that the specifications state that the structure is to be watertight. They also set forth precisely how the concrete work is to be done and how the waterproofing is to be applied. The work must be done according to these detailed specifications, but the quality of the product is consequently the responsibility of the engineer rather than of the contractor.\(^1\)

In the case cited in the preceding paragraph, the contractor was not held responsible for the poor results obtained. It again would have been preferable merely (1) to specify the quality of materials, (2) to

show all dimensions on the plans, and (3) to require that the structure be watertight. Then the contractor would be obliged to make good if his work proved to be unsatisfactory.

On the other hand, there may be circumstances that make it necessary for the engineer to specify in detail just what is to be done and how it is to be accomplished, thereby deliberately assuming the responsibility. This is generally done in instances where the contractor probably will not be able to determine the desired or proper course himself. Here is an illustration of such a situation. A contract for the construction of an industrial plant included drawings and specifications for a dust-collecting system. All motors, cyclones, piping, and other details were shown on the drawings, and the materials and required workmanship were described fully in the specifications. This was really necessary because the contractor could not tell otherwise what was desired. The contractor agreed to build the system according to the plans and specifications. Whether or not the finished product was adequate for its intended service was necessarily the responsibility of the designers. Of course, if the contractor failed to do the prescribed work correctly, he could have been compelled to fix it so as to conform to the requirements of the contract. But that would have been the limit of his responsibility.

The dangers inherent in specifying how the contractor is to secure the desired results and to do the required work is illustrated further by an instance which was reported to one of the authors. In substance, the specifications for a large housing project stated that, to remove ground water from the excavations for the foundations, "the Contractor shall use well points," whereas the intent of the engineer had been that "the Contractor may use well points." The specifications thus became an order instead of granting a permission. The contractor did use the well points and, as a result of the transportation of very fine material with the pumped-out water, certain neighboring buildings settled harmfully when they were, in effect, undermined. Since the owner specified the operation, he was subject to claims for damages amounting to nearly $500,000. He could not blame the contractor for doing what the specifications required. Therefore, the owner had to face the consequences.

The following contract paragraphs illustrate in part how two items were specified as respects the measure of the contractor's responsibility:

15. Temporary Structures:

The Contractor shall furnish and construct all guardrails, fences, trestles, staging, shaftways, falsework, and other temporary structures required in the Work, whether or not of the type enumerated. All such

3 Equipment utilizing centrifugal force for collecting the dust.
structures shall have adequate strength for the purposes for which they are constructed, and the Contractor shall maintain them in a condition satisfactory to the Engineer.

The designs for such structures are to be prepared by the Contractor; nevertheless, drawings showing their design and details are to be submitted to the Engineer for his approval before being used. Examination by the Engineer, however, will be in a spirit of helpfulness but will not relieve the Contractor of his responsibility for their design, construction, and use, and the Contractor shall make good all injuries to persons or things arising on account of them.

27. Blasting:

Whenever blasting is done, the Contractor shall comply with all federal and state laws and local regulations relating to such work. Explosives used shall be only of such character and strength as may be permitted by such laws and regulations. The Contractor shall provide, at his own expense, proper magazines and storage facilities for the storage of explosives, and these are to be in such locations as may be approved by the local authorities having jurisdiction over such Work. The magazines and storage facilities shall be marked with large letters "explosives—dangerous," and they shall be kept under lock, the key therefor being kept in the possession of the superintendent or other person designated by him.

Notice that the preceding specifications require certain things to be done by the contractor but that they do not tell him in any detail how to do them.

11-2. Specifying Workmanship. The statement that an independent contractor is not supposed to work under the specific dictation of the engineer means that the contractor is to use his men and equipment under his own direction to attain the successful completion of the job. On the other hand, this does not mean that the engineer should fail to set up in the contract various necessary requirements affecting the quality of workmanship demanded and to include carefully prepared statements regarding certain features of the conduct of the contractor's operations. The nature and scope of such statements and requirements will vary with the character of the work, of course. The features discussed below are intended to illustrate some of the points to be covered in the usual construction contract and to indicate the philosophy behind such clauses.

It goes without saying that one who is preparing specifications for workmanship should be thoroughly familiar with the pertinent customs, practices, and possibilities in the particular construction field involved. If he is not well versed in this line he is likely to require unwise or impracticable things of the contractor and to overlook important features for which provision should be made. The result may well be undue
difficulty and needless expense for the owner. At the very least, the inevitable complaints made by the contractor because of unwise specifications will make the owner lose confidence in the ability of the engineer.

For example, assume that the motor, gear reducer, and head pulley of a 60-in. belt conveyor are to be set and grouted on concrete foundations. The equipment is "direct-connected." This means that all parts must be aligned very carefully and accurately. What should you, the engineer, think about, and what should you describe in the specifications for this work? The following are some of the significant considerations:

1. Require that the equipment be erected so that the center of the pulley is at the elevation and in the position called for on the drawings.
2. Specify that the drive and pulley be aligned accurately and set level.
3. Call for all bearings to be supported on steel wedges temporarily for adjustment (or you might call for double nuts on the anchor bolts to serve as jack screws for adjustment purposes).
4. Describe how grouting is to be done.
5. State the time that must elapse after grouting before the wedges are to be removed.
6. Require that the holes left by the wedges be pointed up.
7. State whether or not anchor bolts are to be leaded in the holes in the bases before the nuts are tightened.
8. State if and how nuts on anchor bolts are to be locked to prevent loosening.

As another illustration of composition, assume that you are to specify how a large elevated steel water tank is to be fabricated. You may state that it is to be riveted and that joints are to be caulked for watertightness. You may specify the size and spacing of rivets, and you may show typical details on the drawings. On the other hand, you may specify that the tank is to be welded, show the size and type of weld, and give typical details. If so, your drawings and specifications must be sufficiently complete and detailed to enable the fabricator to proceed accordingly with his shop drawing and other work.

Or, assume that you, as the engineer, are to specify the finish for the concrete of the second floor of a warehouse. Here are some of the things that you would have to determine and to specify:

1. Is the floor to be poured monolithically, or is it to have a topping applied later?
2. If a topping is to be used, what is the desired material, how thick is it to be, and how soon is it to be laid after the structural floor is poured?
3. What kind of surface finish is to be required—wood float or trowel?
4. Is a surface hardener or an integral hardener to be used? If so, exactly what is it to be and how is it to be applied?
5. Is the floor to be scored?
6. Is any particular color desired?

The difficulty of thinking out and specifying all these details is obvious, but so is their importance. Here the engineer is obliged to make many decisions in composing the specifications, and he has to assume the responsibility for the results.

Notice that, while the items shown in the three illustrations previously cited call for specific things that the contractor must accomplish, they do not tell him in detail how he is to do them.

The following are portions of what appear to be well-written specifications for a large warehouse:

1-16. Depositing Concrete:

Concrete shall be deposited only during the presence of the Inspector and by methods approved by the owner’s Engineer. All concrete shall be placed "in the dry." Should water accumulate in any place where concrete is to be poured, the Contractor shall provide and operate sufficient pumps and do whatever else is necessary to remove the water in an approved manner. Water (other than that used for curing) shall be prevented from coming into contact with concrete while it is setting.

6-3. Installation:

All metal sash and doors shall be erected plumb, level, square, and at the proper elevation and location. All joints shall be tight, and members shall be securely anchored in place. Work shall be adequately braced, and the bracing shall be maintained until its removal is approved by the Owner’s Engineer. Moving parts such as sash, operating mechanisms, and doors shall be installed complete with hardware, fittings, and accessories. Parts shall be made to operate uniformly and smoothly.

11-3. Specifying the Quality of Results. Consider again the conveyor drive that is discussed early in Art. 11-2. Could not this work be described in some other way? For example, the specifications might read as follows: "The Contractor shall erect the head pulley and its drive at the elevation and position shown on the drawings. He shall align and level them accurately, grout the base plates fully, lead the anchor bolts in the bases, and adequately tighten and lock the nuts on the anchor bolts by using double nuts." In a way this requires certain actions, but it allows the contractor to perform the work as he may wish as long as he accomplishes the specified results. This is some-
times a better way to handle the work than by itemizing and describing every detail of procedure. Of course, the engineer’s approval of all completed work is to be required in any case.

Now assume that you are to prepare the specifications for a 500,000-gal tank for fuel oil to be supported upon firm, level ground. One good procedure is to specify as follows: “The capacity of the tank shall be 500,000 gal; the material, welded steel; the diameter, 60 ft; the contents, fuel oil; the roof, an approved ‘floating’ type. All details are to be as approved by the Engineer, and the bid price is to include delivery, erection, all piping connections, and painting.” Furthermore, the specifications should indicate that the tank is to be oiltight; that the tank is to be tested by being filled with water; that the foundation material is to be firm sand; that all necessary piping and connections are to be provided and erected; and that all material and workmanship are to be guaranteed to be satisfactory for one year after acceptance of the finished structure by the engineer. In addition, sizes of piping, the positions of connections, the type and material of piping, and the lengths of piping to be furnished and installed by the contractor are all items to be definitely prescribed.

A complete set of specifications for workmanship (such as has just been outlined) would allow the contractor intelligently to prepare and submit for approval his own design and the proposed details. He can propose whatever type of construction he thinks is best and which he is willing to guarantee.

In many cases the engineer can use to good advantage the foregoing method of specifying work more or less in outline form. However, the usefulness of such a method is limited to items or work that the contractor is in a position to detail for himself. More complicated construction makes it necessary for the engineer to tell the contractor in considerable detail just what is required of the latter.

Here is a case that illustrates the occasional disparity between what is intended by a specification writer and what is actually said in the specifications. The clause on finishing of concrete stated, “The exposed surfaces of all concrete walls are to be rubbed.” To the writer this meant the removal of all projecting fins, filling of any holes, and rubbing of the concrete surface with carborundum stones and water until the surface was smooth. However, according to a strict interpretation of the inadequate wording, the contractor could rub the surface a few times with a soft cloth and still fulfill the specification. The way to avoid such a situation is to define “rubbed finish” early in the specifications. Then the term can be used freely thereafter.

The following acceptable paragraphs specify desired results, but they also state certain procedures that are to be used:
III-5. Concrete:

Every effort shall be made to secure a concrete of maximum density and impermeability and minimum shrinkage during setting and at the same time a concrete which can be worked thoroughly around and made to be in close contact with reinforcement and embedded steelwork.

IV-12. Erection of Steelwork:

The steelwork shall be set in place accurately and the riveting done as the Work progresses. Each tier of columns shall be plumbed, braced if necessary, and maintained in a vertical position. Temporary bracing shall be capable of taking care of all loads to which the structure may be subjected, including wind loads and loads caused by erection equipment and its operation; such bracing shall be left in place as long as it may be required. As erection progresses, all members shall be securely bolted with sufficient bolts to resist all dead, wind, and erection loads.

IX-42. Installation of Fixtures and Wiring:

The Contractor shall properly clean all conduits and remove all burrs and obstructions before snaking in or pulling the wires or cables. Wherever the use of grease for pulling wires or cables is permitted by the Engineer, the grease shall be free from acid. All the wires to be installed in one conduit shall be pulled at the same time, and they shall have no splices between junction boxes. Sufficient slack shall be left at junction boxes and at terminals for splicing the wires and for making connections properly. Joints shall be of approved type, carefully spliced, soldered with noncorrosive flux, and properly insulated.

II-4. Itemizing. There is a time-honored rule of law which reads, "Expressio unius est exclusio alterius." This means, literally "The express mention of one thing implies the exclusion of another." The importance of this principle as applied to contracts is that, if you itemize a list of things or acts that are required, other things or acts not mentioned in the list are, by implication, not required. On the other hand, a very general statement that is supposed to include everything that is necessary may be too broad and cumbersome, and it may be subject to varying interpretations. A writer has to use excellent judgment in each particular case. Sometimes the author of a contract clause tries to cover this difficulty by stating that the contractor is to provide certain things, "such as. . . ."

The contract for the structural steelwork of a large industrial plant called for "fabrication and erection," and the unit-price bid was asked for on the basis of "f.o.b. the plant site." The railroad siding entered the plant's property but it was about 3/4 mile from the site of some of the large buildings. The contractor claimed (and received) extra for hauling the steel from the siding to the points of erection, asserting that
the contract should have read "fabrication, hauling, and erection" of the steelwork.

The virtual impossibility inherent in attempting to itemize all the required, incidental operations is obvious. In the foregoing case a complete list would have to include unloading the steel from the cars, sorting it, loading it on trucks, unloading it at the various positions, and arranging it for convenience in erection. If one operation is overlooked in such a listing, the omission may open up the possibility of a claim for extras. The words "fabrication, delivery, and erection" might have been a better statement than the ones actually used. It can be assumed that all operations incident to the "fabrication, delivery, and erection" must necessarily be performed by the contractor—and for the bid price.

The following is another instance in which faulty itemization caused difficulties. Plaintiff had taken a contract for "furnishing and delivery only" of certain machinery for the War Department, and the list of equipment was itemized in his proposal. Later, the defendants telegraphed the plaintiff that other articles, such as cables, switches, and fuses, needed for the electrical connection and installation of the apparatus furnished had not been received. Plaintiff protested that these articles were not in his proposal and therefore not included in the contract. Upon the defendant's insistence plaintiff furnished and delivered the materials asked for, but he stated that he was doing so under protest and that he would ask reimbursement for the cost of $2,062. The materials were accepted by the defendant company, but it later refused to pay for them. In ensuing litigation the court ruled in favor of plaintiff in regard to this point. The decision was based upon the following reasoning:

1. That where a contract is for furnishing and delivering materials, the contractor is not obligated to furnish cables, wiring, switches, and other materials needed in the installation of the machinery supplied under the contract.

2. Within ten days after demand was made upon it to furnish the materials involved, the plaintiff filed a written protest against the demand, persisted in such protest at every stage of the proceedings thereafter, and, immediately upon delivery, filed claim for reimbursement. This made it clear that the plaintiff at no time waived his right to claim compensation.

3. The defendant accepted the materials it had ordered and received the benefit of them. In these circumstances there was an implied

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8 This decision was apparently based upon the fact that these miscellaneous articles were not called for in the contract clauses or in the specifications and that they were not included in the bidder's itemization of materials which he would furnish.
promise on the part of the United States to pay the plaintiff the cost of extra materials, since delivery was made on that condition. The implied promise to pay, however, is limited to the actual cost of the materials and cannot be construed to include anything else claimed by the plaintiff.

Notice that defendant's acceptance of the proposal automatically meant its concurrence with the list of items therein.

11-5. Standard Specifications for Workmanship. Construction contracts vary so much in the character of workmanship required that it is not practicable to prepare truly comprehensive workmanship specifications, such as the ASTM has done in the case of construction materials. There are, however, some workmanship specifications prepared by persons interested in a particular field of activity or in the use of a given product. Where these are applicable, reference to them at the appropriate point in the contract documents may be very desirable.

For example, assume that you are to prepare specifications for the construction of a large store that is to have framing of structural steel. It probably will be very advantageous for you to state that the fabrication and erection of the steelwork are to be in accordance with the American Institute of Steel Construction's Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings. These specifications are well known, and they are generally accepted as requiring good practice for such work. Naturally, you must provide any special instructions necessary for your job but not included in the set of standard specifications to which reference is made.

In the matter of welding, you may refer to the Standard Specifications for Welded Highway and Railway Bridges. These are generally recognized as authoritative and represent some of the best thinking about the requirements for good welded construction. The ordinary engineer might do better to trust them than to attempt to compose by himself an adequate description of such highly specialized work.

Standard specifications will not contain the answers for everything that is necessary. The engineer must make certain decisions on his own account, as illustrated by the following case. In specifying the shopwork for structural-steel fabrication, mere reference to the specifications prepared by such organizations as the American Institute of Steel Construction is not enough. The engineer should state in his specifications whether the shopwork is to be riveted or welded, whether or not the holes are to be subpunched (or subdrilled) and reamed to metal templates or whether the parts are to be reamed while assembled. He should

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4 Be sure to add here the latest edition of any of these specifications referred to, e.g., "4th edition."
5 Prepared by the American Welding Society.
also specify whether the field connections are to be bolted, riveted, or welded. The standard specifications may tell how various procedures should be done, but the choice of the type of work is a duty of the engineer.

On the whole, because much of the workmanship required in construction contracts cannot be handled through so-called "standard specifications" but has to be specified by instructions prepared for the particular job at hand, the engineer should give this latter task careful attention. It is one of his most important duties; many dollars may be involved in work that is described in a few paragraphs of his specifications. By the excellence of his preparation of the contract documents the engineer can do much to prevent uncertainties that often lead to difficulties in his dealings with the contractor, to avoid mistakes or omissions that may cause the owner unexpected expenditures for the settlement of the contractor's claims, and to ensure avoidance of litigation.

Any special features which differ from the so-called "standard specifications" being employed should be described in the specifications for the job or on the drawings. If there are such features, special clauses in the specifications describing them will automatically take precedence over the standard specifications whenever the two conflict. As an example, assume that the engineer wishes to have certain members for a complicated portion of a steel structure subpunched, then assembled, and reamed in the shop while thus assembled. If he calls specifically for this procedure but AISC specifications do not, then the engineer's written statement takes precedence.

The following paragraphs are illustrations of how portions of some successful specifications were worded:

2-2. Structural Steelwork:

Workmanship for all structural steelwork shall conform to the AISC Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings, latest edition.

6-10. Steel Roof Deck:

Each piece of the steel roof deck shall be securely fastened, in accordance with the manufacturer's standard specifications, directly to all the roof purlins under it, as well as to each adjoining piece at end and side laps.

10-4. Built-up Roofing:

Roofing shall be a twenty year bonded Barrett "Specification" roof Type "AA", 4-ply. It shall be laid in accordance with the Barrett specification for use over insulated steel-roof decks, and the work shall be per-
formed by a contractor approved by Barrett. The roofing contractor shall furnish Barrett's Surety Bond guaranty for twenty (20) years from date of completion in accordance with Note No. 1 of said specifications.

11-6. Use of Previous Specifications. Contracts prepared for former projects, as well as contracts written by others, may readily be used as source material for the workmanship requirements of a current job, just as for the specification of materials described in the preceding chapter. Although helpful, they should be used with discretion.

Nothing can replace careful thought and careful composition when one is specifying what is to be done and how it is to be done. Think of all the steps that are involved in securing a result, then be sure that what you copy out of a previous specification covers a step or steps in your particular problem clearly and adequately, add whatever is needed, and eliminate inapplicable and erroneous material.

11-7. "As Directed by the Engineer." There are all-inclusive statements that are sometimes used in the specifications, e.g., "as directed by the Engineer," "to the satisfaction of the Engineer," or "as approved by the Engineer." Such language may or may not be desirable but, if interpreted and carried out properly and fairly, can be useful.

The intent of such statements is to leave many details of the conduct of the work and the quality of the results to be settled between the engineer and the contractor as the job progresses. Their utilization saves time and effort on the part of the specification writer. On the other hand, they should not be used as a bludgeon against the contractor. If the latter knows that the engineer with whom he is to deal is an experienced and just man, he will anticipate real cooperation and understanding in their relationships. If he expects otherwise or is uncertain about it, he is likely to increase his bid to cover his estimate of the cost of any trouble that may arise during the job because of the engineer's opinions and decisions.

In many situations when the exact conditions are unknown in advance, there may be wisdom in not trying to describe with preciseness what is to be done. For example, assume that a considerable quantity of concrete is to be poured in freezing weather. The character of the structure, the severity of the weather, and the difficulty of carrying on the work greatly influence the details of proper protective measures that should be employed. It may therefore be advisable to say that concrete poured in freezing weather "is to be protected in a manner to be approved by the engineer." The contractor then proposes a method which the engineer approves or rejects, or with respect to which he suggests modifications. The contractor is to take the initiative. If the engineer, on the other hand, directs the proceedings and details the protective measures required, he would then assume the responsibility. Again it
should be emphasized that the owner, the engineer, and the contractor should be working together to get the job done well.

The rejection of work by the owner or the engineer as “unsatisfactory,” when it is supposed to be done to his satisfaction, must not be based upon whim or bad faith but rather upon genuine dissatisfaction. Furthermore, such action must not be taken prematurely before it can reasonably be determined that the work will not or cannot be made satisfactory.

In any construction contract it is generally advisable to have such a clause as the following, stating specifically the authority of the engineer in the conduct of the work:

The enumeration herein of particular instances in which decision of the Engineer shall control or in which work shall be performed to his satisfaction and subject to his inspection and approval shall not imply that only such matters and those of similar kind shall be so governed and performed.

11-8. First-quality Workmanship. It is advisable to include in the specifications a statement to the effect that all workmanship is to be first class, or “of the best quality.” This is not very specific, but the implication is clear. Persons engaged in any particular activity, whether in the shop or in the field, will generally know what is meant. Third parties, too, can judge fairly well whether or not a given performance meets this standard.

It is practically impossible to include in the contract documents a description of or specifications for all the procedures and work that will have to be done in the providing of materials and in the performance of a large construction contract. On the other hand, a general statement requiring first-class workmanship should not be used as a catchall or as an excuse for negligence in the preparation of the drawings and the specifications.

The usefulness of a general clause requiring “first-quality workmanship” is shown in the case of a contract for the steelwork of a large suspended bin. The general shape is pictured in Fig. 11-1(a). The curved plates were to be spliced as shown in (a) and (b). One contractor was to fabricate the steelwork; another was to erect it. The fabricator detailed the main plates and the splice plates with open holes, as pictured in (c). The engineer who approved the shop details did not notice this deviation from normal practice. All the plates were therefore shipped “loose.” The erector had assumed, when bidding on the job, that the splice plates would be riveted along one side in the shop, as shown in (d), which is the customary and more economical practice. The erector sent the owner a bill for $6000 to cover the extra
riveting that he had not included in his proposal. Because of the general workmanship clause, and because the fabricator had to admit that the omission of the shop rivets was not customary and was not first-quality workmanship, the fabricator paid the owner $6000 to meet the extra cost of erection.

Even though every detail that will be required is not spelled out, a contract for a structure to serve a specified purpose implies that the finished structure shall be reasonably suitable for the intended service. Furthermore, a construction contract implies that the builder shall perform in a workmanlike manner even when certain necessary operations are not actually prescribed in the contract. However, the more the requirements are clarified, the less likely are subsequent difficulties between the engineer and the contractor.

In the case of Moss v. Best Knitting Mills, 190 N.C. 644, 130 S.E. 635 (1925), the court stated in part as follows:

"It is the duty of the builder to perform his work in a proper and workmanlike manner. . . . This means that the work shall be done in an ordinarily skillful manner, as a skilled workman should do it. . . . "There is an implied agreement such skill as is customary . . . will be used. In order to meet this requirement, the law exacts ordinary care and skill only."
A typical clause used in some contracts is somewhat as follows:

All materials and workmanship shall be in every respect in accordance with the best modern practice. Whenever the Contract Drawings, Specifications, or directions of the Engineer admit of a reasonable doubt about what is permissible, and when they fail to state the quality of any Work, the interpretation which requires the best quality of Work is to be followed.

11-9. Intent of Plans and Specifications. It is often stated in a contract that the contractor is to carry out the "intent" of the plans and specifications. Some say that he is to perform whatever is necessary to carry out this intent, even when the particular item or procedure, though apparently intended, is not shown on the drawings or actually called for in the contract clauses or in the specifications. Again some say, "If something is needed for the job, it is to be performed or furnished."

In some ways this is like asking the contractor to buy something sight unseen. A statement such as that just quoted is supposedly used to cover whatever the engineer forgot or failed to call for specifically. If applied literally it would be unfair to the contractor in many cases. Such a clause generally has little value in practice. One should not depend upon such all-inclusive statements for protection against his own carelessness and mistakes or those of his organization.

A lump-sum contract is generally quite strictly limited to what is clearly and specifically called for in the contract. Minor items that are not shown will usually be taken care of by the contractor without conflict. However, he may properly be entitled to extra compensation when such things really cost him an appreciable sum beyond what could reasonably be expected to be covered by his proposal.

Omissions from the plans and contract documents seldom cause serious argument in unit-price contracts unless the extra materials and workmanship required clearly do not come under any payment item or when they are excessive. A capable contractor is likely to know what is involved anyway, and he generally will have included in his estimate a margin for contingencies to cover just such omissions. Adequate plans and specifications will reduce such contingency allowances.

In a certain contract one of its authors referred to the ASTM specification for portland cement. The work was to be done in South America. It was the author's intention to limit the content of free lime in the cement to 1 1/2 per cent, which is accepted as a maximum by many engineers. As it happened, a cement manufacturer in South America received the contract for furnishing all of the cement. Tests of the material manufactured by him showed that the free-lime content normally exceeded the desired limit by a considerable amount. When the author
tried to hold the contractor to the desired limit he discovered to his chagrin that the ASTM specifications did not state a limit for the free lime. What the author intended but failed to state in the specifications was not given effect. An agreement was finally made to pay the contractor an extra unit price for making the cement meet this particular requirement.

On the other hand, the matter of intent is considered very strongly when it can be determined with reasonable certainty by a court. Generally a decision that is based upon interpretation of intent will consider the entire contract, and such decision is to be consistent with the instrument as a whole, not with just one part of it. Differences between the data shown on the drawings and in the contract clauses or in the specifications may render difficult a decision about what the intent really was. Even an unintentional but specific statement in the contract may prevent a broad interpretation of the requirements.

11-10. Planning Specifications for Workmanship. This article has been prepared to show the reader how to outline and to plan the specifications for the workmanship in two types of construction work. Its purpose is to show the kind of thinking to be done, and it applies to two phases of a construction project which the reader can visualize easily: (1) clearing the site and (2) cleaning up after construction has been completed.

A construction contract is likely to require the clearing of the site, the demolition of existing structures, and rough grading as a part of the work to be done. If so, general instructions should be given regarding such items of work as the following:

1. Removal and disposition of trees, stumps, shrubs, bushes, and boulders
2. Removal and disposition of existing materials which are to be discarded or salvaged
3. Demolition of existing structures and their foundations
4. Removal and storage of topsoil when necessary
5. Accomplishment of the rough grading—both excavation and fill
6. Disposal of excess excavated material
7. Designation of sources of fill to be brought in
8. Installation of surface and subsurface drainage systems
9. Designation and preparation of storage areas for the contractor’s use

Much of this work may have to be done by the contractor in such fashion as to meet the owner’s precise requirements. Unless the former is told what these are, he cannot be expected to fulfill them, and, obviously, he cannot properly evaluate them when preparing his bid. For
example, consider the item of earth fill. It is not sufficient to say, "The site is to be filled in to the level shown on the contract drawings." Neither is it sufficient to state vaguely that the filling is to be done "in a satisfactory manner." In this particular problem, at least to a certain extent, the engineer should rightfully take some of the responsibility by describing such points as the following:

1. Removal and disposal of muck, if necessary
2. Description of quality and kinds of materials that will be accepted as fill
3. Deposition of fill in horizontal layers of some stated approximate thickness
4. Compaction of layers of fill by means of sheep’s-foot rollers, rubber-tired rollers, or whatever is suitable for the job—or hand tamping if necessary
5. Limitations on the moisture content of the soil that are to be adhered to during rolling
6. Specification of the density of fill required after compaction

The bid price for clearing of the site and for any required demolition and rough grading is often listed as a lump-sum item in a unit-price contract. This is because such work is difficult to measure in detail. On this account, fairness to the contractor necessitates that the engineer be careful to supply the contractor with all essential data regarding both the results to be obtained and any special means to be used in reaching such results.

Now consider the other item mentioned in the first paragraph of this article, cleaning up the site. Assume that you are to prepare specifications to prescribe the work to be done in cleaning up the site after a construction contract is finished. What items should be covered by your specifications? You should prepare specific instructions regarding such matters as the following:

1. Final grading
2. Removal of equipment
3. Removal and disposal of debris and excess materials
4. Demolition and removal of temporary structures
5. Removal of temporary facilities used for access to the site
6. Removal of temporary power lines and other utilities that are for construction purposes only
7. Provisions for surface drainage
8. Completion of landscaping

Such matters as these, if not clarified, may cause disagreements when two or more contractors or the contractor’s and the owner’s forces are
involved in the work. Disagreement may arise even in the case of sub-contracting of portions of the job. Basically, all this cleanup is the responsibility of the general contractor, but the requirements should nonetheless be made clear in the contract wording.

11-11. Sample Paragraphs. A number of additional paragraphs from specifications are given in this article in order to enable the reader to study the wording and to see how various information may be presented in specifications. A number of comments are included to call attention to special features. The examples are purposely taken from a variety of work.

32. Sequence of Work:

The sequence of work done under this Contract will be left to the Contractor except that, should the Engineer order the Contractor to increase his forces in order to ensure completion of the Contract within the time specified herein, the Contractor shall promptly comply with such order without additional cost to the Owner.

The last portion of this paragraph means that if the contractor believes overtime work may eventuate he will make allowance in his bid for such contingencies. It would seem more desirable, for all concerned, to specify that the owner shall compensate the contractor for the extra cost involved in such ordered overtime work unless the contractor is at fault, e.g., if the tight situation is the result of his negligence or delay.

Notice that names are repeated in the preceding specification, the personal pronoun being used only once. This repetition of names (i.e., the designations “Contractor,” “Engineer,” and “Owner”) is for the purpose of avoiding ambiguity.

61. Sanitary Regulations:

The Contractor shall provide and properly maintain, for the use of all employees on the work, adequate sanitary conveniences, properly secluded from public observation. Such conveniences shall be provided at such points and in such manner as the Engineer shall approve, and their use shall be rigidly enforced.

The Contractor shall effectively prevent the committing of nuisances upon the site and upon adjacent property.

Notice that this is a performance type of specification (specifying results rather than means).

16. Cofferdams:

The Contractor shall construct, maintain, and subsequently entirely remove suitable and efficient cofferdams in order that all work, except when expressly permitted to be done in water, may be performed by the Contractor and inspected by the Engineer in the dry.
The Contractor shall design all cofferdams, and he shall submit drawings of them for the approval of the Engineer when approval is necessary before the Contractor proceeds with the construction of the cofferdams. The Contractor shall be completely responsible for the strength, safety, watertightness, and sufficiency of all cofferdams, and he shall defend and save harmless the Owner from any and all damage suits due to the construction or failure of any part or parts of the cofferdams or sheeted work. The Engineer will be concerned primarily with the excellence of the workmanship for the substructure of the bridge.

173. Field Connections:

The movable span trusses, the tower trusses, the lifting frames, and the bridge portals shall be assembled in the shop, the parts adjusted to line and fit, and the holes for field connections drilled or reamed while so assembled. Holes for other field connections, except those in lateral, longitudinal, and sway bracing, shall be drilled or reamed in the shop with the connecting parts assembled, or else drilled or reamed to a metal template.

An expense allowance for this work will be charged to the owner through the contractor's bid. However, the engineer endeavors to see that the structure will fit together properly when erected in the field; otherwise the owner may have to accept delay and an unsatisfactory structure if makeshift remedies have to be applied in the field.

VI-1. Machinery Workmanship:

All workmanship shall equal the best practice of modern machine shops. The finish shall be confined to rotating, bearing, and sliding surfaces and to wherever required to produce adequate clearance, accurate fit, and precise dimensions.

Again the contractor is made responsible for the results; the details of workmanship are to be determined by him.

204. Operation Tests:

The complete electrical installation shall be carefully tested by the Contractor in the presence of the Engineer and as directed by the Engineer. All necessary corrections and adjustments shall be made promptly by the Contractor. The Contractor shall furnish an adequate supply of current at the proper voltages for making such tests, and he shall furnish the necessary instruments and appliances therefor.\(^7\)

Notice that such a test is one of performance, not one of materials. The contractor has to prove that the installation functions properly even

\(^7\) It would be better to substitute for the word “therefor” the words “for making the tests” because the instruments are for the tests, not for the current or voltages.
though the engineer may have made tests of the materials used or may have had such tests made by others for him.

38. Erection:

Before starting erection, the Contractor shall submit complete and detailed erection drawings and his program for erection of the steelwork, all of these being subject to the approval of the Bridge Engineer. Whenever, in the opinion of the Bridge Engineer, they interfere with, or involve avoidable difficulties or delays in the subsequent erection of other parts of the structure by other contractors, the Bridge Engineer may order such modification either in the drawings or the program as, in his opinion, will best expedite the construction of the bridge as a whole.

The engineer thus keeps in his own hands the authority to see that the contractor coordinates his work with that of other contractors.

140. Field Test of Mains:

The work of laying the pipes and special castings, and the work of setting valves and hydrants, shall be of such character as to leave all the pipes and connections watertight. To ensure these conditions, the Contractor shall subject all mains twenty (20) inches or more in diameter, and their appurtenances, to a proof by water pressure of not less than one hundred and twenty-five (125) pounds per square inch, unless the conditions under which the main is installed make this pressure test impracticable.

Such proof of the adequacy of an installation is generally necessary before the construction is approved and accepted.

V-26. Sewers, Drains, and their Appurtenances:

The Contractor shall provide for the flow of (1) any water courses, (2) closed flumes, (3) French or blind drains, and the like, which flow is interfered with during the performance of the work. He shall immediately remove and dispose of all offensive matter. A flow throughout the entire length of such sewers and appurtenances as are to be relocated or reconstructed shall be maintained until it can be transferred to the new facilities. Flows in house connections shall be maintained, properly restored, and reconnected to the old, or connected to the new sewers, as required.

The phrase "as required" in the preceding paragraph is supposed to mean "as necessary to keep the facilities in service"; in fact, it would be wiser to say so. If the clause stated "as required by the Engineer," this would shift the responsibility for determining precisely what was needed from the contractor to the engineer.

"Notice that these dimensions and figures are spelled out, not given as "20" or "195 psi."
8-43. Setting Brick:

Face brick shall be laid in courses of headers and stretchers, every third course being a header course with every sixth course bonded through. Face bricks shall be laid true to line with end joints not exceeding one-quarter (\(\frac{1}{4}\)) inch in width. Horizontal joints shall be two and five-eighths (2\%\) inches center to center. Each brick shall be well parged on the back with mortar and shall be completely embedded in mortar under the bottom and on the sides in one operation. Bed mortar shall not be furrowed. All mortar joints of the face bricks shall be tooled slightly concave.

Here the engineer specifies the results in considerable detail, but he does not specify how the contractor is to secure them.

10-3. Marking Floors:

At the time the finish on the concrete floors is being floated to proper slopes, the surfaces, except in those places where the Contract Drawings show the floors to be covered with terrazzo or tiles, shall be marked off in squares of approximately four (4) feet in a pattern to be determined by the Engineer. The markings shall be cuts one-half (\(\frac{1}{2}\)) inch in depth, and they shall be properly rounded or chamfered with an approved edging tool.

The engineer has to determine only where the markings shall be. The contractor is to obtain this information before he can proceed with his work.

29. Location of machinery:

The Contractor shall erect each machine in the location indicated on the Contract Drawings.

Such a statement as this is superfluous because the drawings show where each machine is to be erected, and the drawings are in themselves instructions to that effect.

58. Erection of anchor bolts:

All anchor bolts for machines are to be located accurately. The bolts are to be held in place by means of wooden templates to prevent displacement during the pouring of the concrete of the machinery foundations. The location of each bolt is to be approved by the Inspector before any concrete is poured around it.

This clause is necessary because only the locations and elevations of the bolts are usually shown on the drawings. The engineer requires the use of templates in order to make certain that the bolts are held in place properly during the pouring of the concrete. The engineer insists upon inspecting for approval the locations of the bolts as a check on the
contractor's work, but the latter is still primarily responsible for the results.

11-12. Typical List of Items. Before attempting to prepare the specifications for workmanship for a project, one should compile a list of the items to be covered and the types of work to be done. This will help him in assuring that all necessary features and workmanship requirements are included. The following is a check list of items that might have to be described in the specifications for the construction of a building. Each item may, of course, involve a number of features.

1. Demolition and clearing of site
2. Protection of the site—fences, lights, etc.
3. Subsoil explorations, if not made in sufficient detail in advance
4. Drainage of the site
5. Rock excavation
6. Earth excavation
7. Filling, backfilling, rough grading
8. Cofferdams
9. Piling or caissons
10. Concrete and reinforcement
11. Masonry
12. Waterproofing and dampproofing
13. Structural steel
14. Fireproofing
15. Walls, siding, and partitions
16. Flooring
17. Roofing
18. Insulation
19. Stairs and railings
20. Elevators, dumbwaiters, escalators
21. Windows, trim and glazing
22. Doors and trim
23. Miscellaneous and ornamental metal
24. Furring, lathing, plastering
25. Carpentry and millwork
26. Acoustical treatment
27. Flashing and caulking
28. Hardware
29. Window screens and weather stripping
30. Window shades and Venetian blinds
31. Painting and finishing
32. Roof drainage
33. Plumbing
34. Heating and ventilation
35. Power and lighting
36. Sprinkler system
37. Drainage of foundations and basement
38. Landscaping
39. Order of erection (if important)
40. Maintenance of any services

This itemization is given merely to show the reader how comprehensive the preparation of specifications must be. The list will serve its purpose if it helps to emphasize the importance of adequate specifications as a means (1) of showing the contractor what is required in the line of workmanship and (2) of enabling the engineer to have data at hand for use in seeing that each part of the work is done properly by the contractor.
CHAPTER 12

Contract Clauses
Relating to Finances

12-1. Introduction. The preparation of the contract clauses entails a great deal of painstaking effort. The arrangement and content of the material will depend upon the preferences of the writer and upon the character of the project. The number of clauses to be prepared will usually vary with the size and complexity of the work to be done. Brevity is desirable, but it should not be attained at the expense of adequate coverage of the essential material.

A first step in the writing of contract clauses is the preparation of an outline of points that are to be covered. The composer must then organize these points into some logical arrangement. One way to do this is to prepare a table of contents which will become an essential part of the contract documents. It is also desirable to establish a numbering system for sections and paragraphs in order to have the benefit of the numbers' use in referring to various items.

Chapters 12 to 14 have been written for the purpose of showing many of the contract clauses that should be included in a large construction contract. Others will be needed for particular projects, but those given here will illustrate some of the general principles involved and the kind of information that has to go into such clauses.

In the preparation of these papers the engineer should have the help and guidance of competent legal advisers; in large organizations it may be that he is to assist the attorneys, who will take the lead in compiling the material. In this text, reference to the engineer as the author of the contract documents is intended to mean engineers, architects, lawyers, and all others who are working on this phase of the project.

In studying these clauses, the reader should remember that a contract is binding in both directions. Although we generally think of the contract clauses and specifications as a means of binding the contractor, they
also serve as a vehicle whereby the contractor can hold the owner and the engineer to their side of the bargain.

12-2. Purpose of Written Contract Papers. It should be emphasized again that a construction contract contains so many important general and technical features that it is essential to have all points clearly shown and described in writing or on drawings. All parties concerned will thereby have the same data, and all future interpretations will be based upon the given information. In this way misunderstandings are minimized, since no one has to depend upon what he thought somebody said or implied orally.

Perhaps the reader will think that some of the matters discussed subsequently are unnecessary in a contract because the contractor can be expected to perform them without specific instructions to do so. Nevertheless, when he prepares the contract papers, the engineer should endeavor to include all provisions that may possibly become essential for the protection of the owner, on the one hand, and the contractor, on the other.

12-3. Standard Contracts. In some lines of business it is practicable to prepare standard contract forms that can be used repeatedly by merely filling in the pertinent names, dates, prices, terms of payment, etc., appropriate to the particular fact situation. This may be done in the purchase of an automobile or a television set. It may also be good practice for small construction contracts, such as those for private homes. For example, the American Institute of Architects has prepared The Standard Form of Agreement between Contractor and Owner for Construction of Buildings. As with standard specifications, these standard contract forms eliminate the need for composing the papers anew each time a similar contract is made. After considerable use, such standard contracts will generally have been proved by experience to be satisfactory, and any errors will have been found and remedied. In other words, after the standard contract has been carefully prepared and tested, it can be used with confidence.

In major construction contracts, however, the various projects differ so much that it is generally not feasible to prepare standard contract forms for repeated use. Each job is a special case.

12-4. Standard Contract Clauses. Since there are usually many individual contract clauses that are used repeatedly in construction contracts, it is advantageous to prepare standard clauses which can be incorporated bodily in many different contracts. This plan, to a lesser degree, has the advantages afforded by the use of standard contracts in their entirety. Not only is the saving of time and expense in the preparation of the contract documents an advantage, but also the avoidance of omissions and mistakes is even more helpful. The reader will appreciate
this latter point if he ignores standard clauses and tries to compose original statements and descriptions that are correct and satisfactory in all respects.

Many of the items discussed in this chapter are of such a nature that they are suitable for coverage by means of standard clauses, e.g., such items as suspension of contract, annulment of contract, and transfer of contract.

Again we would warn the engineer that he should be careful to see that each standard clause that he uses from a former contract or from a set of standards is exactly what his particular needs require. For example, a consulting engineer’s office had prepared a clause to describe in considerable detail the contractor’s responsibility in the maintenance of water mains, sewers, telephone lines, and electric power lines. This clause was copied verbatim in a later contract that involved the maintenance of some gas mains as well as of the other utilities just mentioned. No one noticed at the time that reference to the gas mains was not included in the wording of the standard clause. The result was that the contractor claimed extra compensation for their maintenance.

12-5. Suspension of Contract. The contract clauses should give the engineer (and the owner) the right to suspend the contract if, in his opinion, an emergency or other unexpected development makes this necessary to protect the owner’s interests. On the other hand, the right to suspend the contract should not be given to the contractor. The right is intended to protect the owner, but it should not be used in such a fashion as needlessly to injure the contractor.

The suspension clause might read like this:

If at any time the Engineer considers it impracticable to start or to continue performance of the work or any portion thereof (whether or not for reasons for which either party is responsible or for reasons beyond the control of the Owner), the Engineer shall have authority to suspend performance until such time as he may believe it feasible or desirable to proceed. However, should such action suspending the work be taken, the Engineer shall take all appropriate steps to minimize the duration of the suspension of the work, and the Contractor shall be entitled to such compensation for the resultant unavoidable expenses to him as the Engineer may believe to be just and reasonable because of the suspension.

To illustrate the need for such a clause, assume that a textile-manufacturing corporation has let a contract to build a new and modern addition to one of the old buildings at its plant in Massachusetts. The foundations of the new structure are partially completed at the time that the old structure is destroyed by fire. Obviously, the complete execution of the contract may now be utterly inadvisable. Under such circumstances the owner should have the right to suspend the work until he can deter-
mine what to do. He may want to change the design of the structure or to build an entirely new plant. He may wish to rebuild the destroyed structure so as to utilize fully the addition now under contract. He may not have had sufficient insurance to enable him to proceed with the reconstruction until he can secure more money. This financing may cause considerable delay so that several weeks will elapse before he is sure that he can go ahead. He may even decide to go out of business, or to carry out the expansion at another plant. One can easily see how important it would be for him if he were compelled to allow the contractor to continue the construction without at least an interruption. Simple justice would entitle the owner to a little time to make plans for the future before he is committed to still more expense.

In case of a contract with a definite time limit for completion, it is obvious that an extension of time should be granted to the contractor to make up for the time lost because of the suspension. And the extension should be a liberal one, because a protracted interruption of work will almost always cause considerable further delay before the contractor can get adequate production under way again. He cannot keep his men on hand indefinitely nor the flow of materials all ready to be resumed at short notice.

12-6. Annulment of Contract. It is possible for circumstances to develop that make it necessary, or desirable, for the owner to annul a contract. This right should be definitely stated in the contract clauses. The case described in the preceding article illustrates one way in which the need for the exercise of this right may arise.

Another example of the value to the owner of this right of annulment occurred during World War II. At the height of the submarine menace, the federal government contracted for two large plants to make extruded light-metal shapes for airplanes. The equipment was on order, part of the foundations were built, and much structural steel was fabricated. In the meantime the armed services succeeded in mastering the submarines to such an extent that these plants no longer seemed to be necessary. The government therefore annulled (or canceled) both of the contracts.

The contract might well specify the following additional bases on which the owner shall have the right to annul:¹

1. Bankruptcy of the contractor or assignment by him for the benefit of his creditors

2. Appointment of a receiver or liquidator for the contractor’s property (unless such receiver is dismissed within two or three weeks)

¹ It is customary to require, however, that the contractor be given adequate written notice before the owner acts, e.g., ten days.
3. Failure or refusal of the contractor (after adequate warning by the engineer) to supply enough skilled workmen or proper materials to carry on the work in suitable manner

4. Failure or refusal of the contractor to prosecute the work diligently

5. Failure or refusal of the contractor to comply with the instructions of the engineer or with applicable laws and codes

6. Failure or refusal of the contractor to pay for his labor and his materials

On the other hand, the owner should not simply annul a contract and leave the contractor to suffer. In the World War II instance previously mentioned, the construction contractors, the contractors for equipment, and all other parties who had a part in the contracts made an accounting of all sums spent, up to the date of the cancellation, for materials, labor, and all other expenses. Their engineers and accountants worked with those of the government and its consultants in arriving at agreed figures that represented the total expenditure made by each contractor. These figures served as a basis for settlement in each case.

In such computations there should very properly be included the estimated cost of any dismantling, cleaning up, shipment of materials back to the factories, disposal of excess materials, transportation of men and equipment, and any other items incident to the termination of the work. There should also be some sort of adjustment to compensate the contractor in whole or in part for the profits that he may be said to have lost because of the annulment. On the other side of the ledger are any credits for the return or sale of materials, refunds for advance payments, and all remuneration already received from the owner.

It is obvious that the annulment of a contract may lead to a great deal of argument and trouble. Therefore, not only should the right to annul be specifically reserved for the owner but also the general details of the procedure to be followed in the event of annulment should be stated clearly.

The following is one illustration of the wording of such an annulment clause:

The Owner shall have the right, if the Engineer shall deem the Contractor guilty of a breach of any portion whatsoever of this Contract, to take over and complete the Work, or any part of the Work, as agent for the Contractor and at the expense of the Contractor, either directly or through the operations of other contractors. Likewise, the Owner shall have the same right if the Contractor shall become bankrupt or if his property and affairs shall be placed under the control of a receiver or trustee.

*Cladianos v. Friedhoff, 69 Nev. 41, 240 P.2d 208 (1952).*
Whenever the Owner shall have the right to take over the Work as described in the preceding paragraph, or whenever circumstances or the affairs of the Owner make it necessary for his own financial well-being, the Owner shall have the right to annul, cancel, or rescind the Contract, in whole or in part. If an equitable settlement of the resultant costs cannot be mutually agreed upon by the Engineer and the Contractor, the settlement shall be arrived at in accordance with the article herein entitled "Settlement of Disputes."

12-7. Transfer of Contract. The owner should be very careful to see that the prospective contractor is capable and well qualified before he is awarded the contract. It follows that the successful contractor should not be empowered to transfer the contract to someone else unless such action is first approved by the owner.

A clause to prevent such transfer might be stated this way:

This Contract is made in reliance upon the qualifications and responsibility of the Contractor, and any advance payments made hereunder are intended to assist him in part in the financing of the performance of the Work. Therefore, the Contractor shall not assign or transfer this Contract, any part thereof, or any moneys due or to become due under this Contract, without the written consent of the Owner. However, the Contractor may subcontract portions of the work to be performed hereunder to such persons as the Engineer may expressly approve in writing.

Assume that you as the owner plan to build a house. It will be a major investment for you. Therefore you will wish to make a contract for its design with an architect in whose character and skill you have great confidence. Now suppose that, after starting the design of your house, this architect is selected to design two or three large jobs. He wants to transfer your contract to an architect friend of his whom you do not know. What would you think about it? You engaged him for his known skills, and you want him to do the design work personally, not have someone else do it.

Again, suppose that your house has been designed and that you have negotiated a contract with a particular builder because you trust him and believe that he will provide for you the best possible structure. You naturally will oppose transfer of the contract to anyone in whom you do not have equal confidence.

There may be conditions, however, in which a transfer of the contract is desirable for the owner as well as for the contractor. Sickness of the contractor, death of some of his key personnel, financial difficulties that have befallen him, labor conditions that prevent proper prosecution of the work—these are some of the aforementioned conditions.

Such transfers are likely to be accompanied by considerable difficulty in the matter of adjusting payments for work done by the new con-
tractor and by the old one. Transfers are also likely to result in delays, division of responsibility, and difficulty on the part of the new contractor in picking up the work where the other left off. In other words, transfer of the responsibility for execution of the contract generally means trouble, and the engineer should not allow such action unless it is absolutely necessary, or circumstances render it highly desirable.

12-8. Revisions. It often happens that more or less important revisions of plans are desirable, or even necessary, after a contract has been awarded. These are annoying at best; sometimes they are very troublesome indeed.

It is important for an engineer to have the proper attitude toward revisions. His decisions should be based upon good judgment. A few principles to bear in mind are the following:

1. Any error should be corrected promptly. This is obvious.
2. Matters involving the safety of personnel, structures, and equipment should be taken care of.
3. When something bearing upon satisfactory operation is discovered to be amiss, especially in the case of a money-making or self-liquidating project, the indicated changes should be made unless they entail undue hardship or expense. The structure or machine is built once; it is to be used or operated thereafter. Additional trouble and expense in the building of it may be offset many times over by savings in operation.
4. Modifications that are merely the result of differences of opinion and that will have little real consequence are to be avoided unless they can be made early enough to prevent difficulty in execution.
5. Revisions that involve substantial changes in quantities or quality of work may cause extra costs. In general, they should not be made until the contractor and the owner have agreed upon the additional expense involved. This agreement should be confirmed in writing.

All revisions should be made in writing. This is of utmost importance. A telephone call may be an excellent way to pass along information in a hurry, but it should be followed up promptly by written confirmation of the instructions. This confirmation may be in the form of a letter, or it may be the revision of a drawing, since the latter is a method of recording information. It is advisable to send a letter of transmittal with any revision of a drawing calling the contractor’s attention to the fact that the drawing has been revised.

It is also desirable for the contract to contain a clause stating that the contractor is not to proceed with the execution of revisions until he has received official data and instructions in writing. Similarly, when
notified officially that certain revisions are pending, he is not to proceed with work that will be affected thereby because doing so would probably result in additional cost and trouble in carrying out the revisions later.

For example, assume that the engineer telephones to a steel fabricator stating that the plates for some coal bunkers in a power plant are to be made \( \frac{1}{2} \) in. thick instead of \( \frac{3}{8} \) in. as shown on the drawing. The fabricator should not go ahead with further work on these plates or on parts that will be affected by their change in thickness, nor should he go ahead with work on new \( \frac{1}{2} \)-in. plates, until official revisions are received. However, if the engineer telegraphs this information, this constitutes notice in writing, and the contractor may proceed with the new material and affected parts. It is still essential for the engineer to confirm the change by a revision of the drawing.

The contract documents should also state that the contractor must carry out all revisions that are required by the engineer; the latter, not the contractor, is to be the judge regarding their desirability or necessity. However, as stated previously, the engineer should not order the contractor to proceed until the extra expense involved, if any, is agreed upon, or until the contractor has informed him that the revised work will be done under the applicable unit prices stated in the contract.

Furthermore, the contractor should be obliged to notify the engineer in writing within a stated period (such as seven days) after receipt of the official revisions if he considers them to be such as to require additional compensation above that provided for in the contract. He should submit a statement of how much the extra cost will amount to or how the sum will be determined. This will allow the engineer to cancel the revision or modify it if the price is not satisfactory.

Although the engineer has the right to make revisions, this right should not be abused. Frequent changes, even when they are minor, are a nuisance. They handicap the contractor in the efficient performance of the work.

12-9. Extras in General. The contract should make definite and adequate provisions for the handling of extra costs, whether the contract is on a lump-sum or a unit-price basis. Such matters are especially troublesome in the case of lump-sum contracts. Extra charges may result from ordinary revisions made by the engineer, from a substantial change in the quantity of work required, and from a real change in the quality of materials and workmanship from that specified in the contract. Also, something unforeseen may be encountered, and the performance of unanticipated work may become essential. If so, the necessary work simply has to be done regardless of extra costs involved.
One way to handle the problem of extras that are caused by revisions of a lump-sum contract\(^3\) is to specify the procedure in such a way as the following:

If revisions made by the Engineer cause an increase of the work to be done under the Contract or in the cost of said work, the Contractor shall estimate or keep records of the increase in the cost of labor and materials resulting from the revisions. Upon approval of this estimate or record by the Engineer, this computed extra cost plus fifteen (15) per cent thereof for overhead and profit shall be payable to the Contractor as extra compensation because of said revisions. On the other hand, if the revisions of the Contract result in a reduction of cost, the Contractor shall estimate the reduction in the cost of labor and materials resulting from the revisions. Upon approval of this estimate by the Engineer, this stipulated sum shall be deducted from the Contractor's bid price, but this deduction shall not include any portion of the original allowance for anticipated overhead and profit.

The preceding paragraph is to apply to work performed by subcontractors as well as to that performed directly by the general contractor. However, in the case of extra costs of subcontracted work because of revisions made by the Engineer, the stipulated allowance of fifteen (15) per cent of the approved additional estimated cost or approved actual cost of the extra work is to be paid as an allowance for overhead and profit to the subcontractors only, no additional percentage being payable to the general contractor.

The above provisions are intended to minimize future arguments regarding the overhead and profit part of the contractor's claims for extra compensation and for the making of adjustments necessitated by changes made in the plans or specifications by the engineer. They are not intended to remedy misjudgment, inefficient management, or anything else that is the responsibility of the contractor or of his subcontractors—which shortcomings may have caused the cost of performance of the contract to be greater than originally anticipated.\(^4\)

If the contractor goes ahead with extra work ordered by the engineer before the receipt of written instructions to do so but with the engineer's knowledge that the contractor is proceeding and that extra expense for the owner will be involved, then there is probably an implied promise to the effect that this extra work will be paid for by the owner. The requirement of a written order for the extra work would not seem to bar

\(^3\) A lump-sum contract may contain a clause setting forth unit prices for extra work done and credits for work omitted; such a clause is often called the additions-and-deductions provision.

\(^4\) This procedure may also be applied to extras under unit-price contracts, but there is likely to be considerable uncertainty about the magnitude of the extra costs.
the contractor from payment in such a situation. Obviously, the handling of revisions and extras can lead to troublesome disputes.

12-10. Extras Caused by Subsurface Conditions. Much confusion and argument have resulted from unexpected events that have occurred during the execution of a contract. Subsurface conditions on a construction job are an especially prolific source of trouble. The engineer should be very careful to obtain all the advance information that can be secured reasonably. He should have adequate explorations made, and he should present the results for the information of all bidders, but he should not try to interpret, extrapolate, or guarantee the data given in the logs of the borings, even though he has to prepare his design of the structure on the basis of the situation as he judges it to be from his own interpretation of the borings.

In the construction of the caisson foundation for a certain bridge, the record of the borings was given to the bidders. However, boulders caused much more difficulty than the successful bidder expected. Later he brought suit for recovery of the extra cost over and above his estimate. His claim was rejected by the court because he had been given all the information that the engineer possessed. In glacial territory, such as that involved in this case, boulders are not unusual. Misjudgment on the part of the contractor was not the fault of the engineer.

In another case a contractor was to build a four-story reinforced-concrete building on pile foundations at an old waterfront. The owner had some soil borings made, and he furnished the logs of these borings to the bidders. Later, when the contractor was driving piles, an old sea wall was encountered. Its removal caused the contractor considerable expense. He claimed an extra for this work. The court granted his claim because the owner possessed old plans showing such a sea wall, but he did not show them to the bidders—probably because he had forgotten about the existence of the plans. Nevertheless, the fact remains that he failed to present all the information in his possession.

In a third case, the record of the boring taken at the center of the site for a large concrete structure indicated bedrock to be at a given elevation. Later the contractor discovered that the boring had merely hit a large boulder. The extra excavation to sound rock had to be done under very difficult conditions. The contractor could not readily estimate in advance how much the extra expense would be. The engineer therefore approved the contractor's proposal that the additional work be paid for on a cost-plus-percentage basis.

These cases are cited in order to caution the reader about the hazards involved in such work and to show him how important it is that all information be as complete as possible before the contract is made. Also, as far as soil explorations are concerned, the best course for the
engineer is to let the contractor interpret the boring data himself and to let him make his plans for construction accordingly. This may minimize later claims for extra compensation.

The following paragraph shows one suggested way to phrase a clause about borings:

Borings have been made at the site for the Owner. The locations of these borings and the information obtained from them are recorded on the reference drawings. Samples of the soils removed and the records made during the boring operations may be examined at the office of the Owner. However, in transmitting information regarding the materials expected to be encountered, the Owner does not guarantee the accuracy or completeness of the data given, and he assumes no responsibility therefor. The Contractor shall draw his own conclusions from whatever information is presented or otherwise available.

12-11. Extras Caused by Additional Quantities of Work or Materials. Additional quantities of work ordered during the progress of operations may properly entitle a contractor to claim an extra on a lump-sum job. This may not be so for a unit-price contract when the contractor receives proper payment through the application of the unit prices.

For instance, the borings at the site for a large industrial building showed that pile foundations would be needed along one side. The plans were made accordingly, and the contract was let on a unit-price basis. It was later discovered that one boring taken near the center of the structure had encountered a knob of sand that was surrounded by an area containing very unsatisfactory soils. This necessitated the use of much more piling. Since it was a unit-price contract, the owner and the contractor agreed that the extra piling, concrete, etc., should be paid for at the bid unit prices. It would have been unfair to penalize the contractor for this unforeseen additional work, even if the contract had been for a lump sum.

As another example, suppose that one unit-price item in a contract covers the payment for 1000 poured-in-place concrete piles, with an assumed length of 60 ft, at $5 per foot of pile. The assumed length of piles stipulated in the contract is such that the contractor can use equipment already in his possession. When the driving is started it is found that, to attain the specified resistance, the piles have to be 10 ft longer than originally expected. Because the piles are too big to be driven by his own equipment, the contractor will have to rent costly equipment from someone else. Besides the extra cost of the rental, the greater length of the piles may cause the contractor so much additional expense that the bid unit price will not be adequate compensation. Therefore it seems that he should be entitled to extra payment for the additional work.
Where a building or construction contract has been fully performed by the contractor, his further agreement to do extra work must—to bind him—be supported by a consideration.\(^5\) This further agreement is really a supplemental contract.

12-12. Extras Caused by Additional Difficulty of Performance. Whether the work is increased in quantity or not, unlooked-for difficulty in the way of performance may be a just cause for the contractor to claim extra compensation. An example of this occurred in the construction of the vehicular tunnel in West 178th Street, in New York. The contract was on a unit-price basis. A deep subterranean ravine was found to cross the site between two of the borings. It contained many heavy boulders, and it was the course of an underground stream. The contractor was paid the regular unit prices on all extra excavation, concrete, etc. The work, however, was more difficult than that called for by the contract; hence the owner had to pay the contractor a considerable extra sum to compensate him for his additional expense in executing it.

Concrete construction is another prolific source of claims for extra compensation because of more difficult work, especially in connection with forms and reinforcement. All too often the owner insists that a few general drawings be rushed to “completion” and that unit-price bids for excavation and concrete be secured just as soon as possible. Naturally, the engineer cannot show on the drawings all the ramifications that will have to be developed—and he certainly cannot predict them at this early stage of the project’s development. The contractor therefore makes his bid upon the basis of certain estimated quantities and the expected degree of difficulty. Later on, the owner may be shocked by the extra costs that are claimed by the contractor for more forms and steel per cubic yard than the owner had been led to expect. The engineer’s position in such circumstances is difficult, to say the least.

For example, a large plant required about 2000 lin ft of subterranean tunnels for electric-power distribution. The drawings used for bidding simply showed these tunnels in plan by dotted lines and portrayed one typical cross section. Later on it was found that many manholes were needed in the top or sides for conduits and that branch tunnels were required. So also were a number of stairways for escape hatches and fan houses for ventilation of the tunnels. The contractor presented a claim for additional payment because of this more complicated work. All these extra items were really needed, and they had to be provided. The contractor’s claim was found to be justified. Whether or not the owner gained by rushing out the contract so fast in the first place is open to argument.

12-13. Extras Caused by Reduction of Work. A reduction in the quantity of work may also be a proper basis for an extra under a unit-price contract. For example, a contract had been made for some extensive pile driving at a harbor. The engineer later decided to eliminate about 25 per cent of the piles. Because of the resulting loss of profit and of a portion of the allowance for overhead in the unit price for piles, the contractor was able to collect an extra payment above that made in accordance with the bid unit prices. This decision was based upon the fact that the reduction in number was large. A few piles more or less than the estimated number, or a few more or less than the number shown on the drawings, generally will not entitle the contractor to an extra if the contract is on a unit-price basis. Probably a change of less than 5 per cent in the number would be insufficient to constitute a just claim for an extra. The contract should state the permissible variation in quantities. Such a statement will avoid many arguments.

Here is a suggested clause dealing with variation in quantities:

The Contractor's proposal is to be based upon the estimated quantities shown in the "Schedule of Prices." Inasmuch as the quantity of concrete and the number of piles driven may be affected by conditions encountered in the performance of the Work, or by written instructions to be issued by the Engineer as the Work progresses, the quality of work done under these two items may vary considerably from the estimated quantities. In this event, payment for any overrun of these quantities shall be made to the Contractor at the bid unit prices. However, if the quantities of either or both of these items actually installed are less than ninety (90) per cent of the respective estimated quantities stated in the schedule, the Contractor shall be entitled to such adjustment of the bid unit prices for the affected item or items as the Engineer shall believe will fairly compensate the Contractor for the loss of profit caused by the decreased amount of work done under the Contract.

12-14. Responsibility for Extra Costs. It is very important to determine whether the owner and the engineer are responsible for unanticipated extra costs or whether these should be blamed upon the contractor.

Undoubtedly the owner is obliged to pay when the information given by the contract documents is inadequate to enable the contractor to determine in advance what work he will apparently have to do. The owner is also obligated to pay (1) when the data given by the engineer to the bidders are inaccurate, (2) when the extras develop because of improper design and plans in the first place, and (3) when the engineer makes serious changes after the contract is signed.

If the contractor performs the work as required by the contract but unforeseen conditions arise, through no fault of his, that necessitate mod-
ifications of the design, and if these modifications are approved or ordered by the engineer, then the extra costs involved are properly to be paid for by the owner. In one case a contractor was to build a 150-ft brick stack at an incinerator. No borings had been taken at the site, and the engineer had designed the footing of the stack as though it were to be supported upon firm ground at the specified elevation. However, under the stack there was deep clay overlain by a few feet of sand and gravel. The contractor was afraid that the compaction of the clay might cause harmful settlement of the stack. Finally the engineer made an investigation of the soils and decided to support the stack on piles. The new design of the foundation required considerable extra construction. This was obviously to be paid for by the owner as an extra charge.

Conversely, extra costs resulting from the actions and mistakes of the contractor are his own responsibility. In one case a contractor tried to build some heavy concrete foundations during extremely cold weather. He did not thaw out the existing concrete before placing new concrete over it. Ice lenses formed at and near the junction of the new and the old work, causing horizontal void spaces up to ¼ in. high after the ice lenses melted, the upper portion of the concrete being supported by the reinforcing bars which acted as tiny columns. The contractor was responsible for the replacement and repairing of this work because the contract stated that no concrete was to be poured against frozen surfaces of any kind. The engineer can justly claim that such work is not good practice.

It may be that extra costs are really caused by both the owner and the contractor. Such costs should be apportioned by agreement of the parties. Thus, a contract for a large industrial plant could not be completed on time unless at least some of the construction was performed during cold winter weather. This was because of delays in getting started, some of which were caused by the owner and some by the contractor. The contract had been made upon the basis of discontinuance of work from Nov. 30 to Apr. 1. However, to expedite the work and to enable the contractor to proceed and thus to avoid undue loss (despite expensive winter operations), the owner made a special contract with him to take certain parts out of the former contract and to place them in the new one which was to be carried on during the winter. This was a sort of compromise arrangement between the two parties.

The following is still another type of case. During World War II, when the shortage of steel was acute, a contract for some steel oil tanks was let on a cost-plus-fixed-fee basis. The owner thought that the final cost was exorbitant; it considerably exceeded the prices published for such tanks in normal times. He refused to accept and pay for the tanks.
The contractor was successful in his court action to recover compensation therefor. The court stated: "Though the price was higher than either of the parties expected, the defendant, in the absence of fraud or misrepresentation, cannot now be heard to claim that it was unreasonable."

12-15. Errors Discovered by the Contractor. The contract should require that the contractor is to report immediately to the engineer any error that he discovers in the contract drawings or in any other data furnished to him by the engineer. He should also report at once any detected error that is made by his own men. He is to cease work immediately upon the affected part of the job until the engineer can issue instructions regarding what is to be done in the matter. The necessity for this is obvious. If the contractor fails to comply, he should be obligated to replace the resultant incorrect work at his own expense.

On a given job, the contract drawings showed the doors of a factory to be hinged so as to open inward. This was contrary to the building code. The contractor admitted that he knew this was an error, but he nevertheless went ahead on the doors without notifying the engineer. The contractor was later obliged to reverse the doors at his own expense.

Naturally, errors may occur without detection, or they may be discovered after the affected work is partially or entirely finished. Errors made by the engineer or by someone on his staff are the owner's responsibility; those made by the contractor or by any of his men are to be remedied as the engineer may direct, and the contract should so state.

The following clause shows fairly standard wording used to prescribe the procedure in this matter of correcting errors:

If the Contractor discovers any error or omission in the Contract Drawings or Specifications or in the work undertaken and performed by him, he shall immediately notify the Engineer and the latter shall promptly verify and correct same. If, knowing of such error or omission and prior to correction thereof, the Contractor proceeds with any work affected thereby, he shall do so at his own risk and the work so done shall not be considered as work done under the Contract and in performance thereof unless and until approved and accepted.

12-16. Delays. The contractor is generally entitled to recover losses sustained because of delays caused by the owner unless the contract specifically states otherwise. The owner is generally assumed to have an implied obligation to provide all drawings and other information that are necessary to enable the contractor to complete his contract within

*Continental Copper & Steel Industries, Inc. v. Bloom, 139 Conn. 700, 704, 96 A.2d 758 (1953).*
the specified time. If, on the other hand, the contract states that “the Contractor shall not be entitled to damages on account of hindrances or delays from any cause whatsoever,” it means just that. If such a clause is in the contract, the contractor will probably add to the contingency item in his bid an amount that he believes will cover such eventualities. This means that the owner is going to pay more for the job because of the higher bid price.

A better way to handle this problem of delays is to state in the contract that, in case of any act or omission on the part of the owner that causes delay, the contractor will be entitled to a just recompense and extension of time. However, the contractor should be required to give written notice of his claim for extension and of the cause for it within ten days after such cause arises. Furthermore, the engineer should have the specified power of granting what he considers to be a just time for the extension.

Delays that are caused by the contractor himself are naturally his own responsibility, and he will utilize every effort to prevent such delays. However, the engineer should not demand the impossible, for, if he is unreasonable in his original requirement about the date of completion, the contractor will have to add a sum to his bid to cover possible penalties, or else he will have to include extra expenses for overtime work and for other costs that arise when a job is to be rushed inefficiently. Before setting too short a time for completion, the engineer should be satisfied that the profit to be derived from speed of execution is worth the extra charge that may be added in the bid to attain this objective for the very reason that such haste is to be required.

Delays caused by acts of God are supposedly not the fault of the contractor, of the owner, or of any other human being. It is often difficult, however, to establish whether or not a particular happening is truly an act of God. For example, assume that a contractor has built a cofferdam around the area in which he is building a bridge pier in a river. A big flood occurs. The water overtops and seriously damages the cofferdam, causing a delay of three weeks in repairing it. Who is to blame? If the cofferdam was not made sufficiently high and strong to withstand floods that are known to occur in that river at least once in three or four years, the contractor will probably be held responsible. How-


2 A contract was let for the construction of a large stack at an industrial plant. It was to be built in the vicinity of a similar stack that emitted sulfurous fumes. The owner realized that work might be delayed by these fumes when the wind was in such a direction as to carry them across the site of the new structure. Therefore, a clause was inserted stating that any delays resulting from the problem of fumes would mean a corresponding and automatic setting back of the scheduled completion.
ever, if he made the cofferdam strong enough so that it would have withstood any flood that occurred during the preceding ten or fifteen years, he would probably be considered to have taken reasonable precautions and would be relieved of any responsibility for the flood damage. The owner (or the insurance company, if the cofferdam is insured) would have to pay for the reconstruction in this event.

The contractor is entitled to prompt decisions on the part of the engineer. In a large dredging job in a harbor, the owner decided to make some important changes after the contract was under way. The job had to be stopped until the owner settled various questions concerning the revisions. Each day of delay cost the contractor an estimated sum of $1000 in rentals, overhead, and unavoidable miscellaneous expenses. It is obviously just (or "only right") that the contractor should be compensated for the cost of such a delay. If the delay were to continue for an unduly long time, he might well claim, in addition, the loss of profits that he could reasonably expect to have made on some other job that the tie-up would prevent his undertaking.

Here is a sample clause dealing with the subject of delays:

If the Engineer believes that, on account of any act or omission of the Owner or the Engineer and without any fault of the Contractor, any of the salaried men or plant and equipment used by the Contractor at the site in performance of the Contract are necessarily kept idle for more than seven (7) consecutive calendar days, the Contractor shall be entitled to increased compensation. This increase shall be an amount equal to that which he may pay during such period of idleness for the services of such idle salaried persons and for other necessary expenses connected therewith, plus a sum computed at the rate of fifteen (15) per cent per annum on the sum which the Engineer deems to be the actual value of such idle plant and equipment, all computations being based upon the total duration of the idle time.

In the preceding clause the stipulation of a minimum time of idleness which must elapse before the contractor is allowed to make a claim against the owner for damages caused by delay resulting from an act of the owner may not be wise or warranted. Such a requirement may cause the contractor to increase the contingency item in his bid.

The contractor should be granted an extension of time not only for delays caused by acts or omissions of the owner or of the engineer but also for delays stemming from occurrences such as the following:*

1. Acts of God
2. Acts of the public enemy
3. Acts of the government

*These occurrences may affect the subcontractors as well as the general contractor.
4. Acts of another contractor over whom the contractor has no control
5. Fires
6. Floods and violent windstorms
7. Epidemics
8. Quarantine restrictions
9. Freight embargoes
10. Strikes

In the event one of the above difficulties arises, the contractor should notify the owner and engineer in writing of the facts, their probable effect upon the time for completion, and, later, the exact duration of such delay.

12-17. Subcontracts. The term *subcontract* is used to denote an agreement between one contractor and a second one under the terms of which the second undertakes to handle for the first a particular portion of the work which the first has become obligated to perform. By no means is the subcontract of inferior character or importance, and it has all of the attributes of contracts in general.

In many large construction contracts it is customary for a general contractor who is the successful bidder to parcel out parts of the work to others who are specialists in particular lines. For example, a general contractor for a hospital may subcontract the heating and ventilating work to one company, the plumbing to a second, the electrical installation to a third, and even the structural-steel fabrication and erection to a fourth. However, it is not good practice for a general contractor to be merely a supervisor of subcontractors who really do all of the work, especially in large construction contracts. The prime contractor will be responsible for coordination and completion of all work by these others, and he should be confident that each one is a concern with which he can work successfully.

The contract for a building job on which a great deal of subcontracting was to be expected contained the following clause, which was intended to limit the amount of work that the general contractor could farm out:

The Contractor will be required to perform with his own organization at least thirty (30) per cent of the work.

One contract contained the following clause as a precaution against misunderstandings regarding the precise work to be done by subcontractors:

For convenience of reference, the Specifications are separated into divisions (e.g., "Plumbing"). Such separations shall not, however, operate to establish arbitrary limits to the contracts between the Contractor and subcontractors.
In other words, the subcontracts are to cover whatever work it is desired to have them call for. The arrangement may or may not be based upon subdivisions of the specifications, depending upon the contractor's wishes.

The general contractor may make tentative or binding agreements with the subcontractors ("subs") before making his proposal, which would be based in part upon their offers to him. A subcontractor cannot withdraw from his agreement after the contractor has accepted the sub's bid, even though the principal contract has not yet been awarded.\(^{10}\)

In other cases, the contractor may shop for bids from subcontractors after he has secured the general contract. This practice has been abused sometimes, and it is distasteful to many of these specialists, who generally get their work through subcontracts from others. In some states the law seems to require that, for state and municipal buildings, the heating, plumbing, air conditioning, and electrical work shall be let as separate contracts instead of being included under the general construction contract. This enables the specialists to bid for work on a direct basis and avoids the evils of shopping for bids, but it may cause difficulties in the way of coordination\(^{11}\) of work, extra paper work, additional costs, rivalries, uncertain division of responsibility, and even the lack of desirable cooperation among the parties involved in the over-all job.

Two ways for the engineer to help prevent unfair treatment of subcontractors by the general contractor are the following:

1. The engineer specifies that the bidder is to state the names of his subcontractors in his proposal and that no change in this list is to be made without the engineer's approval.

2. The engineer specifies that the contractor is to make binding agreements with his selected subcontractors before the presentation of his proposal and that he is to use their quotations in the preparation of his bid.

Perhaps the preceding statements seem to penalize the owner through higher costs because the bidder cannot cut his estimate and bid in the expectation that later on he will be able to beat down the quotations received from the subcontractors. This may be so to a small extent, but such procedures would make for better relations with all concerned and would tend to avoid cutting the quality of materials and workmanship—a device which the subcontractors would have to employ in order to avoid financial loss to themselves if their compensation was inade-

\(^{10}\) F. Raff Co. v. Murphy, 110 Conn. 234, 147 Atl. 709 (1929).

\(^{11}\) In such a case the owner's engineer is compelled to perform some of the duties of a general contractor in coordinating the work.
quate. In addition, either of the suggested requirements in the contract would prevent the general contractor from trying to increase his profit (after the contract is signed) at the expense of the subcontractors. It is reported that the Canadian Construction Association has devised a system called bid depository to meet the problem of bid shopping. The idea is somewhat as follows:

1. A party (such as a builders' exchange) is appointed to act as depository.
2. The architect or engineer specifies in the instructions for bidders that proposals made by bidders for mechanical, electrical, and other work to be subcontracted shall be delivered to the depository at a stipulated time.
3. The subcontractors send their proposals to the depository in separate envelopes, one for the architect, one for the engineer, one for the depository, and one for each general contractor who is bidding on the job and to whom they are quoting.
4. The envelopes are sealed and dated by the depository, and receipts are given to the would-be subs. No late bids are accepted.
5. Promptly after the closing time for receipt of subcontractors’ bids, the depository mails out the envelopes for the architect, engineer, and each contractor; then it puts its own copy in a safe.
6. The general contractors use the bids submitted by the subs in preparing their own proposals, which are to be sealed and to be delivered a specified number of days later.
7. The general contractors’ copies of the bids by subcontractors can be checked by reference to the copies retained by the architect, the engineer, and the depository if such action becomes necessary or desirable. The information on the bids of the subs is not made public.

This depository system provides a means for detecting (and thereby practically preventing) bid shopping. The procedure can be modified to suit local conditions.

A group of men who were interested in this subcontracting problem recommended the following procedure for competitive-bidding practices.

“General contractors shall include in their proposals the name of one subcontractor in each trade used in making up their basic bids, provided this information is requested by the Architect or Engineer.

“General contractors shall not be allowed to substitute other subcontractors in place of those named in their bids, without written approval from the Architect or Engineer.

“General contractors shall not be required to give the amounts of the subcontractors’ bids they used in making up their basic proposals.
"Subcontractors' proposals shall be delivered in writing to the general contractors at least 24 hours prior to the closing of the bids and such bids shall be held in confidence by the general contractors who receive them.

"The receiving of separate bids from subcontractors by an awarding authority shall be discouraged.

"Architects and Engineers shall mail to the general contractors who are figuring a project, at least five days prior to the closing of the bids, all addenda and bulletins clarifying their plans and specifications.

"Unit prices in general shall be eliminated excepting those justifiable for certain types of work, but [are acceptable] in those cases based upon specific conditions applicable to the particular items involved.

"Alternates shall be generally eliminated by Architects and Engineers.

"Plans and specifications shall not be issued to the contractors until the scope of the work is completely defined in sufficient detail to enable accurate bidding."

Although these are merely recommendations and have no authority as far as compulsory compliance is concerned, they may serve as an example in encouraging the use of the recommended practices. It is to be hoped that eventually they, or some equivalent, will be enacted into law. The policing power of the state can then be resorted to if necessary to enforce them.

A clause such as the following would represent unfair treatment of a sub by the general contractor:

The subcontractor shall perform all work under this trade and furnish all required materials, whether or not they are mentioned in the Contract or in any other document.

Just think about what might be the meaning of the words "or in any other document." The subcontractor who signed such an agreement might suffer severe losses.

With proper conduct and management by a general contractor, work is likely to be done efficiently and economically through subcontracting. If the prime contractor is unscrupulous and inclined to put pressure on the subcontractors in their bidding, the end result is not going to be very satisfactory. Obviously, the general contractor should carry out a policy of live and let live in these matters.

Frequently, the owner and the engineer are the direct cause of difficulties in subcontract matters. They rush out a contract and do not prepare the drawings and specifications properly. Both the general contractors and the subcontractors are reluctant to bind themselves on the basis of such incomplete data—in fact, it may be almost impossible for the subs to make firm bids. This causes the general contractors to make additional estimates of their own or to add some general cost per square
foot (or other unit) to cover subcontract work. Then, after the contract is let, the successful contractor tries to make the most advantageous terms possible with subcontractors.\textsuperscript{12}

The contract should state that the subcontractors are to be approved by the engineer before the general contractor awards them the contracts for their special work. This is proper because the owner’s interests are to be protected in each subdivision of the work. The engineer should be satisfied regarding the ability, resources, and trustworthiness of each subcontractor, but the engineer has no right to interfere in the matter of acceptance or rejection of subcontractors on the basis of price.

It should be stated clearly in the contract that the general contractor is responsible for the conduct, product, and payment of his subcontractors.\textsuperscript{13} He is responsible for what they do; the owner is not.\textsuperscript{14}

Broadly speaking, any claims brought up by a subcontractor are the general contractor’s responsibility. All that the owner and engineer have the right to do is to approve or disapprove, under certain conditions, the letting of a subcontract to a particular organization.\textsuperscript{15} Even the form for a subcontract is seldom prepared by the owner, this being the general contractor’s responsibility.

It should be noted that, when a subcontractor agrees to do a part of the contract work in accordance with the plans and specifications that are binding upon the general contractor, the subcontractor is bound by these plans and specifications, and is responsible to the prime contractor with reference thereto. Note that a true subcontractor’s agreement is made with the general contractor, not with the owner. Therefore, the owner holds the contractor responsible for all performance, including that of the subcontractor. Furthermore, the owner’s claims for damages are to be made against the contractor, who in turn may recover from the subcontractor, if the latter is to blame. Conversely, claims against the owner are not to be brought by the subcontractor; the latter’s recourse is against the contractor, who in turn may bring corresponding claims against the owner.\textsuperscript{16} In fact, if the contractor recog-

\textsuperscript{12} For example, the drawings may show piping by means of a few lines, dots, and notes. How is a contractor to bid on such work except by quoting prices high enough to be safe for him?

\textsuperscript{13} There is no privity of contract between a subcontractor and a landowner contracting for the erection of a building. Coleman et. al. v. Pearman et al., 159 Va. 72, 165 S.E. 371 (1932).

\textsuperscript{14} See Art. 12–24 in regard to mechanics’ lien, etc.

\textsuperscript{15} This right is reserved in order to protect the owner in case he and the engineer have good reasons for distrusting a proposed subcontractor.

izes that the subcontractor is entitled to damages, the former may bring action against the owner without waiting for the subcontractor to raise an issue.

If the general contractor abandons the job and the subcontractor nevertheless agrees with the owner to do the subcontract work, a new contract arises—between the owner and the former contractor.

One large contract in New York State employed substantially this wording regarding subcontracting:

No consent to any assignment or other transfer, and no approval of any subcontractor, shall under any circumstances operate to relieve the Contractor or his sureties of any of his or their obligations under the Contract or the Performance Bond; neither shall any subcontract or approval of any subcontractor cause or be deemed to create any rights in favor of such subcontractor against the Owner. All assignees, subcontractors, and transferees shall be deemed to be agents of the Contractor. All subcontracts and all approvals of subcontractors shall be understood to be based upon the requisite of performance by the subcontractor in accordance with this Contract; and, should any subcontractor fail to perform his Work to the satisfaction of the Engineer, the Engineer shall have the absolute right to rescind his approval at once and to require the performance of such Work by the Contractor himself or entirely or in part through other approved subcontractors.

12-18. Partial Payments. It is difficult for a contractor to finance from his own funds all costs for a large contract that extends over a period of several months to a year or two. He will generally have to borrow money. Part of the interest on this borrowed money will be added into the contractor’s estimated costs and will be included on his bid. Therefore the owner will ultimately have to pay the contractor’s borrowing expense.

To avoid the above situation, it is customary and is good practice to arrange for partial payments to the contractor during the course of the job. One convenient method is provision for payments once a month, each payment being based upon an estimate of the value of the work or portion of the contract that has been completed during the preceding month. The mechanics for the determination of the size of these payments should be specified in the contract. The idea of partial payments is applicable to lump-sum contracts as well as to unit-price contracts. Of course, cost-plus contracts are financed directly by the owner, but the contractor’s fee or percentage may be paid in installments or as a final settlement.

This sort of statement must perforce be spelled out also in the subcontract, since it alone controls the subcontractor.
If the contract states that partial payments are to be made to the contractor as the work progresses, this naturally must be done. Even when the contract fails to specify such a procedure, it may be implied if complete financing by the contractor alone is unreasonable.

Notice that partial payments should not be based upon time alone. If a contract is supposed to be completed in ten months but the contractor takes twelve months to complete it, he obviously should not be paid in ten equal monthly installments that really prepay him for tardy work. On the other hand, if he completes it in eight months, he should be paid accordingly. The payments should be based upon accomplishment, not upon intentions.

Assume that a unit-price contract has been made for a reinforced-concrete bridge and its approaches, costing an estimated $1 million. It is supposed to be completed in twelve months. The unit prices cover such items as excavation, concrete, and reinforcement. At the beginning of a given month the engineer and the contractor may make independent estimates of the quantities of work performed during the preceding month, or the engineer may check the contractor’s estimates of the work done. In either case both parties are to agree upon the figures or upon a compromise estimate. The engineer should have the authority to state what estimated figures the payment will be based upon, if such decisive action becomes necessary because of disagreement between the parties.

These computations of quantities take time. Therefore, the contract might well state that “the Contractor is to submit to the Engineer by the tenth of each month the estimated quantities of the work performed by him during the preceding month.”

Similarly, if the aforementioned bridge contract is on a lump-sum basis for $1 million, partial payments might well be determined and made on the basis of work accomplished. To do this, the engineer could establish imaginary unit prices, and he might make his own estimates of quantities, and thus of the payment due, practically the same way as though doing so for a real unit-price contract. Or he might specify that, subject to the approval of the several segments of the work, the contractor is to be paid as follows:

28 Guerini Stone Co. v. P. J. Carlin Construction Co., 248 U.S. 334 (1919): “As is usually the case with building contracts, it evidently was in the contemplation of the parties that the contractor could not be expected to finance the operation to completion without receiving the stipulated payments on account as the work progressed. In such cases a substantial compliance as to advance payments is a condition precedent to the contractor’s obligation to proceed.”

29 Late completion may be the fault of the owner and engineer or of the contractor and may be as often the result of inaction as of improper action.
1. $50,000 upon completion of the excavation and cofferdams or
   shoring for the foundations
2. $100,000 upon completion of the river piers
3. $75,000 upon completion of the abutments
4. $100,000 upon completion of the two side spans
5. $375,000 upon completion of the three main spans
6. $100,000 upon completion of the approaches
7. $200,000 upon completion and final acceptance of the entire job.

In any case, the procedure for making partial payments is to be
specified in detail in the contract so as to avoid future misunderstandings.

It often happens that materials are furnished or delivered but that
the construction involving them is not completed. Technically, the bid
prices may not be applicable to such items, but the engineer should
estimate the proportionate value of these materials and, in fairness to the
contractor, include such in the sum on which the partial payment is to
be based. By way of illustration, suppose the structural steel for a large
building is contracted for, at a certain unit price, "erected." At the end
of a particular month all the material has been rolled, 50 per cent has
been fabricated, 25 per cent has been delivered, but none has been
erected. It is proper to make some partial payment on account to the
contractor so that he in turn can remunerate the steel company.

The contract for the superstructure of a steel bridge specified that the
monthly partial payments were to be computed upon the following bases:

1. For the structural, forged, and cast steel rolled but not fabricated,
   including unfinished forgings and castings, delivered at the fabrication
   shop: 40 per cent of the pertinent bid unit prices for these particular
   items\(^{20}\)
2. For the structural, forged, and cast steel fabricated and ready for
   shipment: 60 per cent of the bid unit prices
3. For structural, forged, and cast steel erected but not riveted: 90
   per cent of the bid unit prices
4. For structural, forged, and cast steel erected and riveted but not
   field-painted: 100 per cent of the bid unit prices
5. For field painting when completed: 100 per cent of the lump-sum
   bid for this item
6. For concrete pavement (including reinforcement) when completed:
   100 per cent of the lump-sum bid for this item

The following clause has been paraphrased from a lump-sum contract
and is included here for the purpose of showing a poorly worded clause
on partial payments:

\(^{20}\) Each type of steel has supposedly been quoted at a separate unit price.
Art. 12-19 WITHHOLDING PORTION OF PARTIAL PAYMENTS

Payments will be made monthly in an amount equal to eighty-five (85) per cent of all labor and material incorporated in the work and/or suitably stored on the site during the preceding month until eighty (80) per cent of the work has been completed. Monthly payments will then be increased to ninety-five (95) per cent of work accomplished.

The following comments relate to the above clause:

1. The engineer should specify the day of the month on which the payment is to be made.
2. The clause should state that the quantity of work completed each month (and its assumed value) is to be determined from the estimates made by the engineer.
3. It is unwise to imply that materials "stored on the site" are to be included in the quantities on which partial payments will be determined. Such implication might cause disputes regarding the value of material simply brought to the site and left there. Also, labor is not "stored."
4. It would be better to let one established procedure continue until the full job is completed and accepted and until the final payment is made.
5. Each time it is employed, the term "monthly payment" should be amplified by adding "to the contractor."
6. The words "work accomplished" are altogether too vague. One cannot afford to be ambiguous in such statements.

12-19. Withholding of a Portion of Partial Payments. It is usually desirable for the engineer to have the right to withhold 10 or 15 per cent of the estimated monthly payments due to the contractor as computed from the quantity of work completed so that the owner will have a little reserve in his favor. This gives the owner a sort of hold on the contractor because of the money due to the latter but not yet paid by the owner. Therefore, the contractor will not be encouraged to quit near the end of the job. The withheld funds can be used by the owner toward remedying poor work or finishing up if the contractor fails to complete the contract. When performance under the contract is accomplished by the contractor, these withheld funds are to be paid to him as part of the final settlement.

A unit-price contract might well contain a clause such as the following:

On the fifteenth of each month, the Contractor is to be paid ninety (90) per cent of the sum obtained by applying the respective bid unit prices to the approved estimated quantities of work completed by the Contractor during the preceding month.

Under a system of partial payments, the contractor may get little compensation during the first month or two. During the next six or seven months the payments may be relatively large. During the last
month or two, when he is cleaning up the odds and ends, the payments may again be small. However, partial payments, large and small, will be of great assistance to him in financing his operations.

The reader should notice that the money withheld from the monthly payments to the contractor is not a substitute for the performance bond. Such funds are primarily intended to provide extra protection for the owner.\(^\text{21}\)

12-20. Final Payment. Some advisable requirements in connection with the final payment are illustrated by the following clause:

Prior to final payment the Contractor shall obtain and furnish to the Owner satisfactory evidence that the work is fully released from all claims, liens, and demands and shall secure and furnish written consent of his sureties to final payment hereunder. Furthermore, acceptance by the Contractor of final payment shall release the Owner from all claims and liability to the Contractor for all work done and materials furnished in the execution of the contract. Final payment (or any other payment), however, shall not serve to release the Contractor or his sureties from their obligations under or in connection with this Contract or the Performance Bond.

After the final inspection and approval of the work by the engineer, and after its acceptance by the owner, a general accounting is usually necessary before the size of the balance due the contractor can be determined. If a construction contract specifies no time for payment, all the work must be substantially completed before the money is due.\(^\text{22}\)

When there are no extra claims by the contractor and no credits or deductions to be made in favor of the owner, the amount due the contractor on a lump-sum contract is simply the bid price less the sum of all partial payments that have been made to him. Use of a unit-price contract makes it necessary, first, to compute the final quantities for each payment item, then to multiply each such quantity by the applicable bid unit price, and from these products to calculate the total cost of the contract. This total, minus all partial payments, is the net sum owed to the contractor. Usually the owner and the contractor can agree upon the calculated quantities and the final computed costs. In cases of disagreement the engineer may determine what the computed costs are to be, a third party may make an independent calculation, or the questions

\(^{21}\) In Fogg et al. v. Suburban Rapid Transit Co., 90 Hun. 274, 35 N.Y. Supp. 954 (1895), the court ruled, in effect, that it is competent for the parties to agree as follows: Until the builder gives evidence that “the materials and work done . . . are fully released from all . . . liens, claims, and demands,” an owner shall retain in his hands money (due the builder) out of which to satisfy unpaid materialmen and laborers.

\(^{22}\) Stewart v. Newbury, 220 N.Y. 379 (1917).
may be settled by arbitration. The contract should state which of these three procedures is to be followed.

The general contractor will usually withhold from his interim payments to the subcontractors the same percentage as that held back from him by the owner,\textsuperscript{23} making final payment to them only after he has been completely paid off. This practice can be inequitable. Thus, a subcontractor for foundation work may complete his part of the job and have it accepted early in the life of the contract; nevertheless, he will have to wait perhaps months before he can collect any withheld percentage that is still due him. Again, an electrical subcontractor may finish all of his work, and the engineer may accept it, but the sub will still wait for months before receiving final payment because something done by the general contractor, or even by another subcontractor, is unsatisfactory and final payment by the owner to the prime contractor is therefore held up until the defect is fixed and the engineer finally approves the work. It would be more equitable, if subcontracted work is sufficiently definite and independent, to have the contract state that, upon approval and final acceptance of a subcontractor's work, the owner is to pay the contractor therefor and that the latter is to remit promptly to the subcontractor.

Another way to aid the subcontractors would be a statement in the contract to the effect that, when final payment is made by the owner to the contractor, the latter is promptly thereafter to pay the subcontractors the amounts previously withheld from the payments to them and properly due to them. There have been abuses on the part of contractors in holding up for long periods the final settlement with their subcontractors even though the owner had made full payment to the contractor for the entire job.

12-21. Failure to Make Payments. If the owner fails to make payments to the contractor as and when provided in the contract, the contractor ought to have the right to suspend the work, but he should be ready to renew his activity if the payment is delivered before the expiration of any stated time limit. However, since such a delay almost always causes additional expense to the contractor, he should be entitled to make a claim for the recovery of all of the cost directly chargeable to such interruption. Obviously, a contractor is well advised to keep appropriate records of costs attributable to those delays which are the fault of the owner.

\textsuperscript{23} One contract put it this way:

"The Contractor shall pay to each of his subcontractors, not later than the fifth day after receipt of each payment made to him by the Owner, the respective amounts allowed the Contractor on account of the work performed by such subcontractors, to the extent of each such subcontractor's interest therein."
It seems that continued failure by the owner to make payment should entitle the contractor to terminate the contract after a stipulated number of days' written notice to the owner of the contractor's intention to do so (assuming payment is not made in the meantime). In the event of such termination, the contractor would have the right to recover the cost of all materials provided, all work done, and all losses and damages suffered by him resulting therefrom.

12-22. Liquidated Damages. A contract may contain the words "Time is of the essence," meaning that the time of completion of the contract is one of the important items for the contractor to consider when bidding on the job. The contractor will be bound to meet a designated completion date, or else some specified compensation will have to be made to the owner. Such payments for failure to meet the required date are referred to as liquidated damages, not as penalties.

A toll bridge, a factory, an apartment house, a store, or any project that is to be a profit source for the owner will be in the class where quick completion is urgent. Even though the owner may have been hesitating for a considerable time before deciding to go ahead with the project, once he has made this decision the work can seldom be done quickly enough to suit him. His desire to minimize interest charges (on money which he has to borrow to finance construction) constitutes another reason for speed in converting the project into a profit-making one as soon as possible.

In setting the dates for starting and completion, the engineer might well consult interested contractors about the time necessary to prepare for and to complete the construction. If the time to be allowed for completion is inadequate, the contractor will have to set a high price in his bid to cover the cost which inevitably accompanies overtime work and the possibility of a certain amount of liquidated damages when the work does not progress satisfactorily. Perhaps these costs will be included as an indistinguishable part of the bid prices; nevertheless, they are very real, and the engineer should be sure that the owner realizes that specifying a very short period for completion of the work is likely to prove expensive.

The liquidated damages are usually stated in the form of a specific number of dollars for each day that actual completion of the job extends beyond the date specified in the contract. The amount of this daily figure is supposed to be the owner's estimate of what he will lose in income by reason of the delayed completion.24 The owner generally

24 This matter of liquidated damages should not be used as a means of making a profit for the owner at the expense of the contractor. Also, it would seem only fair treatment to provide that the contractor will be given a certain bonus if he can so conduct his work as to get the structure into service before the time set as the limit. This bonus arrangement is only occasionally provided.
LIQUIDATED DAMAGES

will deduct any liquidated damages from the sum due the contractor at the time of final payment.

When the contract does not specify a figure, it is generally difficult to determine the amount of the damages that should be paid the owner because of a delay in completion. Factors to consider include the estimated losses to the owner because he cannot utilize the property as soon as had been anticipated, interest charges which he must pay during the delay, the cost of legal assistance in his action for recovery, and any other expenses that are chargeable to the contractor's failure to finish on time.

We know of one contract which contained substantially the following provision:

The Owner reserves the right to include a clause providing for an assessment of liquidated damages for the Contractor’s failure to complete the work in the stipulated time.

This is an utterly inadvisable statement for most contracts. How is a bidder to know what he is agreeing to when he signs the contract? The owner should state in advance the exact amount that he will claim for each day that completion of the job outruns the stipulated date, and he should not have the right to set any figure that he may wish when the time comes.

On the other hand, it is logical to have a clause in certain building contracts making provision for “reasonable” liquidated damages in case of delay or breach. Such a clause is customarily employed when the potential damages are of an uncertain nature or amount—in other words, when they cannot be specifically stated ahead of time.

Misunderstandings may arise because of uncertainties respecting the date on which payments for liquidated damages are to begin. Assume that the owner of a store signs a contract with an electrical contractor to have the store rewired and to have new lighting fixtures installed. The work is to be done within three weeks after the signing of the contract (after which time liquidated damages of $100 per day are to be imposed), all on the proviso that the owner examine and approve a similar installation which the contractor has completed in a neighboring city. The contract is not intended to be effective until the owner has made this stipulated examination and until he has approved the previous job. Receipt by the contractor of the approval notice should signal the start of the three-week period. It is advisable to make this point clear in the contract. The notice of official approval should be given in writing, because oral notification may lead to a misunderstanding.

There may be an argument whether the liquidated damages are to be

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determined from the number of calendar days of delay in completion or from the number of working days in the period of overrun. If the contract states that a job is to be completed in a given number of working days after the signing of the contract or after the specified date for the commencement of work, this is usually interpreted to mean actual days that the contractor can carry on his work. It generally excludes Sundays, holidays, perhaps Saturdays if the job is to be run on a five-day-per-week schedule, days when bad weather prevents the conduct of work, periods of delay caused by the owner and his staff, and periods of delay caused by acts of God. The contract should state just what is intended in this regard.

When liquidated damages are mentioned in the contract, it is especially important for the contractor to notify the owner promptly and in writing when the former asserts that a delay is being caused by the owner. The contractor should give dates, reasons for the delay, and other pertinent data which will assist in establishing his claim for an extension. If the contract calls for such written notice by the contractor, this is a condition precedent to the consideration of his request for more time.

What happens when the contractor quits the unfinished job after the time limit has expired? In one such case the court held that liquidated damages applied from the time fixed for completion until the work was abandoned and for a further period of time reasonably necessary to complete the job. Of course, the owner may not increase his recovery either by unreasonable delay in taking over the job or by failure to complete it diligently.

12-23. Damages for Defective Work. The contract should state that the contractor will be held responsible for the quality of the work which he performs and that the work must be done so as to produce the results called for in the contract. The owner, therefore, should make it clear that he has the right to make claims against the contractor for defective work done by the latter. Any such claims should first be approved by the engineer, and the latter should exercise caution because the justice of the claims may have to be substantiated before a board of arbitration or a court.

The damages that an owner can collect for defective work by the contractor are not unlimited; they should be reasonable and consistent with the circumstances. For example, assume that Jones let a contract for a central-heating system to be installed in his new house. He specified the type, capacity, and general character of the entire heating system, including the boiler. The contractor warranted the equipment and workmanship to be of first quality. During the first winter of

*SCHOOL DISTRICT NO. 3 OF FORD COUNTY V. U.S. FIDELITY & GUARANTY CO. OF BALTIMORE, MD., 96 KAN. 499, 152 PAC. 668 (1915).
operation the boiler proved to be defective, and it became apparent also that the capacity of the boiler was inadequate. Jones therefore decided to have the old boiler replaced by a larger one which would cost $200 more than he paid for the original boiler. Admittedly, the first one was defective. The contractor can be required to replace it with a new one of first quality. However, Jones cannot expect the contractor to furnish and install a larger and more costly article than that for which initially he contracted. The extra cost of the larger unit is not an obligation of the contractor, and Jones should pay him for the excess value of the larger boiler. In other words, an owner should not be enabled to use the circumstance of the contractor's defective work as a means of making a profit for himself.

Notice that, in the preceding case, Jones specified the type and capacity of the boiler and the character of the entire plant to be installed. Its inadequacy was, accordingly, his fault. If the contractor had designed the system and had stated that it was suitable for the purpose, the innate shortcomings of the system as well as the defectiveness of the boiler would have been his responsibility.

To reiterate, the contractor should be held to the performance to which he has agreed under the contract. There should be no attempt to hold him to anything further without proper compensation therefor. His responsibility is limited to the execution of the plans unless the contractor calls for the design as well as for the construction of the project.

An owner tried to collect damages from a contractor for the latter's unsatisfactory performance. Admittedly, it was difficult in the particular circumstances to determine the dollar damage with any degree of preciseness. Does this uncertainty prevent the owner from recovering some amount? In one case, the court reasoned somewhat as follows:

The requirement of reasonable certainty is not intended to mean that one cannot recover unless he can prove the total dollar amount of damage to him. Furthermore, it does not mean that he cannot obtain damages unless he can prove the exact amount of the harm. The intent of the requirement is merely to exclude those portions of the harm that cannot be evaluated with reasonable accuracy; actual expenditures can usually be established without difficulty. Cases may occur in which it is clear that a substantial pecuniary loss has been suffered but which are of such a character that the amount of money loss cannot be proved. In these cases, the defendant should not be allowed to profit because of plaintiff's difficulty of proof; it is reasonable to leave the decision to the discretion of the jury, subject to the supervision of the court.


12-24. Special Claims for Damages against the Contractor. Since progress and completion of the work are the objectives of the owner, it may be necessary for him to take special steps to secure the desired results if he believes that they cannot (or will not) be attained satisfactorily by the contractor acting independently. To provide for such a situation, it may be advisable to word the contract in such a way that the owner will have the power to complete any unfinished work himself, but at the expense of the contractor, charging the latter for any losses or extra expenses (damages) resulting from the necessity of operating in such fashion. Imagine that A has a contract to build a store for B, but A is so busy constructing a shopping center in a nearby town that he has seriously neglected the supervision of B's project. Or, assume that A has contracted pneumonia and will be unable to take charge of the work under the contract. In such circumstances as these, it may be desirable for B to take over direct supervision of the work. If so, he should have the right to do so and to charge A for damages if there is any loss entailed.

As another example, assume that the contractor has failed to pay his employees their wages for the past week or two. The engineer learns that the men have threatened to strike or to leave the job if they are not paid promptly. In such an event the owner should have the authority (notwithstanding the fact that the project is still supervised by the contractor) to make direct payment to the contractor's employees of all or part of what is due them and to deduct the amount of such payments from the money owed or to be owed to the contractor, thereby keeping the men at work and the job progressing. The owner should be entitled to collect damages if such measures cause him any loss.20

One way for the engineer to give the owner a measure of protection against claims of laborers or suppliers is to place in the contract a clause stating that the contractor must prove21 that he has paid all bills for labor and materials, in respect of work performed during a given month, before any partial payments are made to the contractor for that month's work. Thus, if these bills have not been paid by the contractor, the owner can refuse to make further payment until the difficulties are remedied, and he can use the withheld funds to pay the creditors himself if necessary.

12-25. Indemnity. Another way to attempt to guard the owner against involvement in case of nonpayment of bills by the contractor is to in-

20 Under the laws of most states, unpaid materialmen and laborers are entitled to the security of a so-called mechanics' lien, which attaches to the structure being built and secures for them a priority toward satisfaction of their particular claims.

21 This proof may be made in the form of affidavits, copies of receipts, or whatever method is mutually agreed upon.
clude in the contract a clause to the effect that the contractor shall indemnify and "save harmless" the owner in case of any claims of any nature stemming from any act of commission or omission on the part of the contractor, his employees, or agents in the performance of the work. Such clause would be sufficiently broad to protect the owner against claims made because of the negligence or carelessness of the contractor or his staff.

Here is a clause designed to safeguard the owner in the above regard:

The Contractor shall indemnify and save harmless the Owner from and against all losses and all claims, demands, payments, lawsuits, and other actions, recoveries, and judgments of every and all kinds brought against or recovered against the Owner, in consequence of any act or omission of the Contractor, the latter's agents or employees, in the execution of the work or in consequence of any negligence or carelessness by the Contractor in the course of protecting the job and the site.

One can readily see that the foregoing provision is no better than the owner's ability to collect from the offending contractor. Furthermore, such a clause will not enable the owner to dodge at least the initial responsibility where, as in Connecticut, there is a statute such as that referred to in Art. 16-8, under which the owner has to pay the bills and then obtain compensation from the contractor if he can. Hence, before writing such an exculpatory provision, the engineer should ascertain the law regarding such matters in the state where the work is to be performed.

It stands to reason that the contractor should not indemnify the owner in respect to claims which are the latter's fault.

12-26. Risk. It is usually an advantage to the owner to have the work done by an independent contractor instead of by the owner's employees. In this way the owner need not undertake the burden of devising ways and means of performing the desired work because the contractor is to produce the results under his own supervision and upon his own responsibility. The terms of the contract should state definitely that the contractor is to assume all risks directly connected with the work\textsuperscript{21} and that he is to carry adequate insurance upon property, personnel, and materials until the owner accepts the structure or products and until the contract is terminated.

The contract should obligate the contractor to carry adequate workmen's compensation insurance and liability insurance. It may be advisable to have the amount of property and liability insurance specified in the contract so as to avoid disagreements about what constitutes

adequate insurance. The contractor can include the cost of this insurance in his bid.

Furthermore, the contract should state that the contractor is to protect not only the owner himself but also the holders of adjacent property from injury "arising from the carrying out of this Contract, and shall make recompense for any damages and injury. . . ." A wise engineer will question or object to any procedures by or plans of the contractor that seem likely to endanger the owner's property or that of other people. However, he should be careful to see that he merely makes suggestions and gives advice to the contractor but does not direct, unless the contractor fails to cooperate and danger is imminent.

As stated previously, if a contractor is known to be careless, incompetent, or inexperienced, he should not be awarded the contract; the owner may be held liable for resulting injuries if he fails to use reasonable care in the selection of a contractor. The owner might charge the engineer with negligence if the latter advised the owner to let the contract to an irresponsible bidder. The engineer must also use reasonable care in the selection of a contractor.

Construction work is likely to be conducted in places where the general public may be affected. The responsibility for protection of the public should be definitely placed upon the contractor, since he is the one who will be carrying on the work. Protective measures may involve fencing a site to keep out trespassers, roofing a sidewalk adjacent to a large building operation in a city so as to protect pedestrians, erecting fences or other guards around utilities such as power ducts or cables, building temporary deckings over excavations in streets, and even manually guarding busy construction passageways and areas where blasting or other dangerous operations are being carried on. The contract should require that adequate protective devices be maintained at all times of need. Signs and warning lights alone are generally considered to be insufficient because people are not always heedful and obedient.

Again, one should note that the owner ultimately pays for all these items (protective measures, insurance, etc.) because their cost is included in the contractor's bid. Even though they add to the cost of the project, it is not wise to take a chance without them.

The reader should examine carefully the wording of the following very comprehensive clause on risk of injury, etc.

32. The Contractor shall be the insurer of the Owner and of the latter's agents and employees against any and all of the following risks, whether they arise from acts of commission or omission of the Contractor or of third persons, excepting only those risks which result from affirmative, willful acts done by the Owner subsequent to the submission of the Contractor's Proposal:
1. The risk of loss or damage to the Work prior to the issuance of the Certificate of Final Completion. In the event of any such loss or damage, the Contractor shall promptly replace, repair, and make good the Work without cost to the Owner.

2. The risk of injuries (including wrongful death) and damages, directly or indirectly, to the Owner, his agents, and his employees, and to his or their property, arising out of or in connection with the performance of the Work. The Contractor shall indemnify the Owner and the latter's agents and employees for all such injuries, damages, and losses resulting therefrom.

3. The risk of claims and demands, just or unjust, by third parties against the Owner, his agents, and employees, arising or claimed to arise out of the performance of the work. The Contractor shall indemnify the Owner and the latter's agents and employees against and from all such claims and demands, and for all loss and expense incurred by him and them in the defense, settlement, and satisfaction thereof.

Neither the Certificate of Final Completion nor any payment to the Contractor shall release the Contractor from his obligations. The enumeration elsewhere in this Contract or in the Specifications of specific risks assumed by the Contractor or of particular claims for which he is to be responsible shall not be deemed to limit the effect of the foregoing provisions of this numbered clause nor to imply that he assumes and is responsible for only risks or claims of the types enumerated.

12-27. Power of Engineer in Settling Disputes. Many construction contracts contain a clause to the effect that the engineer (or the architect) has the power to make final and binding decisions in the settlement of various types of disputes that arise in the execution of the contract. This power, however, is not to be unlimited. It should be defined carefully.

The engineer in charge of a construction contract has no implied power to bind the parties by his interpretation of the contract; but express provisions in such contracts that any dispute about the construction of the language used shall be submitted to the engineer (whose decision shall bind the parties) have been upheld. Not infrequently, a contract will stipulate that, in the absence of fraud, etc., the decision of the engineer, or some other designated person, shall be final on any question submitted—such as what constitutes satisfactory performance. This authority to make certain final decisions places the engineer in a position that gives him a sort of judicial function.

Since the engineer is representing the owner in the execution of the contract, it may seem that the engineer is not in a position to make unbiased decisions in disputes between the owner and the contractor. In practice, however, the engineer should always do his utmost to judge such matters wisely and impartially. His reputation is likely to depend
upon his fairness as well as upon his technical ability. Except in the
case of fraud, gross error of judgment, or actions that indicate bad faith,
the contractor and the owner are bound by the engineer's decisions,
provided that the signed contract contains a clause to that effect. It is
advisable, however, to make provisions for the disposition of certain
types of disputes through resort to arbitration.\(^{32}\)

Even though the contract states that the engineer has the authority to
settle a particular category of dispute between contractor and owner,
charges of fraud leveled by the contractor against the engineer are
usually sufficient reason to have the matter referred to arbitration or to
a court. There seems to have been an effort put forth to obtain either
state or federal legislation to permit a contractor, if he so desires, to have
the engineer's decisions of a dispute reviewed on the merits by judicial
authority even where no allegation of fraud is in the picture.

\(^{32}\) See Chapter 28.
CHAPTER 13

Contract Clauses
Relating to Operations

13-1. Approval of Contractor's Drawings. Although it is customary for the engineer to prepare design drawings for a structure or piece of equipment, the contractor himself generally has to make the shop drawings which are to be used in the actual construction or manufacture. These drawings should be submitted to the engineer for approval before any work is done on the parts to which they apply.

For example, assume that a mining company is building a large plant for the treatment of ore. One piece of equipment may be a large machine for crushing rock. The engineer will generally specify for that machine basic requirements, most of which fall in the following typical areas:

1. Gyratory type
2. Size of feed
3. Size of discharge
4. Material for body and liners
5. Capacity
6. Type of spindle at top
7. Arrangement and other details of drive
8. Type and position of discharge
9. Provisions for maintenance and repairs
10. General proportions and other basic requirements

The manufacturer who gets the contract will prepare shop drawings to show every detail of the crusher. Then prints of these drawings will be examined carefully by the engineer to make sure that, as far as he can see, the equipment is suitable for its intended purpose in connection with the contract.
The engineer will return a copy of these prints to the manufacturer, having indicated thereon his approval or desired corrections. The contractor is to make these changes, unless, after discussing the matter further, the engineer agrees to let the drawings remain as they are or to accept some other details that have been devised by the manufacturer. When the drawings are thought to be satisfactory, new prints are submitted for the final approval of the engineer. When his approval is ultimately received, the drawings are ready for release for production.

The big point to be emphasized about this procedure—and to be explicitly set forth in the contract—is the fact that, although the shop drawings are to be approved by the engineer, the contractor is responsible for the accuracy of the work and the satisfactoriness of the product. The engineer should do all that he can to assist the contractor in seeing that everything is in order before the actual job begins and during its progress, but his approval does not relieve the contractor of responsibility. This point is vital.

To cover this procedure there might be inserted in the contract a clause reading somewhat as follows:

The approval by the Engineer of any working drawing (or of any drawing of the Contractor’s plant or equipment) shall not in any way be deemed to release the Contractor from full responsibility for errors thereon or from entire responsibility for complete and accurate performance of the work in accordance with the Contract Drawings and Specifications; neither shall such approval release the Contractor from any liability placed upon him by any provision in the Form of Contract.

To illustrate the procedure of preparation and approval of drawings, assume that one piece of the crusher previously referred to is supposed to be 2 ft 0 in. deep (according to the approved general plan of the equipment) but that the contractor’s draftsman incorrectly dimensions it 2 ft 1 in. The checker in the shop misses the error. The engineer, too, fails to notice it, and he stamps the drawings “Approved.” The piece is accordingly made 2 ft 1 in. deep. When the crusher is assembled, the piece obviously will not fit. In this situation the contractor has to stand the cost of revision or replacement of the incorrect part since he is to design and furnish the equipment.

On the other hand, assume that the engineer shows on his design drawings that the over-all depth of the crusher is to be a certain dimension. The contractor makes the machine accordingly. Later it is discovered that the depth should have been 1 in. less in order for the crusher to fit into the structure. This is a mistake in the engineer’s basic data. The contractor is supposed to make the equipment so that it will be the size called for in the design unless he discovers that something is
in error, whereupon he is to notify the engineer and receive instructions from the latter. In using this dimension shown on the design, the contractor is not responsible for the error. The cost of remedying the situation therefore falls to the owner.

The contract documents should clearly specify at least the following matters regarding the making and handling of shop drawings:

1. The submission of preliminary layouts, if desired
2. The size of drawings to be used
3. The use of pencil or ink for drawings
4. The use of paper or tracing cloth for drawings
5. The number of prints to be submitted for approval
6. The procedure for indicating approval, corrections, and subsequent revisions
7. The approval of drawings before release for shopwork
8. The responsibility of the contractor for the accuracy of his drawings
9. The number of file prints and prints for use in the field
10. The kind of drawings for permanent file—original tracings or reproductions thereof

13-2. Approval of Contractor's Plans and Equipment. The engineer should not allow the contractor to do anything and everything that he wants to do in the name of performance of the contract—even though the contractor is responsible for performance. If the engineer learns that the contractor plans to do something that appears to be inadvisable, the contractor should be questioned about it and should be told wherein it is thought the contemplated procedure is unfortunate and unsatisfactory. It may be that the engineer's knowledge of the particular conditions and requirements enables him to foresee something that the contractor did not realize.

It is advisable to state in the contract that the contractor is to submit to the engineer for approval blueprints of any special construction accessories and is to secure approval of such blueprints before undertaking any of the work affected thereby, e.g., the falsework for the erection of a large bridge and the cofferdam to be used around the site of a power plant located at the edge of a river. This is to give the engineer a chance to see if there is anything that he thinks may cause trouble. This cooperation is usually welcomed by the contractor, since his position is improved if the engineer does assist in avoiding subsequent trouble by pointing out some difficulty which had previously escaped the contractor's notice. It must be remembered that, in any event, the

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1 This requirement is made to be sure that drawings and prints will fit in the files at the offices of the owner and engineer.
primary responsibility for the successful completion of the work rests with the contractor. However, all three parties are, of course, interested in having the work proceed efficiently and safely.

13-3. Defective Plans. When the engineer prepares the contract plans and specifications, it is taken for granted by the contractor that these are satisfactory and, if carefully followed, will produce the desired results. Therefore, the engineer is generally considered to be responsible for their accuracy unless he specifically notifies the bidders that the plans are to show general features only and that they are not in any sense “warranted.” If it develops that the engineer’s official plans contain errors, the contractor is not at fault, provided he did the work properly and neither knew nor should have known of the defects. It is not the contractor’s job to check the design drawings. In the owner’s interest, however, he should question something that he thinks is inadvisable. This action may strengthen the contractor’s hand if trouble later develops from the questioned feature. On the other hand, if the contractor discovers an obvious error in the plans and specifications, he should report it promptly in writing to the engineer, thus following the procedure described in Chapter 12.

It may be that the contractor is to make the plans for a given structure or for some item that he is to furnish. In such case, he is naturally directly responsible for errors in these plans since the design is a part of his contract.

In practice one cannot be sure of the outcome of disputes that arise because some particular portion of a job is unsatisfactory. A certain contractor built a sewer under a contract “to furnish all labor and material, to correct all deficiencies existing in the sewers, and to put the system in working order.” The contractor encountered bad soil conditions in at least one area. He recommended using concrete cradles, which were not called for in the engineer’s design. However, having been refused an extra for this work, he built the sewers with the cheaper wooden cradles specified. The sewers later failed, and litigation followed. The court in this case held that the contractor had to pay the cost of correcting the difficulty, since the owner had not warranted the sufficiency of the plans and specifications. It seems that the contractor’s trouble came from the statement in the contract that he was “to deliver the system complete in all respects” and “in working order.” Furthermore, he followed the plans literally, even though he thought that the design was inadequate. However, the result in the foregoing case does not seem to represent the general rule.

Suppose a part of the work is subcontracted upon terms requiring it to be done in accordance with the plans and specifications of the general contract. The subcontractor and the general contractor as well are not
responsible for the quality of the results, provided they perform their work properly. In one case the court stated:

The general propositions of law... that a subcontractor is bound by the contract of the original contractor with the owner, where the specifications are made a part of the contract, and the subcontractor is bound by the conditions and specifications contained in the original contract, are rules well recognized.

"... A contractor is required to follow the plans and specifications and when he does so, he cannot be held to guarantee that the work performed as required by his contract will be free from defects, or withstand the action of the elements, or that the completed job will accomplish the purpose intended. He is only responsible for improper workmanship or other faults, or defects resulting from his failure to perform."

13-4. Inspection of Materials. The purpose of inspection by the engineer is to make sure that the contract is properly executed and that the owner's interests are protected.

Inspection by the engineer generally involves inspection of shopwork and materials as well as of field operations. For example, in a large bridge project involving important steelwork the engineer may have an inspector at the mill to make sure that the material meets the specifications. He may have an inspector at the fabricating shops for several months to see that all shopwork is satisfactory. In smaller jobs, the engineer may accept the report of the contractor's inspector when this report is submitted with an affidavit vouching for its accuracy. This saves expense for the owner and is a device particularly suited for shop inspection of materials. In any event, the contractor should be obligated to notify the engineer in advance so that the latter can, if he desires, have his inspector on hand when work affecting the contract is to be performed, whether at the shop or in the field.

Large projects may involve so much inspection of materials that a separate department is needed to handle this work, or a special group in the engineer's office may be set up to take charge of all inspection.

In some instances it may be desirable to engage a firm of specialists to take charge of all inspection of materials and shop fabrication and also of testing. This firm will then represent the engineer in all such matters, and it will report directly to him.

The contract should state clearly what is to be done regarding this inspection and exactly what is expected of the contractor. If test cylin-

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3 There are testing-materials laboratories which make the rendering of such service their business.
ders of concrete, for example, are to be made in the field, the bidder should be told what he will have to do so that he can include the cost of this work in his proposal.

Here is the wording of a clause that was prepared to apply to this matter:

All work, materials, processes of manufacture and methods of construction shall be subject to the inspection of the Engineer (or his duly authorized representative) who shall be the judge of the quality and suitability of them all for the purposes for which they are used. If any of them fail to meet his approval, they shall forthwith be replaced, corrected, or otherwise made good, as the case may require, by the Contractor at his own expense. Rejected material shall be disposed of as the Engineer may direct. Acceptance of any material or workmanship shall not serve to prevent subsequent rejection by the Engineer if he finds either or both to be unsatisfactory. No material shall be shipped from its place of manufacture without inspection and approval unless so ordered by the Engineer.

13-5. Inspection of Field Operations. It is common practice, in a large job, for the owner to have his engineer maintain a resident engineer and his staff of inspectors in the field to see that the work called for by the plans and specifications is performed. This is done not merely as a police action but also as a check to help see that things are built properly and that everything is included that is called for by the contract. The inspectors are to see that all work is satisfactory. They often check such things as the correctness and adequacy of forms for concrete, the arrangement and sizes of reinforcing bars, grading, filling, erection of structural steel, riveting, welding, anchor bolts, and erection of machinery.

In such a situation, who is responsible for an error made in the field work? The contract should be worded so as to make the contractor responsible for his work. The resident engineer and his staff try to help the contractor to avoid making errors, but their approval of his work should not relieve him of his responsibility. They must be careful to see that they help him but do not dictate what he shall do or how he shall do it.

For example, a large concrete structure was being built. Some of the concrete footings were ready to be poured. Certain ones were to be subjected to a large overturning moment. The contractor placed the reinforcement, and an inspector approved it. However, in some unexplained manner, only half as many bars as were required by the drawings projected up to withstand the moment that would be applied by the future construction. After the footings had been poured and the concrete had set, the men placing the next tier of reinforcement discov-
ered the error. The inspector's approval did not relieve the contractor from the very costly problem of remedying the error.

The contract should specify that the contractor shall notify the engineer when and where work can be inspected, notifying the engineer sufficiently in advance so that the latter (or his representative) will have time to arrange for the inspection. The contractor should also be obligated to do everything necessary to facilitate inspection by the engineer, both in the shops and in the field.

Eventually the engineer will make a final inspection of the completed work. The following clause illustrates some features that may well be specified in connection therewith:

When notified by the Contractor that, in his opinion, all work required by the Contract has been completed, the Engineer shall make a final inspection of the work, including any tests of operation. After completion of this inspection and these tests, the Engineer shall, if all things are satisfactory to him, issue to the Owner and the Contractor a Certificate of Final Completion certifying that, in his opinion, the work required by the Contract has been completed in accordance with the Contract Drawings and Specifications. However, the Certificate shall not operate to release the Contractor or his sureties from any obligations under the Contract or the Performance Bond.

13-6. Duties of an Inspector. The inspection of work is so important that it is desirable to digress here long enough to discuss the duties and operations of the inspector. This discussion is presented to enable the reader to understand these duties more fully and to show him that clauses controlling such matters should be carefully worded.

The life of the inspector is often a hard one. Note that his function is that of seeing that the work is done in accordance with the terms of the contract. If the contract calls for certain things that are wrong or inadvisable, it is not the inspector's job to improve them. He has no power to do so. If something has been overlooked in the contract, and if it obviously should be corrected, the inspector may properly assist in bringing about remedial action under the terms of the contract that cover revisions, extras, and adjustments. The inspector is representing the owner through the engineer, but he is not to dictate to the contractor. To do his job properly an inspector needs much tact and good sense.

The inspector has many duties to perform. He may have to keep accounts of time spent, materials furnished, and work done by the contractor. He cannot be everywhere at once, and he may not have to be on the job continuously, depending upon the character of the work. He has to learn what to watch for and how things should be done. He should be able to detect pending as well as present troubles and uncertainties, so that he can be prepared to make his decision, or he can refer
the matter through proper channels to the engineer. He should act promptly so as not to delay the contractor. He should remember that delays usually cause loss for the latter.

Questions continually arise that compel the inspector to determine what is satisfactory and what is not. If he is too lax and careless, he may accept work that is not what the owner is entitled to. If he is unduly fussly he may have almost everyone antagonistic toward him. Much practical experience and knowledge are essential for this work. A contractor will generally cooperate well with an inspector whom he trusts, who is sincerely trying to be fair, and whose knowledge he respects. The inspector who is unreasonable or who does not understand the problems of performing construction work will rouse a contractor's ire immediately; one who is careless will arouse the contractor's disdain. In other words, the inspector must know his particular job very well, he must be absolutely honest, and he must know how to get along with people—to exercise proper authority but not to create harmful antagonism.

No specific rules can be laid down for the conduct of the inspector because his problems are so varied. The general principles, however, are easily understood; adhering to them is the difficult part. When the inspector is in doubt about what is intended by the engineer, when serious questions of policy arise, and when he discovers present or pending troubles that are beyond his authority, he should consult the engineer for instructions.

Here is an example of undue fussiness. In making the drawing of the steel girders for a highway viaduct that was to be on a slight grade, the draftsman drew the stiffener angles in a vertical position because it was easier to do so than to slope them a tiny bit. The fabricator built the girders with the stiffeners perpendicular to the flanges. This is the practical and customary procedure because the slight skewing to make them vertical would prevent the use of efficient multiple punching of rivet holes. When the girders were ready to be shipped to the site, the young inspector demanded that the girders be dismantled and refabricated. He did not consult the engineer regarding the situation but issued orders of his own. The fabricator sent a representative to explain the situation to the engineer. The latter agreed at once that the girders were fabricated as he intended. He then replaced the inspector—not for the latter's fussiness alone but for his dictatorial conduct and for his failure to consult headquarters about such an important matter.

In another instance some heavy shafting that was highly finished was loaded on flatears preparatory for shipment from Pennsylvania to the Pacific Coast. The contract called for the coating of this shafting with linseed oil or an approved material to prevent rusting. The contractor had forgotten to take this step. He offered, however, to cover the
shafting with old tarpaulins. Since the trip would take perhaps three weeks, and since the quality of the finish was vital for proper service, the inspector insisted that the shafting be unloaded, coated as intended, then reloaded.

At all times the inspector should be reasonable. It is seldom possible for a contractor to make every detail absolutely perfect in a large job where hundreds of things have to be done and where many operations are being conducted simultaneously. As stated previously, the inspector must use good judgment, and he should allow for reasonable tolerances when inspecting the work. The required accuracy will depend upon the nature of the work.

The inspector should never fail to protect the owner's interests within the terms of the contract. It is reported that a contractor in a Middle Western state persuaded an inspector to do otherwise, and he gave him a share in the "savings." The job consisted of highway and bridge work. One item was that of timber piling. The contractor drove short pieces of piles a few feet into the ground so that they looked like pile heads. Furthermore, he made the 8-in. concrete pavement 8 in. thick at the edges but 4 or 5 in. thick over the rest of its area. Later on these crooked actions were discovered when the structures and pavement failed. The contractor and the inspector were sent to jail.

The inspector should be just as faithful in his service for the owner as though he were the engineer himself. That is his job. Nevertheless, by the exercise of consideration and good sense by both parties, the relationship between the contractor and the inspector can be reasonably peaceful instead of antagonistic.

13-7. Defective Work. The contract may contain this clause:

All material furnished and all work done which, in the opinion of the Engineer, is not in accordance with the plans and specifications shall be removed immediately, and other material which is satisfactory shall be furnished and other work which is satisfactory shall be done.

On the other hand, it is not always practicable or fair to insist upon complete replacement of work which fails to meet the specifications but is not valueless. Concrete work is a common example of this. The contract may state that test cylinders are to have an ultimate (twenty-eight-day test) compressive strength of 3000 psi. What is to be done if, a month after pouring, the cylinders test 2800 psi? That particular portion is now under many more cubic yards of concrete. To meet such a situation the contract may contain a clause to the effect that a deduction in the contractor's compensation will be made if the tests of the concrete cylinders fail to meet the specified twenty-eight-day strength.

*Anyone who doubts this should try personally to attain perfection under such circumstances.
For example, the contract may specify a reduction of 50 cents for each 1 per cent deficiency times the number of cubic yards of concrete in the portion of the work to which said test was to pertain. The engineer should still specify that he alone has the power to require that repairs, strengthening, or even complete replacement are to be made at the contractor’s expense or that the contractor is to suffer a reduction in payment.

As stated previously, a resident engineer and a staff of inspectors in the field are to see that these requirements are carried out and that everything called for by the contract is actually included.

The inspectors often “check” sizes, dimensions, details, and many other things before the contractor proceeds with individual parts of a job—or during the actual construction operations.

In the foregoing situation, it is not unusual for disputes to arise about who is liable when an error is made in the fieldwork. As stated previously, the contract should make the contractor responsible for his own proper performance. On the other hand, the contractor is not responsible for errors and the use of poor judgment in the engineer’s plans. He is to build what the contractor calls for whether it is good design or not.

Suppose that the contractor inadvertently erected a light 30-in. steel beam where the contract drawings called for a heavy 30-in. one and that he put the heavy one where the light one was supposed to be. No one noticed the error until the heavy equipment was erected in the building and caused excessive deflection of the light beam. The contractor was required to bear the expense of making the changes needed, even though the inspector had accepted the job.

On the other hand, if the engineer’s staff who designed the beams of the preceding case inadvertently labeled them incorrectly on the drawing, the contractor could not be expected to notice the error. As long as he proceeded with the work according to the engineer’s plans, the contractor should not be held blameworthy, and the owner would consequently have to make any necessary repairs or alterations at his own expense.

In actual practice both reputable engineers and reputable contractors try to keep watch for anything that may be wrong or that may cause trouble with the job. The engineer should welcome helpful suggestions from the contractor, and the latter should be grateful for similar suggestions from the engineer. The objective of both parties is to get the job done quickly and well, and, naturally, the contractor also hopes to make a profit thereby.

13-8. Guarantee by the Contractor. Many contracts require the contractor to guarantee that the materials and workmanship of the job will be satisfactory for a year’s time after completion of the contract. By
that time any defects will probably have been discovered, and the contractor will have to make them good or arrange some settlement that is acceptable to the owner.

Sometimes repairs can be made without undue difficulty; at other times they cannot. To illustrate the principles involved, assume that the contractor has erected a large high-speed forced-draft fan that has a direct-connected drive. The motor was not erected in exactly the right alignment, and the equipment did not operate properly. The trouble was discovered a few weeks after the contractor completed the contract. His one-year guarantee would require him to remedy the situation.

In another case, a reinforced-concrete underpass or tunnel for a railroad was built under a new 50-ft embankment. Shortly after the fill was completed the engineer discovered that the structure had cracked. The problem then was to discover the cause. After considerable study and investigation it was proved that the contractor had placed a large amount of fill on one side of the tunnel before placing any fill on the other side, thus causing an unbalance of loads which had distorted and overstressed the structure. Such unbalanced filling was contrary to the terms of the contract. While the engineer believed that the structure would not fail, it was not what the owner paid for, and, therefore, the contractor was held responsible for damages but was not obliged to replace the structure.

To reiterate, the contractor is responsible for his own work and that of his subcontractors. He is to guarantee freedom of the work from defects caused by his performance, but he is not responsible for faulty plans and specifications or for anything that is done under direct orders of the engineer or the owner.

13-9. Performance. When the contractor has done all that the contract requires he is said to have performed his part of the agreement. This is naturally a prerequisite to final acceptance and payment by the owner.

Construction contracts, however, are usually recognized as a class in which strict performance may not be absolutely attainable. If the contractor can show substantial performance of the contract he will rightfully be entitled to payment—in part, at least. Many arguments arise about just where lies the borderline between substantial and unacceptable performance. Fixed rules for determining this matter cannot be set because of the great variety of work conditions, etc., which pertain.

Ordinarily, when one makes a contract to perform stipulated services he is not entitled to compensation until he has performed them. However, the law has made an exception in the case of construction contracts, and it allows the contractor to recover his compensation when he has substantially performed the specified work or services. Perhaps this
policy is affected somewhat by the fact that there is probably no such thing as perfect performance of such contracts within the range of practicability. If the builder has performed in good faith and with the intent of doing what is required of him, even though there may be small defects or omissions, he is entitled to the contract price minus the cost of remedying any such defects or omissions.

A contract may state that the performance is to be satisfactory to the owner, the architect, or the engineer. If the particular subject matter of the contract is something that involves the personal taste, fancy, or judgment of an individual (as in the case of a contract for interior decoration), the contractor is obliged to satisfy that person before becoming entitled to the agreed fee. In construction contracts or those involving fitness for (1) business purposes, (2) mechanical operation, (3) occupancy, and (4) other practical uses, satisfactory performance is generally interpreted to mean performance that should be satisfactory to a "reasonable" man.

13-10. Conduct of Work. Sometimes the owner may issue instructions regarding the conduct of work directly to the contractor even though he should not do so. The engineer is the one who should issue all such instructions. If the owner issues some himself, and especially if the engineer advises the owner that the latter's orders will cause defective work or other trouble, the engineer is not responsible for the unsatisfactory results that ensue from the owner's instructions, and neither is the contractor to blame. In other words, if the owner believes that something in the plans or specifications should be changed, he should confer with the engineer about it, and the latter (if he approves the modification) should then issue the instructions to the contractor.

The contractor's operations should be carried on in a workmanlike manner. The contract ought to require this, and it should require him to expedite the work. He should have a superintendent or other responsible official on duty at all times. The engineer ought to have the power to order that work be speeded up if it is evident that this can and should be done, when an emergency or the obvious best interest of the project requires such action. On the other hand, the engineer must be sure that such action is justified because it may result in overtime work that increases the cost to the contractor, and thus (through extras) to the owner through extra compensation collected therefor by the contractor.

The engineer ought to have the authority to order that the job be expedited when he believes that there is impending danger, e.g., the threat of a flood that may imperil foundation work or a cofferdam. In some cases, if such orders result in extra costs, the contractor may claim extra compensation provided there has been no negligence on his part and provided that he has conducted himself as a prudent and reasonable
man should. However, in most cases of emergency the engineer will be acting in the interest of the contractor as well as of the owner. Remember that the progress and safety of the job are essential. When the contractor does not act to assure both, the engineer must have the right to compel such action. All parties have a real interest in these matters.

Even in emergencies, the engineer should avoid dictating to the contractor exactly how he should do the work. Otherwise, if the efforts to avoid trouble fail, there may be considerable doubt about who is to blame.

The engineer may justifiably recommend and even try to persuade the contractor to do certain things and to conduct the work in what seems to be a desirable manner, but this influencing must be done tactfully and in a spirit of helpfulness. Continual nagging and criticism generally create antagonism, whereas cooperation is the essence of good engineer-contractor relations.

Just as the engineer should not dictate how the work should be done, the contractor should not try to dictate what the work should be. The latter may suggest improvements, but the design is the engineer's responsibility. Nevertheless, many an engineer has received valuable suggestions from the contractor, and vice versa.

Circumstances may develop which make it essential for the owner to take over all or a portion of the work from the contractor and to have the job finished by others or by the contractor's forces. In this connection, note the following clause:

If, in the opinion of the Engineer, the Contractor is or appears to be unable to finish the work, the Owner shall have the right to take over and complete the work as agent of the Contractor. However, the exercise of such right by the Owner shall not release the Contractor or his sureties from any of his or their obligations and liabilities under the Contract or the Performance Bond. The Owner shall also have the right to use or permit the use of any and all plant, materials, and equipment provided by the Contractor for the execution of the work, and the Contractor shall not remove them from the site without the written permission of the Engineer. The Engineer shall determine the cost of all work done by the Owner as agent for the Contractor, shall credit the Owner with the cost thereof, and shall credit the Contractor with the compensation which would have been earned thereby; the difference in actual cost above the contract price shall be payable to the Owner.

13-11. Relations with Other Contractors and Subcontractors. The contract should state whether or not other contractors are to be working on parts of the project at the same time. It should also state that the contractor is to conduct his operations so as to cooperate with all the others and to avoid interference with their work.
The same requirement of cooperation should apply to relations between the contractor and the subcontractors, even though the former is to have control of the latter and is responsible for the conduct and quality of the work of all subcontractors.

Where storage space is required by the general contractor, and by other contractors as well, it is almost essential for the engineer to show on the contract drawings the storage areas and the means of access that are to be allotted to each such contractor. This will avoid argument later. The contractor can then arrange with his subs for their use of part of the space reserved for him.

The division of responsibility should be made clear in advance. Failure to do this causes needless trouble. Of course, it will probably be impossible to delineate everything exactly, but a real attempt should be made along this line. For example, in a contract for a large factory with pile foundations the project might be divided among three contractors as follows:

1. One contract for all foundations, including piling and concrete work below and including the ground floor
2. A second contract for all of the superstructure above the ground floor
3. A third contract for all the mechanical, electrical, and other equipment, including the erection of same

Obviously there will be many duties in which more than one of these contractors will be involved. As far as it can be done practically, the contract papers should clearly allocate the duties of the respective contractors. For example, here are some questions to be settled:

1. Who furnishes and sets the anchor bolts, and when and from whom will information for this work be obtained?
2. Who provides attachments for equipment that is to be connected to the superstructure (including provision of holes for same)?
3. Who grouts column bases and bed plates for machinery?
4. Who provides and erects conduits for electric power and light, and when will the material and necessary data be available?
5. Who provides and installs water-supply lines, sanitary and storm sewers, and other utilities? When will material and data be available for this work?
6. What is to be the order of construction?
7. When is each contractor to begin and to complete his part of the work?

Assume that a contract is to be prepared for the construction of a large mill building. The structural work is to be let to a general contractor,
but the furnishing and erection of the electrical and mechanical equipment is to be awarded to another contractor who is a specialist in such work. The concrete floor, for example, must not be poured by the first contractor until the second one has erected all the conduits, piping, etc., that are to be below or embedded in it. How would you word the contract to prevent the second contractor from delaying the work of the first one as far as this one feature is concerned?

The following is a paraphrased and abbreviated copy of requirements as set forth in a contract for a large bridge:

During the time that the Contractor will be performing the Contract, other persons will be engaged in doing work upon the site or in the immediate vicinity thereof, among them being the following:

1. Under Contract G-1, the John Jones Corporation will perform the work of excavation, filling, and grading in accordance with the information shown on the reference drawings and in conformity with the Specifications for said Contract, which papers may be examined at the office of the Owner.

2. Future contracts will provide for the construction of foundations and superstructures of the east and west approaches to the main bridge, together with that of the connecting roadways.

The Contractor shall therefore plan and conduct his operations so as to work in harmony with all others engaged on the project, and he shall not delay, endanger, or avoidably interfere with the operations of others; he shall at all times maintain a roadway across the area allotted to him for his operations so that others may have access to the work in which they will be engaged; and he shall cooperate with other contractors in whatever is, in the opinion of the Engineer, for the best interests of the Owner and the public.

13-12. Work Done by the Owner. Sometimes there are projects in which the owner is to do part of the work with his own forces or have someone do it under his direct supervision. It is obvious that the contract should clarify any such arrangement and describe in detail the rights and duties of each party.

Work done under the direct orders of the engineer, representing the owner, should be conducted so as to minimize interference with the contractor and his particular part of the operations. These situations may lead to conflict; hence it is proper to let the contractor know that his rights will be protected. Naturally, the contractor himself must cooperate in return.

13-13. Lines and Grades. The contract should be specific in its requirements regarding the establishment of lines and grades for a con-
struction project. This duty usually is assigned to the contractor, but some engineers prefer to have their own field organization perform these duties, thereby keeping direct control of such matters.

Which course is desirable for a particular case depends upon the size of the staff available to the engineer, the character of the job, and the capabilities of the engineer’s men. Of course, whoever does this work assumes the responsibility for its accuracy. In some ways it is best to have the contractor do this surveying as well as the construction part in order to make him responsible for all phases of the work.

When the lines and grades are to be established by the engineer, the contract should state clearly that the contractor is responsible for the preservation of stakes, bench marks, etc., and that he is to conform to all such lines and grades. Furthermore, the contractor should be obligated to cooperate with the engineer’s men in all this work by avoiding interference with them and by conducting his operations so as to permit expediting of their work as much as possible.

In one instance, where the engineer was responsible for lines and grades, his men set the elevation of the bottom of a heavy concrete structure 1 ft too high. It was later found that certain equipment could not be erected between this bottom floor and the next one above it. The owner had to pay the contractor for all the labor, materials, and incidentals involved in the removal of concrete and the rebuilding of part of the bottom of the structure.

If the engineer is to establish lines and grades, the contract should state that the contractor shall give the engineer reasonable advance notice of times and places at which he intends to do work so that the engineer may establish all necessary lines and grades and so that all measurements that are required for payment and record purposes may be made conveniently by the engineer and without delay to the contractor.

Often, although the engineer establishes the controlling lines and grades, it is necessary for the contractor to make many minor and detail measurements for himself. The contract should make this clear so that the contractor can include the cost of such work in his proposal. Of course, the contractor should be made responsible for the accuracy of measurements made by him, even though they have been checked by the engineer.

If the contract states that the contractor is to check all lines and grades or any other dimensions, failure by him to do so is a violation of the contract, and he cannot collect from the owner for any additional costs to himself resulting from said failure.

13-14. Final Inspection and Acceptance. Upon written notice from the contractor to the effect that he believes that he has performed all
of the work required by the contract, the engineer is to inspect the job promptly to see whether all work is satisfactory. Much that has been previously inspected and accepted by him or by his staff need not be re-examined in great detail, but, if something needing correction is discovered in work that was approved earlier, the former acceptance does not prevent the engineer from requiring that it be remedied by the contractor—at the latter’s expense, if he is to blame.

In fact, the final inspection may not disclose hidden defects, and the engineer may not happen to notice something that is incorrect. Ordinarily, the acceptance of the work by the engineer is final unless there is a guarantee of it by the contractor. In this last event, regardless of the approval of the work at the time of the final inspection, the contractor is still bound by any guarantees that he has made for the quality of material and workmanship for the period stated in the contract. Defects that become apparent within the specified time limit are to be made good by the contractor if they are proved to be his responsibility.

If the engineer finds the job to be satisfactory in all respects, or when any deficiencies have been corrected and approved by him, the engineer is to notify the contractor in writing that the latter has performed his part of the contract satisfactorily and that the structure (or whatever the work is) is accepted. The engineer is also to notify the owner in writing to the same effect, and he is to recommend that the owner thereupon make the final payment to the contractor.

The contract should provide for these procedures, and it should state that final payment of the contractor will not be made until the engineer has inspected and approved the completed work and until the owner has accepted it.

Assume that a contractor has built a new building for a merchant. During the final inspection the engineer finds certain work that does not meet the requirements of the contract, and this may entitle the owner to a claim for damages. The owner is eager to occupy the building. If he takes possession at once, will he be prevented thereby from claiming damages for the defective work? The Louisiana courts5 have ruled that “failure of the contractor to construct the building in accordance with the plans and specifications was a violation of the contract, and the taking of possession of the premises by the plaintiff [owner] cannot be considered as a discharge of the defendant’s [contractor’s] liability.” Thus it is clear that proper performance is a part of the contract, the terms of which are not changed by the occupancy of the structure. The owner naturally has the right to forgo the making of possible claims if he wishes to do so, but this is a different matter.

CHAPTER 14

Miscellaneous Contract Clauses

14-1. Definitions. For the sake of clarity and in order to avoid undue repetition in the contract documents, it is advisable to define various terms which will be used therein. Such definitions are to apply whenever the pertinent terminology appears in any of the papers that form a part of the contract. It goes without saying that these definitions should be worded very carefully. The so-called “standard clauses” are useful in this connection.

Here are some illustrative definitions:

1. “Chief Engineer” shall mean the Chief Engineer of the John Doe Corporation, or his successor in duties, acting personally.

2. “Engineer” shall mean the Chief Engineer, acting either personally or through his duly authorized representatives who are acting within the scope of the authority vested in them.

3. “Contract” shall mean the entire agreement between the parties, including this Form of Contract together with the Specifications, the Advertisement, the Information for Bidders, the Contractor’s Proposal (copies of which are bound with or accompany the other data), and the Contract Drawings, all of which aforementioned items are to be a part hereof as though set forth in full herein.

4. “Owner” shall mean the John Doe Corporation.

5. “Contractor” shall mean the individual, corporation, company, firm, or other organization that has contracted to furnish the materials and to perform the work under the Contract.

6. “Work” shall mean all labor, plant, materials, facilities, and all other things that are necessary or proper for or incidental to the construction of ________.

7. “Contract Drawings” shall mean the Contract Drawings listed in the Specifications under the title “Contract Drawings” and shall include any future changes and revisions of said drawings.

8. “Inspector” shall mean any representative of the Engineer designated by the latter to act as inspector within the scope of the authority vested in him. The Engineer, however, may review any decision of an inspector.
9. "Subcontractor" shall mean anyone (other than the Contractor) who performs work at the construction site directly or indirectly for or in behalf of the Contractor other than or in addition to the furnishing of materials, equipment, and plant, but the term "subcontractor" shall not include one who furnishes only his own personal labor or his own personal services.

10. "Permanent structure," and words of like import, shall mean all construction, installation, materials, structures, and equipment that are required to be left by the Contractor at the construction site after the completion of the Contract.

Notice that it is customary to refer to the owner, contractor, engineer, etc., as though each were masculine.

14-2. Notices. All notices, instructions, and information that are sent to the contractor by the engineer should be in writing. It is often necessary to expedite the completion of the work by use of verbal messages given directly in person or by telephone to the contractor, but these should be carefully and promptly confirmed in writing. This procedure avoids many of the arguments and uncertainties that are likely to develop when messages regarding details of certain work are reviewed months later, at which subsequent time the recollections of the parties involved may have dimmed, to say the least. For the same general reasons the contractor should, in turn, also put in writing the communications emanating from his office. In the hurly-burly of activity during a large construction job, both sides are tempted to neglect reducing to writing the various important messages which inevitably are exchanged.

14-3. Incorporation by Reference. Other items besides the contract drawings may be included in the contract by reference. It is very important to state clearly in the contract whatever "outside" drawings, specifications, or other separate data are to be included. This incorporation by reference may apply to building codes, standard specifications of various sorts, reference drawings, and whatever the engineer may deem advisable for a particular contract.

For example, assume that a state highway department has published a very detailed manual containing data and requirements for the construction of highways in the state. A contract for a particular piece of highway construction can refer to this publication and incorporate same as an official part of the contract. This practice ensures uniformity in various highway projects and saves time and effort in the preparation of the contract papers. Contractors throughout the state soon become thoroughly familiar with the contract requirements of the highway department.

14-4. Contractor's Warranties. It may be that a contractor will at some juncture of the relationship contend that he did not understand
a certain portion of the contract, that he did not realize that certain things were to be included in the work, that he did not fully comprehend the local conditions affecting the work, or that he did not realize the difficulties involved in it.

To avoid subsequent claims based upon such considerations as these, it is advisable to place in the contract, under the heading "Contractor's Warranties" or "Contractor's Understanding," a clause or clauses covering some such items as the following:

1. "The Contractor is familiar with all requirements of the Contract." Perhaps this appears to be unnecessary because a contractor would be foolish if he bid on a job with which he did not become sufficiently familiar. However, it affords him no chance to take refuge behind such a lame excuse if trouble arises.

2. "The Contractor has investigated the site and satisfied himself regarding the character of the work and local conditions that may affect it or its performance." Again, this is a safeguard and a warning.

3. "The Contractor is satisfied that the work can be performed and completed as required in the Contract." In other words, if something seems to be wrong or impossible of performance, it should be brought to the engineer's attention by the contractor before he signs the contract rather than afterward.

4. "The Contractor accepts all risk directly or indirectly connected with the performance of the Contract." This is stated primarily for emphasis.

5. "The Contractor warrants that there has been no collusion." By this is meant collusion with other contractors, with any of the engineer's men, or with any other persons in preparing the bid.

6. "The Contractor warrants that he has not been influenced by any statement or promise of the Owner or the Engineer but only by the contract documents." This means getting special data from the engineer's staff or anyone else regarding the work and its requirements, obtaining assurances from the engineer or the owner that certain favors will be granted to him, or any other unethical act.

Some other statements that are sometimes required of the Contractor are the following:

1. "The Contractor is financially solvent."
2. "The Contractor is experienced and competent to perform the Contract."
3. "The statements in the Proposal are true."
4. "The Contractor is qualified and authorized to do work in the state." This will be discussed in Art. 14-7.
5. "The Contractor is familiar with all general and special laws, ordinances, and regulations that may affect the work, its performance, or those persons employed therein." These matters are especially important for out-of-state and even out-of-city contractors to investigate.

6. "The Contractor is familiar with tax and labor regulations and with rates of pay that will affect the work." Again, this warns "foreign" contractors. On large jobs it is desirable to publish in the contract any special data regarding wage rates that the out-of-town contractor may not be able to learn readily. In subaqueous tunneling, for example, the state regulations and wage rates for compressed-air work should be quoted, or at least referred to.

14-5. Order of Completion. It is essential that the contract state specifically any requirements there may be regarding the sequence of construction and the order of completion. This is particularly important for large projects that involve various structures or parts, and especially when two or more contractors may be working simultaneously or in relays. Such information not only obligates the contractor to cooperate with the others but also gives him the opportunity to plan his work more intelligently and to allow in his bid for the extra costs to him that may be entailed because of the operations of the other contractors or by reason of the stipulated order of completion.

The following case is an example of a specified order of completion of work. A contract for the steelwork of a large industrial plant involved several buildings and was let directly to a steel fabricator. The general excavation, concrete work, roofing, and siding for all structures were to be done under another contract. Both contracts stated that the foundations, steel framing, roofing, and siding of one of the major buildings were to be completed by a specified date so that the difficult work of constructing concrete foundations for machines, erecting machinery, and installing electrical equipment in this building could be accomplished under shelter during the winter.

The engineer must be careful when he sets up any such schedule of time and order of completion of the structures. He should be sure that these requirements can be met by the contractors and that these stipulations will not cause unjustified additional expense to the owner through high bids that the contractors are obliged to make in order to execute the terms of the contract without operating at a loss.

The contract should also make clear the responsibilities of the various parties in any case where more than one contractor is involved. For example, such questions as the following should be anticipated and answered in the contract documents:
1. Who is to maintain the service of utilities?
2. Who is to be responsible for the maintenance of traffic and access, and for how long?
3. Who is to be responsible for the protection of the public, the property itself, and adjacent properties?
4. If part of the project is to be put to use before completion of the entire project, who is to be responsible for providing it?
5. If various articles of equipment are to be furnished under separate contracts, who erects them, who provides their supports, and who is responsible for their protection?

Although the engineer is not responsible for the contractor's operations, he is very much concerned with the efficient handling of the work. He may properly demand that the contractor prepare in advance an outline of his program showing his contemplated sequence of operations. The engineer may also require that the contractor prepare a schedule of his proposed progress so that the engineer can determine whether or not the contractor's plans appear to be adequate. The engineer can then use this schedule of operations later on to see whether the work is progressing satisfactorily. A clause such as the following requiring this schedule may therefore be inserted in the contract:

Within two weeks after the signing of the Contract the Contractor shall submit for the approval of the Engineer six (6) black-and-white prints of his proposed construction schedule. This is to show graphically the date on which he expects to start and to complete the various major portions of the project. This schedule is to be so prepared that the actual progress of the Work can be recorded and compared with the intended progress. On the first and the fifteenth of each month, and until the project is completed, the Contractor shall deliver to the Engineer three (3) blueprints of the construction schedule with the progress to date shown thereon.

If no time for commencement or completion of the work is specified, a reasonable time is to be implied. In other words, the contractor is to begin his work without unwarranted delay, and he is to conduct it with diligence. When there is no important reason to set a deadline for completion, the contract might properly state that the "Contractor shall expedite completion of the work, and he shall conduct his operations in a workmanlike and efficient manner." This applies to contracts for engineering services as well as those for construction, as shown in the following court statement: 1

An engineer is engaged to make plans for a project. If the time for their completion is not stipulated, a *reasonable* time for this work is implied. If the agreement states that the plans are to be completed as the Owner may direct, the engineer is entitled to a reasonable time after receipt of such directions. Naturally, delays caused by the Owner are to be considered in determining what is a reasonable time. Where both parties cause delays, someone has to decide how any resultant expenses are to be apportioned between them.

14-6. Land. Ordinarily it is the duty of the owner to acquire whatever real property is needed, not only for the site itself but also for use during construction. It may be that land has to be rented for storage and working space, that an easement has to be secured to provide access, or that a permanent right of way must be purchased. All these land interests are to be secured by the owner in advance so that proper information can be given to the bidders before they submit their proposals. It would obviously be unfair to make the contractor responsible for these things, and such an arrangement would probably be more costly to the owner in the long run.

On the other hand, various facilities may have to be provided by the contractor (perhaps on a cost-plus basis) or furnished by the owner. The contract should be very specific in all such matters. Some of the typical facilities and questions regarding them are the following:

1. Who is to provide power, and how is it to be done?
2. What sort of access roadway is necessary, and who builds it?
3. Is a spur track for railroad access needed? Who builds it, and where is it to be?
4. What facilities are to be available for storage? Who provides them?
5. What facilities are available for the contractor's and engineer's offices? Who provides them?
6. Who provides utilities for these offices, and what utilities will be necessary?
7. What facilities are needed for the maintenance of traffic or service, and who builds and maintains them?

14-7. Permits and Licenses. It is generally the duty of the owner to secure any building permit that is required for the construction of his project. He should also obtain any other permits that are necessary, e.g., a permit to close a street temporarily while some particularly dangerous work is being done, a permit to truck heavy steelwork through the streets, a permit to move an existing house to a new location, and a permit temporarily to shut off certain utilities when they have to be relocated. The contract should make these responsibilities clear.
Fig. 14-1. Illustration of Contractor’s Proposed Construction Schedule (Based on Signing of Contract Not Later than Oct. 15, 1955)

<table>
<thead>
<tr>
<th>Year</th>
<th>1955</th>
<th>1956</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Clearing site</td>
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<tr>
<td>Excavation</td>
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<tr>
<td>Pile driving</td>
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<tr>
<td>Concrete foundations</td>
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<tr>
<td>Structural steel</td>
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<tr>
<td>Roof construction</td>
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<tr>
<td>Walls</td>
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<tr>
<td>Interior details</td>
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<tr>
<td>Machinery foundations</td>
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<tr>
<td>Heating and utilities</td>
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<tr>
<td>Office building</td>
<td></td>
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</tr>
<tr>
<td>Change house</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grading and landscaping</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The preceding statements apply to things required by the contract and procedures that are specified by the owner. On the other hand, the contractor has to obtain any necessary permits to do things that he elects to do in order to facilitate his own work. To illustrate this, assume that the contractor prefers to deliver heavy steelwork by boat instead of by railroad. It is then his duty to obtain any necessary permit. Again, if he wishes to build temporary piers for the erection of a bridge and to place them within prescribed governmental channel limits, it is the contractor who should secure permission to do so.

In other words, the owner should make the necessary preparations and secure the required permits for operations that he specifies. He should not require the contractor to do anything that the latter may not be permitted to do. However, arrangements for procedures that the contractor chooses to do in order to complete the work to his own best advantage are to be made by him.

It may happen that a contract inadvertently contains a clause that directs or permits the contractor to do something that is contrary to the applicable building code or some other laws. It is the engineer's responsibility to avoid such conflicts. The contractor, in bidding, is entitled to assume that he is to bid upon the contract as it is. If later events reveal that some change must be made to meet legal requirements, the contractor may justly claim extra compensation for any additional costs to him because of said change.

Some states require that a contractor—and sometimes even a subcontractor—must have a license issued by that state in order to do any work within the state's boundaries. If so, it is desirable that this fact be stated in the contract so that unqualified contractors will not waste their time and money in preparing a bid on the project or so that they can take immediate steps to obtain the necessary license.\(^8\)

Technically, the same rule is likely to apply to an individual engineer acting privately or in responsible charge of work—perhaps he cannot collect payment for services performed without a license.

14-8. Labor Laws. To be investigated also are federal and local laws regarding eligibility for and conditions affecting employment. Just what are the requirements and limitations affecting whom one can hire and under what conditions? Must the job be closed shop or can it be open shop? What personnel can be brought in, and what must be obtained locally? What are the working hours and the wage rates that

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\(^8\) Any contractor who attempts to perform work without the required license may find that he cannot collect for any work done by him within the state. If so, the bidders should be warned.
have to be met? Answers to these questions should be found by the engineer, and he should give the bidders all the essential data so that they can make their proposals accordingly.

For example, the following are parts of contract clauses relating to some of the preceding matters:

No person under sixteen (16) years of age and no convict labor shall be employed by the Contractor in the prosecution of the work.

All labor except major supervisory personnel shall be residents of the State of New York.

The Contractor shall not employ for the work any person whose age or physical condition renders his employment dangerous to his health or safety, or to the health or safety of others. However, this provision shall not be construed to prevent the employment of physically handicapped persons who may be employed for work which they are able to perform satisfactorily.

All employees engaged in the work under this Contract shall have the right to organize and bargain collectively through representatives chosen freely by them. Furthermore, no employee shall be required to join any union or to refrain from joining any union or labor organization of his own choosing.

The Contractor shall not accept more than eight hours as a day's work to be performed within nine (9) consecutive hours, and he shall not employ any person or persons for more than eight (8) hours in twenty-four consecutive hours, except in case of necessity, in which case the pay of employees for time in excess of said eight (8) hours shall be at the rate of time and one-half.

14-9. Underpinning. There are likely to be varying requirements in municipal ordinances or state laws regarding the procedure and responsibility for underpinning a structure whose safety is likely to be imperiled by the contractor's operations. It seems to be just and proper in any event, if there are no regulations to the contrary, to make the owner of a projected structure responsible for the safety and support of his neighbor's building, and sometimes of the adjacent land, when the new construction is to be of such a nature that the foundations of existing structures will be endangered.

Underpinning of a building is both difficult and costly. If not done well, uneven settlement and cracking of the structure may result, causing the affected property owner to make claims for damages against the owner of the building under construction. The engineer should investigate the entire problem carefully. He should consult the affected property owner and obtain the latter's consent to the general program for underpinning. In fairness to the adjacent landlord, the owner should agree to restore the neighboring structure to its original conditions as far as its safety, usefulness, and sales value are concerned. If alterations
of the neighboring structure are necessary over and above the actual work of extending the present foundations to lower depths, all these matters should be worked out to the satisfaction of both parties, and the materials and work regarding such alterations should be shown clearly in the contract. Occasionally this underpinning and the alterations necessitated by it can best be handled as a separate contract, being paid for by the owner of the new structure. Contractors are generally reluctant to make a lump-sum proposal on this kind of work because of the uncertainties accompanying it. The owner should realize this and should be willing to pay the bill, or else he should have the engineer make the design of the new structure such that danger to the neighbor's property can certainly be avoided.

It is obvious that any separate contract relating to underpinning should be carefully prepared. The engineer may show the character of the underpinning to be done, then require the contractor to attain these results. The latter, in presenting his proposal, either agrees outright that the indicated work can be accomplished or proposes modifications of his own. Or the engineer may ask for proposals in which the contractor is to present both the design of the underpinning to be done and his estimate of the cost. Because of the uncertainties involved in underpinning work it is advisable to make the contract for such operations on a cost-plus-fixed-fee basis. The contractor is generally responsible for proper execution of the work, but there may be exceptional instances where the engineer (and therefore the owner) will have to design something very special and will have to assume the responsibility for its proper functioning.

To avoid unjust claims that may be made by his neighbor, the owner might well have a third party make a careful survey of the condition of the neighbor's property before work is started and after work has been completed. For use in any subsequent litigation, extensive photographs taken in advance of the performance of any work may be the best proof of the structure's original condition.

The engineering side of the underpinning of structures is thus only one part of the contractual problem that faces the engineer. Neglect of proper precautions against claims and legal entanglements can lead to serious trouble.

14-10. Order and Discipline. The contractor should be made responsible for the maintenance of order and discipline during the performance of the contract. This is true primarily in regard to the supervision of his own men, but it should include also all others who are employed on the job.

In this connection it may be essential that the contract forbid the storage and the use of intoxicating liquors on the job. This removes one
source of possible difficulty, and it may aid the contractor in his policing of the work.

For example, the following clause has been designed to stipulate some of these requirements:

In the performance of this Contract, the Contractor shall exercise every precaution to prevent injury to persons or property; he shall erect such barricades, signs, and lights as the Engineer believes to be suitable; he shall adopt and enforce such rules and regulations as may be necessary, desirable, or proper to safeguard the public, all persons engaged in the work and its supervision, and all traffic on adjacent streets; and he shall be responsible for the maintenance of discipline throughout the conduct of the work.

14-11. Miscellaneous. It is impossible to list here all the items that should be included in a particular contract because of the great diversity of work involved. However, some of the other points that have not thus far been discussed in this chapter (or covered in the preceding ones) are mentioned below as a reminder.

Employment. Hiring of the owner's or engineer's employees by the contractor for his own force should be prohibited. This contract provision is intended to prevent the contractor from depleting the owner's and the engineer's staffs.

Emergencies. The conditions requiring overtime work and the meeting of emergencies should be specifically stated. Overtime-work requirements do not usually apply to supervisory, administrative, clerical, and other workers who are not engaged in manual work.

Minimum-wage Rates. In public work it may be necessary to publish the legal requirements. If the rates are stated, it also helps to put all bidders on the same basis in estimating the cost of the work.

Domestic versus Foreign Materials and Labor. Public works may require restrictions regarding the use of both foreign materials and foreign labor.

Construction Reports. This is to control the periodic reports that the engineer may require of the contractor, e.g., monthly estimates of quantities of materials furnished and work done, progress reports showing the percentage of completion of various portions of the work, and the status of materials that are in the process of manufacture.

Payrolls and Bills for Materials. The engineer may require that a copy of the payrolls of the contractor and of all subcontractors, together with bills of materials, be made available to him in the case of cost-plus work, extras, etc.

Patents. Specifying the use of patented devices or materials may be undesirable because their use restricts competition. If such devices or
materials are needed, however, the contract should state who is to pay for the royalties or licenses and who is to secure permission to use these devices and materials.

*Schedule of Securities.* This is generally a tabulation giving the names, quantities, and market values of any securities that are posted by the contractor in lieu of a bond or for any other purpose.4

*Guarantee.* If a guarantee of the work or the operation of equipment is to be required, the details should be clearly stated in the contract. The contractor may be obliged to keep machinery and other mechanical equipment, electrical work, power-generating plants, and hydraulic structures in repair and in good operating condition for a year or some other specified time.

*Dredging.* This may require special instructions as regards sequence, periods of work, maintenance of traffic, and the handling of obstructions and of any unforeseen difficulties which may arise. Governmental permits to do such work should be secured by the owner unless the dredging is purely for the contractor's convenience, in which case the latter will seek the necessary permission.

*Borings.* Additional explorations of foundation conditions may be required on the part of the contractor, especially in the case of unit-price and cost-plus contracts. If so, the engineer should have the right to determine the extent thereof and to approve or reject the contractor's plans for such work. The method of payment for work of this character should preferably be specified on a cost-plus basis or as a specified amount per foot of depth, per soil sample taken, and per test made.

*Spare Parts.* These may be needed in the case of electrical and mechanical equipment, and detailed requirements therefor should be given in the contract.

*Tests.* Tests of materials and of mechanisms should, if required at all, be fully described in the contract papers.

*Medical Facilities.* The contractor should be required to provide at the site of any sizable construction job medical facilities that are sufficient for administering first aid, and he should have the means available for removing disabled persons to a hospital.

4 Usually these securities are deposited temporarily with the owner.
15-1. Significance of a Proposal. A *proposal* is an offer made by the bidder to the owner in which the former states that he will furnish all materials and perform all work required by the contract documents issued by the latter and that he will do so for the remuneration stated in said proposal. Furthermore, the proposal should be a promise by the bidder stating that he will sign the contract if his proposal is accepted. Thus, if the wording of the form has been properly prepared, the owner's acceptance of a proposal automatically binds the bidder to execute the contract. Ordinarily, a proposal is to be effective until it is rejected by the owner.

Notice that the proposal and its acceptance contain the essential elements of a contract.

1. There is an agreement ("a meeting of the minds").
2. The agreement is made between competent parties.
3. The agreement concerns specific subject matter.
4. The parties promise to do certain lawful things.
5. There is a proper consideration.

It is obvious that the preparation of a proposal by a contractor is a very important matter for him. If his estimates are poorly made and if his judgment regarding the character, scope, and working conditions is unwise, he may suffer serious consequences. Therefore, it takes time and costs money for a bidder to prepare a firm and proper proposal.

Although the owner, once he decides to go ahead with the job, wants everything done with maximum speed, even to the preparation of the bidder's proposals and the letting of the contract, it is very unwise for the engineer to be unrealistic in setting the date for the receipt of proposals. He should allow adequate time for the prospective contractors to study the job properly and to make suitably accurate estimates of the
cost. Too brief a time for preparatory work will probably cause the bidders to increase their quotations in order to cover possible expenses which they have not had time to estimate. The result is a higher cost to the owner.

15-2. Purpose of Proposal Forms. In construction contracts it is practically essential to have a printed proposal form, prepared or selected by the engineer, in order to be sure that all bids are made upon the same basis. This will avoid uncertainties regarding just what a bidder proposes to do, and it will aid the engineer in comparing various proposals. Without such specific information in the picture and in printed form, errors, misunderstandings, arguments, and even lawsuits may result.

The completed proposal form, signed by the bidder, is usually and preferably incorporated in the pamphlet that contains the written portions of the contract documents, although, on occasion, the proposal may be kept separate.

15-3. Standard Proposal Forms. Since the use of proposal forms is intended to put all proposals on the same basis for the engineer's comparison of the bids, it is essential that such forms be composed very carefully. This is an important matter for the engineer, and normally he should consult a lawyer for guidance and assistance in their preparation. Some engineering offices have therefore developed standard proposal forms for use whenever they are suitable. If necessary, various items in the form are to be modified in accordance with the needs of any special situation. Standard proposal forms are most widely used in the case of contracts for services and for the purchase of materials, machinery, and some kinds of equipment. For example, a manufacturer may prepare standard forms for the sale of its trucks. However, except for lump-sum contracts, large construction projects are likely to involve so many special kinds of work that it is difficult (or even impractical) to set up a standard proposal form for such contracts. Furthermore, the proposal form from a previous contract should be examined carefully before it is copied, this examination being necessary in order to avoid the inclusion of erroneous or irrelevant material and the omission of data essential to the new contract.

15-4. Special Forms. It is obvious that the proposal form will vary with the type of contract, the character of the work to be done, the materials to be furnished, and a host of special conditions that apply to each case. Therefore, the preparation of the form will usually require considerable original composition.

In any such creative writing the author should have some competent person check his composition. It is also desirable for the author to set
aside what he has written for a few days, then to examine it carefully. It is surprising how many times one will thus discover something that he has misstated or overlooked.

In the preparation of special proposal forms it may be practicable to use parts from some previous contract, incorporating them with whatever new material is necessary, or to use the forms from former contracts as a general guide. However, this "shears and paste-pot" method is likely to be hazardous, since one is likely to read into some previously prepared writing something that is not there, in order to make such writing conform to what he has in mind at the present. Slight differences or shades of meaning may go unnoticed. There may be possible interpretations of the previously written material that are far from what the present writer intends. One may also find that it is difficult to coordinate the new material with the old and to obtain similar style in the writing.

Before preparing a proposal form it is obvious that the engineer must determine the type of contract most suitable for the particular job to be done, i.e., lump-sum, unit-price, cost-plus-fixed-fee, or cost-plus-percentage contract.

15-5. Proposal Forms for Lump-sum Contracts. A lump-sum contract is a relatively simple category as far as the pertinent form of proposal is concerned. The latter is primarily a statement to be signed by the bidder that he proposes to complete the prescribed work for the sum of money stipulated by him directly on the form. Just how much more is to be covered will vary considerably with the details of the project, with the personal opinions of the author, and with the requirements of law and custom. Of course, the proposal must be clearly tied in with the drawings, specifications, and other contract documents.

The following is intended to be an illustration of a proposal form for a lump-sum contract for a municipal improvement:

CITY OF X-Y-Z, NEW YORK

WAYNE AVENUE BRIDGE

PROPOSAL

INSTRUCTIONS

Parties submitting proposals should be very careful to follow all the requirements in connection therewith.

The amount of the proposal should be written in full and then repeated legibly in figures in the space provided below.

If a check is submitted with the proposal, it must be certified;
if a bid bond is submitted, it must be approved by the Comptroller and the Corporation Counsel.

Any proposal not complying with all these requirements may be rejected and declared informal.

DEPARTMENT OF PUBLIC WORKS
ROOM 10, MUNICIPAL BUILDING

Sept. 20, 1957

PROPOSAL FORM

To the Commissioner of Public Works:

The undersigned hereby proposes to furnish all the labor and materials necessary in connection with the performance of the following named work or improvement:

FOR THE CONSTRUCTION OF A BRIDGE OVER UNCAS RIVER AT WAYNE AVENUE for the sum of __________________________ ($________________________)

and to receive in payment therefor such vouchers on the City Treasurer as the laws and regulations of the City provide.

I hereby declare that I have carefully examined the plans, specifications, and contract papers on file in the office of the Commissioner of Public Works of X-Y-Z, New York; that I will provide all necessary tools and apparatus, do all of the work, furnish all of the materials, and do everything required to perform the above-mentioned work or improvement in strict accordance with the plans, specifications, and contract papers.

Accompanying this proposal is a certified check for twenty thousand dollars ($20,000.00), which shall become the property of the City of X-Y-Z, New York, if the undersigned shall fail to execute a contract with, and give bond to, said city, within seven (7) days after the date of a written notice by the Commissioner of Public Works of the City of X-Y-Z, New York, stating that this proposal has been accepted by the Commissioner of Public Works and that said Commissioner is ready to have the said contract signed.

Promptly after signing of the contract I promise to present to the Commissioner of Public Works of the City of X-Y-Z, New York, a surety company performance bond in the penal sum of twenty-five (25%) percent of the amount of this proposal, in conformity with Article 125 of the contract documents.

I further declare that no officer or employee of the City of X-Y-Z, New York, is or has been directly or indirectly interested in this proposal nor in the labor or materials to which it relates nor in any portion of the profits thereof; that said proposal is made and contract will be executed without collusion with any other person or persons pre-
senting any proposal for the said labor and materials; and that said proposal is in all respects fair and just.

Address

It might be entirely satisfactory to replace the paragraphs dealing with (1) the examination of data, (2) the certified check, (3) the performance bond, and (4) the statements with reference to city employees by a single paragraph that automatically ties the proposal to the remainder of the contract documents (in which such data and instructions are given). This paragraph might be as follows:

The Instructions for Bidders, and all papers and things required by it, by the Form of Contract, by the Specifications, by the Drawings, and by any papers made a part thereof, are a part of this Proposal.

In general, the proposal for a lump-sum contract is a signed statement by the bidder to the effect that he will do the desired work for a specific sum. Notice that the amount is to be recorded in writing as well as in figures. In case of any discrepancy between the two, the written sum is considered to represent the correct bid.

15-6. Proposal Forms for Unit-price Contracts. In the case of unit-price contracts, a schedule of items is to be prepared, together with a list of estimated quantities for each item. Such data may be incorporated as part of the proposal form or may be located in a separate schedule to which reference is made in the form itself. The bidder is to insert in the schedule (1) each bid unit price, (2) each bid unit price times the applicable estimated quantity, and (3) the total of such products. The bidder is to date and sign the proposal form and to provide whatever additional data are required.

The form is similar to that for a lump-sum contract, except for the schedule of prices in lieu of simply a total sum. The aggregate of these estimated quantities times the pertinent unit prices is treated as a lump-sum bid in determining the bid price. Actual payment will be made by applying the bid unit prices to the computed quantity of each item actually furnished or performed. The computation of quantities is usually made by both the contractor and the engineer, and both parties are generally to agree on the correct figures to be used in computing the payment due. If the parties cannot agree upon the quantities, it may be necessary to have an independent calculation made or to resort to arbitration or other means available for settling disputes.

The following illustrates a proposal form for a unit-price type of contract:
TO THE A-B-C CONCRETE PRODUCTS CORPORATION:

The undersigned* hereby offers to enter into a Contract with the A-B-C Concrete Products Corporation in accordance with the attached form entitled "Form of Contract." The prices inserted by the undersigned in the clause of said Form of Contract entitled "Schedule of Prices for Classified Work" forms a part of this Proposal.

The undersigned hereby makes each and every representation and warranty required to be made by the bidders in said Form of Contract and agrees that the acceptance of this Proposal shall have the effect provided in the Information for Bidders bound herewith, and that effect only.

The Information for Bidders, all papers required by it and submitted herewith, and the Form of Contract and all papers made a part thereof by its terms, are made a part of this Proposal.

The undersigned hereby designates Number ______ Street, City of ______, State of ______, as his office to which notices may be delivered or mailed.

The undersigned further agrees to comply with all requirements about conditions of employment to be observed and minimum wage rates to be paid under the Contract.

Dated, ___________________ 19___

By†

________________________________________

________________________________________

In order to make certain that a proposal signed by an officer of a corporation will properly bind the corporation, it may be desirable to insert in the proposal form a paragraph somewhat as follows:

CERTIFICATE OF AUTHORITY, IF BIDDER IS A CORPORATION

I, the undersigned, as Secretary of the corporation submitting the foregoing Proposal, hereby certify that, under and pursuant to the bylaws

* Insert the bidder's name. If the bidder is a corporation, give the state in which incorporated, using the phrase "a corporation organized under the laws of . . . ." If the bidder is a partnership, give the names of all partners, using also the phrase "copartners doing business under the firm name of . . . . " If the bidder is an individual using a trade name, give the individual's name, using also the phrase "an individual doing business under the trade name of . . . . ."

† If the proposal is signed by an officer or agent, give his title and address.
and resolutions of said corporation, each officer who has signed said Proposal on behalf of the corporation is fully and completely authorized so to do.

(SEAL)

Notice that the schedule of prices is to be included in the form of contract for a unit-price contract. The details in regard to this vary. In one contract for a portion of the New Jersey approach to the Lincoln Tunnel at New York City, there were fifty-four classified items. Many of them contained detailed descriptions which were necessarily lengthy and which had to be prepared with great care.

Detailed instructions should be given regarding each item. Some typical descriptions of items might be as follows:

**PRICES AND PAYMENTS**

*Schedule of Prices for Classified Work*

The following Schedule does not constitute a complete outline of the work to be performed by the Contractor in accordance with the requirements of the Contract Drawings and Specifications in their present form but is merely a list of the items of work to which unit prices are to be applied in computing the Contractor’s compensation. It contains all such items, and the compensation computed therefrom is to be the full compensation for all work and materials whatsoever required by the Contract Drawings and Specifications in their present form, whether or not indicated on said Schedule or pertaining to the items of work shown thereon.

The quantities shown in the following schedule are estimated quantities and are given solely for the purpose of facilitating the comparison of Proposals. The Owner shall not be held responsible if the stated quantities are not even approximately correct. All computations of the Contractor’s compensation shall be based upon the quantities of work actually performed, whether greater or less than the estimated quantities.

In case of discrepancy between the prices stated in writing and those stated in figures, the writing shall control.

In computing the Contractor’s compensation, none of the prices stated in the Schedule of Prices for Classified Work will be applied to any work except that expressly provided therein. Furthermore, in all cases where prices are quoted upon materials, they will be applied only to materials installed by the Contractor and forming a part of the permanent construction.
### Art. 15-6  PROPOSAL FORMS FOR UNIT-PRICE CONTRACTS

#### SCHEDULE

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Estimated quantities</th>
<th>Items of work with prices written</th>
<th>Figures Prices Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7,500 cu yd</td>
<td>ROCK EXCAVATION, PER CUBIC YARD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$----------------- -----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$----------------- -----------------</td>
<td></td>
</tr>
</tbody>
</table>

Whenever payment lines for rock excavation are shown on the Contract Drawings, the above unit price will be applied to the volume of rock between the surface of the rock and such payment lines, whether such volume of rock is greater or less than the volume of rock actually excavated.

In cases where the Engineer hereafter orders rock excavation in addition to that required by the Contract Drawings and Specifications, the above unit price will be applied only to the volume of rock between the surface of rock and payment lines established six (6) inches outside of and parallel to the net lines established for such additional excavation, whether such volume of rock is greater or less than the volume of rock actually excavated.

As used herein, "surface of rock" denotes the surface of rock exposed after excavation of the earth above the rock has been completed, and "rock" means any solid material which normally cannot be removed by hand or mechanical means and the removal of which would normally require both drilling and blasting.

<table>
<thead>
<tr>
<th>2</th>
<th>20,000 cu yd</th>
<th>EARTH EXCAVATION, PER CUBIC YARD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$----------------- -----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>$----------------- -----------------</td>
<td></td>
</tr>
</tbody>
</table>

Whenever payment lines for earth excavation are shown on the Contract Drawings, the above unit price will be applied to the volume of earth between the surface of the ground and such payment lines, whether such volume of earth is
greater or less than the volume of earth actually excavated.

In cases where the Engineer hereafter orders earth excavation in addition to that required by the Contract Drawings and Specifications, the above unit price will be applied only to the volume of earth between the surface of the ground and the net lines established for such additional excavation, even though a greater volume is actually excavated.

As used herein, "surface of the ground" denotes the natural top surface of the earth prior to the commencement of excavation operations, and "earth" means all materials lying below the surface of the ground other than "rock" as defined in Item 1.

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Estimated quantities</th>
<th>Items of work with prices written</th>
<th>Figures Prices Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>12,500 cu yd</td>
<td>CONCRETE, PER CUBIC YARD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>________________________________</td>
<td>Dollars</td>
</tr>
<tr>
<td></td>
<td></td>
<td>________________________________</td>
<td>Cents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The above unit price will be applied to the volume computed from the Contract Drawings in accordance with the lines of the structure and/or the payment lines for concrete shown thereon. No deductions will be made for reinforcing bars or any rock left projecting within the payment lines, but deductions will be made for the volume of imbedded pipes, ducts, and conduits two (2) inches or more in diameter.</td>
<td></td>
</tr>
</tbody>
</table>

| 10       | 9,600 sq yd          | CONCRETE BASE (FOR PAVEMENT), ON SUBGRADE, PER SQUARE YARD |                       |
|          |                      | ________________________________ | Dollars               |
|          |                      | ________________________________ | Cents                 |
|          |                      | In applying the above unit price, no deductions will be made for the surface area of manholes, catch basins, or other similar structures. |
The above unit price will be applied to the weight of reinforcing bars (computed from the bar lists on the approved working drawings) used in connection with the materials to which the unit prices quoted under Items 3, 7, 8, 9, 10, and 11 are applied. It will be applied in addition to such prices but will not be applied to any other reinforcing bars, nor to the weight of form ties, spacers, chairs, clips, wires, or other devices for holding and supporting the reinforcement or forms.

The preceding material is given in considerable detail in order to illustrate the nature of the information which may be required to describe and to limit the work to which each bid item applies. After issuance and signing of the contract, these statements cannot be changed.

It is entirely practicable to have some item or items of a unit-price contract bid as an individual lump sum. Some examples of such things are clearing and grubbing of the site, cleaning up and landscaping after other work is finished, interior decorating, and installation of a septic tank and tile field for a new house. It is difficult to devise satisfactory units of measurement for work which has a large variety of elements. Any selected payment items are likely to be either too general or too excessively detailed. However, contractors who engage in such work can usually estimate its total cost fairly well. In such cases, the lump-sum bid on the item stands as a final figure for all the work involved in performing whatever is called for by that item.

The reader should remember that the list of unit prices seldom includes absolutely everything that is to be done or furnished under the contract. Many miscellaneous jobs have to be done by the contractor; he is supposed to be paid for them indirectly, as will be explained in Art. 15-10. Payment to the contractor will be made only upon the basis of the stated items, the bid unit prices, and the quantities as finally approved.

The engineer should be very careful to see that his choice of payment items for inclusion in a unit-price contract is fair to all concerned and is a wise choice. The items should be definite, readily measurable, of customary type, and of sufficient scope to cover the greatest practicable portion of all the work that is required. There should be no attempt to
deceive the bidder, and, by the same token, there should be no opportunity provided for the contractor to cause loss to the owner through misapplication of the unit prices.

It is obvious that a bidder will need a great deal of information before he dares hazard a firm bid upon any major contract. If the data given in the contract papers and on the drawings are not clear, definite, and sufficiently comprehensive, the bidder will be unable to estimate the cost properly. Therefore, he will endeavor to protect himself against the uncertainties by increasing his bid price. This, of course, means that the owner will be paying more, even though he may not realize this. Furthermore, uncertainty of information increases the likelihood of subsequent disputes between the contractor and the engineer, with the owner frequently being the one to suffer.

15-7. Proposal Forms for Cost-plus Contracts. The preparation of the proposal form for either a cost-plus-percentage or a cost-plus-fixed-fee contract is substantially similar to that for a lump-sum contract. The completed proposal is to show the bidder's idea of proper compensation either as a specific percentage or as a lump-sum figure. The form is supposed to make clear the details of the agreement by whatever statements are necessary or desirable, and it should clarify just what the owner is to do, e.g., furnish all labor, equipment, material, transportation, and power. When the bidder signs the form with all necessary data recorded thereon, he has executed a proposal.

Naturally, the contract documents that by reference are made a part of the proposal are to contain details essential to the job. Such documents should clearly show what the contractor is to provide in return for his fee.

The contract papers in connection with an engineer's services in supervising a construction job or in making a design for a structure may be so short and condensed that no separate proposal form is needed, and the signing of the contract itself suffices.

The final compensation of the contractor is his previously stipulated figure when the contract is a cost-plus-fixed-fee contract, or it is the agreed percentage of the final cost when the job is a cost-plus-percentage contract.

For the latter type, the engineer should be very careful to state specifically what will be included in the cost of the project. Land, easements, taxes, insurance, housing, and the salaries of the owner's supervisory and engineering force—these are items for which cost responsibility should be clarified. The foregoing costs are more than likely to be excluded from the list of costs to which the agreed percentage is to be applied.

In a cost-plus contract, it is important to specify what the contractor is
to do, the staff that he is to provide, the length of time that he is to be in charge, the nature and extent of his authority, and the point at which his services are to terminate.

15-8. Preparation of Bid on Cost-plus Contract. Many engineers go into the contracting business, and all engineers should understand what the bidder does in arriving at the figures he puts in his proposal. Therefore, this article and the next two will digress in order to illustrate the procedures involved. An understanding of such will enable the reader to attain a better result when he prepares contract papers.

The determination of a proper fee or percentage for a cost-plus contract is largely a matter of judgment on the part of the contractor and the engineer. They have to consider the particular problems that have to be met. These are so special in many cases that it is impractical to attempt to state general rules to govern the proper extent of the contractor's compensation. However, in emergency jobs for the federal government, it is probable that precedents have been established which will afford a worthwhile guide. In some instances there may be laws or "recommended fees" that govern the compensation, especially when payment is to be figured as a percentage of the cost of construction or of the purchase price.

Large private organizations sometimes have a particular contractor to whom they award contracts on a cost-plus-percentage basis in view of excellent work such contractor has done for them in the past. They believe that, in the long run, this is the most advantageous way for them to handle their contracts.

15-9. Preparation of Lump-sum Bid by a Contractor. The determination of the proper bid for a lump-sum contract for the purchase of materials is generally based largely upon costs and competitive considerations. In many instances the prices of common materials and products are somewhat standardized, or at least known to lie within a narrow range at any particular time. Prices of some articles are given in catalogues or on price lists—with or without discounts. In such cases, bid prices are not expected to vary widely, and the cost of a product can be estimated with reasonable accuracy.

Making a lump-sum bid on a large construction project is a different matter. Here the bidder has to estimate the costs very carefully, since the work entailed requires the use of various materials, the labor of large numbers of employees, and the performance of a vast variety of operations. Estimating the probable cost of such work requires considerable time and expense. Hasty guessing by the bidder is likely to lead to his financial ruin, because he may bid less than the work actually will cost or may bid so high that he fails to secure jobs. It is obvious that the persons who do this estimating must assume great responsibility.
The bidder must estimate the quantities of materials involved, then he must compute their probable cost. Next he must calculate the estimated cost of all the labor that will be required to perform the work. The drawings and other contract documents should give him all the data that are needed to determine the scope and nature of the work.

The bidder has to include many items of cost besides those that are directly associated with the estimated cost of all materials and of all labor involved in the construction. Here are listed some of the other items whose cost he may have to consider in his estimate:

1. Supervisory and office staff in the field. This includes foremen, bookkeepers, and secretaries. In this item there may also be included such things as office supplies, blueprinting, and postage.

2. Engineering. Sometimes this may be a considerable item if the contractor’s staff is to make detail drawings, to design special features like cofferdams and heavy formwork, and to do the surveying to establish all lines and grades.

3. Rentals or construction of office space and sometimes of housing. This applies primarily to field headquarters but may also apply directly to personnel if the contractor has to provide living quarters for employees.

4. Equipment. This includes depreciation and repair of the contractor’s own equipment, possibly a portion of the cost of new equipment, the cost of tools that may be lost or expendable, and the rental of machines leased from someone else.

5. Storage facilities. Sometimes this includes a storage yard and temporary warehousing at a shipping terminal as well as tool houses and storage facilities at the site.

6. Power and the means of getting it to the places where it is needed. This may include power lines or small generating plants and the supplying of heat, steam, and compressed air.

7. Transportation of all materials and personnel. This may include the building of access roads, transportation of men to and from their living quarters, demurrage on freight cars not unloaded promptly, and the cost of transfer from one means of transportation to another.

8. Contingencies. This really means an estimate of the miscellaneous odds and ends which the contractor may have to take care of and for which he may not have made specific allowances in his estimate. For example, if delays, construction hazards, and liquidated damages are likely, this contingency item may be a sum that the bidder hopes will compensate him in case these extra expenditures should materialize. This item is often estimated as a percentage of the cost of the project or of direct materials and labor; it may range from 5 to 15 per cent of this
cost, or it may be small if the work is shown completely and clearly on
the drawings and in the other contract documents.

9. A portion of the general overhead of the central or home office. This is because the job will require the services of various persons who
are not at the site (or who are there only occasionally) and who may
be assigned to the inspection and expediting of materials. It should
also include an item to cover the cost of making estimates for this job
and perhaps a little extra for others that were or will be bid upon.

An extreme illustration of the cost of making bids is the story of a
New York contractor who made a proposal for the construction of a large
multistory building in Chicago. The bids were to be received at 11:00
A.M. on a Thursday morning. Immediately after lunch on Wednesday,
after all the cost figures were assembled, he examined the completed
estimate; it seemed to be unreasonably high. A hasty check revealed
that the estimated volume of concrete was so large that it was almost
enough to make the structure of solid concrete. It was then discovered
that, for one thing, the secretaries who had been called in to help com-
pile the figures had thought that the thickness of floors was given in
feet instead of in inches. The contractor hastily made reservations on
the train for a few of his men to accompany him to Chicago that night
so as to reestimate the job while traveling. After much intensive work
the new estimate was prepared, the proposal form was filled out and
checked, and the papers were delivered to the engineer just before the
time limit expired. The contractor found that, when the bids were
opened, he just missed getting the job. All that he could do was to add
all these expenses to the cost of overhead.  

10. Profit. This item will vary in accordance with what the contrac-
tor thinks is reasonable and can be obtained without losing the job.

11. Interest on money. The contractor may have to borrow money
to finance his operations. If so, he should provide for the estimated cost
of interest on loans made to him. He may also estimate what his own
funds tied up in the job might earn if they were drawing interest in the
bank or were invested.

12. Workmen’s compensation insurance. This item is usually required
by law as well as for reasons of protection of the owner, the contractor,
and the latter’s employees.

13. Other insurance on property and personnel. This should include
insurance covering fire, public liability, protection of supervisory staff,
and possibly flood and storm damage.

14. Bonds. This item is to include costs connected with the bid bond,

1 Of course, the temporary miscalculation, while costly, had nothing to do with
missing the award.
the performance bond, and any others that are required. These will be explained in Chapter 16.

15. Taxes. There may be sales taxes, income taxes, and levies on property that is temporarily acquired by the contractor.

16. Allowances for estimated increases in prices. This point may be governed by the anticipated duration of the job. The best way to avoid losses caused by rising prices is by means of an *escalator clause* to cover any increases in labor and material costs during the life of the contract. Such a clause obligates the owner to pay for these increases. This is fair because if no increases occur there is no extra charge against the owner, whereas, if the contractor must provide for a possible rise in costs, a sum to cover the estimated increase will automatically be included in the bid price.

17. Special expenses. These may include payments for a temporary right of way, the cost of permits of various kinds, fees on the use of patents, fees for consultants, legal expenses, and commissions to agents who may perform certain duties. If the contractor is to run a cafeteria to provide lunches for employees, any expense connected therewith should be included.

When the estimated costs of all the foregoing miscellaneous items (and any other necessary ones) are added to those for direct labor and materials, the sum is the total estimated cost of the job. This may or may not be the actual bid price. If, in the contractor's opinion, the total estimated cost is higher than the sum that he thinks others may bid upon the job, he may reduce his bid figure somewhat, hoping that he can still make a profit by doing the work more efficiently than the estimated costs indicate. If he is badly in need of work, he may even seek the contract without allowing for any real profit at all. Here is an example of such bidding. In a period of depression a steel company had very little work on hand. The drafting room was almost completely out of work when along came an inquiry for a bid on a contract involving approximately 10,000 tons of structural steel. The company estimated the cost, then deliberately made a bid that was considerably below this cost. The contract was secured. The officials believed that this was good business, because, although a moderate loss could be expected, a greater loss would have resulted if they had had to pay their employees without having had any work done at all, and they did not want to lay off most of their men. Of course, a contractor cannot keep up this kind of thing forever.

It may be, on the other hand, that the contractor believes the esti-

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*An escalator clause usually applies in one direction only; i.e., it provides for an increase in cost but seldom provides for a decrease in cost.*
mated costs are too low. He may then *round up* the bid price to what he thinks is adequate. If he is already swamped with other work, he may decide that he will not take any serious chances but will set a price that, if he gets the job, will enable him to augment his staff and organization and still make a profit. If he thinks that there will be little competition for the work, he may likewise boost his figures a little above the estimates, depending upon what he thinks the trade will bear.

It is important for the reader to recognize the difference between an *estimate* and a *proposal*. An *estimate* of cost is not assumed to be an accurate statement of the final cost. It is generally based upon information that is not complete or exact, and it involves the making of assumptions. By nature it is an approximation. A bidder makes his estimates of cost; so does the engineer. The former will use his own cost estimates, or a modification of same, as the basis for his *proposal* on the job. The proposal becomes a binding contract when accepted, even though, obviously, the figure quoted was arrived at by means of an estimate rather than an exact mathematical computation of the real cost. The engineer’s estimate is used merely as a guide to learn approximately what the bid costs will be.

**15-10. Preparation of Unit-price Bid by a Contractor.** When a contractor is trying to estimate costs on a contract for which a unit-price bid is required, he will proceed at first substantially as he would if it were a lump-sum contract. However, he may not have to be so careful in estimating the quantities of material and labor involved. He will investigate carefully such things as the nature of the work, the various construction difficulties that may be anticipated, the duration of the job, the availability of materials, and the quality of workmanship that is needed. He will thus arrive at an estimate of the total cost of the project, including his profit.

As shown in Art. 15-6, the list of items in the proposal form usually states the estimated quantities and the units for measurement. The contractor will therefore distribute the estimated total cost of the project among these various items, adjusting his figures until the sum of his bids on all items substantially equals the total number of dollars previously determined as the total estimated cost.

As an illustration of this procedure, assume that the following items are given in the proposal form for a construction contract:

- Rock excavation: 5,000 cu yd
- Earth excavation: 20,000 cu yd
- Concrete: 15,000 cu yd
- Reinforcing steel: 1,600,000 lb
- Membrane waterproofing: 1,500 sq yd
- Structural steel: 1,000,000 lb
Assume further that the contractor estimates that the total bid price should be $1,100,000. Now he may make a trial summary as follows:

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity (cu yd at $10.00)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock excavation</td>
<td>5,000</td>
<td>$50,000</td>
</tr>
<tr>
<td>Earth excavation</td>
<td>20,000</td>
<td>$200,000</td>
</tr>
<tr>
<td>Concrete</td>
<td>15,000</td>
<td>$630,000</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>1,600,000 lb at 0.10</td>
<td>$160,000</td>
</tr>
<tr>
<td>Membrane waterproofing</td>
<td>1,500 sq yd at 10.00</td>
<td>$15,000</td>
</tr>
<tr>
<td>Structural steel</td>
<td>1,000,000 lb at 0.14</td>
<td>$140,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,035,000</strong></td>
</tr>
</tbody>
</table>

This is $65,000 less than the desired total. The deficiency has to be made up by various adjustments. The contractor may add to some of the unit prices as follows:

<table>
<thead>
<tr>
<th>Material</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock excavation</td>
<td>$2.00</td>
</tr>
<tr>
<td>Earth excavation</td>
<td>$0.50</td>
</tr>
<tr>
<td>Concrete</td>
<td>$3.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Increase</strong></td>
<td>$65,000</td>
</tr>
</tbody>
</table>

Therefore, the final figures recorded on the proposal form may be as follows:

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity (cu yd at $12.00)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rock excavation</td>
<td>5,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>Earth excavation</td>
<td>20,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Concrete</td>
<td>15,000</td>
<td>$675,000</td>
</tr>
<tr>
<td>Reinforcement</td>
<td>1,600,000 lb at 0.10</td>
<td>$160,000</td>
</tr>
<tr>
<td>Membrane waterproofing</td>
<td>1,500 sq yd at 10.00</td>
<td>$15,000</td>
</tr>
<tr>
<td>Structural steel</td>
<td>1,000,000 lb at 0.14</td>
<td>$140,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>$1,100,000</strong></td>
</tr>
</tbody>
</table>

Notice that, in making the upward adjustments, the contractor has added relatively more to the items of work that will be performed early in the course of the contract than he has to those that will be done later. This is called making an unbalanced bid. There is nothing understood about it. By so doing, the contractor arranges matters so that partial payments made in the first few months will yield him a generous return so that he will not have to use as much of his own cash to finance the work.

Another type of unbalanced bid may be arrived at by bidding low on an item that the contractor thinks will underrun the quantities listed in the proposal form and by making a high bid on something that is likely to overrun the stated quantity. Remember that the contractor will be

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*The word overrun, as used here, means that the actual quantity of work to be done under some particular item exceeds (or will probably exceed) the quantity stated by the engineer in the statement of the items (of course, underrun means the opposite). For example, the item for earth excavation in the preceding list of items states that
paid his bid price per unit times the number of units actually performed or furnished. This is perfectly legal, even though it is a sort of gamble by the contractor in most cases.

In one contract that involved a large amount of both earth and rock excavation, the borings had been made about 150 ft on centers. It was territory in which the rock surfaces often varied greatly in elevation within short distances. One contractor who realized this asked permission to take additional borings at his own expense. This was granted, and the information that he obtained was naturally his own for such use as he chose. Actually, he found that his own estimates based on more complete information showed much more earth excavation than stated in the proposal form. He therefore bid a little high on the unit price for earth excavation and a little low on the rock excavation. He was awarded the contract. The final computed quantities were substantially as he estimated. Therefore, he made a good profit on the larger amount of earth excavation and did not lose much on the smaller amount of rock to be taken out.

15-11. Awarding the Contract. In accordance with the general rule, no particular form of words is necessary to constitute an acceptance of a bid or tender for building or construction work, provided the intention of the owner to accept is evidenced. However, it is best to have the form which will be signed by the owner and the contractor, constituting part of the official contract, prepared in advance and included among the contract documents so that all data will be available for inspection before the parties sign the form.

Now let us consider the engineer's handling of the proposals. Assume that sealed proposals on a lump-sum contract are duly opened in public and read aloud. The lowest bidder is determined at once, unless the extremely improbable situation of a tie develops. To be investigated, however, is the question of the lowest responsible bidder, unless pre-qualification of bidders has been required, in which latter event all proposals considered have been made by acceptable concerns.

The engineer should make sure that the successful contractor's bid is in order, and that his resources, equipment, experience, and sureties are satisfactory. Thereafter the engineer should notify this successful bidder that his proposal has been accepted and that the contract is to be signed at a specified place and time. This notice should be written and delivered by messenger, registered mail, or telegram, although proof that

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the unit price is to be applied to 20,000 cu yd of material when the amount of the contractor's bid is estimated. If the contractor believes that 23,000 cu yd will actually be necessary, he believes that the work required will overrun the estimated quantity.
it was deposited in an official United States post office or mailbox will suffice.

In the case of a unit-price contract, the public opening and reading aloud of the sealed proposals will similarly reveal who is the low bidder. As stated previously, the bid price will be the sum of the quantities stated in the proposal form times the bidder’s stated unit price for each item. The procedure for awarding the contract is similar to that used in the case of lump-sum proposals.

**Table 15-1. Example of Variation of Bid Unit Prices**
(Only a portion of the items in the contract are shown)

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Quantity</th>
<th>Bid unit prices</th>
<th>Contractor</th>
<th>Engineer's estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$A$</td>
<td>$B$</td>
<td>$C$</td>
</tr>
<tr>
<td>1</td>
<td>Rock excavation, 7,600 cu yd</td>
<td>$12.00</td>
<td>$21.40</td>
<td>$14.00</td>
</tr>
<tr>
<td>3</td>
<td>Earth excavation, 20,000 cu yd</td>
<td>5.00</td>
<td>3.00</td>
<td>11.00</td>
</tr>
<tr>
<td>6</td>
<td>Concrete, 12,600 cu yd</td>
<td>40.00</td>
<td>40.00</td>
<td>57.00</td>
</tr>
<tr>
<td>8</td>
<td>Waterproofing, 7,600 sq yd</td>
<td>4.00</td>
<td>4.20</td>
<td>2.50</td>
</tr>
<tr>
<td>17</td>
<td>Reinforcing bars, 1,600,000 lb</td>
<td>0.14</td>
<td>0.14</td>
<td>0.10</td>
</tr>
</tbody>
</table>

It is possible to have a unit-price contract so prepared that the low bidder is selected on the basis of the bid unit prices alone without application to any stated quantities. This might occur in a large but simple job, such as an extensive excavation in which the only payment items are rock excavation and earth excavation. Even then, the engineer should have some estimated quantities in mind to use as the basis of judgment in making his selection of the successful contractor, because he is interested in the comparison of approximate total costs.

In Table 15-1 are listed illustrative bid unit prices on a portion of the items in a construction contract. The figures are very revealing in that they illustrate so many variations in the bidders’ figures. On the other hand, Table 15-2 shows that the totals of all items in these proposals did not differ greatly.

Table 15-1 includes some examples of the unbalancing of bids. Notice that contractor $B$ has a relatively large figure for Item 1 and a very low
one for Item 3. He evidently expected the quantity of rock excavation to overrun the estimate. Contractors \( F \) and \( G \) and the engineer's estimate did not differentiate between the two materials. They used the same unit price for both items. In other words, they treated excavation as unclassified—a total amount to be removed at an average or weighted unit price so that separate surveys and computations of the quantities of rock and earth excavation would not have to be made. In the case of contractors \( C \) and \( E \), notice that Items 1, 3, and 6, covering work that will be done early in the construction operations, are bid high, whereas Item 8, which will be done near the end, is bid low. This is obviously an unbalancing that is designed to obtain substantial partial payments for the work to be done in the early stages of construction.

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Summary</th>
<th>Per cent of lowest bid</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A )</td>
<td>$2,064,678.00</td>
<td>100.</td>
</tr>
<tr>
<td>( B )</td>
<td>2,176,956.00</td>
<td>105.5</td>
</tr>
<tr>
<td>( C )</td>
<td>2,352,418.50</td>
<td>114.</td>
</tr>
<tr>
<td>( D )</td>
<td>2,412,576.00</td>
<td>117.</td>
</tr>
<tr>
<td>( E )</td>
<td>2,490,055.00</td>
<td>120.5</td>
</tr>
<tr>
<td>( F )</td>
<td>2,526,670.00</td>
<td>122.</td>
</tr>
<tr>
<td>( G )</td>
<td>2,572,744.00</td>
<td>124.5</td>
</tr>
<tr>
<td>Engineer's estimate</td>
<td>2,378,430.00</td>
<td>115.</td>
</tr>
</tbody>
</table>

If the engineer sees that the unbalancing of bids is unreasonable and that it is evidently made so as to cause considerable disadvantage to the owner, this may be sufficient cause for rejection of the bid. As an illustration, assume that the bid by contractor \( A \) in Table 15-1 was $20 per cubic yard for rock excavation, $12 per cubic yard for earth excavation, $36 per cubic yard for concrete, and low prices on other items not shown in the table. The engineer knows that the quantity of excavation is not known in advance with any degree of accuracy. He also believes that the concrete cannot be furnished for such a low price. It would appear that the bidder expects to make a large profit because of expected overrun of the volume of excavation, even though he loses on the concrete and other items where his bid unit prices are low. This can be costly for the owner if the bid of contractor \( A \) is accepted. If the right to reject has been reserved, the engineer may therefore refuse to take a chance in this situation, rejecting \( A \)'s proposal even though it is the lowest bid. However, the justice of this step may be difficult to prove, or at least it may lead to a dispute, since the engineer has bound the owner and himself to the awarding of the contract on the basis of the quan-
ties stated in the proposal. The engineer should be reasonably sure of the quantities in the first place.

If none of the proposals are acceptable because they all exceed the money available for the job, a delicate situation results. It is neither ethical nor good business to readvertise the job in the hope of getting someone to reduce his offer. It is necessary to make a substantial re-design to reduce the scope of the job, to change the character of the work, or to do something else that represents a major change. Minor revisions are not suitable as an excuse for readvertising. If an engineer does this last, he will probably have difficulty getting anyone to bid on his work in the future.

It may be impossible to award the contract to anyone because the lowest bid exceeds the money available. On the other hand, it may be that no proposals are received. In either case, major revisions of the project may be necessary.

An illustration of the failure to obtain any proposals is the experience of the New York State Thruway Authority, which asked for bids on the steel superstructure of the Tappan Zee Bridge over the Hudson River. Apparently the authority, in an unusual move, let it be known that $37 million was the top limit that it would consider from any bidder. No one submitted a bid for the work. Obviously, the steel companies were unwilling to quote on the basis of the indicated ceiling price. As a result, the structure had to be redesigned so as to reduce its cost, a procedure which entailed considerable delay and increased expense to the authority.

15-12. Improper Proposals. If a proposal is not prepared as required, this is proper cause for its rejection. In one case, two steel companies presented nearly equal bids on a contract. The unit prices were to be based upon the scale weights of fabricated members—actual weights as loaded on the cars. One contractor added to his proposal a paragraph stating that his bid was based on the calculated weights—computed from the detail drawings without allowance for beveled cuts, copes, and other reductions from the original over-all size of each piece as it was constituted before any cutting. This contractor’s unit price was slightly under that of the other bidder. However, he had failed to do what the contract documents called for. In addition, the contract involved considerable steelwork in which the calculated weights would considerably exceed the scale weights. Obviously, the contract was let to the one who bid in the fashion called for by the proposal form.

In another case, a contract called for bids on a job that involved pouring large quantities of concrete during the winter season. The contract stated that enclosures and heating would be required to protect the concrete during setting and curing in freezing weather. The lowest
bidder added a paragraph stating that his bid excluded the cost of this protection. His proposal was therefore rejected because it had not been prepared in the prescribed manner.

If, in the case cited in the preceding paragraph, the engineer accepted the lowest bidder’s counterproposal, such action would be binding on the basis of the terms stated in that proposal, because the bidder has made an offer and the engineer has accepted it. On the other hand, such action by the engineer would be unfair to the other bidders. They, too, might have submitted lower figures if they had realized that they could violate the contract terms in this respect.

If everything in the proposal as presented seems to be satisfactory, the contract should be awarded to the lowest responsible bidder, and this should be done promptly and within the time limit stated in the contract.

15-13. Alternates. In some cases proposals may be requested on the basis of two or more alternatives. One purpose for this securing of bid prices on each of two possible arrangements is to make possible a broad choice after the costs have been set forth in the various bids. A second objective may be that of obtaining bids on a basic contract and with them securing additional proposals on special items that, as the owner determines, may or may not be added to or subtracted from such basic contract.

The proposals on the construction of the suspension system of the George Washington Bridge will illustrate the first arrangement mentioned above. The Port of New York Authority made two different designs—one for wire cables and another for eyebar chains. This bridge was to have a main span that would be twice as long as the then longest existing suspension bridge—the Philadelphia-Camden Bridge. There were many arguments among engineers for and against each of the two designs. It was therefore decided that complete designs and specifications would be made for both types and that the matter should be settled on the basis of actual competitive-bid prices—or, at least, the decision would be made after the relative costs became known. Roebling’s bid on the wire-cable design was lower than any other and lower than any on the eyebar-chain proposition. The wire-cable design was therefore adopted, and the contract awarded accordingly.

The use of alternates for additions or subtractions (the other objective mentioned at the outset of this article) may be illustrated in this way. Assume that a municipality desires lump-sum proposals on the construction of a large school building for which the appropriation is a specific and limited amount. The city wants to have the building in accordance with at least the minimum conservatively prepared plans. The estimated cost of this minimum structure is within the appropriation. However,
the authorities would like to include an extension of the wing that is to house shops and manual-training facilities so as to increase their size. Furthermore, although space is provided for a swimming pool in the minimum plan, the pool itself and the locker rooms and equipment are not included in the basic plan. These items are desired if the costs will permit their inclusion.

The engineer\footnote{Remember that the word \textit{engineer}, as used herein, also means \textit{architect}. An architect would probably have general charge of this project.} may therefore ask for lump-sum proposals as follows:

1. The basic plan as shown
2. The extension of the shop wing as one alternate
3. The swimming pool as a second (separate) alternate

Assume that the bids received are as shown in Table 15-3 and that the appropriation is $2,100,000. All the bids on Item 1 are less than this

<table>
<thead>
<tr>
<th>Item no.</th>
<th>Contractor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>1</td>
<td>$1,050,000</td>
</tr>
<tr>
<td>2</td>
<td>125,000</td>
</tr>
<tr>
<td>3</td>
<td>100,000</td>
</tr>
<tr>
<td>1 + 2</td>
<td>2,075,000</td>
</tr>
<tr>
<td>1 + 3</td>
<td>2,050,000</td>
</tr>
<tr>
<td>1 + 2 + 3</td>
<td>2,175,000</td>
</tr>
</tbody>
</table>

sum, and \( A \) is the lowest bidder. For Items 1 and 2, \( B \) is the lowest bidder, and three of the bids are within the limit. For Items 1 and 3, \( C \) is the lowest, and the same three proposals are under the appropriation. However, for Items 1, 2, and 3 combined, \( C \) is low, but all bids are beyond the limit of the available funds.\footnote{An important item to consider is how much more it would cost to add a portion of the ultimate project later as a second contract than it would to proceed at once with the entire construction. If the total cost of two-stage construction is enough more, the authorities may wish to try immediately to raise enough funds to complete the structure without delay.}

Now suppose that the choice of alternates is open so that the authorities of the city can decide whether to accept Item 1, Items 1 and 2, or Items 1 and 3. In the first case, \( A \) would get the contract; in the second instance, the award would go to \( B \); in the third, \( C \) would be successful. The combination of Items 1, 2, and 3 is automatically eliminated because of cost.
From the foregoing it is obvious that if there are several alternatives it may be possible to juggle them so as to award the contract to some preferred contractor merely by exercising judgment about which alternates are to be chosen. Exercise of this power might well lead to abuse, or at least to accusations of unfairness or partiality. It is therefore desirable to determine in advance, and to state in the proposal, the order of acceptance of any alternates. In the case of this school, the contract papers might well be so prepared that the proposal calls for the basic bid on Item 1. Then, if one or more alternates are to be accepted, Item 2 is to be first on the list, with Item 3 last. With the use of this procedure in the school example given, and with $2,100,000 as the top limit, the authorities must then award the contract to A for Item 1 alone or to B if Item 2 is to be included. They have no other choice, assuming both A and B are responsible contractors.  

The same principles apply in case of subtractions. Again, the sequence of their elimination should be specified. In the case of this school, the basic design might be made for the entire project, and lump-sum bids asked for on the complete structure. Then the proposal form might call for the statement of a figure to be used as a reduction of the bid price if the swimming pool and its accessories are eliminated. Still another figure might be requested in order to show the reduction in the bid price should both the pool and the extension of the shop wing be eliminated from consideration.

Use of alternates may avoid the difficulty of revising and readvertising a contract when all bids for the complete structures are likely to exceed the funds available. The program of reductions, if any, should be clearly described in the proposal form and should be adhered to in all respects.

* See Chapter 17 for a further discussion of responsible contractors.
CHAPTER 16

Surety Bonds

16-1. Nature and Types. A surety bond is an agreement by one called a surety, to answer for the debt, default, or miscarriage of another, called the principal. In matters affecting engineering contracts, the principal (the one whose acts are guaranteed) is usually a contractor. The one in whose favor the bond runs is usually an owner or a supplier of material, and he is called the obligee. In matters affecting engineering contracts, a bond is customarily a promise to pay if a certain thing is not done. The performance bond is one common type, and it is of great importance; it is designed to protect the owner against liability and loss caused by acts or failures by the contractor. The bond does not, however, guarantee that the contractor will be able to complete the contract. Generally its purpose is to provide means for completion otherwise or to compensate the owner (in part, at least) if the contractor fails to complete the work in accordance with the terms of the contract.

The bond becomes "effective" from the start and remains so until and unless the principal performs as scheduled, the contract is canceled, or for some other reasons which will be discussed later, the contract is no longer in existence.

While it is true that bonds are, in a sense, contracts, they are not commonly spoken of as such. No precise form of wording is necessary to create a bond, but the term itself necessarily imports that there is a written instrument. Technically speaking, a bond is an obligation (generally under seal) binding the obligors (the contractor and the

1 The authors are indebted to Elmer C. Anderson, assistant secretary, the Surety Association of America, New York, and to David Q. Cohen, manager, Fidelity and Surety Department, Association of Casualty and Surety Companies, New York, for their kindness in reviewing and making suggestions for this chapter and in furnishing some of the illustrations.

2 The contract of suretyship must meet all the requirements of any contract in regard to offer and acceptance, consideration, legality, capacity of the surety, etc. The terms can usually be whatever legal arrangement and obligation are agreed to by the parties (remembering that statutory bonds have certain prescribed requirements).
Fig. 16-1. Example of Form for Performance and Payment Bond

The Aetna Casualty and Surety Company
Hartford, Connecticut

PERFORMANCE AND PAYMENT BOND

Know All Men by These Presents,

THAT,

(hereinafter called the Principal), as Principal, and The Aetna Casualty and Surety Company, a corporation organized and existing under the laws of the State of Connecticut with its principal office in the City of Hartford, Connecticut (hereinafter called the Surety), as Surety, are held and firmly bound unto

(hereinafter called the Owner), and to all persons who furnish labor or material directly to the Principal for use in the prosecution of the work hereinafter named, in the just and full sum of

Dollars,
to the payment of which sum, well and truly to be made, the said Principal and Surety bind themselves, and their respective heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Owner, dated the 19 day of

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length hereof

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the said Principal shall fully indemnify the Owner from and against any failure on his part faithfully to perform the obligations imposed upon him under the terms of said contract and clear all of all sums arising out of claims for labor and material entering into the work, and if the said Principal shall pay all persons who shall have furnished labor or material directly to the Principal for use in the prosecution of the aforesaid work, each of which said persons shall have a direct right of action on this instrument in his own name and for his own benefit, subject, however, to the Owner's priority, then, this obligation to be void, otherwise to remain in full force and effect;

PROVIDED, HOWEVER, that no action, suit or proceeding shall be had or maintained against the Surety on this instrument unless the same be brought or instituted and process served upon the Surety within two years after completion of the work mentioned in said contract, whether such work be completed by the Principal, Surety or Owners; but if there is any maintenance period provided in the contract for which said Surety is liable, an action for maintenance may be brought within two years from the expiration of the maintenance period, but not afterwards.

IN WITNESS WHEREOF, the said Principal and Surety have signed and sealed this instrument this 19 day of

(SEAL)

(SEAL)

(SEAL)

The Aetna Casualty and Surety Company

(SEAL)

By

19-1713-41

293
surety) to pay a sum of money and contains a defeasance clause to the effect that, on the performance of a certain condition, the obligation shall be void.

The American Institute of Architects and the United States government have prepared forms (for performance bonds\(^3\)) which are very useful as guides. A form prepared by the Aetna Casualty and Surety Company of Hartford, Connecticut, is reproduced on page 293 as an illustration of the customary form and content of performance bonds.

For public works contracts there are statutory requirements regarding performance bonds, and those requirements must be adhered to.

Bonds may even be secured to cover the maintenance of such work as a new turnpike—normally for one year after completion.\(^4\) Other types (called supply bonds) may be obtained which guarantee that, if a certain supplier does not fulfill his obligations under his contract, the bond will come into play. A fidelity bond may also be secured “guaranteeing” honesty and faithful performance by the principal named therein.

A bond is usually in terms of some stated number of dollars as a maximum obligation. If the contractor completes the job satisfactorily, a performance bond is automatically terminated. If he fails to complete it, or, having signed, fails even to start it, the obligor must make good in accordance with the requirements of the bond up to the amount stated therein. The bonding device is generally used as a protection for the owner, not for the contractor, and the word “performance” may therefore be somewhat misleading. Remember that the contractor is the principal; the owner is the obligee—the one for whose benefit the bond is made. Thus the agreement is really between the contractor and surety on the one hand and the owner on the other; the latter can enforce payment or performance to the extent of the agreement represented by the bond. Notice that the protection for the owner is limited by the total amount of the bond; furthermore, the actual payments by the surety may be less than the face amount, as will be explained in Art. 16-4.

This chapter, except for the last two articles, concerns the performance bond which is usually required with construction contracts. It is possible to have the performance bond include what is often called a payment bond.\(^5\) In the case of construction contracts, experts in the surety field recommend that these be separate bonds so as to eliminate certain enforcement complications.

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3 Standard Form 25, for example.
4 Bonding for a longer period may involve questions about what is proper maintenance and what is reasonable wear and tear.
5 Described in Art. 16-8.
It is not generally necessary to have a performance bond in case of a cost-plus contract, since the owner is more or less responsible for the whole cost of the project (whatever that cost may be). Because of this responsibility angle, many prefer to use the bonded lump-sum or unit-price system on construction contracts rather than the cost-plus procedure.

With reference to the quality of the contractor's performance, it should be noted that the bond does not compensate for losses stemming from errors or deficiencies in the contract documents. It does, however, cover whatever performance the contractor has undertaken in his agreement. One might therefore ask: "Why should the engineer be so careful in his inspection of the contractor's work if the surety will make good anyway?" It is the engineer's duty to do all that he can to see that the work is done right as it goes along and to see that the owner gets what he has contracted for in return for his money. If the contractor fails to perform quantitatively and/or qualitatively, as required by the contract, then the surety may be called into the picture. It may be said in general that the engineer looks to the contractor first and tries to make him perform as he agreed to; the surety is called on only when the contractor is unable or unwilling to make good.

16-2. Size of Bond. On private work it is for the engineer and the owner to determine the size of the performance bond that will be required of the contractor. Their decision will be based upon an estimate of how much is adequate to cover the various expenses that, in the absence of a performance bond, might fall upon the owner in the event that the contractor should fail to complete the contract.

The amount of the performance bond is likely to be at least 50 per cent of the engineer's estimate of the cost of the job. Many owners prefer a coverage of more than 50 per cent, and some even go as high as 100 per cent. Of course, the expense of securing the bond is supposedly added in the contractor's proposal, so that the owner eventually pays for it indirectly. Generally speaking, the premium for the performance bond is determined by the contract price and not by the face value of the instrument; this should be a sufficient reason for the owner not to take chances by requiring too small a bond.

If a contractor is experiencing difficulties which render completion of the contract questionable, he may call on the surety for advice, since the bonding company is so deeply interested in his performance that it may well strive to help prevent the contractor's impending breach.

A suit by the owner is not always an answer; e.g., the contractor might prove to be insolvent.

A combined performance and payment bond should preferably cover (1) 100 per cent of the lump-sum contract price or (2) the cost computed from the quantities and the bid unit prices in case of a unit-price contract.

Remember that the bond applies for the duration of the contract.
Fig. 16-2.

PERFORMANCE BOND
(See Instructions on Reverse)

PRINCIPAL

SURETY

PENAL SUM OF BOND (express in words and figures)

CONTRACT NO.

DATE OF CONTRACT

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Government, numbered and dated as shown above and hereto attached;

NOW THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Government, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:

WITNESS

INDIVIDUAL PRINCIPAL

1. .................................................................................................................................................................................................................................................................................................................. [SEAL]

2. .................................................................................................................................................................................................................................................................................................................. [SEAL]

3. .................................................................................................................................................................................................................................................................................................................. [SEAL]

4. .................................................................................................................................................................................................................................................................................................................. [SEAL]

WITNESS

INDIVIDUAL SURETY

1. .................................................................................................................................................................................................................................................................................................................. [SEAL]

2. .................................................................................................................................................................................................................................................................................................................. [SEAL]

Attest:

CORPORATE PRINCIPAL

BUSINESS ADDRESS

BY .................................................................................................................................................................................................................................................................................................................. [SEAL]

TITLE

CORPORATE SURETY

BUSINESS ADDRESS

BY .................................................................................................................................................................................................................................................................................................................. [SEAL]

TITLE

STANDARD FORM 25
NOVEMBER 1968 EDITION

18-0061-0

296
The rate of premium on this bond is ____________ per thousand.

Total amount of premium charged, $______________

(The above must be filled in by corporate surety)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, __________________________________________, certify that I am the __________________________ secretary of the corporation named as principal in the within bond; that __________________________________________

who signed the said bond on behalf of the principal, was then __________________________________ of said corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly signed, sealed, and attested for and in behalf of said corporation by authority of its governing body.

______________________________
[CORPORATE SEAL]

INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required under the act of August 24, 1935, 49 Stat. 793, as amended (40 U.S.C. 270a-270c). It may also be used in any other case in which a payment bond is to be required. There shall be no deviation from this form except as authorized by the General Services Administration.

2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).

3. The name, including full Christian name, and business or residence address of each individual party to the bond shall be inserted in the space provided therefor, and each such party shall sign the bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hampshire, an adhesive seal shall be affixed opposite the signature.

4. If the principals are partners, their individual names shall appear in the space provided therefor, with the recital that they are partners composing a firm, naming it, and all the members of the firm shall execute the bond as individuals.

5. If the principal or surety is a corporation, the name of the State in which incorporated shall be inserted in the space provided therefor, and said instrument shall be executed and attested under the corporate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in which case a scroll or adhesive seal shall appear following the corporate name.

6. The official character and authority of the person or persons executing the bond for the principal, if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein provided. In lieu of such certificate there may be attached to the bond copies of so much of the records of the corporation as will show the official character and authority of the officer signing, duly certified by the secretary or assistant secretary, under the corporate seal, to be true copies.

7. The date of this bond must not be prior to the date of the instrument in connection with which it is given.
16-3. Sureties. The one who issues the bond is called the surety. He promises to pay if necessary. The value of the surety's promise is no greater than his ability to meet the payment when the contingencies calling for payment arise. Therefore, the engineer should specify that the surety is to be approved by the owner.

Because of the need for someone of sufficient resources who is willing to post a bond for a contractor, a number of companies have made this service one of their specialties. Corporations acting as sureties are empowered by their charters to carry on this type of business and are subject to public regulation. When such a concern having large resources and a reputation for reliability agrees to post a bond for a particular contractor, the owner and the engineer concerned are pleased to accept that surety.

The contract may require the contractor to give the name of his surety as part of the data furnished in or with his proposal. After the proposal has been accepted, the contractor should not be allowed to change his surety except with the owner's approval. If the owner does not feel that he can accept the surety whose name is stated in the proposal, the owner will demand the substitution of another one or will reject the proposal. It is best to have the contract state that when the contractor signs he automatically agrees that he will provide the required bond and that a surety who is satisfactory to the owner will be obtained.

Sureties are required by law to file their schedules of rates with state insurance departments or with other designated authorities. The selection of the risks to be bonded—the choice among contractors and particular jobs—is a matter of underwriting judgment. The surety will make its own investigation of the ability and reliability of contractors seeking its backing.

As we have seen, the bond is an obligation conditioned on the principal's performance of a contract. Breach by the principal gives rise to a remedy against both the principal and his surety. If the surety fails, the owner still has his right of action against the contractor, the principal. Obviously, the quality and financial standing of the surety are matters of great importance to the owner, whether the contract is for $10 million or for the construction of a small house.

In order to protect against the possibility of supervening insolvency, the engineer should specify that the contractor must agree to secure another approved surety if the original one fails (or appears about to fail) before the contract is completed. The substitution of the new surety should be made promptly and at the contractor's expense.

In very large contracts the performance bond might well be for many millions of dollars. In such cases the owner may specify that multiple
sureties (also called cosureties) be secured to furnish the bond. This means that the bond is to be backed by two or more approved sureties, the purpose of such an arrangement being to spread the risk so that no one of the sureties will suffer seriously if the contractor fails to perform the required work. This is also a means of protecting the owner, in that his loss will be less if the only surety on the risk is forced into financial difficulties.

Even when the bond is furnished by one surety only, he may protect himself by reinsurer; i.e., he may engage one or more sureties to assume part of the risk. In case payment becomes necessary under the bond, the original surety will look to the reinsurers to assume their share of the burden. The obligee, however, has recourse only to the contractor and the latter's surety; there is no obligation running from the reinsurers to the obligee.

The fee to be charged by the surety will generally depend upon the cost of the work (i.e., the bid price—or the computed total, in case of a unit-price contract) because this is the measure of the surety's exposure.

16-4. Operation. The function of the bond in practice should be well understood by every engineer—and by each owner also. Of course, much depends upon the terms of the contract. Performance bonds generally require the surety not to complete the contract but rather to respond for the loss the owner suffers by reason of the contractor's default. Despite this, it is not unusual, when conditions warrant, for sureties to take immediate steps to progress the work when the contractor has been declared in default. There are modern forms of bond for private construction which provide that, if the contractor defaults, the surety will step in promptly to complete the work himself in accordance with the contract provisions or to procure for the owner an acceptable contractor who will do so. Additional financing made essential by the default is sometimes provided by the surety, within the limits of its guarantees, in order to keep the job progressing. An example of this is the performance bond which is part of the American Institute of Architects' Form 107, from which the following quotation is taken.

Under U.S. Treasury Department regulations and by law in many states, a surety is limited to a liability of no more than 10 per cent of its capital and surplus on any one bond.

In the case of multiple sureties, the present custom is to hold each surety responsible for the sum stated on the bond after that surety's name.

In such a case, the owner does not have to approve the reinsurer since the reinsurance step is taken by the first surety in order to protect itself.
Whenever Contractor shall be, and declared by Owner to be in default under the contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

(1) Complete the contract in accordance with its terms and conditions, or

(2) Obtain a bid or bids for submission to Owner for completing the contract in accordance with its terms and conditions, and upon determination by Owner and Surety of the lowest responsible bidder, arrange for a contract between such bidder and Owner and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under the paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the contract price," as used in this paragraph, shall mean the total amount payable by Owner to Contractor under the contract and any amendments thereto, less the amount properly paid by Owner to Contractor.

Assume that the contractor becomes unable to complete the job himself and that the surety then actively intervenes. The owner, the surety, and perhaps the contractor may then agree upon one of the following courses of action:

1. The owner may take over the contractor's organization and equipment long enough to complete the job, paying current and future bills for labor, materials, etc. Any resulting cost to the owner above the lump-sum bid price or above the sum of the bid prices applied to the respective actual quantities of work performed and materials furnished is then to be charged to the surety up to, but not exceeding, the face value of the bond.

2. The contractor or one or more of his personnel may be kept on to supervise finishing the job somewhat as in Item 1.

3. A new contractor may be engaged to complete the work, any extra cost of this procedure being charged to the surety (up to the limit of the bond).18

What happens if the contractor has signed the contract but for one reason or another fails to start its performance? Perhaps the owner can negotiate with the next-higher bidder or some other contractor and arrange for him to take over the job at his bid figure or at some subsequently negotiated price. Assume that the original bid was $500,000, that the bond was for $250,000, and that the contract is now awarded for the sum of $550,000. The surety would be obligated for the extra $50,000 above the original price. Whether or not the surety can collect all or part of his losses from the defaulting contractor is his concern.
4. The owner may finish the work with his own forces and equipment or with any which he may hire, again charging the excess cost to the surety as in Item 1.

5. The completion of the job may be turned over to the surety to perform in any feasible manner that may be acceptable to the owner. However, as always, the surety's monetary liability is limited to the face value of the bond.

Notice that the bond is not intended to provide a means for the owner to make a profit. It is merely to prevent, or at least to reduce, extra cost to him in case the contractor fails to perform.

Assume that a contractor secured a lump-sum contract for the building of a store. The contract price was $1,000,000; the bond was $500,000. After a little over one-half of the work was completed, the contractor was forced into bankruptcy. The owner had paid him a total of $450,000. The surety and the owner then agreed to engage another contractor to finish the job on a cost-plus-fixed-fee basis. The cost of completing the store was $600,000, making the total out-of-pocket cost to the owner $1,050,000. This is, of course, $50,000 more than the contract figure. Under these circumstances, the surety was obligated to pay only the extra $50,000, and not the entire face amount of the bond.

On the other hand, assume that the amount of the bond had been but $100,000 and that the cost of completing the structure in the preceding case was $700,000, bringing the total cost to $1,150,000 (i.e., $450,000 plus $700,000). The cost above the contract price was thus $150,000. The surety was therefore liable for the full $100,000 of the bond, and the owner himself had to assume the remaining $50,000 of cost—all of which shows that it is unwise to call for too small a performance bond.

If the surety had agreed to take over the foregoing store job and to have the work done under whatever plan he thought best, the owner would be expected to pay the original contract price, and the surety would still make good on any excess up to the limit of the bond. The owner would not be subject to costs beyond the contract price except in the unlikely event that the agreement between him and the surety provided otherwise.

If the payment to the owner under the bond does not fully reimburse him for the extra expense occasioned by the contractor's breach, the owner may try to recover from the defaulting contractor. But the chances of success are slim because the latter is often in financial straits.

Breach by the contractor generally creates a bad situation and leaves the whole construction job in a mess. For one thing, a contractor who is about to default will seldom exert himself to make things easy for his successor. It is apparent that the owner should be extremely careful at
the outset to see that the contractor he selects is capable, reliable, and solvent. One of the things the owner dreads is the failure of his contractor, even though he holds a performance bond as some protection.

To reiterate, the reader should understand that the performance bond does not guarantee physical performance by the contractor. Its function, an important one, is to compensate the owner for at least part of his loss should the principal default. The posting of the bond is not an assurance that the contractor is qualified to do the work; neither does it remedy defects in the contract. It is unreasonable to imply that the surety is to take care of any of the owner's troubles other than those arising strictly from the contractor's nonperformance of the contract in accordance with its stated terms.

16-5. Substitutes. It is possible to allow the contractor to substitute cash or approved securities for the performance bond, depositing them with the owner or to his credit for the time being; after the contractor has completed the work and the owner has accepted the end result, the deposited funds or securities are to be returned. This alternative procedure, however, is seldom desirable and is rarely used. For one thing, the possible loss or misplacement of money or securities renders their use inadvisable from the owner's standpoint, since he will be responsible for their safekeeping. Also, stocks and bonds may decline in value during the life of the contract, and, if trouble develops, the securities may have to be sold under adverse market conditions. The owner would then lose part of the protection afforded by the collateral.

It is easy to see that, if the contract is breached, the handling of the deposit may cause difficulties and arguments. The use of collateral in lieu of a surety bond may prove satisfactory, but the chances are somewhat against it. Furthermore, not every contractor is in a position to deposit collateral without impairing his financial ability to complete the contract.

16-6. Release of the Surety. It has been stated previously that the bond is terminated and the surety released when (1) the contractor has completed the job and (2) the owner has accepted it. In addition to the contractor's successful performance, certain other occurrences or contingencies, given below, will, generally speaking, release the surety.

1. Material changes in the contract. If the owner makes such extensive revisions in the nature or extent of the work that the character of the contract is substantially changed, it may be that the surety can claim release from the bond unless he had officially approved the new conditions in writing or unless the bond states that revisions and extensions are not to affect the bond in any way. Minor revisions almost always occur in a big construction job, but these will not usually affect the
bond. However, since approval of the changes by the contractor alone may not be sufficient, the engineer should play safe and get the written approval of the surety whenever there is any reasonable cause for uncertainty about the latter’s position respecting contemplated revisions.

2. Impossibility of performance of the contract. If some act of God, such as an earthquake or a hurricane, renders completion of the contract not possible, the bond will be discharged.14

3. Obligee’s cancellation of the contract. The owner may decide at some point that he must discontinue the job. If so, the surety will be released as well as the contractor.

4. Ineffective contract. Any conditions which will invalidate the contract will generally be sufficient cause to terminate the bond. A surety may not borrow purely personal defenses of the principal debtor, such as bankruptcy, infancy, incompetency, ultra vires, or the statute of limitations. A surety may always borrow real defenses of the principal debtor, such as illegality or failure of consideration; these are defenses inherent in the contract. No corporation, including a corporate surety, may plead the defense of usury. An individual surety may plead it. Technicalities, such as improper position of signatures on the contract and failure of delivery by postal employees after proof of mailing, will not usually release the surety. A contract which is ultra vires may nevertheless bind the surety.

5. Violation by the contractor of any material condition of the contract. Exactly what will be a sufficient violation to justify termination of the bond is something which will have to be determined in the light of the particular circumstances.

The engineer should be very careful to familiarize himself with the local laws affecting bonds and sureties. Indeed, this whole matter is so fraught with pitfalls that he should secure the advice of others15 and not attempt to handle the problem entirely by himself.

16-7. Bid Bond. A bond for some specified number of dollars or some stipulated percentage of the bid price may be required with a bidder’s proposal. It should be emphasized that the purpose of a bid bond is to bind the surety to a payment to the owner within the face amount of the bond, if the successful bidder does not sign the contract.

It is also desirable to have the bid bond include a clause which states that, upon signing the contract, the bidder will also furnish a performance bond and payment bond for labor and materials, if these are called for in the contract. If the bidder does not furnish these additional

14 It is best to cover such eventualities specifically in the contract.
15 It is frequently advisable to consult a lawyer for guidance when preparing the contract documents.
bonds as stipulated, he undoubtedly will not be allowed to proceed with the work, and the result is equivalent to refusal to sign the contract at all.

To illustrate the usual operation of the bid bond, assume the following case.

A corporation asked for lump-sum bids for the construction of a shopping center which the engineer estimated would cost $450,000. The proposal form required that a bid bond of $25,000 accompany each proposal. The lowest responsible bidder submitted a bid of $435,000; the next-higher proposal was $445,000. The lowest bidder refused to sign, whereupon the owner let the contract to the second bidder for $445,000—an extra cost of $10,000.

Was the surety responsible for the face value of the bid bond ($25,000) or merely for the $10,000 "loss" to the owner in the situation just cited? The latter is the answer, because the purpose of the bid bond is to protect the owner against loss, not to enable him to make a profit through the existence and operation of the bond. Incidentally, if the second-lowest bid in the above example had been for $470,000 ($35,000 above the lowest bid), the surety would have been responsible for no more than the face value of the bid bond because that is the limit of the surety's risk in this instance.

If none of the bids on a project are accepted, the failure of any bidder to sign the contract is obviously the owner's doing; the various sureties are released. Also, such release occurs automatically in the cases of high bidders whose proposals are not accepted by the owner for the reason that the latter has made, or will make, his contract with the lowest responsible bidder.

The following case will further illustrate the operation of the bid bond. A reputable contractor bid on a large job involving much concrete construction, and he was low bidder by a substantial amount. The bid bond was for $100,000. Wondering why his bid was so much lower than anyone else's, this contractor reviewed his bid figures. He discovered that, although the cost of forms for the concrete had been estimated, it was never added into the summary of costs. The estimated cost of these forms was considerably in excess of $100,000. Therefore, the bidder refused to sign the contract, sacrificing the bond; as we understand it, he reimbursed the surety for its loss. This course of action meant less loss for the bidder than if he had gone ahead with the contract.\(^\text{26}\)

\(^{26}\)In the past, courts have developed some rules under which a bidder may be allowed to withdraw his proposal without penalty if it contains clerical errors. In the case of City of Baltimore et al. v. De Luca-Davis Construction Co., 124 A.2d 557, 562 (Md. 1956) (reported in Engineering News-Record, Jan. 24, 1957), the court stated: "The general rule as to the conditions precedent to rescission for uni-
Suppose that, in the preceding case, the second-lowest bid was $150,000 above the proposal of the contractor who refused to sign. Assuming that the low bid is binding despite the clerical mistake, the owner will receive the $100,000 (bid-bond amount) from the surety, but that is all. At first glance, it would appear that the owner were "losing" $50,000; but, if the lowest bidder had not made the error in computation, his bid would have been considerably higher in the first place, and the owner would thus have had to pay more anyway.

The size of the bid bond is generally at least the engineer's estimate of what may be the difference in price between the low bid and the next-higher acceptable one. The bid bond should also be large enough to compensate the owner for any loss of revenue that he may suffer because of the probable delay of the job, together with any miscellaneous expenses that may be entailed in making arrangements with other than the lowest bidder. Some engineers determine the size of the bid bond on the basis of 5 or 10 per cent of the estimated cost of the job, and they state it as a definite number of dollars. Others specify that the face amount of the bid bond is to be a certain percentage of the bid price.\textsuperscript{17}

Instead of a bid bond to accompany each proposal a deposit is usually acceptable.\textsuperscript{18} As in the case of a bid bond, the deposit may be ex-

\textsuperscript{17} The fixing of a definite figure by the engineer is preferable.

\textsuperscript{18} The form which this deposit takes will normally be one of the two following:

1. A certified check for the stated sum. The certification means that the issuing bank has already set aside the funds necessary to meet the obligation represented by the check and therefore guarantees payment. However, in order to obtain certification, the maker of the check must have the required funds in his bank account or must secure a loan to provide whatever extra cash is needed.

2. Cash or securities. It may be permissible, but is rare in practice, for the bidder to present cash, United States government bonds, or other acceptable collateral sufficient to cover the amount of the deposit. These assets are turned over to the "owner" on a conditional basis, and they are available to him in case the particular bidder is selected and does not sign the contract. This second category is usually an undesirable form of deposit for the reasons stated in Art. 16-5.

Of course it should be made clear that if and when the depositor refuses to sign the contract the owner is to retain on a permanent basis only as much of the deposit as will be necessary to compensate him for the cost involved in having to let the contract to the next-higher bidder. The remainder, if any, is to be returned to the reneging bidder. What it comes down to is that the owner can keep no more than the difference between the lowest bid and the next-higher acceptable one.
Fig. 16-3.

PAYMENT BOND
(See Instructions on Reverse)

PRINCIPAL

SURETY

PENAL SUM OF BOND (express in words and figures)  CONTRACT NO.  DATE OF CONTRACT

KNOW ALL MEN BY THESE PRESENTS, That we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the United States of America, hereinafter called the Government, in the penal sum of the amount stated above, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the Government, numbered and dated as shown above and hereto attached;

NOW THEREFORE, if the principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

In Presence of:

WITNESS  INDIVIDUAL PRINCIPAL
1. as to  [SEAL]
2. as to  [SEAL]
3. as to  [SEAL]
4. as to  [SEAL]

WITNESS  INDIVIDUAL SURETY
1. as to  [SEAL]
2. as to  [SEAL]

Attest:
CORPORATE PRINCIPAL
BUSINESS ADDRESS
BY  TITLE

AFFIX CORPORATE SEAL

Attest:
CORPORATE SURETY
BUSINESS ADDRESS
BY  TITLE

AFFIX CORPORATE SEAL

STANDARD FORM 225-A
REVISED NOVEMBER 1986
FEDERAL SERVICES ADMINISTRATION
GENERAL REGULATION NO. 3

DATE BOND EXECUTED

10-15-08-09

306
The rate of premium on this bond is .......................................................... per thousand.

Total amount of premium charged, $..........................................................

(The above must be filled in by corporate surety)

CERTIFICATE AS TO CORPORATE PRINCIPAL

I, ............................................................, certify that I am the ............................................................ secretary

of the corporation named as principal in the within bond; that ............................................................

who signed the said bond on behalf of the principal, was then ............................................................ of said

corporation; that I know his signature, and his signature thereto is genuine; and that said bond was duly

signed, sealed, and attested for and in behalf of said corporation by authority of its governing body.

[CORPORATE SEAL]

INSTRUCTIONS

1. This form shall be used for construction work or the furnishing of supplies or services, whenever a

performance bond is required. There shall be no deviation from this form except as authorized by the

General Services Administration.

2. The surety on the bond may be any corporation authorized by the Secretary of the Treasury to

act as surety, or two responsible individual sureties. Where individual sureties are used, this bond must be

accompanied by a completed Affidavit of Individual Surety for each individual surety (Standard Form 28).

3. The name, including full Christian name, and business or residence address of each individual

party to the bond shall be inserted in the space provided therefor, and each such party shall sign the

bond with his usual signature on the line opposite the scroll seal, and if signed in Maine or New Hamp-

shire, an adhesive seal shall be affixed opposite the signature.

4. If the principals are partners, their individual names shall appear in the space provided therefor,

with the recital that they are partners composing a firm, naming it, and all the members of the firm shall

execute the bond as individuals.

5. If the principal or surety is a corporation, the name of the State in which incorporated shall be

inserted in the space provided therefor, and said instrument shall be executed and attested under the cor-

porate seal as indicated in the form. If the corporation has no corporate seal the fact shall be stated, in

which case a scroll or adhesive seal shall appear following the corporate name.

6. The official character and authority of the person or persons executing the bond for the principal,

if a corporation, shall be certified by the secretary or assistant secretary, according to the form herein

provided. In lieu of such certificate there may be attached to the bond copies of so much of the records

of the corporation as will show the official character and authority of the officer signing, duly certified by

the secretary or assistant secretary, under the corporate seal, to be true copies.

7. The date of this bond must not be prior to the date of the instrument in connection with which it

is given.
pressed as a lump sum, e.g., $20,000 on a job estimated to cost $300,000, or $50,000 on one estimated to be $1,000,000. Again, the deposit may be a certain percentage of the bid price. Under either method, the engineer is estimating a sum which will give adequate protection to the owner. If the bid bond or the deposit proves too small, the owner may suffer real loss. On the other hand, in the case of a deposit, the insistence upon an unduly large amount of protection by the owner will needlessly increase the expenses of any who have to borrow money in order to secure the required funds.

16-8. Labor-and-materials Bond. To guard against difficulties arising from the contractor's failure to pay for labor and materials, it is desirable to require that the contractor furnish a bond to protect the owner against loss if the contractor should indeed fail to pay for such labor and materials and for any subcontracting that he agreed to. There are statutes providing that contractors engaged in public jobs shall give not only a bond to "secure" performance but also one to protect materialmen and laborers, suits by these third persons being expressly or implicitly authorized. The weight of authority today seems to sustain the right of such third persons to recover on a surety bond that contains the condition that the contractor "shall pay all claims for labor and materials," or that he "shall pay laborers and materialmen."

Here is an example of how unfortunate the failure to secure a labor-and-materials bond can be. Owner C, a resident of Connecticut, made plans for a new house that he wanted to have built. He thought that he would economize by making the drawings and preparing the contract himself instead of engaging an architect to do so. He let the contract to a "friend." When the work was about 90 per cent complete and when the builder had been paid that portion of the contract price, the friend quit. During the next few days several concerns which had furnished materials, several subcontractors who had installed plumbing and heating fixtures, and others who had done miscellaneous work appeared on the scene with claims against the owner for what was due them from the contractor. The owner was shocked to find that the laws of the state of Connecticut required him to pay these bills. Before he was through with the construction, the job had cost approximately 40 per cent more than he had contracted for. His only recourse was to sue his former friend, the builder.

As stated previously, a separate bond covering labor and materials is recommended. As an illustration, the Labor and Material Payment Bond (Form 107) approved by the American Institute of Architects is

Or a single bond may be used to cover both the performance and labor-and-materials features.

Equitable Surety Co. v. United States of America, to the Use of W. McMillan & Son, 234 U.S. 448 (1914).
reprinted below. If desired, however, it is possible to so arrange the performance bond as to include therein protection for the owner against claims made by unpaid laborers and materialmen.

The reader should notice that the labor-and-materials bond is intended to apply only to such labor and materials as are ordered by the contractor and are necessary to do the work required by the particular contract. Because the bond is basically for the protection of the laborers and materialmen as well as of the owner, breach of contract by the owner probably will not release the surety from its obligation, which, broadly speaking, is to pay for goods and services to the extent the contractor does not.

LABOR AND MATERIAL PAYMENT BOND

(Private Construction)

NOTE: This bond is issued simultaneously with another bond in favor of the owner conditioned for the full and faithful performance of the contract. Know all men by these presents, that

(Here insert name and address, or legal title, of the Contractor)

Principal, and

(Here insert the legal title of Surety)
called Surety, are held and firmly bound unto

(Here insert the name and address, or legal title, of the Owner)

the use and benefit of claimants as hereinbelow defined, in the amount of

(Here insert a sum equal to one-half of the contract price)
dollars ($ ), for

the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated

(Here insert full name and title)

entered into a contract with Owner for

in accordance with drawings and specifications prepared by

(Here insert full name and title), which contract is by reference made a part hereof, and is hereafter referred to as the CONTRACT.

Now, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

21 What constitutes labor and materials has been construed rather broadly by the courts.
1. A claimant is defined as one having a direct contract with the Principal or with a sub-contractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the contract.

2. The above named Principal, and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant may sue on this bond for the use of such claimant in the name of the Owner, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon, provided, however, that the Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant,

(a) Unless claimant shall have given written notice to any two of the following: The Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail, postage prepaid, in an envelope addressed to the Principal, Owner or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.

(b) After the expiration of one (1) year following the date on which Principal ceased work on said CONTRACT.

(c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.

Signed and sealed this __________ day of __________ A. D. 195 __________

In the presence of:

___________________________ (Seal)
Principal

___________________________ (Seal)
Surety Company
17-1. Purpose. The owner, the engineer, and the contractor are all interested in having the requirements of the job clearly defined in the contract so that each can cooperate and see that the project proceeds to a successful conclusion. This objective can best be attained when the advance information has been prepared carefully and presented clearly for the benefit of the bidders. This chapter contains a discussion of some typical instructions for bidders, together with explanations of what is involved and of why various requirements are desirable. The information given applies to contracts in which competitive proposals are desired. These instructions frequently constitute a separate section, which may be placed near the beginning of the contract and specifications.

In government contracts competitive bidding is usually a requisite. In private work the owner can ask for competitive proposals, or, as stated in Chapter 8, he can dispense with this step and negotiate directly with the contractor he wants.

17-2. Request for Bids. One of the first items in the instructions for bidders is a formal statement by the owner in which he invites or requests the submission of proposals for the performance of the work to be done under the contract. The exact time and place for receipt of proposals is designated, e.g., "10:30 to 11:00 o'clock, Central Standard Time, on the morning of Wednesday, March 18, 1956, in the office of the Chief Engineer, John Jones Corporation, 45 Main Street, Chicago, Cook County, Illinois." If earlier delivery is permissible, this fact should be stated, and the address for such prior delivery given.

It is important that this time schedule be adhered to by the bidders unless some real emergency renders compliance by all impossible. The owner, on the other hand, has the right to postpone the time established for opening the proposals, but he should give the prospective bidders adequate written notice of intention to do so.

For example, if any contractor advises him that the allotted time is too short to permit a proper analysis of the job, it may be in the owner's interest to grant an extension of time for the preparation of estimates.
17-3. Compulsory Adherence to Form of Proposal. It should be stipulated in the bidding information that all proposals not only must be set forth in full on the printed form prepared by the engineer but also must be prepared in strict conformity with the instructions for bidders. As stated in Art. 15-12, deviations, omissions, and errors may constitute cause for rejection. It is easy to see that confusion and uncertainty might occur if each bidder were free to present his proposal in whatever form he desired.

In one actual case, bids were requested for fabrication and erection of the structural steel for a large mill building which was to contain several large cranes, some having a capacity of 200 tons. The drawings and specifications called for all trusses, columns, crane girders, and bracing to be field-riveted. One bidder submitted his proposal on the basis of the use of high-strength bolts instead of field rivets; his proposal was consequently rejected because he did not adhere to what was asked for.²

17-4. Opening of Proposals. The instructions are to contain specific data regarding the procedure to be followed after the bids are received. It is best to specify that each proposal be contained in a separate, sealed envelope, addressed as directed in the instructions for bidders. Each envelope should be clearly labeled "Proposal for Contract _________." The reason for keeping the contents of each proposal secret is to avoid subsequent claims of collusion. Not even the owner should know the contents of any proposal prior to the official opening.

At the stated hour the sealed proposals should be publicly opened and publicly read aloud. Opening of the envelopes in public is desirable—again, to avoid the possibility of collusion. Reading in silence, even if done in the presence of others, is not sufficient; the reading must be done aloud so that all present may hear. Usually a representative of each bidder will be on hand to watch out for his principal's interests. Furthermore, it is desirable to have a disinterested person check the bids as the reading proceeds or promptly after it terminates.

17-5. Special Data Accompanying Proposal. Obviously, if certain information is required of the bidder, the instructions must be specific about what that information is, and the bidder must give the information or risk having his proposal rejected by reason of omissions. The requested data may include material with respect to the bidder's financial resources, his available equipment and organization, and other jobs he

²If the engineer had accepted this bid, which was made on the basis of a cheaper kind of field connection, he would have been unfair to the other bidders. If bolts could have been used, all bidders should have been told that the substitution of high-strength bolts would be acceptable.
has done which are comparable to that in prospect and which would thus evidence his pertinent experience and qualifications.

It is sometimes desirable for the engineer to insert in the instructions for bidders a clause giving him the right to require the bidder to present his proposed time schedule for the performance of the various parts of the job. This is sometimes a condition of the bid's acceptability.

17-6. Withdrawal of Proposals. As a general rule, withdrawal of a proposal will not be permitted—at least not within, perhaps, one-half hour of the scheduled opening of bids. In no event should a proposal be withdrawn after the public opening and reading session is under way.

Even where timely withdrawal is permissible, the bidder must show an acceptable reason for his change of heart. One valid reason might be the discovery of a numerical error in his figures—and this does not mean a change in his judgment. It may be that he has inadvertently omitted some major quantity of material or some substantial labor item from his calculations, or, he may have included the same item twice. In these relatively rare instances, the engineer must decide whether or not to allow him to correct his proposal (if there is yet time for that) or to withdraw it completely.

The engineer should see to it that every course of action taken is fair to the owner, the bidders, and himself. Mistakes may occur, of course. If the lowest bidder has made a very serious error—one that will obviously cause him substantial financial embarrassment—the engineer should not insist upon punishing him just because a chance to do so presents itself. Fair play in a particular case may demand that the engineer recommend (1) that the contractor be allowed to withdraw his unfortunate proposal or (2) that he enter into a modified agreement satisfactory to the owner or (3) that his bid be rejected. On the other hand, the mere fact that a contractor makes an error that will cause him to lose money on the job is not always in and of itself sufficient cause for leniency by the engineer. Just where the line should be drawn is often difficult to ascertain. The decision in any event is to be made by the engineer rather than by the contractor.

On a large tunnel job, the lowest bid was approximately $1 million (15 per cent) under both the engineer's estimate and the next-higher proposal. The engineer called in the low bidder and told him that, if he had made an error, he might withdraw his proposal. The contractor stated that his bid was as he intended, and he revealed that it was based upon the use of certain new, patented equipment. The proposal therefore was accepted. Yet it is reported that in another case a contractor

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3 This prohibition should be publicized in the invitation for bids.
4 A different outcome from a court decision is cited at the end of this article.
forgot to include a $50,000 stack in his proposal for the construction of an industrial plant. The contractor was not allowed to withdraw his proposal without penalty.

In cases where the bidder has erred, the engineer's primary duty is to protect the owner's interests. But it may very well not be to the latter's advantage to force the contractor into possible bankruptcy by having him go through with a thoroughly unrealistic proposal and then perhaps end up by having to find someone else to finish the work at a considerable cost. Often, in such cases, it is preferable to accept the next-higher proposal in the first place and let the erring bidder off the hook.

Assume that a contractor submits proposals on two different contracts that happen to be scheduled for award at approximately the same date and that he is not equipped to handle both jobs simultaneously. If he is the low bidder on both, his limited capacity will not serve as a sufficient excuse for his withdrawing either bid without penalty. He should have been content to take his chances on the acceptance of one proposal or the other, rather than bidding on both jobs.

Smith, a contractor, made a bid for the construction of some school buildings. Mechanical, electrical, and plumbing work were to be subcontracted. In the last-minute rush, one of these items was inadvertently omitted in summing up the estimated cost. Upon finding himself low bidder, Smith immediately checked his figures and discovered the error. Upon refusal of his request to withdraw his proposal, he volunteered to sign the contract if this item was added to his bid price. The owner refused, rejected all bids, and readvertised the job. Subsequently the owner sued the unfortunate Smith for the excess of the eventually accepted bid price over Smith's original bid. The court rejected the owner's claim, since Smith's honest mistake had been promptly brought to the owner's attention, Smith had offered to sign the contract if allowed to correct the error, and the owner had elected to readvertise rather than to accept Smith's revised proposal or the offer of the next-higher bidder.

17-7. Lowest Responsible Bidder. It is advisable to state in the instructions for bidders that, if awarded at all, the contract will go to the lowest responsible bidder. Of course, the owner wants to get his job done as economically as possible, but this may not necessarily mean awarding the contract to the lowest bidder. There are other considerations. Below are some of the reasons behind this last statement:

1. The lowest bidder may not have sufficient finances to handle the job. It may therefore be cheaper in the long run to award the contract to the next higher bidder, rather than to chance trouble and loss for the owner if the financially embarrassed low bidder gets the award and then cannot finish the work. Even though the posting of a bond is oblig-
atory to afford the owner a measure of protection against such an eventu-
ality, it is desirable to require the bidder to present with his proposal a
statement of his financial condition.

2. The lowest bidder may not have sufficient experience in the par-
ticular kind of work. Proof that this situation pertains is not always
readily apparent. The record of his past performance is the best guide,
but limitations therein revealed need not mean that the bidder is inca-
pable of accomplishing something different from or bigger than that
which he has previously undertaken. However, it may be reasonable to
question the ability of the bidder to perform a $500,000 contract when
the largest one that he ever handled before was in the neighborhood of
$50,000.

3. The lowest bidder may have an unsatisfactory reputation—at least
in the opinion of the engineer. For instance, this contractor may in the
past have been guilty of careless work, of always maneuvering for extras,
of being uncooperative, and of making it necessary for the engineer to
inspect the work with extreme care. Although rejection on these
grounds of reputation may lead to many arguments, it remains a proper
course of action when circumstances occasionally dictate.

4. The lowest bidder’s staff and equipment may be inadequate. This,
too, is difficult to establish. The instructions could require that, if asked
to do so by the engineer, the bidder shall submit an itemized list of his
proposed staff and of his present and prospective equipment. Justifica-
tion for such a move is obvious for it would be most unwise to award to
a small building contractor with limited resources the contract for the
construction of a large and difficult harbor improvement. Though his
bid may be in perfectly good faith, such a contractor is not equipped to
do the job involved, and acceptance of his bid would likely result in mis-
fortune for him and trouble for all concerned.

The engineer should be very careful to make sure that his action in
rejecting a proposal is right and can be defended if necessary. Personal
feelings alone may not justify rejection, even in private work, but the
blanket right to turn down, for any reason whatever, any and all bids
should be reserved for use in the event it is needed.

17-8. Prequalification of Bidders. To avoid the possibility of having
to reject a proposal for reasons such as those described in the preceding
article, some engineers have adopted the procedure of prequalification
of bidders. To accomplish this, an individual or a group is empowered

A provision in the advertisement for tenders stating that the bidders will be re-
quired to give security for the performance of the work may be waived by the
owner, and a valid contract will be created by the acceptance of a bid, although
no security is given by the bidder. See Mobile and Birmingham Railway Co. v.
Worthington, 95 Ala. 598, 10 So. 839 (1892).
to determine whether or not particular general contractors are qualified in all respects to handle contracts of a certain size and type. Basing its action upon such research, a state highway department, for example, may prepare a list of contractors who are approved as prospective bidders on its future projects. Preparation of such a list is difficult because (1) omission of a particular contractor is likely to be criticized as unfair; (2) political pressure may be exerted in favor of one or more concerns; (3) a contractor who can handle one kind of work may not be suitable for work of other character; (4) a contractor may be able to perform a $50,000 contract but not one involving $500,000 worth of work; (5) a contractor who is not able to qualify at one time may be able to meet all requirements later, or vice versa; and (6) the ability of men to accomplish contract work successfully is not always easily determined.

As a general proposition, it seems preferable to decline to allow an unqualified contractor to bid at all rather than to refuse to award him the contract after he has gone to the trouble and expense of making his proposal. In addition, this prequalification procedure may prevent someone from becoming saddled with a contract which, because of its scope and complexity, would likely prove disadvantageous for him, notwithstanding his personal belief to the contrary.

Private owners can use this principle of selection simply by restricting the sending of inquiries and data to those whose qualifications have received advance approval. Governmental bodies, such as certain state highway and public works departments, may, unless there are statutes forbidding it, use this method to advantage when preparing to award contracts, but it may be more difficult for them to do so because of claims of partiality.

Prequalification of subcontractors may also be practiced, and, if it is, the general contractors should be given the essential information before bidding, since this might affect their advance arrangement with prospective subcontractors.

17-9. Rejection of Bids. As previously mentioned, instructions for bidders should state that the owner has the right to reject any or all proposals. Reasons for the rejection of a single proposal have been shown in connection with the preceding discussion concerning the lowest responsible bidder. The same objections may apply with respect to the next-higher bidder or to any other one. Rejection may also be desirable...
for any proposal that has not fulfilled all the prescribed requirements and for any that seems to contain a flagrant unbalancing of bid unit prices.

The owner should have the right to reject all proposals if the lowest bid proves so high that he feels he cannot afford to go ahead with the project. It might also happen that sickness, a financial reverse, or some unforeseen happening has occurred and made it inadvisable for the owner to proceed in accordance with his original intentions. If so, it is better for him to abandon his plans than to consummate a contract that is likely to prove unduly burdensome. Again, it is emphasized that the engineer should make sure both sides are treated fairly. The preparation of a proposal costs a contractor time and money. The owner should not ask for proposals only to reject all of them because of some whim or sudden change of heart.

Assume that Brown advertised for and received proposals on the modernization of his large warehouse. Before the contract was let he received a very attractive offer from Jones for the structure "as is." Being near retirement age, Brown decided to accept this offer and to discontinue his warehousing business. The unexpected opportunity to sell meant that he was no longer interested in the remodeling project. He therefore rejected all the proposals. This example points up the relatively weak position in which bidders find themselves; normally they cannot withdraw their proposals once submitted, whereas the owner can drop the entire project if he wishes to do so.

In government work it is generally required that at least three proposals be received on a project before any can be accepted. This rule is designed to assure what may be deemed "adequate competition."

17-10. Readvertisement. If the lowest bid is higher than the amount of money available to pay for the job, the engineer—absent changes in the contract—should not readvertise in the hope of obtaining lower bids the next time. Shopping for bids is a very bad practice; the lowest proposal in the original batch is then known, and each bidder is told in effect that he must beat that figure in order to stand a chance of getting the contract.

If the first group of proposals is to be rejected and the contract readvertised, the entire design or some major feature of the job should be substantially changed (perhaps by reducing the extent or the quality of the performance required) so that the new bids will be submitted on an independent basis of their own.

Let us say that the bids on a large school building are in the vicinity of $2½ million, whereas the appropriation is limited to $2 million. The proposals have to be rejected because of lack of funds. Perhaps one entire wing can be eliminated and the job sent out for new proposals.
This, however, is likely to be unwise. If the one wing that is to be eliminated is about one-fifth of the former structure, perhaps the total cost will be proportionately decreased, but the bidders on the smaller structure will be influenced by the knowledge obtained from the former proposals, since they are given a sort of goal which they have to beat. It will probably be more desirable not only to omit this wing but also to change the framing to a more economical type, to use cheaper materials, or to make other revisions so that the materials and workmanship are so changed that the bidders practically have to reestimate the project in its entirety.

It is possible in such a case as the preceding one to negotiate a revised contract with the lowest responsible bidder, getting from him a greatly reduced quotation on the smaller structure. However, this procedure is somewhat unfair to the other bidders, and the cost to the owner is likely to be greater than if all bidders made new proposals on the basis of the revised project.

It is obvious that the engineer should be very careful to make his original estimate of cost adequate in the first place rather than to lead the owner to believe that what the latter wants can be had at an unrealistically low price.

17-11. Deposit for Securing Plans. Information should be given in the instructions for bidders regarding how, where, from whom, and for what price copies of the plans, specifications, and other contract documents may be obtained. It is customary to require prospective bidders to make a cash deposit for these papers, the charge representing the estimated cost of printing or an amount that will preclude requests from those who are not seriously interested in bidding. The amount of the deposit generally runs somewhere between $5 and $25 for the complete set. Payment usually must accompany the request for the papers. The instructions for bidders will specify the size of the deposit and also (customarily) the fact that all of the deposit (or some stated portion) will be refunded upon the return of the papers in good condition. Sometimes the refund is limited to those who not only return the papers but also actually submit bids as well.

17-12. Miscellaneous Items. Among the various other items on which the instructions for bidders should usually contain information are the following:

1. The amount of the performance bond. The performance bond has been explained in Chapter 16. The amount of the bond should be

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*Although these items may appear elsewhere in the contract documents, it is advisable to include them as well in the instructions for bidders in order to call them specifically to the attention of prospective contractors.

* This is also known as the construction bond.
specified, together with a proviso that the owner shall have the right to approve all sureties. The presentation of the proposal should obligate the bidder to furnish this bond if and when he is awarded the contract.

2. The time limit between the opening of the proposals and the award of the contract. This interval is ordinarily one to four weeks. It is not right for either party to hold up the other by undue delay in signing the contract. If the owner decides not to accept any of the proposals, he should take appropriate action in this one-to-four-week period. It is also essential to set a time limit—perhaps seven days—within which the contractor is to sign the contract after official written notice to him (by the owner) that his proposal has been accepted.

3. Time limits on work. Any time set for the beginning or completion of the contract work should be indicated. The same applies for any bonuses for particularly rapid execution of the job and, conversely, in respect to any liquidated damages for failure to complete it on time.

4. Taxes. There may be special taxes, licenses, permits, or fees that the contractor must assume, pay for, or provide. Whether or not he is to be thus obligated, the situation should be clarified at the outset.\(^{10}\)

5. Building permits, etc. The owner is generally responsible for obtaining necessary building permits, rights of way, easements, and real property.

6. Comparison of proposals. As previously mentioned, the forms which must be used in submitting proposals are to be provided for the bidders.\(^{11}\) The method by which bids will be compared should also be explained.

7. Familiarity with the work. The instructions for bidders should provide that, upon signing the proposal, the bidder thereby states (1) that he has familiarized himself with the conditions at the site, the requirements of the contract, the character of the work, and the content of the plans and specifications and (2) furthermore, that he agrees to sign the contract if his proposal is accepted.

8. Corporate charter. In the case of corporate bidders, it may be desirable to require that a copy of the corporation's charter (or other proof of its right to conduct business and perform the work indicated) be furnished the owner.

9. Labor. Any special requirements affecting labor should be given. For example, in some states it seems that all workmen (or a specified

\(^{10}\) Here, for example, is a clause taken from the instructions for bidders in connection with the contract for an extension to a hospital:

"Sales Tax:

"The Institution is not subject to the State Sales Tax, and the Contractor shall take advantage of this in his bidding."

\(^{11}\) See Art. 15-11 for a further discussion of this subject.
percentage of them) employed on a construction job must be residents of
the state in question.\textsuperscript{12} Also, it is required in some jurisdictions that the
rates of pay for labor be published in the instructions for bidders. Like-
wise set forth should be any restrictions that would compel the employ-
ment of a particular type of labor, e.g., union members exclusively.

10. Labor-and-materials bond. Details should also be given concern-
ing any labor-and-materials bond that may be required.

11. Return of deposits and papers. It is important to state in the
bidding information that any deposits, financial statements, and other
private papers accompanying each proposal will be returned to each
bidder upon the award and signing of the contract. If the owner de-
cides not to go ahead with the undertaking, all deposits (including bid
deposits, discussed in Chapter 16) are to be refunded, and such action
should be taken as promptly as possible so as not to tie up the bidders'
funds unnecessarily.

\textsuperscript{12} Such requirements are also likely to be applicable to foreign jobs. On one
project in Chile it was necessary for the contractor to obtain 90 per cent of his labor
from local sources.
CHAPTER 18

Advertisement

18-1. Purpose of Advertisement. Advertisement of a contract is usually aimed at interesting a considerable number of contractors in the proposed work so as to secure the benefit of keen bidding competition. In other cases, the advertisement may be made for the purpose of fulfilling legal requirements or simply as a matter of policy. Again, the purpose may be a combination of the foregoing.

If a large construction job is being designed, it is probable that news concerning it will spread by word of mouth and that interested contractors capable of doing the work will thus know most of the story in advance of formal advertisement. In the case of smaller projects, however, the published notice may be very effective in reaching prospective bidders who might otherwise fail to learn about the job. Those among them who need work will naturally try their best to get the contract.

In private work the owner need not publicly advertise for bids but has the right to negotiate directly and to contract with whomever he chooses. There are contractors who have built up an excellent reputation for certain specialized kinds of work, and the owner may prefer to trust one of this elite group to make him a good proposition and to do a fine job for him.\(^1\) This procedure has much to recommend it in connection with monumental structures, industrial construction, and other work that requires special knowledge and equipment. On the other hand, private work should, in the average case, be advertised, both to secure the advantages stemming from healthy competition and to make sure that no stockholder or other interested person can with justification accuse the men responsible for awarding the contract of favoritism detrimental to the owner's interests.

The law generally requires that federal, state, and municipal contracts be advertised publicly. This method opens the way to having the work

\(^1\) This is especially true if the owner has on previous occasions experienced excellent results with a particular contractor.
done at a minimum cost to the public. If the requisite three bids are
not received on government projects, special authorization will ordinarily
be needed if an award is nonetheless to be made.\(^2\) A scarcity of bids
is most likely to occur when the project involves special work that only
a very few contractors are equipped to perform.

18-2. Advertising Media. Since printed advertisements cost money, it
is important to utilize expenditures to the best advantage by advertising
a contract in whatever media are most likely to bring the message to the
attention of the greatest number of potential bidders. A large city daily
newspaper reaches many people, but contractors may not be accustomed
to looking in it for data about extensive contract work in the offering. On
the other hand, local projects are frequently advertised in small-town
newspapers, and those who are interested in such work will look for the
advertisements there. Trade journals—the Engineering News-Record
for one—make a specialty of advertising for proposals on construction
contracts, and many contractors are wont to look to that source for in-
formation.

Before advertising a contract, one should study the nature of the job
and the available means of conveying the information to potential
bidders. The object is to get the best results for a minimum of ex-
penditure, and the fact that one advertiser’s rates are very low is but one
aspect of the picture; despite its attractive price schedules, that ad-
vertising medium may not offer the best prospect of success in securing
keen competition and some reasonably low bids.

18-3. Timing of Advertisement. A related question is that of timing.
An advertisement appearing several days in succession may be desirable
for some purposes. In other circumstances, one that is repeated weekly
or biweekly for a month or so may be preferable, provided the pub-
lication carrying the advertisement appears on a regular time schedule.

In regard to public work, a check should be made to assure that no
laws are violated by the method or timing of the advertising.

18-4. Attracting Attention. An advertisement’s heading should be
such as to attract the attention of the reader and enable him to see at a
glance that the text may well contain something of real interest to him.
In the heading, or immediately following it, should be disclosed the site
of the work and the owner for whom the structure is to be built. The
first-named factor is of obvious significance. If the mentioned location
is within operating distance for him, the prospective contractor will want
to learn more about the job; if it is far removed from his area of activity,

\(^2\) In case of war or other emergency, it may be necessary for the government to
dispense with public advertising and to negotiate with someone directly because the
public welfare requires that the work be started and executed with all possible
speed.
he will not take the time to read the details. Likewise, a contractor’s reaction to the advertised work may depend to some extent upon the owner’s identity. The builder may have some prejudice one way or the other which will have a bearing upon his desire to do the work in question.

The following title appeared on an advertisement in the Engineering News-Record:

Bids, March 7, 1955
New Municipal Building and Library, Westfield, N.J.

Thus the reader was quickly informed about the general character and location of the project and the date for bids. Those who are interested in the type of work and locale indicated are then likely to read the full advertisement, whereas others will merely pass on to something else.

If a reader has to look over in detail one involved item after another in a long series without finding anything of particular interest to him, he is sooner or later going to stop looking altogether and may thus miss the very advertisement you wish him to see. If all the advertisers in a given publication see to it that the titles of their advertisements are clear and instructive, the reader will be likely to at least glance at each one and thus to notice your particular item.

18-5. Information to Be Given in the Text. The body of the advertisement should consist of a brief résumé of the proposed project and of the special conditions or requirements which distinguish it, e.g., regulations affecting labor rates for men working under compressed air during the construction of a subaqueous tunnel. Just what a particular advertisement ought to contain will depend upon the circumstances. The following are points to cover in advertising typical construction work:

1. The kind of job, e.g., school construction, sewers, etc. This matter is of obvious import and must be thoroughly handled, even if the heading of the advertisement—as it should—outlines the picture.

2. The locale in which the work is to be performed.

3. The owner for whom the job is to be done. From the identity of the owner and his engineer many contractors can judge the quality of the work which will be required and the extent of the cooperation they can expect. Other things being equal, a contractor is likely to make a lower bid on work designed by and under the charge of an engineer whom he knows personally or concerning whom he has heard good reports than on work handled by an engineer totally unknown to him or in whom he for some reason lacks confidence.

*In most cases, the advertisement is, to a large extent, a condensed version of the instructions for bidders.*
4. The magnitude of the project. The advertisement should give some scale to the job, so that the reader can see whether or not it is too small to be interesting and profitable to him or, perhaps, so big that he cannot feasibly handle it. It is usually desirable to avoid stating the engineer's estimate of cost in dollars, although such figures are occasionally included. Publication of the engineer's estimate tends to give the contractors a sort of target at which to aim in making their bids. Each bidder is thus inclined to set his quotation as close to the engineer's estimate as he dares without risking the loss of the award, provided, naturally, he believes he can do the work at a cost no greater than the engineer's figure. Furthermore, the engineer's estimate may or may not accurately represent the true cost of the project. Therefore, in lieu of a statement of estimated cost, the size and character of the job is often shown by one or more of these methods:

a. Dimensions of width, length, and height.

b. General size, number of floors, type of framing, kind of floor and wall construction, e.g., "School, 75 by 250 ft; 3 stories, steel frame, brick walls, concrete floors."

c. Square feet of floor area (plus general description of the structure).

d. Cubic feet of volume (plus general description of the structure).

e. Estimated quantities of some major items of material or work, e.g., "50,000 cu yd of earth excavation."

f. General capacity and character, e.g., "Reinforced-concrete, four-story hospital to accommodate 200 beds."

g. General scope and scale, e.g., "5 miles of concrete pavement for four-lane highway," or "200-ft 2-lane steel-truss highway bridge."

5. The type of contract, e.g., "lump sum," "unit price," etc. This aspect is of particular significance in the case of large contracts.

6. The date, place, and form of receipt of sealed bids. Note that the date of opening of the bids is the first item appearing in each of the advertisement examples given in Art. 18-6.

7. The procedure which will be followed in opening and reading of bids. The advertisement should state that the proposals are to be opened and read aloud publicly. The words "opened and read" would not be sufficient because such a statement would permit opening of the bids in secret and reading in silence.

8. The action regarding letting of the contract. If the contract is to be awarded to the lowest responsible bidder, that fact should be made clear. Also, a time within which the contract will be awarded after opening of the proposals should be stated, e.g., "two weeks after opening of the bids."

9. The possibility of rejection of any or all proposals. It is generally advisable to state in the advertisement the fact that the owner has the
right to reject "any or all" bids (perhaps because the indicated costs may be too high or because all bidders may be "unsatisfactory").

10. The type and size of deposit required with the proposals. Not only should this requirement be stated, but procedure for the return of deposits should be clarified.

11. The performance bond. If such a bond is required, this fact should be set forth, together with the amount expressed in dollars or as a percentage of the bid price.

12. The time set for starting and completing the work. The reason for detailing these points in the advertisement is obvious. As a corollary, any contemplated bonus or liquidated-damage provisions should be mentioned.

13. The availability of data and forms. State (a) where and from whom the contract papers, drawings, and specifications may be obtained; (b) at what cost; and (c) whether or not a refund will be made upon their return in satisfactory condition.

14. The withdrawal of bids. Indicate whether or not this is permissible. If bids may be withdrawn—which is not customary—state the conditions under which such a maneuver may be accomplished.

15. The date for signing the contract. State any final date by which the selected bidder must sign the contract so that work may progress on schedule.

16. Special conditions. If special hazards exist, if restricted or full traffic must be maintained, if particular labor conditions prevail, or if unusual features are involved, these conditions should be mentioned in the advertisement.

It may seem that so much information is superfluous in a mere advertisement. However, a fairly complete description at this early stage of the proceedings is helpful to all concerned. It aids the engineer by reducing the number of inquiries from persons accustomed to making a full investigation before deciding whether or not they can handle a given job and wish to do so. In many cases—absent a complete advertisement—a prospective contractor might too hastily conclude that he is not interested, thus reducing potential competition and presumably working to the disadvantage of the owner. On the other side of the picture, a reasonably detailed advertisement helps, too, by cutting down the number of useless requests for plans; presumably, only those contractors who are real prospects will bother to apply for supplementary information.

From the legal standpoint, a sufficiently comprehensive, accurate advertisement protects the engineer against the possibility of a claim that he misrepresented the nature and conditions of the proposed
contract. In this connection, also, it is advisable to reprint the entire advertisement in the contract documents, particularly when the project involved is a public job.

18-6. Examples of Advertisements. The following two advertisements have been copied from Engineering News-Record, Feb. 5, 1953. Their content should be compared with that suggested in the preceding discussion.

"Bids: February 24, 1953

Construction of Eleven Piers

"Sealed proposals will be received by the West Virginia Turnpike Commission for:

Contract No. 13

"The work to be done under this Contract consists generally of the construction of the eleven piers and two abutments for the Kanawha River Bridge at about Mile 85 along the route of the Turnpike near Reed in Kanawha County, all in connection with the construction of the West Virginia Turnpike in the State of West Virginia.

"The principal items of work include:

<table>
<thead>
<tr>
<th>Approximate quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,320 cu yd</td>
<td>Excavation—river piers</td>
</tr>
<tr>
<td>4,600 cu yd</td>
<td>Excavation—land piers</td>
</tr>
<tr>
<td>19,600 lin ft</td>
<td>Treated timber piles</td>
</tr>
<tr>
<td>2,850 lin ft</td>
<td>Steel piles</td>
</tr>
<tr>
<td>6,630 cu yd</td>
<td>Concrete</td>
</tr>
<tr>
<td>575,000 lb</td>
<td>Reinforcement steel</td>
</tr>
</tbody>
</table>

"Proposals will be received at the office of the West Virginia Turnpike Commission, 1340 Wilson Street, Charleston 1, West Virginia, until 9:00 A.M. Eastern Standard Time, and thereafter at the Woman’s Club of Charleston [at] Virginia and Elizabeth Streets, Charleston, West Virginia, until 10:00 A.M. Eastern Standard Time on February 24, 1953, at which time and place the proposals will be publicly opened and read.

"Contract documents may be examined by prospective bidders during office hours after January 27, 1953, at the offices of the General Consultants, Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia, and 55 Liberty Street, New York 5, N.Y.

"Contract documents will be furnished for Fifteen Dollars ($15.00) for each set, upon application to Howard, Needles, Tammen & Bergendoff, 804 Greenbrier Street, Charleston, West Virginia (mailing address: P.O. Box 5266, Capitol Station, Charleston, West Virginia). Payment will not be refunded and contract documents are not required to be returned. Checks for plans and specifications shall be drawn payable to Howard, Needles, Tammen, and Bergendoff.

"Proposals must be made upon the proposal forms furnished by the Commission in the manner designated in the Specifications, and must be
enclosed in sealed special addressed envelopes bearing the name and address of the bidder and the number of the contract on the outside, and must be accompanied by a CASHIER’S OR CERTIFIED CHECK OR PROPOSAL BOND in favor of the West Virginia Turnpike Commission for not less than five (5) PER CENT OF THE AMOUNT OF THE PROPOSAL, but not less than $500.00 nor more than $200,000.00 and must be delivered at the place designated above on or before the day and hour named. Copies of the proposal form and proposal bond form to be used for submitting proposals, and of the special addressed envelope are furnished in detached form with the contract documents.

"The contract will be awarded or the proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all proposals, and to waive any or all formalities.

WEST VIRGINIA TURNPIKE COMMISSION

D. Holmes Morton, Chairman

January 20, 1953"

"Bids: February 10, 1953

Gasoline-Engine Generator Sets
Contract 437

"SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, February 10, 1953, for Contract 437, for furnishing, testing, delivering and unloading gasoline-engine generator sets with switchgear and appurtenances for the West Branch and the Kensico South effluent chambers of the Delaware Aqueduct, all as set forth in the specifications.

"No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of two thousand dollars ($2,000.00), for the proper execution of the contract.

"At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1316 at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

"IRVING V. A. HUIE, President, RUFUS E. MCGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary."
PART THREE

Some Legal Matters of Concern to Engineers

This final group of chapters is designed to acquaint the reader with some of the highlights of selected legal subjects. Space limitations, for one thing, preclude anything approaching comprehensive treatment of these broad topics, but it is hoped that the summaries of the law presented will prove interesting and worthwhile. Since the purpose of Part 3 is to give the engineering profession a generalized look at the principles of law in those fields which would seem to hold the most interest and significance for them, a number of areas of legal concern (e.g., domestic relations, criminal law, and wills and estates) are not touched upon at all or, at most, are considered only incidentally. While admittedly important fields of law, they simply do not appear to be of any particular concern to engineers. Instead of attempting to take up a great many different topics in the over-all realm of law, the authors feel that more is to be gained by concentrating herein on torts, agency, and a few other subjects with which the practicing engineer can be expected to come into contact.
19-1. Definitions and Distinctions. Agency can perhaps be well described as sort of a “let-George-do it” arrangement. One party, called the principal, authorizes another, called the agent, to represent the former in certain business dealings with outsiders. Agency has to be a consensual relationship in that the agent cannot be a pure volunteer—a “self-starter,” as it were. His authority must come in some fashion from his principal.

An agent differs from a servant or employee in that the agent has been appointed to act for his principal in commercial transactions with third parties; the servant or employee normally exercises far less discretion than an agent and is under more detailed orders from the employer about exactly how the assigned work is to be performed. Thus, in the usual situation, the servant or employee is hired to do a specified job, typically of a “ministerial” nature, under well-defined restrictions, and is not entitled, for example, to enter into contracts on behalf of the employer. It is possible, of course, for an employee to be authorized also to undertake the separate function of an agent. By way of illustration, a gardener regularly employed to keep a homeowner’s grounds in shape could well be granted the right to purchase any needed supplies directly. When exercising the latter prerogative, the employee-gardener is filling the role of agent, and his employer-principal is responsible on the contractual obligations undertaken. The true agent acts not for himself but for another and under such other’s control. Where such agent proceeds within the scope of his authority, the principal is undeniably bound.

A true independent contractor is neither an agent nor an employee, though his status bears elements of resemblance to each of the other two. The independent contractor is hired to do a given job in return for a set charge; his modus operandi is his own, and the person who did the hiring is not supposed to interfere—indeed, has no right to interfere—in any way during the progress of the work. As long as the end product of his efforts accords with the specifications originally agreed
upon, the independent contractor has done all that can be asked of him. Since the party employing the independent contractor has no right to control performance details, it makes sense that he should not be liable to outsiders for harm to them stemming from negligence of the contractor or of the latter's servants.\(^1\)

Various factors must be considered in determining whether a person acting for another is really an independent contractor or more properly fits the description of employee. One basic consideration, previously mentioned, is the degree of control retained by the individual doing the hiring. Another point concerns the intent of the several parties who created the relationship in question, and still another deals with the method of payment—if "by the job," that is some evidence of independent-contractor status. Ownership of the tools utilized in the work may likewise be significant.

19-2. Trustee Distinguished from Agent. The essential distinctions between trust and agency are that the trustee acts in his own name and has legal title to the trust property,\(^2\) while the agent merely represents and acts for his principal. A trustee normally is given wider discretion than an agent, the latter being under more or less constant supervision by his principal.

19-3. Importance of the Agency Concept. The subject of agency is of tremendous importance in the modern business world and affects to some degree virtually every form of commercial undertaking. Corporate affairs are necessarily handled by agents, since a corporation, by its very nature, can act only through its officers and employees. And a contract of partnership is a contract of agency, differing from what could be termed a pure agency only in this respect: In the latter situation the agent binds his principal only, while in a partnership arrangement each of the partners doubles as principal and agent, and the acts of each are binding on all (including the actor himself).

19-4. Creating the Agency Relationship. Agency is created by express or implied\(^3\) contract or, less frequently, by operation of law, estoppel, or ratification.

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\(^1\) As is usual with broad statements of law, exceptions to the rule do exist. Where, for example, the task the independent contractor is asked to handle is extra-hazardous in nature, the owner cannot divest himself of potential tort responsibility. Furthermore, even where the activity involved is not inherently dangerous, if the owner contracts with someone whom he knows or should know to be incompetent, he may very well be held liable for injury sustained by third parties in consequence of the contractor's faulty execution of the work.

\(^2\) The trustee is expected, of course, to manage and utilize the trust estate in accordance with the terms of the trust instrument and to the advantage of the named beneficiaries.

\(^3\) The implication arises from words and conduct of the parties and from circumstances of the particular case.
Where the relationship rests upon contract, the principal must, generally speaking, intend appointment of the agent, and the latter must intend to accept the appointment and act upon it. In other words, a "meeting of the minds" is essential. Similarly, the other requisites of an ordinary contractual arrangement are needful. Thus, the agency must not have been created to further an unlawful purpose. For another thing, contractual capacity of the respective parties may have to be demonstrated.4

Some jurisdictions have statutes requiring under certain conditions that the agent's authority to act be given in writing.5 Illustrative is the New York statute of frauds, which reads in part:6

"An estate or interest in real property, other than a lease for a term not exceeding one year . . . cannot be created . . . unless by act or operation of law, or by a deed or conveyance in writing, subscribed by the person creating . . . the same, or by his lawful agent, thereunto authorized by writing."

One familiar form of written authority to an agent is, of course, the power of attorney. An offshoot of this is the proxy so frequently used in the handling of modern-day corporate affairs.

19-5. Agency by Estoppel, etc. As was noted at the outset of Art. 19-4, appointment is not the only means by which an agency relationship may be created. One of the miscellaneous bases is agency by estoppel. When Smith so conducts his affairs as to lead outsiders to believe that Jones is his accredited agent, Smith will be estopped from denying the agency when rights of third persons become involved through acts and behavior of Jones, the ostensible agent. Agency by estoppel rests upon representations of the principal and a change of position by some third person in reasonable reliance upon such representations. In the true estoppel situation the agent will be found to have no "real" authority (express or implied), but is deemed, rather, to possess "apparent" authority which the principal has knowingly permitted him to assume. Agency by estoppel is an artificial creature which justice imposes upon the unwilling principal. It should be carefully distinguished from implied agency, which latter is as much actual agency as if it were created by express words. The principal is fully as liable to outsiders in the case of agency by estoppel as he is in the case of implied agency, but only in the former situation must third persons show actual reliance on the principal's conduct.

4 In this connection, it should be noted that a person may handle through an agent whatever business he has the legal capacity to conduct for himself.
5 The usual instance involves a transfer of land interests, where, for example, the agent is to sign the deed.
When the word "ratification" appears in connection with a discussion of agency, it is usually employed to identify the principal's decision to endorse certain acts by the agent in excess of the latter's authority. Occasionally, however, mention is made of a principal-agent arrangement being effectuated by ratification. Thus, it might happen that Black, without any prior commitment from White, undertakes as agent to represent White in a series of transactions. Obviously, White is free to repudiate Black's actions. If, on the other hand, he retroactively assents or, saying nothing, accepts the benefits of any contracts Black has made on his behalf, it can be said that an agency by ratification has arisen. Like agency by appointment, but unlike agency by estoppel, agency by ratification requires consent of the principal.

One other source from which an agency relationship springs should be mentioned here. The law is clear that a wife whose husband has failed to make provision for her necessities is entitled to procure, on her husband's credit, whatever is reasonably necessary for her support and maintenance. The wife's power in this regard is not dependent upon the authority of her husband; indeed, it may be (and often is) exercised over his protest. Though the husband is certainly an unwilling "principal" in many instances, the wife's role is, in a sense, that of "agent." Hence the above-described situation is normally termed an agency of necessity, and the husband, by reason of his misconduct in failing to perform his legal obligation, is precluded from disputing the rather peculiar agency relationship.

19-6. General and Special Agency. A general agent is one empowered to transact all the business of his principal or all of the business of a designated type or, perhaps, all of the business at a particular location. Thus, a partner is a general agent for the partnership as regards all matters which come within the scope of its activities.

On the other hand, the authority of a special agent is confined to one or more specific acts. It is often said that an agency is special when both the end and the means are specific and when no continuity of service is involved. Typically, the special agent is retained to handle a single transaction, and he does so in accordance with definite instructions or within restrictions necessarily implied from the nature of the act to be performed.

The terms general agent and special agent are relative, and the line of demarcation is often difficult to draw. In addition to the powers actually conveyed to him, a general agent has, by implication, incidental

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7 There is a marked distinction between (1) an estoppel to deny the validity of a contract and (2) ratification in fact of such contract. In the latter instance, the principal is bound because he intended to be; in the former, he is bound against his will in order that justice may be done in regard to the innocent third party.
authority to do whatever is customary and is reasonably necessary to accomplish the purpose at hand, and outsiders dealing with a general agent are entitled to rely upon the full scope of his apparent authority. The rule just stated, however, does not apply when actual limitations upon the powers of the general agent are known to the third person or are contained in a writing which he realizes is intended for his inspection. Misleading conduct on the part of the principal can alter the situation at any point, of course.

Third parties who contemplate doing business with a special agent must at their peril determine the precise extent of his authority, since the boundaries of that authority are by no means as vague as in the case of a general agent. A bank teller well illustrates a common type of special agent with familiar and limited powers. He operates under a specific grant of authority, his duties are outlined with exactness, and his position is not such that any implication of undefined powers can legitimately arise.

Summarizing this entire matter, it may be said that neither the general agent nor the special agent can bind his principal unless such agent is acting within the confines of his authority; the general agent has somewhat more room in which to operate. The principal is responsible for all proper undertakings by his agent, regardless of whether the authorization in a particular instance is of the actual or of the apparent variety. Many times an agent will bind his principal through the exercise of apparent authority and, at the same time, will have violated secret instructions given him by the principal. Such flagrant conduct by the agent may well render him answerable in damages to the principal.

19-7. Position of the Agent. Every agent has certain obligations toward his principal. He must display the utmost loyalty and good faith. He must obey instructions and attempt not to exceed his authority. He is expected to utilize reasonable care and skill in fulfilling his duties. And he is obliged to account to his principal whenever the latter insists, and when the agency is terminated; all profits arising from the undertaking are deemed to belong to the principal.

As respects the aforementioned duty of loyalty, the agent is expected to communicate any and all information which he acquires in the course of his agency and which affects the subject matter of that agency. By no means may the agent "compete" with his principal; thus, he may not profit at the principal's expense, as, perhaps, by using knowledge of the principal's business acquired while acting in a confidential capacity for such principal. Similarly, the agent is not allowed to indulge in "self-dealing." For example, an agent who is authorized to make a certain type of purchase cannot secretly buy the commodity from himself. Should this rule ever be violated, the principal can, upon discovery of
the circumstances, rescind the transaction for fraud and recover the purchase price.

We have seen that, in order to bind his principal in a given undertaking, the agent must have acted within the scope of his authority. When a particular act of the agent's is not an authorized one, the principal may yet elect to ratify, thus rendering the situation the same as though the agent had possessed sufficient authority in the first place. Should the principal decline to ratify the agent's overreaching, the latter is potentially liable to any outsiders misled by his claim of authority. Incidentally, the principal cannot repudiate his agent's action as unauthorized and yet retain for himself the fruits of such action.

What of the agent's tort liability? He is generally answerable to injured outsiders for affirmative acts of negligence\(^8\) (i.e., misfeasance), but not for nonfeasance (i.e., passive negligence). Needless to say, an agent guilty of intentional torts of any sort is liable in damages to the victim.\(^9\)

19-8. Position of the Principal. It is a fundamental proposition in law that a principal is liable on all contracts made by his agent while that individual is acting within the scope of his actual or apparent authority.\(^10\) We have seen, further, that unauthorized acts of an agent may nonetheless be ratified by the principal and thus become binding upon the latter.

Generally speaking, the principal is charged with constructive notice of facts acquired by the agent in the course of his duties. The rule just stated is subject to several logical exceptions. Thus, knowledge will not be imputed if its revelation would bare the agent's guilt—for example, when the agent is perpetrating an independent fraud or is otherwise acting adversely to his principal's interest. On an equally sensible basis, information received by the agent long previous to his undertaking the agency relationship will not be imputed to the principal.

The principal has certain basic responsibilities toward his agent, perhaps the most significant of which is the duty to make reasonable compensation for services rendered.\(^11\) Too, the principal is expected to indemnify the agent for injury suffered in the course of conducting the principal's business in line with such instructions as are given. Naturally, an agent must assume for himself a few of the more commonplace risks,

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\(^8\) In most cases both agent and principal are liable.

\(^9\) If the situation is reversed, naturally, and a third party commits a personal tort against the agent, a remedy in damages is available to the agent.

\(^10\) Conversely, when the agent makes such contract in the name of his principal, such principal can hold the third party to the bargain.

\(^11\) In the typical situation, the agent works on a commission basis, and his compensation therefore depends upon the success of his efforts.
such as that of loss of personal funds through theft. The border line between the risks of loss which properly belong to the principal and those which properly belong to the agent is hazy in many cases.

In the field of torts, the principal is liable for acts of negligence committed by the agent while the latter was operating within the scope of his authority and in furtherance of the principal's business. As respects such nonwillful torts, it is immaterial that the agent was performing his function in an irregular manner, or even contrary to explicit instructions.

Where the agent's misconduct is willful, plaintiff third party, seeking to hold the principal, must show that the tort involved is reasonably incidental to the performance of the duties assigned to the agent. This normally proves a difficult burden for plaintiff, since there is a presumption that the agent was not employed with the expectation that he would commit intentional torts.

19-9. The Undisclosed Principal. Whenever an agent, duly authorized, enters into a contractual arrangement without disclosing his true role or the identity of his principal, the third party, upon discovering the facts of the situation, can sue the agent or, in most instances, may elect to hold the undisclosed principal. The doctrine works in reverse, also, and with a few exceptions the undisclosed principal may at some point in the proceedings decide to reveal his interest in the contract and enforce performance thereof by the third party. One of the exceptions just referred to comes about when the third party has previously refused to deal with the principal and the latter thereupon attempts to achieve his ends surreptitiously through an agent, who is told not to indicate for whom he is acting. In such a situation, the contract cannot be enforced by the undisclosed principal against the deceived third party.

19-10. Subagents. A principal selects a particular person to act as his agent, and the selection is presumably made on the basis of the agent's known competence and trustworthiness. The principal, accordingly, is entitled to have his affairs receive the personal attention of the man chosen for the job. Thus, it is said that authority delegated to an agent cannot be further delegated by him to a subagent. The prohibition, however, relates only to matters involving the exercise of discretion and does not extend to so-called "ministerial acts"; for example, the agent is normally free to utilize office workers to help him with such things as bookkeeping.

13 An agent is likewise liable in contract to outsiders when he has pretended to represent a principal actually nonexistent.

13 The precise maxim in point is "Delegatus non potest delegare."

14 This assumes, of course, that the principal has not expressly empowered the agent to delegate.
19-11. Termination of the Agency. There are various ways in which the agency relationship may come to an end. Among these are (1) death of either principal or agent, (2) destruction of the subject matter of the agency, (3) fulfillment of the particular purpose for which the agency was formed, (4) expiration of a time period set in the contract, (5) supervening illegality of the agency’s purpose, (6) mutual consent, and (7) unilateral termination by one party or the other. The last-named method requires clarification.

Agency is a voluntary relationship and, as such, may as a usual thing be terminated at will by either party, without such party incurring damages for breach. If the contract between principal and agent has a stipulated duration, it may yet be freely renounced for cause prior to the expiration of the period set; however, absent justifiable cause, the party breaching would be liable in damages. “Specific performance” of personal-service contracts will not be granted; that is to say, the innocent party in a breach situation can secure damages but cannot force the other party to fulfill the precise contract obligation although this last remedy can sometimes be secured indirectly. For example, if an agent whose services are unique fails to carry out his contract with the principal, such agent may be enjoined from working (during the remaining period of the breached contract) for one of his principal’s competitors.

There is such a thing as a true irrevocable agency, and this type is specifically enforceable, on the ground that otherwise the injured party would be irreparably damaged. If the agency is “coupled with an interest,” then it is deemed irrevocable. The “interest” referred to is an interest in the very subject matter of the agency, and not merely in the right to earn compensation or commission stemming from the exercise of the agency. The whole theory of irrevocable agency is a difficult concept, and some illustration might be helpful. Let us assume that A has an idea of running a trucking business and gets B to put up the money. A secures a five-year contract as manager, with base salary plus a percentage of the profits. Is the arrangement irrevocable? Probably so. A’s argument would be that he will not make sufficient profits from the undertaking unless he is allowed to personally handle the selling end as manager. Thus, he has a power coupled with an interest.

The case of French v. Kensico Cemetery, 264 App. Div. 617, 35 N.Y.S.2d 826, 828 (1942), affirmed, 291 N.Y. 77 (1943), will serve as a further illustration. For some years, plaintiff had paid defendant cemetery various amounts for the current care and maintenance of her plot and mausoleum. To avoid the necessity of further annual payments, plaintiff turned over to defendant $5000, obtaining a receipt

* A principal who is terminating the authority of his agent will do well to see to it that interested third parties receive some notification.
which spelled out defendant’s obligation to invest the principal in securities and to use the income for perpetual care of defendant’s plot and mausoleum. Eventually, plaintiff attempted to cancel the arrangement and get back her “deposit.” The Appellate Division, in holding for defendant, spoke as follows:

“Our conclusion is that the delivery of the money and the giving of the receipt constituted an agreement which created an agency (or a power) coupled with an interest in defendant, and that if the agreement was founded on a sufficient consideration, it is irrevocable by plaintiff. The consideration moving from defendant was its undertaking to relieve plaintiff of the trouble and annoyance of attending to the care and maintenance of the property. . . .

“Defendant’s interest in the performance of the agreement is that if it is not performed as long as there is need for care and maintenance, defendant will be obliged to carry that burden, since no well-managed cemetery could depreciate its property and that of other lot owners by having on its premises a mausoleum in process of falling into decay and ruin upon a considerable plot, with grass uncared for and running to weeds. . . .

“In our opinion, the delivery of the money and the giving of the receipt created in the defendant an agency coupled with an interest, irrevocable so long as the need for care and maintenance of the plot and the mausoleum continues to exist. That need is manifestly a permanent one. If plaintiff should be permitted to revoke the agency and to obtain the return of the money, defendant would be compelled to assume the duty of care and maintenance in its own interest. An agency may not be revoked where revocation would subject the agent to liability without fault on his part.”
CHAPTER 20

Torts

GENERAL DISCUSSION

20-1. Definition and Scope. The term "tort" has always seemed incapable of any sort of precise definition. Essentially, "tort" is very similar to "wrong"; yet the former term is not intended to include any and all wrongful acts done by one person to the detriment of another but only those for which the victim may demand legal redress. Torts may be committed intentionally or unintentionally and with or without force. At the risk of oversimplification it may be said that tortious acts consist of the unprivileged commission (or omission, as the case may be) of acts whereby another individual receives an injury to his person, property, or reputation.

A tort is distinguished from a crime in that the former is a private injury on account of which suit may be brought by the affected party, while the latter is an offense against the public for which any retribution must be sought by the appropriate governmental authority. Obviously, it is entirely possible for a single act to constitute at once a tort and a crime.

Contract liability (which is confined to the parties to the agreement) can likewise be differentiated from tort liability. Contract actions are afforded the innocent party as a means of protecting his legitimate interest in having whatever promises are made to him fulfilled. Tort actions, on the other hand, seek to safeguard the interest in freedom from various kinds of harm.

20-2. Classes of Torts. For the sake of convenience, torts may be quite simply divided into two broad classes. The first of these is property torts, and this group includes all injuries to property, be it realty or personality. The second is personal torts, embracing all harms to the victim's reputation, feelings, or physical well-being.

The injuries in either category can stem just as well from nonfeasance or from misfeasance on the part of the wrongdoer, who is known as the tort-feasor.

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20-3. Bases of Tort Liability. Commonly stated are three bases of tort liability:

1. Negligence
2. Intentional interference
3. Strict liability for reasons of public policy

Each of these will be considered at some length in the pages which follow.

To maintain a successful tort action, the wronged party must establish (1) that the defendant owed him a duty, (2) that said duty was breached, and (3) that damage was suffered as a result. Where the alleged tort is founded on negligence, the plaintiff must also be ready to show his own freedom from contributory negligence.

20-4. Contribution among Tort-feasors. In tort law, obligations are "joint and/or several," meaning that, at the option of the plaintiff, each tort-feasor may be sued individually, or all can be sued together. In a number of jurisdictions the defendant can bring in a codefendant. Although some states have legislated otherwise, the common-law rule prescribes that there is no "contribution" among joint tort-feasors. While the plaintiff is privileged to bring several different actions in respect of the same injury, he can collect but once; execution of judgment against one defendant releases the others, making it impossible for the "victimized" defendant to collect anything from his more fortunate brethren. Plaintiff thus, in effect, decides which among several joint tort-feasors will stand the loss.

NEGLIGENCE

20-5. Definition. Causing harm through negligent conduct is a basic form of tort. Any act or omission which brings injury to another or others is actionable even though the individual so acting or omitting had absolutely no intention of occasioning such injury. It is sufficient that, in the exercise of proper diligence, the harm should have been foreseen and prevented.

The subject of negligence as a basis of responsibility in tort is a vast one with many, many ramifications. Among the various concepts involved at one time or another are these: duty, proximate cause, contributory negligence, imputed negligence, gross negligence, assumption of risk, and last clear chance. These and others will be considered at some length in the ensuing articles.

Broadly speaking, negligence consists of a failure to follow such a pattern of behavior as, under the circumstances, a reasonable person would have pursued, or, contrariwise, of doing what such "reasonable," ordinary man would definitely not have done. Thus, negligence is definable as conduct which is abnormally likely to cause harm to others,
i.e., which is—all circumstances considered—unreasonably dangerous, though not intentionally so.

Usually, whether one is or is not negligent is a question of fact, but there are some instances of negligence as a matter of law. Thus, when a legislature has prescribed a certain procedure to be followed in a given set of circumstances, failure to comply with the statutory edict may be held to be negligence per se.

20-6. The Elements of Negligence. In order to prevail in his negligence suit, the plaintiff must show that the alleged tort-feasor owed him a duty of care under the circumstances and breached that duty. Furthermore, he must prove that he suffered actual loss or injury and that there was a definite causal connection between the defendant’s conduct and the damage complained of. Even where the plaintiff is successful in demonstrating each of the foregoing points, however, all will be lost if the adversary can substantiate a defense of contributory negligence on plaintiff’s part; but, when the defendant’s conduct in the premises is shown to have been grossly negligent to the point of recklessness, a plea of contributory negligence will avail him nothing.

The burden of proof is clearly on the plaintiff’s shoulders to establish the wrongful conduct of the defendant and the necessary causal connection between that and the damage to plaintiff. Under our trial procedure, the defendant is called upon to defend actively only if the court feels the plaintiff’s evidence, viewed in its most favorable light, might be sufficient to warrant a finding in the latter’s favor; otherwise, the defendant would be entitled to a directed verdict dismissing the complaint.

20-7. The Standard of Care. One of the fundamental propositions which must be sustained by plaintiff in a successful negligence action is that defendant, under the various circumstances which pertained at the time of the alleged tort, owed a duty of care and that plaintiff is one within the class to which the duty was owed. The concept of the “normally prudent man,” developed by common law over a period of many years, will be applied to the defendant’s behavior to see if it conforms to a standard of reasonableness in the light of the apparent risk. There are a number of ingredients (“assumptions,” in a sense) which go into this “standard-of-care” yardstick: (1) so-called “normal” intellectual capacity, memory ability, and the like; (2) such minimum knowledge, skill, and experience as is deemed common to nearly everyone; (3) whatever additional or superior knowledge, skill, and experience the particular defendant may possess; (4) the alleged tort-feasor’s own physical traits, handicaps, etc.2

1 Thus, in medical matters a family doctor will be held to that degree of care expected of physicians generally, while a specialist has an even higher standard to meet.

2 The conduct of a physically disabled person will be judged in the light of the
Obviously, the moral standard of an abstract "average man" is exceedingly difficult to delineate, let alone apply on a uniform basis. The defendant may have conscientiously sought to do the best he could and yet find that the jury regards his behavior as falling short of the prescribed standard of intelligence, prudence, etc., which society anticipates in its members. Since some sort of an external model seems, as a practical matter, the only logical thing to use, there are bound to occur some marginal cases of liability without fault (as where defendants with low IQ, slow reaction time, and the like, are involved). Incidentally, the standard of care is the same whether it is the defendant being tested or whether, with contributory negligence an issue, the plaintiff's own conduct is under scrutiny.

As bearing on the proper standard of conduct in a given situation, it is not at all unusual to have considerable testimony introduced respecting the general "custom of the trade" and defendant's adherence to, or departure from, such accepted pattern.

The jury is supposed to make the ultimate decision about what the fictional "reasonable man" would have done under the set of circumstances which confronted the defendant. Directed verdicts are rare in negligence actions, and the ordinary accident case—barring settlement during trial—eventually reaches the jury room.

20-8. Proximate Cause and Foreseeability. Though the judicial approach to the matter of proximate cause is by no means uniform throughout the country, the prevailing tendency seems to be to hold the defendant responsible even for some rather extraordinary consequences of his negligence as long as the chain of direct causation remains unbroken by an efficient intervening cause. In other words, where it is found that the defendant was indeed negligent and that his conduct was a substantial cause in fact of the injuries under consideration, his vulnerability is clear—even though the precise damage which resulted was not to be anticipated. The question of liability is always anterior to the question of the measure of the consequences which attend the liability, but the latter remains a mighty important question, and it is indeed difficult fairly to delineate the "zone of danger" raised by defendant's conduct in a given situation. There obviously has to be a line drawn somewhere; the concept of substantial cause is supposed to preclude recovery for remote damage which defendant's conduct cannot definitely be said to have occasioned. There is always considerable pressure to restrict liability when certain unforeseen consequences are very much out of the ordinary.

handicap and of his awareness of that impairment. The awareness is one of the circumstances which has an obvious bearing upon the reasonableness of his behavior.

In this connection substantial cause does not necessarily mean sole cause.

A term frequently used interchangeably with proximate cause.
The landmark case respecting proximate cause is that of *Palsgraf v. Long Island R.R.* A man carrying a harmless-looking package jumped aboard a moving train and, in so doing, lost his balance and seemed about to fall. A guard on the car, sensing the danger, reached forward to help him in and another guard on the platform pushed from behind; during these maneuvers the package became dislodged, fell to the rails, and exploded. The concussion threw down some scales at the other end of the platform, many feet away. The falling scales struck and injured plaintiff Palsgraf, an intending woman passenger. In the litigation which followed, the majority decision exonerated the defendant railroad, holding that the consequences befalling the particular plaintiff were not foreseeable and that defendant consequently could not be regarded as guilty of any negligence with reference to her. The mandate was that plaintiff must sue in her own right for a wrong personal to her, and not as vicarious beneficiary of a breach of duty to another. In other words, the majority opined that negligence is not actionable unless it involves the invasion of a legally protected interest, i.e., the violation of a right. The conduct of defendant’s guards—if tortious in relation to the holder of the package—was yet not a wrong in its relation to this plaintiff, who had been standing some distance away.

The minority view in *Palsgraf*, which appears nowadays to have become more or less the general rule, was that the railroad employee’s negligence in dislodging the package from the commuter’s arms was the proximate cause of the plaintiff’s injuries and was therefore actionable. The dissenting judges proceeded on the theory that where there is an act which unreasonably threatens the safety of others, the doer is liable for all its proximate consequences, even where injury results to one who would generally be thought to be outside the radius of danger. Harm to some person being the foreseeable result of the negligent act, not only that one alone, but all those in fact injured may complain. In discussing proximate cause, the minority spoke thusly (at pages 352 and 354):

"... What we do mean by the word ‘proximate’ is, that because of convenience, of public policy, of a rough sense of justice, the law arbitrarily declines to trace a series of events beyond a certain point. This is not logic. It is practical politics. ...

"It is all a question of expediency. There are no fixed rules to govern our judgment. There are simply matters of which we may take account. ...

"There are some hints that may help us. The proximate cause, involved as it may be with many other causes, must be, at the least, something without which the event would not happen. The court must ask itself whether there was a natural and continuous sequence between cause

248 N.Y. 339 (1928)."
and effect. Was the one a substantial factor in producing the other? Was there a direct connection between them, without too many intervening causes? Is the effect of cause on result not too attenuated? Is the cause likely, in the usual judgment of mankind, to produce the result? Or by the exercise of prudent foresight could the result be foreseen? Is the result too remote from the cause?"

Previous mention has been made of alien forces which break the chain of causation and may relieve defendant of further consequences of his negligence. Such relief is afforded when—and only when—the intervening force is one which defendant could not have foreseen or one which is patently not a normal incident of the risk initially created by defendant's tortious conduct. As an example, let us assume that the negligence of driver $X$ brings about a collision with $Y$'s automobile. $Y$ steps from his car to remonstrate with $X$, slips on the icy pavement, and injures himself in falling. $X$'s negligence was the proximate cause of the collision damage to $Y$'s car, and $X$ is clearly liable therefor, but many courts today would likely hold that the ensuing fall by $Y$ was not $X$'s responsibility since $Y$'s slipping on the ice was an effective intervening cause of the personal injury to him. It is apparent, of course, that "but for" the collision there would have been no occasion for $Y$ to alight from his car at the particular time and place, but the tort by $X$ could be deemed the remote rather than the substantial cause of $Y$'s bodily mishap.

While the judge will, in a negligence action, charge the jury on what constitutes proximate cause and related concepts, the jury must in every case apply a broad factual test to determine whether or not the evidence indicates that there actually exists the vital causal connection between defendant's alleged tort and plaintiff's alleged injury.

20-9. Violation of Statute. Unexcused violation of a specific minimum standard of conduct dictated by legislative fiat is today almost universally treated in this country as negligence per se, as long as the injury involved is of the nature which the statute was aimed at preventing and the plaintiff is within the category of persons the law sought to protect. It is open to the defendant to show that he did the best he could to obey the statute or to show by way of excuse that the violation was necessary in order to further some public policy—as, for example, deliberately crossing a solid white highway line in an effort to avoid hitting a child who had suddenly run onto the road.

Relatively few jurisdictions deviate from the negligence per se concept. The minority position is that statutory violation is some evidence supporting an allegation of negligence but is by no means conclusive by itself. The jury must weigh the violation along with other factors in the picture.
Not all statutory provisions, of course, are framed in terms of precise standards of conduct. The typical reckless-driving provision is an elastic one and requires interpretation in the light of a particular fact situation to determine whether or not there has been a violation.

20-10. Gross Negligence. The term gross negligence, which really connotes recklessness or wanton disregard for the rights of others, represents the conscious failure to exercise diligence in an effort to prevent an injury which the situation indicates is very likely to occur in the absence of special precautions. Interposing a plea of contributory negligence will avail the defendant nothing where his own negligence was of the gross variety.

20-11. Assumption of Risk. Generally speaking, a person cannot voluntarily put himself in a position of manifest danger and then expect to collect from the defendant for the not-unexpected injuries which follow. The assumption of risk defense requires a showing that plaintiff had knowledge of the chance he was running and yet voluntarily ignored the danger. Some adequate warning must have been given, except where the risk is so obvious that a person of ordinary intelligence would readily sense the likelihood of impending trouble. Where assumption of risk is shown, it goes only to the dangers normally associated with the undertaking. For example, a person contracting to paint a bridge assumes the risk of falling off, but not the danger of electrocution from negligently installed wiring.

There are many exceptions, limitations, etc., related to the assumption of risk defense—too many for adequate treatment here. For one thing, workmen's compensation laws—as regards injuries falling within their scope—have deprived the employer of his onetime common-law defenses, including that of assumption of risk.

While not technically related to the discussion of assumption of risk, mention might be made here of the plight of the good Samaritan. If A is hurt or in danger and B chances upon him in this predicament, B is under no legal obligation to tender assistance. If he accepts the moral responsibility, however, and takes steps to assist A, he runs the risk that his attempts to aid will prove negligent in some respect and that, despite his humanitarian intentions, he will consequently be liable for any damage caused.

20-12. Contributory Negligence. As a general proposition, any negligence on the plaintiff's own part which contributes to the injury of which he complains will bar recovery therefore.\(^6\) It matters not how slight

\(^6\)A fairly commonplace example of contributory negligence would be the subsequent plaintiff's failure to take a reasonable alternate route to that of obvious danger. In one actual situation, a general contractor was erecting the steelwork of a building. As the crane operator was attempting to swing into place a heavy girder (attached
such contributory negligence may be in relation to the defendant's
wrongful conduct, since the doctrine of comparative negligence—which
crops up periodically and which would seek an apportionment of the
loss where both plaintiff and defendant are blameworthy—has failed,
largely for reasons of administrative difficulty, to draw much effective
support in this country.  

There are several instances in which ordinary contributory negligence
is not a defense. One of these is the situation wherein defendant's con-
duct in violating a statutory standard of care is negligent per se. An-
other, as has been previously noted, involves gross negligence of the
defendant. Parallel to this latter is defendant's tortious conduct of a
willful, deliberate nature. The line of demarcation between wanton and
inadvertent negligence is none too clearly drawn, and it is up to plain-
tiff to cause the court to look at defendant's behavior with more than
mild resentment in order to obviate any possible defense of contributory
negligence.

For yet another limitation which serves to confuse the picture on
contributory negligence, see Art. 20-15 on last clear chance.

20-13. Imputed Negligence. As the term implies, imputed negligence
is, in effect, charging Peter with Paul's delict. Under certain circum-
stances, the negligent conduct of A will be attributed to defenseless B
and will bind B in his capacity as plaintiff or defendant, as the case may
be. The most common illustration is the imputing of a servant's or

by means of a sling) a workman very foolishly walked underneath. At that moment
the hook holding the sling broke, and the girder fell on the workman, killing him
instantly. The wife of the deceased sued the contractor for damages. In deciding
the question of liability, the court considered such points as these: (1) The crane
had successfully erected two similar girders before the accident occurred; (2) the
load slightly exceeded the rated capacity of the crane; (3) the hook had been
properly tested for a 50 per cent overload by the crane manufacturer; (4) no one
ordered the workman to walk under the girder, but no one tried to stop him from
doing so. The court concluded that, although the contractor did slightly overload
the crane, the workman was undoubtedly guilty of contributory negligence, and this
fact precluded any recovery under the circumstances.

A good illustration of the contributory-negligence principle is afforded by the
case of Barnett v. Des Moines Electric Company, 10 F.2d 111 (8th Cir. 1925).
Barnett was eating dinner when the lights suddenly went out. He went outdoors,
saw that the power line was down, and noticed that some children were playing
near the broken wire. Using the napkin in his hand, he attempted to loop it over
the wire and tie the wire to a pole so as to protect the children. In the process
he was seriously burned. In the subsequent litigation, Barnett charged the power
company with negligence, alleging such things as the use of insufficient insulation;
the defendant answered with a plea of contributory negligence. The court held for
the defendant, noting that plaintiff had proceeded with full knowledge of the peril
to himself and that, since the children were not in imminent danger, there was no
need for a split-second decision or hasty, ill-advised action on Barnett's part.
agent’s negligence to the master or principal, respectively; more on the *respondeat superior* idea will be found in the section “Liability without Fault” (Arts. 20-43 to 20-47).

A plaintiff will be barred from recovery through having imputed to him the negligence of a third person only if their relationship is such that, as respects harm caused to others, the plaintiff, as a defendant, would have been liable for the negligence in question. Thus, the negligence of the operator of one of two vehicles in an accident will not generally be imputed to his passenger so as to prejudice the latter’s action against the driver of the other car.8

20-14. *Res Ipsa Loquitur.* Literally translated, *res ipsa loquitur* means “The thing speaks for itself.” This doctrine has the effect merely of laying the foundation for a permissible inference that defendant was indeed negligent as alleged. It has application where plaintiff is able to show three things:

1. The mishap in suit was one which would not ordinarily occur, absent negligence on someone’s part.
2. The instrumentality or appliance whose careless construction or use occasioned the injury was in the exclusive possession and control of the defendant.
3. There was no voluntary, inexcusable action on plaintiff’s part which contributed to the damage.

Where plaintiff can successfully prove the points just listed, it is apparent that any evidence about the true cause of the injury is more than likely accessible primarily (if not, indeed, exclusively) to the defendant; this circumstance is supposed to justify *res ipsa* and entitle the plaintiff to get to the jury even though he cannot show any direct evidence of the defendant’s negligence.9 By making out a *res ipsa* case, he has—purely by circumstantial evidence—created an inference of defendant’s negligence, which inference the jury has the option of accepting or rejecting in the light of whatever the defendant is able to put in by way of explanation or contravention.10

8 If it can be shown, however, that the passenger and his driver were engaged in a so-called “joint venture,” the driver’s negligence may very well be imputed. Much depends, of course, upon the pertinent statutes and common law of the particular jurisdiction.

9 Where plaintiff is able to set out in his complaint *specific* negligent acts or omissions of defendant, *res ipsa* has no applicability.

10 In several states, the effect of a *res ipsa* case is somewhat stronger, i.e., the raising of a definite presumption which shifts the burden of proof to defendant. In such jurisdictions, the court will *require* the jury to make an inference of defendant’s negligence and then see whether the evidence subsequently put in by defendant is sufficient to overcome that initial setback.
Defendant's rebuttal evidence in most *res ipsa* cases consists of showing due care on his part and on the part of his agents and servants, as respects the construction, inspection, maintenance, and use of the instrumentality which is asserted to have brought about plaintiff's injury.

Two recent decisions well illustrate use of the *res ipsa loquitur* doctrine. The first of these is *J. C. Penney Co. v. Livingston*, decided by the Kentucky Court of Appeals in October, 1954. Plaintiff two-year-old injured his hand when it inexplicably became caught between two steps of a store's escalator. Plaintiff, by his father, brought an action based on the *res ipsa* theory; the appellate court, affirming a verdict for the plaintiff, agreed that all necessary elements were present. The closest question in the entire case was whether, according to common knowledge and experience, the accident would not have happened absent negligence on defendant's part. In reaching its determination, the court reasoned in this fashion: It is well known that children are attracted by an escalator and that the ordinary escalator is completely safe even for youngsters. Inasmuch as plaintiff's hand did become caught in the moving parts, there is a logical inference that the particular escalator was unsafe for use by children and that defendant store was consequently negligent in making the device available to such persons.

The other case was decided in Louisiana in December, 1954, and involved the destruction of personal property by fire. The alleged negligence of defendant Middleton and his employees was said to be at the root of the trouble. Plaintiff was the lessee of property on which was located a barn. In the barn were several hundred bushels of corn, some hay, miscellaneous tools, and also several head of hogs and pigs owned by plaintiff. The latter sold some of the corn to defendant Middleton, who sent an employee—one Barnes—with a pickup truck for the purpose of loading and carting said corn. Barnes was accompanied by a young boy of twelve, Oliver. The former backed the truck to the barn and parked it, leaving it in gear but shutting off the ignition. The truck was in such a position that it faced down a sloping grade away from the barn. Barnes and Oliver began loading the corn. While Barnes busied himself in the loft, Oliver called out that the truck was afire. Barnes rushed to the vehicle and discovered its cab to be in flames, these rising principally from the floor board and seat cushion. Not being able to smother the fire by throwing dirt on it, Barnes reached into the cab, pulled out the flaming seat cushion (which he cast upon the ground.

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21 In order for the maintenance to have been negligent, the defect must have been observable and must have been present long enough so that it should have been found on reasonable inspection.

22 271 S.W.2d 906 (1954).

some distance away), and ran from the scene of the conflagration, hotly pursued by Oliver. Barnes later contended that he was headed for the highway in hopes of summoning help. At any rate, after his departure the fire continued its course, completely consuming the truck, the barn, and the latter's contents.

Invoking the doctrine of *res ipsa loquitur,* plaintiff alleged the negligence of Barnes as the cause of the loss, asserting that the truck was, at the time the fire started, under the complete custody and control of Middleton's employee. The trial court's judgment for plaintiff was affirmed, the appellate court holding that the *res ipsa* principle is properly applied where, as here, circumstances establish that the offending agent or instrumentality was in the possession or control of defendant (or his representative) and that the cause of the mishap was unknown to plaintiff and could not reasonably have been expected to be within his knowledge.

20.15. Last Clear Chance. The doctrine of *last clear chance,* which has been called everything from "an inherent limitation in the defense of contributory negligence" to "a thinly disguised theory of comparative negligence," undeniably plays a leading role in many a negligence case. Where both plaintiff and defendant have been guilty of conduct falling short of what would be expected of the "reasonable man" in the particular situation, last clear chance focuses attention upon the time sequence of events and regards the defendant as answerable for the damage if—as between the two negligent parties—he had the last opportunity, through use of due care, to avoid the mishap and its consequences.

For a not-uncommon example, assume plaintiff, having imbibed freely, stumbles in the road and falls to the pavement in a drunken stupor; the stage is now set for operation of the last-clear-chance rule, since plaintiff has, by his own negligence, placed himself in a helpless position of peril. If an approaching driver sees the danger in time and is in a position to avert an accident by exercising ordinary care and prudence, he will be responsible for injuries stemming from his failure to seize the opportunity. One way of putting it is that the law prefers the individual who is negligently unaware of his peril to the individual who is negligent despite having seen the danger.

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*Plaintiff relied upon *res ipsa* and also upon the failure of Barnes to take action by releasing the gear shift of the truck, which would have permitted it to roll by force of gravity away from the barn.*

*If the evidence indicates that defendant indeed had the last clear chance to prevent the injury complained of and plaintiff's active negligence had ceased before the point of injury was reached, then the contributory negligence of plaintiff is not a bar to his recovery, and the entire loss must be borne by defendant.*

*Or, in many jurisdictions, "should have seen."
One limitation ordinarily imposed by American courts on the last-clear-chance doctrine relates to the defendant’s ability in the premises to avoid the harm. If defendant has noted plaintiff’s helplessness and perceived the danger but is incapable by reason of some prior negligence of his own of averting disaster, no clear chance was his at the crucial time, and the general rule has no applicability. Thus, in the example outlined in the preceding paragraph, if defendant makes every reasonable move in an effort to avoid hitting the prostrate form but is stymied by mechanical failure, his helplessness, though brought on by neglect, is as complete as the plaintiff’s and means that no real last opportunity was his.

Last clear chance is very clearly related to the principle of proximate cause. Despite his own antecedent negligence, plaintiff is permitted to recover because his conduct, when tested as a cause of the injury, is seen to have been rendered “remote” by the supervening negligence of defendant, which latter wrong is then left as the sole proximate cause of the damage. A jury charge on last clear chance will not be forthcoming unless the judge feels the circumstances warrant belief that reasonable men might find that, notwithstanding plaintiff’s own negligent behavior, defendant was the party with the vital opportunity to avoid the accident. Generally speaking, the last-clear-chance test is in order primarily where plaintiff and defendant are on different levels of activity, e.g., plaintiff pedestrian struck by defendant’s automobile while plaintiff is crossing the street.17

To sum up in rather rough fashion the essentials of last clear chance: If the jury finds that plaintiff’s own negligence materially contributed to his injuries, they can nevertheless grant him damages if they find that, (1) after the plaintiff’s conduct had created for him a perilous situation, (2) defendant discovered (or should have discovered) not only this fact, but also that plaintiff apparently would not without intervention escape, (3) defendant, armed with such knowledge, had the opportunity to save plaintiff by exercising reasonable care, and (4) defendant failed to utilize the chance open to him.

20-16. Malpractice Cases. Just a brief word about the difficult undertaking which faces plaintiff in a malpractice action. For example, negligence on the part of the family doctor in the treatment of a patient is hard to prove; plaintiff must show by expert medical testimony that the defendant physician failed to measure up to the standard of conduct common to his colleagues practicing in the same or comparable community. And doctors who are licensed as special practitioners—as chiro-

17 For an excellent discussion of the last-clear-chance principle against the factual background of the typical auto-pedestrian mishap, see Correnti v. Catino, 115 Conn. 213 (1932).
practors, for instance—are entitled to have testimony about a proper standard of care applicable to them given exclusively by members of their own particular "school" within the profession.

There is, of course, a logical explanation for any extra measure of protection afforded doctors and the like in malpractice cases. Professional men are commonly insured against liability for negligence, but it is not the possible immediate money loss which hurts the most; a doctor's reputation in the community and thus his future livelihood can be ruined as the result of one malpractice recovery against him. From the standpoint of public policy, it is important that doctors, dentists, etc., be shielded to some extent; otherwise, few would dare to practice the healing art.

SPECIAL TOPICS

20-17. Standard of Care for Children. While there appears little sense to the distinction, it remains true today that courts in most states stand ready to give a child plaintiff every advantage on the issue of contributory negligence, while holding a child defendant to the adult standard of reasonable care. Thus, the tender years and limited experience of the child plaintiff are factors taken into consideration when evaluating his conduct.

Parents are not responsible at common law for the nondirected torts of their children, but legislatures here and there have altered the picture and made parents vicariously liable under certain circumstances. One idea behind such legislation is that elders who have been placed in a vulnerable position financially are more likely to exert a restraining influence on the juveniles under their roofs.

As a practical matter, children are seldom sued unless there is insurance coverage in the background. Incidentally, minor defendants (unlike adults) are not vicariously liable for the torts of their employees or agents, ostensibly owing to the fact that the employer-employee and principal-agent relationships are contractual in nature and infants cannot be held on their contracts.

20-18. Tort Injury to Minors. When an unemancipated child is hurt, two different causes of action arise against the negligent defendant. One of these is to be pursued in the injured child's name and is in respect of pain and suffering and his lost earning capacity for the years after majority is reached. The other is available to the parent legally responsible for the injured child's care, and the suit is to recover for medical expenses incurred and for loss of the child's services during

18 Often on the rationale that the parents are themselves negligent in failing to control the conduct of minors resident in their household.
minority; some courts say that any contributory negligence on the child’s part serves as a bar to the parent’s recovery.

Now let us assume that the injury to the child stemmed from an auto accident which was attributable to the combined negligence of the child’s father and of the other driver. If the child sues the operator of the other vehicle, it is commonly held that the parent’s contributory negligence is not a bar. However, should the parent as plaintiff seek recovery against such third person (for medical expenses in connection with treatment of the innocent child), the defense of contributory negligence would prevail.

20-19. Torts of Mentally Retarded Persons. The general rule is that a mentally incompetent individual is responsible for such of his torts as do not require a finding of malice, intent, and the like. As far as damage resulting from negligence is concerned, the insane person or the individual of very low mental capacity is generally held to the same standard of care as would be prescribed for people of average intelligence and in good mental health. The rationale seems to be that the innocent victim should not be deprived of recovery just because the tort-feasor was mentally deficient.

Similarly, a person who is intoxicated (and who has thus temporarily impaired his mental competency) is liable for his torts. Drunkenness does not excuse failure to exercise due care.

20-20. Governmental Tort Liability. The sovereign is protected at common law by a blanket exemption from liability for negligence of the agents through whom it must act. There have developed, however, some substantial statutory limitations on this pattern of immunity, since government is free to pass laws—frequently styled “tort claims acts”—permitting suit against it under stipulated conditions. However, such an enabling statute, since it is “in derogation of the sovereignty of the state,” will be strictly construed.

Municipal corporations are not “sovereign” in the strict sense, but they, like school districts, are deemed to be acting for the state and thus share its immunity as long as they are performing “governmental” functions, such as operating police and fire departments. Where, on the other hand, the city, town, village, etc., act in proprietary capacities—for instance, own and operate transit systems or other public utilities—they

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20 E.g., slander, libel, etc.
21 There is no comparable shield where the government unit is guilty of maintaining a nuisance. See Art. 20-28 on the general subject of nuisance.
22 New York State, for example, has set up a special court of claims to handle suits brought against it. And there is the Federal Tort Claims Act, which is part of the Legislative Reorganization Act of 1946 (chap. 753) and can be found under Title IV thereof.
23 Related terms sometimes used are ministerial and corporate.
will be responsible for torts of their agents or employees committed within the scope of their agency or employment. The line between governmental and proprietary operation is understandably difficult to draw at times. Highway defects are a fruitful source of municipal tort litigation. Maintenance of highways is generally regarded as a governmental function, but there are numerous statutes on the books waiving the common-law exemption and imposing civil liability on the government unit for negligence in connection with road upkeep. These laws normally require a showing by plaintiff of the unreasonably dangerous condition of the road and of adequate notice to the proper authorities regarding the defect.

A city or other unit of government cannot be sued for such things as failure to pass a regulatory ordinance, e.g., one which would prohibit riding bicycles on sidewalks. This type of decision is regarded as a matter of discretion and beyond the reach of the individual citizen.

20.21. Negligence of Government Officials. Government officials, while performing discretionary or quasi-judicial functions (as distinguished from mere ministerial tasks), are not liable for negligence.\(^{23}\) If officials were not granted such immunity respecting discretionary acts within the scope of their authority, it would be difficult indeed to find public servants.

20.22. Charitable Institutions. In some jurisdictions, charitable institutions have complete immunity from tort liability; in certain other jurisdictions, the immunity pertains only where the would-be plaintiffs are nonpaying recipients of hospital services or similar benefits.\(^{24}\) Still another line of decisions has held that, as respects negligence of its "ministerial" employees (custodians, scrub women, etc.), a hospital is answerable to outsiders—such as the delivery boy who slips on defective flooring—but not to any of its patients, whether or not they are charity cases.

Apart from a consideration of the class of persons to whom the institution may be liable in tort, further distinctions have been based on the relationship which the actual tort-feasor bears to the charitable institution. Thus, a hospital is ordinarily responsible for damage resulting from fault of its ministerial employees, but nurses and doctors using the hospital facilities in the performance of their professional functions are deemed to be independent contractors and not agents of the institution. The hospital cannot be held for negligence of these independent con-

\(^{23}\) And they are not generally held for the defaults of their subordinates, irrespective of whether such defaults pertain to ministerial or discretionary functions.

\(^{24}\) There is something of an anomaly in permitting the paying patients to sue a hospital in tort while denying recovery to charity patients; the latter group are presumably more in need.
tractors, and it is assumed only that the hospital exercised reasonable care in so far as it had a voice in their selection.\textsuperscript{25}

20-23. Liability of Landowners. In the use and enjoyment of his premises, the landowner or occupier must exercise reasonable care for the protection of those who are lawfully in the immediate vicinity, such as persons using a nearby public highway. With respect to those who actually set foot on his property, the owner's duty of care varies markedly with the characterization of the visitor as trespasser, licensee, or invitee.

Trespasser. One who comes upon another's property without either (1) the consent of the occupier or (2)\textsuperscript{26} the legal privilege to enter irrespective of the question of express or implied consent is called a trespasser. To him, the landowner or occupier owes merely a duty to refrain from willful misconduct.\textsuperscript{27} There is no obligation to foresee or to seek out the presence of the trespasser and no responsibility to him for defects or conditions of natural origin existing on the land. A few courts have deviated from the norm and taken the position that, once a trespasser's presence is discovered, he is owed thenceforth reasonable care for his safety.

The so-called attractive-nuisance doctrine, in vogue here and there, relates solely to trespassing children and amounts to a limitation on the general rule of nonliability to trespassers unless intentional harm can be shown. The land occupier is vulnerable under the attractive-nuisance principle where he is harboring on his premises a highly dangerous instrumentality, or condition, of a nature likely to attract children of tender years (who will not appreciate the danger involved.) Part of the attractive-nuisance concept is supposed to be a weighing of the degree of risk of injury to minors against the utility to the owner of maintaining the complained-of condition; if, in a given fact situation, the latter factor assumes paramount importance, there should be no damage recovery by the child trespasser.

\textsuperscript{25} However, there are isolated cases which have drawn a distinction between negligence and mistakes of judgment on the part of hospital nurses, treating the institution as liable where negligence was found to be present. In one instance, a nurse, having determined that a delirious patient would be safer with sideboards on her bed, adjusted the boards in a negligent manner, and the patient ultimately was injured in a mishap directly traceable to that negligence. The court reasoned that, had the nurse made the wrong decision in the first place about the need for boards, the hospital would nonetheless be immune from liability because the nurse had simply used faulty judgment on a matter of discretion. But, once the decision was made to affix the boards, the ensuing negligence by the nurse placed the hospital in a vulnerable position.

\textsuperscript{26} A police official armed with search warrant would fit into this second category.

\textsuperscript{27} Thus, no traps may be set for the unwelcome visitor, nor may intentional injury be done him.
Licensee. A tolerated intruder, or licensee, is distinguished from a trespasser by reason of the fact that he has the owner’s permission (express or implied) to be on the premises. He is present, though, for his own purpose, convenience, or gratification and has no contractual relationship with the owner. Reasonable care must be exercised to warn the licensee of hidden dangers of which the owner is aware, but obvious defects are something else again. The owner or occupier is not required to take affirmative steps to protect a licensee—i.e., he need not actually make the premises safe for the licensee—but is under a duty to discover his presence if reasonably possible, must avoid active negligence toward him and, a fortiori, must refrain from willful misconduct toward him.

A good example of a licensee is the social guest invited to a home. Firemen and policemen who enter upon private property in the discharge of their duty are typically treated as licensees unless they have been called by the owner, in which latter event they step up to the status of invitee and are consequently owed a higher standard of care.

Invitee. An invitee (also known as a business visitor) is one who by invitation has entered upon the premises for some business purpose of mutual interest or benefit to him and to the owner. The store customer affords an everyday illustration; the proprietor must assume the affirmative duty of maintaining his establishment in a safe condition so as to avoid danger to those who come within the broad orbit of the business invitation. Thus, to avoid potential liability he would have to make periodic and thorough inspections of the premises and take all indicated safety precautions. He must warn the invitee of all dangers—other than those of which the latter is known to be aware or those which are readily apparent.

20-24. Liability of Lessors. Generally speaking, there is nothing in the law which would prevent an owner from leasing (or selling, for that matter) a broken-down piece of property, as long as he reveals to the prospective tenant defects which are unknown to the latter and which are not readily discoverable upon inspection. Most courts obligate the landlord merely to give (the lessee) such salient information as is in his possession and do not hold him responsible with regard to additional defects he should have known about by reason of his presumed familiarity with his own property. Thus, with the usual notation that various qualifications and exceptions do exist, it can be stated as a general rule that a lessor will not during the term of the rental agree-

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And the customer is nonetheless an invitee though he buys nothing and, indeed, had no real intention of making a purchase. It is possible for a person to be a full-fledged invitee with respect to one part of the store building and a mere licensee (or even trespasser) with respect to other portions thereof.
ment be liable for harm occasioned the lessee or third parties in con-
sequence of the condition of the leased premises.

Particularly where a multiunit dwelling is involved, the landlord will
retain control over a portion of the premises, as, for instance, common
approaches, stairways and halls. Where tenants or third persons 29 are
permitted use of such common appurtenances, it is incumbent upon the
lessor to keep these parts in reasonably safe condition.

With respect to the portion of the premises exclusively demised to the
tenant, landlord is under no obligation to repair or improve unless the
lease or some other contractual arrangement requires him to take such
action. If he promises to repair certain defects and fails to do so, the
tenant has an obvious contract action against him. If, on the other
hand, the landlord actually attempts repair—whether or not acting
pursuant to a binding promise—and carries through in such a negligent
manner that the tenant (or someone else on the premises in the right
of the tenant) is injured, the landlord's liability in tort is clear. 30 When
the lessor thus enters the lessee's domain to correct defects or make
improvements, his contractual relationship with his tenant is not a factor,
and he is treated as would be any outsider there to accomplish a par-
ticular job; that is to say, his conduct will be tested by the usual
standard of reasonable care. And, where the landlord would otherwise
be liable for his own negligence, most courts will not permit him to
absolve himself from responsibility merely by inserting an exculpatory
clause in the lease agreement.

One or two additional principles should be noted here as bearing on
the liability of lessors as a class. It has been held that, where property
is rented for a purpose known to the landlord to involve admission of
the general public, a member of that public may recover against such
landlord for injury traceable to defects (in the property) existing at the
outset of the lease arrangement, and this would hold whether or not the
landlord was at the time actually aware of the unsafe condition. Som-
ewhat similarly, should the lease negotiations alert the lessor that the ten-
ant contemplated utilizing the property for obviously dangerous activities,
the lessor may well be held responsible to persons in the vicinity of the
premises for harm done them as the result of such activities.

20-25. Liability of Vendor of Goods. The law of implied warranty in
connection with the sale of goods affords the consumer a remedy against

29 This would include, of course, business visitors and social guests of the tenant.
30 Some courts draw a distinction where the repairs are gratuitous and say that
the landlord's liability for negligence extends only to the tenant and the members of
his family in permanent residence with him. Another approach where the repair
undertaking is not pursuant to contractual obligation is to hold the defendant land-
lord liable only for gross negligence.
his vendor.\footnote{31} Absent an express denial of warranty as part and parcel of the transaction, the Uniform Sales Law and the common law provide for implied warranties of (1) merchantability and (2) fitness for intended purpose or use. The burden of proof confronting the vendee-plaintiff is not very imposing; he need show only that the merchandise was defective and that harm to him resulted.

There is a special rule relating to the supplier of obviously dangerous goods. One who manufactures, supplies, sells, or repairs a chattel which is either inherently dangerous\footnote{32} or will become dangerous if defectively assembled or repaired\footnote{33} owes a duty of care not only to the immediate purchaser but also to third parties who might reasonably be expected ultimately to utilize the article in question. Certainly the bellwether case in point is \textit{MacPherson v. Buick Motor Co.}, 217 N.Y. 382 (1916). The facts are these: Defendant, a manufacturer of automobiles, sold one of its products to a retail dealer, and the latter resold to plaintiff. While plaintiff was in the car, it suddenly collapsed, and he was thrown out and injured. One of the wheels had been made of defective wood, and its spokes crumbled into fragments. The wheel had not been made by defendant but was supplied it by another manufacturer. The evidence showed that the wheel’s defects could have been ascertained by reasonable inspection and that such an inspection was omitted by the defendant. In affirming judgment for plaintiff, the New York Court of Appeals included in its opinion the following pertinent comments (at pages 389 to 391, 394):

\begin{quote}
"... If the nature of a thing is such that it is reasonably certain to place life and limb in peril when negligently made, it is then a thing of danger. Its nature gives warning of the consequences to be expected. If to the element of danger there is added knowledge that the thing will be used by persons other than the purchaser, and used without new tests, then, irrespective of contract, the manufacturer of this thing of danger is under a duty to make it carefully. That is as far as we are required to go for the decision of this case. There must be knowledge of a danger, not merely possible, but probable. It is possible to use almost anything in a way that will make it dangerous if defective..."
\end{quote}

"Beyond all question, the nature of an automobile gives warning

\footnote{31} To illustrate one of the rather odd features of the warranty situation, assume Smith as host takes guest Jones to a restaurant and that both become ill from contaminated food there served them. Smith has available an action for breach of warranty, but his guest (who has no "contract" with the restaurant) is limited to a suit for negligence... By the same token, a customer may sue his retailer in a warranty action but can get at the manufacturer only through the medium of a negligence action.

\footnote{32} E.g., poisons, explosives, firearms.

\footnote{33} E.g., an automobile.
of probable danger if its construction is defective. This automobile was
designed to go fifty miles an hour. Unless its wheels were sound and
strong, injury was almost certain. It was as much a thing of danger as
a defective engine for a railroad. The defendant knew the danger. It
knew also that the car would be used by persons other than the buyer.
This was apparent from its size; there were seats for three persons. It
was apparent also from the fact that the buyer was a dealer in cars, who
bought to resell. . . .

"We think the defendant was not absolved from a duty of inspection
because it bought the wheels from a reputable manufacturer. It was not
merely a dealer in automobiles. It was a manufacturer of automobiles.
It was responsible for the finished product. It was not at liberty to put
the finished product on the market without subjecting the component
parts to ordinary and simple tests."

20-26. Guest Statutes. Many states have laws on the books nowadays
which serve to place restrictions upon a car owner's liability to guests
injured while riding gratis in his vehicle. Such guests must, as a
prerequisite to recovery, prove willful misconduct or gross negligence
attributable to the defendant. Typical of these "guest statutes" is that
of Ohio: 24

"The owner, operator or person responsible for the operation of a motor
vehicle shall not be liable for loss or damage arising from injuries to or
death of a guest while being transported without payment therefor in or
upon said motor vehicle, resulting from the operation thereof, unless
such injuries or death are caused by the willful or wanton misconduct of
such operator, owner or person responsible for the operation of said motor
vehicle."

The term guest, as employed in the foregoing text, has been construed
by Ohio courts to mean one who accepts the invitation of the driver and
takes a ride in the automobile either for his own pleasure or on his own
business without conferring any benefit upon the driver other than the
mere pleasure of companionship.

Where the guest rider is injured in a collision brought about by the
negligence of his driver and the negligence of a third party, most juris-
dictions say the former's contributory negligence will not bar the guest's
action against the third party.

20-27. Family-purpose Doctrine. This is another principle of tort law
which the automotive age brought into being. Many of our jurisdictions
have adopted the doctrine and hold the car owner responsible for
damage done through the negligent driving of members of his family.
The underlying theory is that the owner, by permitting his immediate
relatives to operate the car for their pleasure and use, has made that

purpose his business and thus rendered the driver his "servant."\(^{35}\) The final step, then, is to say that the "master" is vicariously liable for the torts of his "servant."\(^{36}\) Quite obviously, the family-purpose principle is another instance of getting at the so-called "deep pocket" of the party most likely to be able to pay for the harm. A collateral but no less salutary effect of the owner's vulnerability under the family-purpose doctrine is that considerable care is likely to be exercised in selecting family members permitted to drive.

As a parallel to the family-purpose proposition, which is "judge-made" law, various states have enacted statutes which likewise seek to make certain that there will be a financially responsible defendant available in motor-vehicle cases. One type of provision, for example, requires an adult's countersignature on the license application for a driver under eighteen, such endorser to be answerable for injuries occasioned by negligence of the juvenile operator.

20-28. Nuisance. In legal contemplation nuisance is a condition (usually long-standing and of indefinite anticipated duration\(^{37}\)) whose existence is directly injurious to others. A nuisance may or may not be lawful, and this is true whether it is of the private or of the public variety.\(^{38}\) The term "nuisance" does not have reference to any particular type of conduct which results in the invasion of plaintiff's interests. The nuisance may stem from defendant's negligence, from his employment of a dangerous instrumentality, or from conduct by which he fully intends to do harm.

A plaintiff will frame his complaint on the basis of nuisance primarily when he anticipates some barrier\(^{39}\) to a recovery on a standard negligence theory. Certain defenses commonly employed in negligence cases are not available when absolute nuisance is the gravamen of the complaint.

_Private Nuisance_. This type grew up as an adjustment of differences between adjacent landowners, permitting the aggrieved party recovery against the other for unreasonable and substantial interference with

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\(^{35}\) As long as general use of the vehicle is afforded the family member, the mere fact that instructions by the owner about speed, distance, etc., were ignored (and that adherence to such instructions would have avoided the mishap) will not serve to relieve said owner of liability.

\(^{36}\) Technically, of course, the servant (the car operator) is likewise vulnerable but in many instances is found to be uninsured and practically insolvent. Where such is not the case, plaintiff will proceed against the driver and will not need to raise the family-purpose argument.

\(^{37}\) The old insistence on a showing of continuity as a condition precedent to recovery for nuisance is, however, being whittled away.

\(^{38}\) It is possible for a given condition to constitute at the same time a private and a public nuisance.

\(^{39}\) E.g., a plea of contributory negligence or of governmental immunity.
plaintiff's enjoyment of his own premises. One way of stating the proposition is that a private nuisance is a wrong arising from the use of one's own property in such an improper manner as to do violence to the rights or interests of another.\(^40\) Technically, the harm need be nothing more than discomfort, annoyance, or inconvenience in order to be actionable.

Apart from taking the law into his own hands, the party adversely affected has open to him an action at law for damages or in equity for an injunction.

**Public Nuisance.** Where the objectionable condition is such that the public at large is adversely affected, the nuisance is characterized as a *public* one. Obstructing a common highway and thus impeding traffic would constitute a public nuisance. Unless some person suffers a special injury distinguishable from harm done the general public, he as an individual has no damages recovery available against the perpetrator of the public nuisance.

20-29. Emotional Disturbances. Broadly speaking, emotional distress caused by defendant's negligent conduct is not actionable unless there has been some accompanying physical injury or "impact." The theory seems to be that proof of any impact, however slight, will serve to avert false claims of mental anguish. Where the tort-feasor has acted maliciously or his conduct creates an abnormal risk of injury to others, courts are more receptive to a plaintiff's plea of emotional upset.

Similarly, it has been held that plaintiff cannot recover for harm done as the result of "fright" occasioned by the negligence of defendant, where there is no immediate personal injury.\(^41\) An ancient but often-cited case in point is *Mitchell v. Rochester Railway Co.*, 151 N.Y. 107 (1896). A horse car of defendant's, carelessly driven, swerved in its course and came very close to striking plaintiff, a woman. The fear and excitement caused by the narrow escape rendered plaintiff unconscious, and the end result was a miscarriage and consequent illness. The following passages are taken from pages 109 and 110 of the court's opinion:

> "Assuming that the evidence tended to show that the defendant's servant was negligent in the management of the car and horses, and that the plaintiff was free from contributory negligence, the single question presented is whether the plaintiff is entitled to recover for the defendant's negligence which occasioned her fright and alarm, and resulted in the injuries already mentioned. While the authorities are not harmonious upon this question, we think the most reliable and better considered cases, as well as public policy, fully justify us in holding that the plain-

\(^{41}\) Frequently, maintenance of a nuisance on A's property will materially reduce the value of B's adjoining acreage.

\(^{40}\) This rule is not applicable where defendant's tort is willful.
tiff cannot recover for injuries occasioned by fright, as there was no immediate personal injury. . . .

"If it be admitted that no recovery can be had for fright occasioned by the negligence of another, it is somewhat difficult to understand how a defendant would be liable for its consequences. Assuming that fright cannot form the basis of an action, it is obvious that no recovery can be had for injuries resulting therefrom. . . .

"If the right of recovery in this class of cases should be once established, it would naturally result in a flood of litigation in cases where the injury complained of may be easily feigned without detection, and where the damages must rest upon mere conjecture or speculation. . . .

"Moreover, it cannot be properly said that the plaintiff's miscarriage was the proximate result of the defendant's negligence. Proximate damages are such as are the ordinary and natural results of the negligence charged, and those that are usual and may, therefore, be expected. It is quite obvious that the plaintiff's injuries do not fall within the rule as to proximate damages. The injuries to the plaintiff were plainly the result of an accidental or unusual combination of circumstances, which could not have been reasonably anticipated, and over which the defendant had no control, and, hence, her damages were too remote to justify a recovery in this action."

20-30. Survival Statutes and Wrongful-death Acts. At common law no civil action would lie against the tort-feasor for an injury resulting in the death of the victim. To be sure, the injured party—while he lived—had available a suit for damages, but the right of action abated at his demise and could not be maintained by his personal representatives. The anomaly of the common-law situation was that a fatal injury left the victim's estate and beneficiaries without recourse, while lesser hurts could be remedied with the salve of damage money recoverable at the suit of the recuperating plaintiff. Even in the latter circumstance, however, plaintiff would be thwarted by death of the wrongdoer prior to entry of judgment against him.

The common-law picture has been radically altered by statutory provisions in most jurisdictions, though the applicable laws vary widely. What is probably the prevailing pattern is to have a "survival-of-action" provision and a so-called "wrongful-death statute" complementing each other so as to afford to the parties damaged a thoroughgoing remedy for the entire loss sustained through defendant's malfeasance. Defenses such as contributory negligence, which would have been at hand for use against the deceased victim had he lived, generally continue to be available after he has left the scene.42

The survival statutes typically provide that a right of action for negligence (such right belonging to the injured person) does not ter-

42 See New York Decedent Estate Law, sec. 131.
minate at his death, but an action to recover thereon may be instituted or taken over by his estate. Such an action would seek damages for pain and suffering endured by the deceased, for expenses incurred, and for loss of earnings up to the time of death.

Unlike a true survival act, the wrongful-death statute creates a new cause of action and does not simply transfer to his successor in interest a right to sue possessed by the injured person before his demise. In some states the new cause of action goes to the administrator of the deceased, while in others specific relatives are named as beneficiaries. In either case, recovery is limited to the monetary loss sustained by the parties for whose benefit the action is brought, i.e., the loss suffered through being deprived of what they figured to receive of the victim’s earnings from the date of his death on through the rest of what would have been his anticipated life span. In other words, the wrongful-death action is essentially a suit for injury to the property rights of certain beneficiaries favored by the statute, and the measure of damages is the pecuniary value of decedent’s life to his next of kin. Under the majority rule, wrongful-death actions do not survive the tort-feasor.

It can be seen that defendant’s single wrongful act harms two categories of prospective plaintiffs: (1) the victim himself while he remains alive and (2) the statutory beneficiaries after the injury has proved fatal. Survival acts and wrongful-death statutes perform separate functions in providing recourse for the various damages done. The United States Supreme Court, in discussing the role of these complementary statutes, has put it this way:

“Although originating in the same wrongful act or neglect, the two claims are quite distinct, no part of either being embraced in the other. One is for the wrong to the injured person, and is confined to his personal loss and suffering before he died, while the other is for the wrong to the beneficiaries, and is confined to their pecuniary loss through his death. One begins where the other ends, and a recovery upon both in the same action is not a double recovery for a single wrong, but a single recovery for a double wrong.”

See, for example, ibid., sec. 119. Incidentally, sec. 118 of the same law deals with the other side of the story and provides that no cause of action for injury to person or property shall be lost because of the death of the person liable for the injury.

Lord Campbell’s Act (otherwise known as the Fatal Accidents Act), 9 and 10 Vict. c. 93 (1846), was the forerunner of modern-day wrongful-death acts.

By way of illustration, see New York Decedent Estate Law, sec. 130. With reference to the cited section, it has been expressly decided that the necessary condition upon which the wrongful-death action can be maintained is that the injured person himself would have been in a position to sue for negligence had not his death intervened. McKay v. Syracuse Rapid Transit R. Co., 208 N.Y. 359 (1913).

20-31. Intrafamily Torts. Briefly stated, parent and unemancipated child can sue each other for torts affecting property interests but not, as a general rule, for personal wrongs, intentional or otherwise. A parallel situation pertains where the husband-wife relationship is involved. Before the advent of what are commonly termed "married women's acts,"\(^\text{47}\) not even property torts were actionable between spouses. The theory seems to have been that the ideal of domestic bliss could be advanced by preventing the marital partners from bringing each other into court.

**TORTS WHICH ARE USUALLY INTENTIONAL**

20-32. Introductory. One who purposely commits a tortious act is answerable for any and all damage flowing from the wrong. There are, of course, a great many different types of torts normally intentional in nature, and it would not serve the aims of this book to discuss even the principal types in any real detail. An effort will be made, though, to sketch briefly the characteristics of some of the more common of the purposeful torts.

20-33. Fraudulent Misrepresentation. To prevail when the allegation is one of fraud, plaintiff must prove (1) that defendant made a false, material statement of fact, (2) that defendant either showed a reckless disregard for the truth or knew that what he advanced as true was actually false,\(^\text{48}\) (3) that defendant intended to induce reliance by plaintiff, (4) that plaintiff did with justification rely upon the accuracy of the statement, and (5) that plaintiff was damaged in consequence of such reliance. Note particularly (4) in the above list; a seller, for example, is entitled to "puff" his wares to a degree, and the buyer cannot safely take all statements at their face value.\(^\text{49}\)

20-34. Defamation. In General. A statement is defamatory if its natural tendency is to hold up the victim to public ridicule, contempt, hatred, or the like. The court decides whether an odious interpretation could reasonably be drawn from the questioned statement, and the jury's function is to determine whether the statement was actually understood in the harmful way alleged by the complainant. The defamatory meaning of the wording used may be obvious or may arise only in the light of the surrounding circumstances, which latter the plaintiff would have to show.\(^\text{50}\) It must be proved that the alleged wrongful remarks were com-

\(^{47}\) These statutes gave the wife control over her separate property, rendered her individually responsible for her own torts, and accomplished other similar reforms.

\(^{48}\) This particular prerequisite is called *scienter*.

\(^{49}\) The doctrine of *caveat emptor* ("let the buyer beware") in mercantile transactions has the earmarks of a contributory-negligence theory.

\(^{50}\) Thus, a statement that twins were born to Mr. and Mrs. Jones appears innocent enough, even if false, until it is shown that the declarant knew the Joneses were very recently married.
municated by defendant\textsuperscript{51} to some third person\textsuperscript{52} and that the statement in question clearly related to plaintiff and not merely to some large indeterminate group of which he happened to be a part.\textsuperscript{53} Under the prevailing common-law policy, truth\textsuperscript{54} and privilege are complete defenses in defamation suits.

\textit{Slander and Libel.} Defamation is traditionally divided into \textit{slander} and \textit{libel}, each tortious in its own right. The yardstick which measures complained-of statements for traces of slander or libel varies with the times, with the geographical location, and with other, less definite factors. Calling a man a Communist in these days, with widespread public aversion in America toward communism, is as serious as was naming one a radical some years back. But calling a person a New Dealer, even in 1934 and in a strongly Republican area, was never regarded as the basis for a defamation action, even though pecuniary damage could be demonstrated by the victim. Roughly speaking, slander is oral defamation published without legal excuse, while libel takes the form of written statements, pictures, images, etc.\textsuperscript{55} All true libel is actionable per se, i.e., the law will infer that third persons have read the objectionable remarks and that damage has been done to plaintiff's reputation. In most slander cases, on the other hand, plaintiff must make a showing of actual damage. In many jurisdictions slander is actionable per se in the following four instances:

1. When defendant has imputed to plaintiff the commission of an indictable crime or of an act involving moral turpitude
2. When defendant has asserted that plaintiff is suffering from some loathsome disease
3. When defendant has imputed unchastity to a female plaintiff
4. When defendant has made an assertion detrimental to plaintiff's business; for example, by claiming that he is unable to perform his job properly.

\textit{Measure of Damages.} In the usual run of cases, recovery has been limited to those damages reasonably foreseeable by the person defaming and has not been extended to cover further injury resulting to plaintiff

\textsuperscript{51} Publication by plaintiff himself will not suffice.
\textsuperscript{52} The outsider may be plaintiff's wife, but communication by defendant merely to his own wife is not the requisite "publication." Some courts say that an "appreciable minority" of the people in a community must have their opinions of plaintiff lowered before he has the basis for a successful suit.
\textsuperscript{53} The test is whether a fair percentage of the people who know plaintiff believe the material refers to him.
\textsuperscript{54} When truth is the defense, it matters not for what evil motive declarant made the statement sued upon.
\textsuperscript{55} Hence, improper remarks about X dictated to one's secretary constitute slander. When she transcribes the dictation, libel has entered the scene.
from totally unexpected repetition of the statements arousing adverse feelings toward him. If very offensive words are spoken in a public place before a large gathering of people, punitive damages may be recoverable.

**Liability Varies.** A lot depends upon the status of the individual defending the defamation suit. For instance, the publisher of a newspaper is strictly liable if defamatory material appears in his paper, since he presumably has control over the printed contents. But the corner news vendor is responsible only if he should have known the defamatory character of the publication he sells.

**Defenses.** Apart from *truth, privilege* is the key to successful defamation defense. Certain positions carry with them an absolute privilege to defame, without regard for motive or for reasonableness of conduct. The judge in his courtroom (or the witness on the stand) epitomizes this category. Legislative proceedings, communications between husband and wife, and publications made with the consent of plaintiff are other situations in which absolute privilege applies.

There is a second type of privilege, qualified privilege, which, properly exercised, likewise affords an adequate defamation defense. This type is conditioned upon defendant’s reasonable behavior and lack of malice. Newspaper columnists, music critics, radio commentators—all these and various others enjoy a qualified privilege protecting their reports, comments, and criticisms. A plea of qualified privilege will not avail defendant if plaintiff can show that the privilege was abused, for example by excessive publication.

**Mitigating Damages.** What might be called partial defenses in mitigation of damages include such points as (1) the belief of defendant in the essential truth of his statements, (2) the bad reputation of plaintiff, and (3) timely retraction by defendant of the defamatory remarks.

**20-35. Right of Privacy.** A person’s life history, name, and likeness constitute the physical indicia of his individual existence; these things are, in a sense, “property rights” and will be protected against unprivileged invasion, particularly when the violator is actuated by commercial considerations. One is entitled to a certain amount of seclusion far from the madding crowd and the glare of unwanted publicity. Thus, the seeds of numerous invasion-of-privacy suits are sown when pictures of individuals—particularly in embarrassing situations—are taken and published without their consent. In suing for invasion of privacy, plaintiff need show no special damage of a pecuniary nature, recovery does not rest on defamation, and truth is no defense.

If the individual whose privacy has been violated is or was formerly a

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56 Verbatim reporting by a magazine of a Senator’s defamatory speech is as privileged as the address itself.
public figure, his chances of recovering damages through suit are slim. People in public life are deemed to have pretty much waived their rights of privacy, and anything of news value about them becomes a matter of legitimate interest to the man in the street and thus a proper subject for publication. For example, a government official’s likeness is considered common property, and his consent to its general use presumed.

20-36. Malicious Prosecution. By means of an action for malicious prosecution, a person may recover for harm done his reputation, business, etc., as the result of an unsuccessful criminal proceeding brought against him maliciously and without probable cause. This type of suit is not favored in the law, and plaintiff faces a heavy burden of proof. The essential things he must show are four in number.

1. The party he now sues was responsible for the bringing of the criminal charges.
2. The criminal proceedings terminated in the tort plaintiff’s favor.
3. There was an absence of “probable cause” in connection with the criminal charges.
4. The tort defendant was guilty of malice or was spurred by a primary motive other than that of bringing an offender to justice.

Probable cause is always an effective defense in a malicious-prosecution action and is usually evidenced by a showing that a grand-jury indictment was returned or that the magistrate bound over the criminal defendant at a preliminary hearing. Advice of counsel, acted upon in good faith, is likewise a defense to an allegation of malicious prosecution.

20-37. False Arrest and Imprisonment. Unless an unjustified arrest is followed by some sort of judicial proceedings, the victim cannot bring an action for malicious prosecution and will be restricted to a suit alleging false imprisonment. An arrest usually involves confinement, and a person who brings about the (undeserved) detention of another

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57 Similarly, a private citizen may participate unwillingly in some event of such public concern that he cannot complain of his involvement in the attendant publicity.
58 There is a companion tort commonly called vexatious suit and based on the wrongful institution of civil proceedings.
59 An acquittal is not necessary; abandonment of the prosecution will suffice. The theory underlying requirement (2) above is that disposition of the prosecution in a manner favorable to the tort plaintiff tends to indicate his freedom from guilt. This factor, plus a showing that the accuser acted maliciously and without probable cause, establishes the tort, i.e., the malicious and unfounded charge of crime against an innocent person.
60 Lack of probable cause may imply malice.
61 Technically, the tort is “false imprisonment,” and one way of committing the tort is through “false arrest.”
through the auspices of a third party (policeman) is as fully responsible as though he had physically taken matters into his own hands. When an arrest is made without a warrant, the moving party assumes the risk that a crime has indeed been committed and that an arrest is therefore proper; and, even though a crime undeniably has occurred, such party must be in a position to demonstrate that he had reasonable grounds for believing the arrested individual was responsible. We have been referring thus far to arrest without a warrant. The rules are far different when the moving party swears out a complaint and has a valid warrant issued. Under such circumstances the element of probable cause has been passed upon by responsible authority, and the complainant is consequently insulated from any possible false arrest suit (though, if he acted maliciously, there might eventually prove to be a basis for a malicious-prosecution action).

In the broad sense of the term, false imprisonment may be defined as (1) any confinement of another within boundaries fixed by the tortfeasor (2) for any measurable time whatever and (3) irrespective of whether actual harm is caused, if (4) the action taken is intended to imprison the other person, (5) if he is aware of being confined, and (6) if the imprisonment is neither consented to nor otherwise privileged. The unlawful restraint must be total; that is to say, defendant must have closed to his victim every reasonable means of escape. On the question of whether the restraint involved is sufficient to support a false-imprisonment cause of action, much depends upon the physical circumstances. Attempted confinement of a male athlete, aged twenty, in a first-floor room with an open window in view is far different from imprisonment in the same quarters of an elderly lady of considerable girth. In general, if there is an obvious means of egress, free of danger, there may be inconvenience involved for the victim but there is no true imprisonment.

20-38. Interference with Business Relations. As a general proposition, one who induces X to breach his contract with Y is liable in tort to the latter, since the law imposes upon strangers to a contractual arrangement the duty to refrain from willful interference with its performance. A person is privileged to invade an existing contract interest when he acts in protection of an equal or superior interest, and there is a somewhat broader privilege when the interference is indirect and incidental. Some types of contracts are protected to a lesser extent than others; for

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62 The policeman's own liability will depend upon the reasonableness of his action under the circumstances.

63 Incidentally, the right to make an arrest in a given situation carries with it the privilege of using reasonable force.

64 Honesty of the belief is alone insufficient, as are lofty motives.

65 Put another way, purposeful inducement to breach is a prima-facie tort, actionable in the absence of privilege.
example, interests in contracts "terminable at will" may be invaded (under the guise of competition) with relative safety.

Prospective as well as existing contracts may be intentionally interfered with in such a way as to give the injured party a right of action. Deliberate interference with a person's privilege to enter into advantageous economic relations is tortious, and plaintiff may recover his provable damages unless defendant can show justification.66

20-39. Slander of Title, etc. When plaintiff brings an action for disparagement of his goods or property or an action for slander of title, he must show the following:

1. That defendant communicated to third persons statements, purporting to be factual, vilifying plaintiff's goods or casting a cloud of doubt on his title.
2. That the statements were untrue.
3. That in consequence of defendant's conduct plaintiff suffered actual damage, perhaps because others, believing defendant's allegations, refused to deal further with plaintiff. The damage must be real and not just speculative or potential.

There is some conflict of authority about whether defendant must also have acted maliciously67 and with knowledge that the statements he made were false. If defendant's words pertain to plaintiff's goods but necessarily imply his personal dishonesty,68 plaintiff's best vehicle for recovery is perhaps an action for defamation, wherein no proof of special damage is requisite.

Businessmen, of course, can "puff" their own merchandise and make general assertions of the superiority of what they have for sale, as long as specific disparaging statements of fact are avoided with respect to a competitor's product.

Infringement of copyright is tortious and is mentioned here because it really belongs with the broad group of torts affecting commercial relations.

20-40. Assault; Battery. Assault is a wrong to the person of the victim and may be defined as an intentional69 act which creates a reasonable apprehension that offensive bodily touching or injury is at hand. Mere words do not alone constitute an assault; there must be some physical maneuver by the tort defendant, coupled with the apparent present ability to carry out the immediate threat posed. The phrase "apparent

66 Such excuse as that he was merely engaging in bona fide competition for business.
67 Most courts seem to require some showing of malice or improper motive.
68 For example, an allegation that plaintiff butcher knowingly sold diseased meat.
69 The requisite intent may be inferred from the nature of the act.
present ability” poses a subjective test in that the important consideration is whether the plaintiff actually feels the defendant can and will follow through. The tort of assault has been committed when defendant threatens plaintiff with a revolver which the latter thinks is loaded.70 Such a wrong as this occasionally results in real physical damage, as where the frightened plaintiff is a pregnant woman, or an elderly person with heart trouble. Note that a threat of future violence is not actionable as an assault. A warning by defendant that he will shoot plaintiff the following week falls into this category.

Battery is the intentional and offensive touching of another, even to the slightest extent. In most instances, of course, assault and battery go together, though there are a fair number of civil suits involving assault alone.

A showing of provocation will mitigate damages in an assault and battery action. In addition, there are several typical defenses to such a suit.

1. Self-defense or defense of a third person. The degree of force used must be reasonable in the particular circumstances.
2. Defense of one’s property. Again, the means employed must be reasonable.
3. Enforcement of discipline, as by a person in loco parentis—a school-teacher, for example.

20-41. Conversion. This tort is committed through the unauthorized assumption and exercise of ownership rights with respect to the property of another. Conversion takes various forms, such as stealing, intentionally destroying or altering property, using property without authority, buying from a known thief or a “fence,” selling goods belonging to someone else, willfully refusing to surrender a person’s property upon demand, and misdelivering goods (as by a bailee).

The defendant in these cases is normally answerable for damages measured by the market value of the chattel at the time and place of its conversion, together with interest on this sum up to the time of trial. Where the property involved is something like used household furniture or books, recovery may be limited to the original cost less depreciation. On the other hand, when the misappropriated article is one of highly fluctuating value, such as a stock certificate, plaintiff may be able to recoup a sum equivalent to the highest market price reached by the converted property in a reasonable period after discovery of the tort.

When someone has wrongfully made off with his goods and plaintiff sues in conversion, he is seeking monetary recompense for the wrong. He may, though, elect to pursue a cause of action in replevin, which

70 It matters not that the gun actually was without cartridges.
means he wants the actual chattel itself returned rather than its cash equivalent.

20-42. Trespass. Anyone who in some fashion interferes with your possessory rights in property, or enters upon your land without permission or privilege, commits a trespass and is potentially liable for at least nominal damages even though his motives may have been beyond reproach. There are, of course, various instances of privileged invasion; thus, the innocent owner of escaped goods has the right to go upon the land of another to reclaim them, though he is responsible for any removal damage done and for possible injury caused by leaving the goods on the land of such other person for an unwarranted period of time.

 LIABILITY WITHOUT FAULT

20-43. Respondeat Superior. Under the doctrine of respondeat superior,\textsuperscript{72} one person is held vicariously liable under certain conditions for the tortious conduct of another. The principle is applicable only when the relationship between the person sought to be charged for the damage done and the actual wrongdoer is shown to be that of (1) master and servant\textsuperscript{73} or (2) principal and agent, and only to the extent that the tort-feasor on the occasion of the wrongful deed was acting within the scope of his employment or agency. While in fact accomplishing his ends through remote control, the master or principal is, in the eyes of the law, himself acting; the idea underlying vicarious liability is, of course, to permit the injured third party access to the "deep pocket."\textsuperscript{75} Technically, both master and servant are liable to X for the torts of the servant, and the latter, in turn, is answerable to his master.

Persons engaged in a true joint enterprise\textsuperscript{74} are, without any wrongful conduct of their own, each responsible to injured outsiders for the fault of other participants in the undertaking, as long as the tortious behavior occurred within the purview of the joint enterprise. To constitute such an enterprise, wherein the negligence of one participant is imputable to the others, there must be a community of interest in the purpose of the undertaking and an equal right for each affiliated individual to govern the conduct thereof.

20-44. Nondelegable Duties. As a rule, when A (perhaps a building owner or a prime contractor) hires B to perform certain tasks in the capacity of an independent contractor,\textsuperscript{76} A cannot be held for B's torts,\textsuperscript{77} "Let the principal answer."

\textsuperscript{72} I.e., employer and employee, etc.

\textsuperscript{73} Respondeat superior is normally inappropriate with respect to minors; they cannot be held for the wrongs of their servants.

\textsuperscript{74} This term is essentially synonymous with joint adventure in legal contemplation.

\textsuperscript{75} As the term independent contractor is used here, A (the owner) controls only the final result and not the means by which it is accomplished; A is not privileged to interfere with the details of performance.
absent proof of clear negligence in the selection of B or a showing that the work in prospect was of such a nature as to be inherently dangerous to others.

Certain tasks and duties are of such import that they cannot be delegated to the extent necessary to relieve A of his potential tort responsibility. Thus, the obligation of a property owner to keep his premises safe for invitees cannot be transferred to an independent contractor employed to effect repairs; negligence of the contractor will render the owner, though personally blameless, liable to injured business visitors.

20-45. Workmen’s Compensation Acts. The workmen’s compensation acts\(^a\) and similar laws permit recovery for personal injuries arising out of and in the course of employment. A number of occupational groups, typical of which are domestic and agricultural workers, are presently excluded from coverage under the workmen’s compensation acts of virtually all jurisdictions. Interstate railroad employees comprise one of the excluded categories, but they receive comparable protection under the Federal Employers’ Liability Acts.

The basic test of “comp” liability is work connection rather than fault, and it is arguable that, in theory at least, the concept of workmen’s compensation differs from that of strict tort liability, which is the general subject of the articles in this portion of the present chapter. But the end result for the employer is the same: he pays\(^b\) despite the absence of any wrongful conduct on his part. Misconduct of the employee, whether negligent or willful, is immaterial unless it takes the form of deviation from the course of employment, or unless it is of a kind specifically made a defense in the workmen’s compensation law of the particular state.

In return for the readily available compensation-act benefits, the employee and his dependents surrender (as regards any injury covered by the act) their common-law right to sue the employer for damages. The employee may yet bring an action against some third party whose negligence caused the harm, but proceeds obtained thereby usually must be applied primarily toward reimbursing the employer for his “comp” outlay.

20-46. Extra-hazardous Activity. Broadly speaking, a person who engages in an activity which poses a real menace to others is held strictly accountable for the natural consequences thereof. That is to say, such person is under strict or absolute liability for the mischief he causes, and the fact that he took all reasonable precautions will not relieve him of ultimate responsibility. He is, to all intents and purposes, regarded as an insurer of the safety of outsiders, and this is true even though

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\(^a\) All states now have such acts, the most recent (Mississippi) as of January, 1949.
\(^b\) The employer can, of course, insure his burden of “comp” liability.
the activity involved may be entirely lawful, proper, and even necessary.

Perhaps the example most pertinent for engineers is afforded by the innumerable damage-from-blasting cases before the courts. Some decisions have drawn a distinction between (1) damage done by rocks or other substances propelled as the result of the dynamiting and (2) damage occasioned purely by the concussion. New York, for example, seems to impose liability without negligence in the first instance but not in the second. The trend today, though, appears to be toward repudiating any such differentiation and, consequently, holding the defendant responsible in every case regardless of the fault element. A recent Oregon decision78 is illustrative of the general pattern. The following passages are of particular significance:

"This is a case of first impression in this court. It presents the question whether damages may be recovered for injury to real property caused by concussion or vibration from blasting operations where it is neither pleaded nor proven that the defendant was negligent in the conduct of such operations. . . . (pp. 842–843)

"We are satisfied that . . . the rule of liability should be the same whether the blaster injures his neighbor's land by casting rocks, debris or other material on it or by setting in motion concussions or vibrations of the earth or air. In neither case is it necessary for a plaintiff to allege and prove negligence. . . . (p. 844)

"The rule of liability is thus stated in the Exner case: 'Dynamite is of the class of elements which one who stores or uses in such a locality, or under such circumstances as to cause likelihood of risk to others, stores or uses at his peril. He is an insurer, and is absolutely liable if damage results to third persons, either from the direct impact of rocks thrown out by the explosion (which would be a common-law trespass) or from concussion' . . . (p. 845)

"The American Law Institute phrases the rule in the Restatement, Torts, as follows:
Sec. 519. 'Except as stated in Secs. 521–4 (not pertinent here), one who carries on an ultrahazardous activity is liable to another whose person, land or chattels the actor should recognize as likely to be harmed by the unpreventable miscarriage of the activity for harm resulting thereto from that which makes the activity ultrahazardous, although the utmost care is exercised to prevent the harm.'
Sec. 520. 'Definition of Ultrahazardous Activity.
'An activity is ultrahazardous if it
'(a) necessarily involves a risk of serious harm to the person, land or chattels of others which cannot be eliminated by the exercise of the utmost care, and

(b) is not a matter of common usage.

In Comment c to Sec. 520 it is said:

'. . . Blasting is ultrahazardous because high explosives are used and it is impossible to predict with certainty the extent or severity of its consequences' . . . (p. 846)

“Our recent decision in Brown v. Gessler, 191 Or. 503, 512, 230 P.2d 541, 545, 23 A.L.R.2d 815, definitely places this court on the side of the courts of this country which have adopted as law the rule of Rylands v. Fletcher. Justice Blackburn in 1 Exch. 278 stated the rule as follows: 'We think that the true rule of law is, that the person who for his own purposes brings on his lands and collects and keeps there anything likely to do mischief if it escapes, must keep it in at his peril, and, if he does not do so, is prima facie answerable for all the damage which is the natural consequence of its escape. He can excuse himself by showing that the escape was owing to the plaintiff's default; or perhaps that the escape was the consequence of vis major, or the act of God; but as nothing of this sort exists here, it is unnecessary to inquire what excuse would be sufficient.'

“It requires very little extension of this doctrine to apply it to the facts of the present case. And there is slight difficulty in holding that one who engages in blasting operations which set in motion vibrations and concussions of the earth and air which reach to another's land—no matter how far distant—and shatter his dwelling, commits a trespass no less than one who accomplishes the same result by the propulsion of rocks or other material . . ." (pp. 849–850).

20-47. Dangerous Instrumentality. One who harbors, maintains, or utilizes anything commonly regarded as a dangerous instrumentality will be held to the very highest standard of care, amounting really to strict liability for whatever injurious consequences befall those within the circle of danger. If Smith keeps a wild animal, dangerous by nature, on his place, and there ensues injury to neighbor Jones, Smith's negligence is presumed, and he is under absolute liability. The same situation pertains if the animal is a domestic one but its owner knows that it has vicious propensities. Ordinary contributory negligence of the harmed person—as in all instances of "strict liability"—is no defense.

79 E.g., firearms or explosives.
80 Some jurisdictions have done away with this requirement of scienter and have imposed absolute liability even where a dog owner, for instance, is not aware of the animal's shortcomings.
81 However, there is a real question when plaintiff, knowing the dog was inclined to fits of anger, deliberately provoked him.
CHAPTER 21

Real Property

21-1. Nature of Real Property. *Realty, as distinguished from personality,* consists of the following:

1. The land itself
2. All buildings, trees, and other fixtures of any kind thereon
3. All rights and privileges incidental or "appurtenant" to the land, i.e., used with the land for its benefit, as in the case of a watercourse or of a passage for light across the property of another

Assume that you agree to buy a farm from A. Barring an agreement to the contrary, you will acquire the land, the structures existing thereon, and all trees, shrubs, and other long-lived vegetation growing on the premises. However, you are not automatically entitled to crops grown by A and ready for harvest. The dam and 5-acre pond on A's farm are part of the realty as of the time of your purchase and thus become yours, but the same is not true of A's boat, which is regarded as personality and which does not, therefore, pass with the land. The farm machinery, stock, poultry, etc., owned by A are his personal property, and title to same does not pass with the farm unless you buy these items or A donates them to you. On the other hand, after agreeing to sell the farm to you, A has no right to tell a landscape gardener that he can take 200 cu yd of topsoil for $3 per cubic yard; if, however, A had sold his topsoil and had removed it before you agreed to buy the farm and you were too inexperienced to recognize what had happened, you are probably stuck.

21-2. Ownership. To own property of any sort entails the rights of possession, reasonable use, and disposition. There are various kinds and degrees of ownership of real property.

*Sole ownership,* of course, involves only one person. *Joint tenancy* is a relationship whereby two or more people together own an interest in

1 In a broad sense, personal property includes everything which is the subject of ownership and which is not properly described as real estate.
land, and each individual concerned has precisely the same rights in respect of that interest as have his cotenants. *Tenancy in common* is another multiple-ownership form; two or more persons have undivided but nonetheless distinct shares in a property interest.

The generic designation *real property* is usually said to be sufficiently comprehensive to embrace all estates in land, i.e., estates in fee simple, estates for life, estates for years, etc. A *fee simple* is the largest estate known to the law; it is a freehold estate\(^2\) of inheritance carrying an unlimited power of alienation. Where land is acquired by A and his heirs absolutely and without any end or limitation being imposed upon the estate, A is said to hold title in *fee simple*. He can, if he desires, dispose of such fee during his lifetime; otherwise, it will pass under his will or descend to his heirs if he dies intestate. A *life estate*, on the other hand, is a property interest whose duration is limited to the life of the person holding same or to the life of some other named individual. During the continuance of the life estate, the tenant has the right to full enjoyment and use of the land. However, existence of a life estate necessarily means that the fee exists elsewhere than in the life tenant, and the latter has no power to destroy the remainderman's interest in the property.

Ownership of realty varies also in respect of the existence and extent of any encumbrances. Holding title free and clear is a pleasant situation but no more common these days than to have the property burdened with a substantial mortgage, with unpaid assessments for streets or sewers, or with any number of other items. Encumbrances, collectively and individually, will be discussed in subsequent articles.

In connection with the general subject of ownership, mention should be made here of the necessity of a writing where interests in realty are concerned. Section 242 of the New York Real Property Law is typical of statutes patterned after the famous English Statute of Frauds (29 Car. II). Section 242 reads:

> “An estate or interest in real property, other than a lease for a term not exceeding one year, or any trust or power, over or concerning real property, or in any manner relating thereto, cannot be created, granted, assigned, surrendered or declared, unless by act or operation of law, or by a deed or conveyance in writing, subscribed by the person creating, granting, assigning, surrendering or declaring the same, or by his lawful agent, thereunto authorized by writing. But this section does not affect the power of a testator in the disposition of his real property by will; nor prevent any trust from arising or being extinguished by implication or operation of law, nor any declaration of trust from being proved by a writing subscribed by the person declaring the same.”

\(^2\) At common law, *freehold estates* in real property included only estates of inheritance and estates for life.
21-3. Mortgages. A mortgage contract between debtor and creditor affords the latter by way of security against the outstanding debt a charge upon the land of the former. It is an encumbrance created to secure a debt and takes the form of a defeasible conveyance of the realty described. The defeasance clause declares the conveyance void if the debt in question is discharged by the stipulated day. The mortgage transaction, under what seems to be the general rule, gives to the grantee-creditor a lien against the property but leaves with the grantor legal title (technically, an *equity of redemption*) and all incidents of ownership. In a substantial minority of jurisdictions, the so-called **common-law** or *title* theory obtains, by which the mortgagor becomes the owner of the legal estate and would be entitled to possession unless this last right is expressly reserved by the mortgagor. The mortgagor retains, in any event, an equity of redemption conditioned upon satisfaction of the debt.

Typically, the debtor signs a bond or a promissory note along with the mortgage. This arrangement adds the debtor's personal liability to the security which the mortgage represents.

When the mortgagor fails to fulfill his mortgage commitments, the mortgagor's usual recourse is to invoke the judicial proceeding known as **foreclosure**, by which the property covered by the mortgage is subjected to sale and all the rights of the delinquent mortgagor, including his equity of redemption, ultimately cut off. If the foreclosure sale does not provide sufficient funds with which to liquidate the mortgage debt, the mortgagee-creditor may sue on the note and secure a **deficiency judgment** for the balance due. On the other hand, any surplus realized from the sale belongs to the mortgagor.

Incidentally, a mortgage and the debt for which it stands may be assigned by the mortgagor to an outsider. The latter "stands in the shoes of the mortgagor" and finds his interest subject to all equities which may have existed between the parties to the mortgage. Up to the time he is actually notified of the assignment, the mortgagor may safely pay to the mortgagor any sums in reduction of the outstanding obligation.

When the debt is paid and the mortgage released, whatever paper the mortgagor receives evidencing the discharge should be recorded as was the mortgage itself, so that any subsequent title search will reveal that the burden represented by the mortgage no longer attaches to the land.

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*To be effective as against subsequent parties in interest, the real property mortgage should be recorded, in the same manner as a deed, in the appropriate office of the official in the county which is the situs of the realty.

*Note that, since the mortgagor acquires some interest in the realty, the statute of frauds applicable in the particular jurisdiction must be satisfied.

*He can, if he desires, sue on the note and ignore the mortgage. However, this would be a relatively unusual procedure.
21-4. Encumbrances. An encumbrance, broadly speaking, is any burden upon land, depreciative of its value. Thus, a mortgage, as we have seen, is an encumbrance and a very common one. Other typical encumbrances—and the list does not purport to be a complete one—include the following:

1. Unpaid taxes standing against the property
2. Applicable restrictions imposed by building code and local ordinance
3. Rights of way, drainage rights, and similar privileges in the hands of third parties
4. Covenants or other private restrictive agreements to which the land has been rendered subject
5. An outstanding lease of the premises (or a portion of same), which lease, by its terms, has not expired

An existing encumbrance is adverse to the interest of the landowner, though it does not preclude his conveying the property in fee simple. If he has contracted to sell the land free and clear of all encumbrances, he must, obviously, pay up back taxes and take other steps of like nature before the closing date arrives.

21-5. Servitudes. Servitude designates some privilege in reference to the land and held by one other than the landowner. A servitude amounts to a charge or encumbrance on the real estate. The three categories of servitude are easement, license, and profit à prendre; they will be considered separately in the following articles.

21-6. Easements. An easement is a liberty or right which one person has to use the land of another for a specific purpose. It exists distinct from the ownership of the soil itself and can only be created by grant, by implication, by eminent domain, or by prescription, and not by parol. A deed conveying an easement not only must describe the land to which the use granted attaches but also must detail the particular use permitted.

Other characteristics of the easement are as follows: (1) it is assignable; (2) it is inheritable; (3) it may be transferred independently of the land to which appurtenant; (4) a person cannot have an easement in his own lands.

The existence of an easement presupposes two distinct tenements: the dominant estate, to which the right belongs, and the servient estate, upon which the easement or servitude is imposed.

* I.e., by adverse possession. See Art. 21-15.

† The word tenement comprehends everything of a permanent nature which may be holden. It signifies an estate in land or some estate or interest connected with, pertaining to, or growing out of the realty.
Here is an everyday example of the functioning of easements. An industrial corporation desired to build a high-tension power line from its new generating station on the shores of Lake Superior to its taconite plant some 70 miles inland. The contemplated power line would cross in its journey a number of pieces of private property, and easements were therefore obtained from the several owners. The latter can continue to utilize the involved property for any purpose not inimical to the existence and operation of the power line. They cannot, however, change their minds and compel the corporation to remove its towers and cables. And, when the owners eventually sell the affected lands, the new property holders are bound by the easements previously granted.

An easement is extinguished by agreement of the several interested parties or upon cessation of the need therefor. Thus, in the above example, should the industrial corporation tear down its original high-tension line in area A and replace it with a new one through area B, the easements acquired to effect passage of the line through its now-abandoned route would terminate, and new easements from property owners in area B should be secured.

21-7. Licenses. Simply stated, a license amounts to an excuse for what would otherwise be a trespass. A mere license to use the land of another in a given way or for a stated purpose differs from an easement in that the latter confers an interest in the land and may not be terminated at the pleasure of the servient owner; a license is simply a personal, unassignable, revocable privilege, which is generally granted orally.

By way of illustrating the concept of license, suppose a railroad grants a trucking concern permission to use an existing private roadway-crossing over the tracks, on condition that the crossing be removed upon notice from the railroad and that the trucking outfit promise to indemnify the railroad against all claims arising from use of the crossing by the trucker or its invitees. Such an arrangement constitutes a license rather than an easement.

21-8. Profit à Prendre. Profit à prendre is taken from the French and means, literally, "profit to take," the words "from land" being implied in supplement. A profit à prendre, popularly shortened to the single word "profit," is an interest in realty and (under some statutes, at least) must be created by a properly executed writing; in this respect it differs from a license. In a comparison of profit and easement—both of which create interests in real property—the distinguishing feature of a profit is the right to take from the land of another part of the soil or a product of same in which there is supposed value, while the distinguishing feature of an easement is the absence of any right in the privilege holder to participate in the profits of the soil.
21-9. Rental of Real Property. Lease or rental of realty relates to a contractual arrangement, between two parties designated in common parlance as landlord and tenant, whereby the owner divests himself for a period of time of the possession and use of his property—in exchange for a stipulated compensation in the form of rent. The lease may be granted for life, for years, "at will," etc., but always for some period short of the time interest which the lessor has in the premises. At the close of the lessee's term, the owner has the absolute right to re-enter and make full use of his property.

A lease is a contract and is governed by the same rules as other contracts. Ordinarily, the landlord assumes the expenses entailed by taxes, insurance, and reasonable upkeep on the rented property. The use to which leased premises are put must be in line with that agreed upon between the parties. Thus, if an individual rents a structure for living purposes, he is not entitled to utilize it as a store or other business establishment.

Certain covenants are implied in every lease. These include a covenant by the tenant to pay rent and covenants by the landlord (1) that he has title to the property and (2) that the tenant will have "quiet enjoyment" of the premises. The latter covenant is breached by eviction, actual or constructive.

If the terms of the lease do not expressly preclude such, the tenant can assign or can sublet. An assignment transfers the tenant's entire interest in the remaining portion of the term. The assignee is deemed to have accepted such obligations as the lease imposes and is responsible for the rent. Absent a release from the landlord, the assignor retains a secondary liability with respect to the rent; he becomes, in a sense, a surety. A sublease results when the tenant transfers a portion of the unexpired term but reserves some to himself. There is no relationship between landlord and subtenant, and no rent can be recovered by the landlord from the subtenant.

An oral lease for more than one year is usually unenforceable under the local statute of frauds. A lease of appreciable duration should be

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8 That is to say, a lease invariably creates a lesser estate from the greater.
9 Such an attempted use might well run into the additional obstacle of zoning restrictions limiting the area to residences.
10 A covenant is defined as an undertaking to do—or, in the case of a negative covenant, not to do—a stated act. The remedy for breach of an affirmative covenant is by damages or, sometimes, by a bill for specific performance. When a negative covenant is violated, the appropriate relief is an injunction. Some covenants are personal in nature, while others "run with the land" and hence pass from one beneficiary to his successor in interest.
11 Even where a prohibitory clause exists, the landlord may waive his right to object by accepting rent from the assignee.
12 See the New York provision quoted in Art. 21-2.
recorded so as to give any prospective purchasers of the property due notice of the true situation.

While the renting of real estate amounts to conveyance of a sort, the arrangement is clearly distinguishable from a sale. Under the latter disposition, ownership passes immediately from the vendor to the purchaser (and his heirs and assigns). In the lease situation, title stays with the lessor, the lessee acquiring temporary use of the property on condition that he restore it to its owner at the expiration of the term.

21-10. Disposing of Real Property. Real property may pass by intestate succession or may be devised under the will of the owner. During his lifetime, the said owner may convey the realty by way of gift or in a sale. Relatively infrequently, transfer of real property from one owner to another is effected on an involuntary basis. Cases of this nature include (1) forced sale for back taxes; (2) sheriff's sale; (3) sale attendant upon foreclosure of a mortgage; (4) bankruptcy (in which event any nonexempt real property of the bankrupt passes to the trustee for the benefit of creditors); (5) acquisition by adverse possession, a concept to be considered in some detail in Art. 21-15; and (6) eminent domain, regarding which see Art. 21-16.

21-11. Mechanics of the Sale Transaction. One very common means of disposing of real estate is by sale. The ordinary sequence of events is (1) the signing of a bond for deed, which is an agreement to buy, on the one hand, and to sell, on the other, a given piece of property upon terms stated; (2) title search and mortgage arrangements by the prospective purchaser; (3) the closing, wherein the vendor delivers a deed to the property in exchange for payment of the agreed-upon consideration; (4) recording of the deed and other documents in the official land records at the situs of the property.

21-12. Bond for Deed. The instrument in caption is an executory contract for the sale of realty. It is not a transfer of title, and it is only after the would-be purchaser has fulfilled the several conditions of the

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18 In similar fashion, lease is readily distinguished from license, a term discussed in Art. 21-7. A license conveys no estate in the property involved and is revocable by the grantor at will. A lease, unlike a license, affords the tenant a (carefully defined) right to possess and use the real property during the continuance of the term— even as against the landlord himself.

19 Statutory provisions govern disposition of a decedent's property where no will is to be found. Typically, the state prescribes that the surviving spouse receive the use for life of something like one-third (of what is left after payment of debts and charges against the estate); the remaining two-thirds normally goes to the children.

20 Conveyance is a word of broad meaning which comprehends the several modes of transferring title to real estate from one person to another.

21 Primarily, payment of the indicated price. A portion of the selling price will be paid at the time the bond for deed is executed, and this down payment is recited in the instrument as part of the consideration for the vendor's promise to deliver a deed. The balance of the agreed-upon price is to be forthcoming at the closing.
bond that he has a right to demand delivery of the deed of conveyance, vesting in him title to the property.\footnote{If the seller should renege on his promise to transfer the property, the buyer presumably can secure a remedy of specific performance, forcing the seller to go through with his bargain. Damages would be an inadequate remedy in many cases, since each parcel of real property is regarded as unique, and the buyer is entitled to the precise land he dickered for—and not simply to its supposed monetary equivalent.}

The bond for deed ordinarily covers a number of points, among them the following:

1. Full description of the property involved.
2. Selling price and terms of the sale.
3. Determination of which party will pay for such items as the water bill from the date of the closing to the end of the current period for which a bill is rendered.
4. Statement about existing encumbrances or restrictions of any sort affecting title.
5. Statement about whether vendee will assume any mortgage which may be outstanding or about what other disposition will be made of such obligation. Perhaps the most common arrangement is for the vendor to discharge his mortgage, using a portion of the sale proceeds, and for the vendee to bring his own bank into the picture as a new mortgagee on the property.
6. Type of deed the vendor will furnish.
7. Date and place for the official closing.

When the title search has been completed\footnote{If the vendee has indeed arranged for new financing of his own, his mortgagee, if a bank, will have its own lawyer conduct a title search in protection of the bank's interest—and probably charge this to its customer, the vendee, who usually will not then bother to have still another search made.} and ambiguities of whatever sort resolved to the satisfaction of both parties, the actual closing is the next item of business. At the closing, any mortgage transactions are consummated, transfer taxes are paid, the selling price (adjusted in minor respects for amounts due buyer or seller) is turned over, and the deed is delivered. Then, as previously mentioned, the several documents will be recorded, and third parties are thus given constructive notice that new ownership of the property is now an accomplished fact.

21-13. The Deed Itself; Function and Types. By the term deed is meant a written instrument by which the grantor conveys to his grantee some interest, right, or title in or to certain real estate described in the document. The purpose of the deed is to declare the fact of conveyance and to stand as evidence of the transfer of title. It represents the act of but one of the parties—being signed only by the grantor—and,
unless a gift is intended, is drawn in fulfillment of the grantor's commitment under a previous agreement with the grantee.

The statutes prescribing the requisites of deeds vary with the jurisdiction. Every deed should contain, among other things, the names of the parties concerned, apt words of conveyance, and a full description of the property in question—indicating what buildings, appurtenances, and privileges are included with the land. The instrument will also recite the consideration for the transfer, the quantity of interest conveyed, and any pertinent conditions, reservations, and the like. The deed must be properly executed in the presence of whatever number of witnesses.

Such prior contract may have been in writing (see bond for deed, discussed in Art. 21-12) or may have been an oral arrangement.

It is not unusual to find that, with reference to a particular piece of realty, a detailed plot map has been drawn as the outgrowth of a survey and the establishment of precise boundary lines. A copy of such map should then accompany the deed each time the property changes hands. A sample of a plot map is shown in Fig. 21-1.
the applicable statute requires and must actually be delivered to the
gantee. Unlike a will, a deed is irrevocable and takes effect upon de-
ivery, thus passing to the recipient an immediate or "present" interest.

There are two basic types of deeds in general use today.

Warranty Deed. This is the kind the buyer invariably wants but may
have difficulty getting in a "seller's market." The warranty deed con-
tains five express covenants\(^\text{21}\) which run with the land—seisin,\(^\text{22}\) quiet
enjoyment, freedom from encumbrances, further assurance, and title.
Reproduced below is the form of warranty deed which appears in Sec-
tion 258 of the New York Real Property Law as a sample. Note par-
ticularly the above-listed five covenants:

DEED WITH FULL COVENANTS

This indenture, made the________day of________nineteen
hundred and________, between________(insert residence)
party of the first part, and_________(insert residence) party of the
second part,

Witnesseth, that the party of the first part, in consideration of
________dollars, lawful money of the United States, paid by the
party of the second part, does hereby grant and release unto the party
of the second part, __________and assigns forever, all __________
(description), together with the appurtenances and all the estate and
rights of the party of the first part in and to said premises,

To have and to hold the premises herein granted unto the party of the
second part________and assigns forever. And said________
covenants as follows:

First. That said________is seized of said premises in fee simple,
and has good right to convey the same;

Second. That the party of the second part shall quietly enjoy the
said premises;

Third. That the said premises are free from incumbrances;

Fourth. That the party of the first part will execute or procure any
further necessary assurance of the title to said premises;

Fifth. That said________will forever warrant the title to said
premises.

In witness whereof, the party of the first part has hereunto set his
hand and seal the day and year first above written.

In presence of:

__________________________

Quitclaim Deed. By this form the grantor turns over such title and
interest as he may have in the property but makes no promise whatever

\(^{21}\) As distinguished from leases, deeds carry no implied covenants.

\(^{22}\) Technically, seisin means the possession—by right—of an estate of freehold.
in the nature of a covenant. A quitclaim deed covering a piece of real estate does not purport to convey anything more than the interest of the grantor as it existed at the time the instrument was executed. As a rule, such a deed is ineffectual in transferring to the grantee any title subsequently acquired by the grantor. This type of deed is employed when a person wants to sell an interest which he thinks he has in certain land—but an interest of which he is not sufficiently sure to merit chancing a warranty deed. The buyer can always seek to procure title insurance.

A sample version of a quitclaim deed, as contained in Section 258 of the New York Real Property Law, follows:

QUITCLAIM DEED

This indenture, made the ________ day of __________, nineteen hundred and __________, between _______________ (insert residence), party of the first part, and _______________ (insert residence), party of the second part:

Witnesseth, that the party of the first part, in consideration of _______________ dollars, lawful money of the United States, paid by the party of the second part, does hereby remise, release, and quitclaim unto the party of the second part, _______________and assigns forever, all (description), together with the appurtenances and all the estate and rights of the party of the first part in and to said premises.

To have and to hold the premises herein granted unto the party of the second part, _______________and assigns forever.

In witness whereof, the party of the first part has hereunto set his hand and seal the day and year first above written.

In presence of:

________________________

21-14. Recordation. Generally speaking, all conveyances of real property must be recorded\(^\text{23}\) in order to be effective as against subsequent parties in interest. In this connection, Section 291 of the New York Real Property Law reads in part:

"... Every such conveyance not so recorded is void as against any person who subsequently purchases or acquires by exchange or contracts to purchase or acquire by exchange, the same real property or any portion thereof, or acquires by assignment the rent to accrue therefrom ..., in good faith and for a valuable consideration, from the same vendor or assignor, his distributees or devisees, and whose conveyance, contract or assignment is first duly recorded."

\(^{23}\) Typically, in the office of the clerk of the political subdivision which is the situs of the realty concerned.
Reduced to its essentials, what all this means is that a buyer who fails to record his deed has no claim to the land if his unscrupulous vendor subsequently executes another deed to the same property, and the second buyer (having made a good faith purchase without knowledge of the prior transaction) does record his deed. The unfortunate initial purchaser is left with a damages action against the double-dealing vendor.

21-15. Acquiring Title to Real Property by Adverse Possession. Upon occasion, title to real property—or a right in respect of such property—is acquired by a process known as adverse possession. If A occupies a parcel of land belonging to B without the license or consent of the latter and such possession and utilization of the premises continues uninterruptedly for a period of years, the claimant's dominion over the property is said to ripen into title. To reach that state of affairs, however, the occupancy by the adverse possessor must have been open, notorious, continuous, actual, exclusive, and hostile—that is, under a claim of right which runs counter to the true owner's interests. Acquisition of title through operation of the doctrine under discussion is not an easy matter, since the adverse possessor must overcome the presumption that his occupancy of another's land is in subordination to the title of the real owner. Thus, even a token payment of rent destroys the requisite pattern, since such a payment by the occupant acknowledges that ownership and control belong elsewhere.

Quite commonly a "right of way" comes about through the medium of adverse possession. Occasionally a property owner will take positive steps to see to it that that sort of thing does not happen in connection with his holdings. For example, the New Haven Country Club owns a suspension footbridge across Lake Whitney in Hamden, Connecticut. This bridge is often used by nonmembers as part of a short cut across the lake and the golf course. Once a year the club exercises its prerogative and closes the bridge, posting a no-trespassing sign to warn outsiders to stay away. Such action is taken to destroy any continuity of use on the part of nonmembers and thus to preclude any possible contention that a right of way has been acquired through adverse possession.

The precise number depends upon applicable statutes of the state wherein the real estate is situated.

Title achieved through adverse possession is as perfect a title as one transferred by deed from the owner.

The requirement that a would-be adverse-possession claim be manifest from the nature or circumstances of the possession is imposed so that the real owner may be informed of the possessor's apparent intent and not be misled into acquiescence in what the owner might otherwise reasonably suppose to be a mere trespass.

Occasional entries upon someone else's property for such a purpose as cutting timber is not adverse possession within the meaning of the law.
21-16. Eminent Domain. The right of eminent domain enables the federal government or the state or those to whom the power has been lawfully delegated to take private property and appropriate it to public use. The owner's interest is safeguarded in two ways: (1) his property can only be taken by due process of law and (2) he is entitled to payment of reasonable compensation. Statutes of the particular jurisdiction will set forth the exact procedure which must be followed in condemning the land and in settling any dispute over the amount the owner should be paid.²⁸

The right of eminent domain is an inherent and necessary attribute of sovereignty. Were it not for the existence of such a power, the government would find it difficult or impossible—short of paying truly exorbitant prices—to secure, for instance, whatever land it needs for construction of a state highway or, perhaps, for the site of a new school building. The great importance to society of the right of eminent domain is apparent.

²⁸ For an example of laws dealing with eminent domain, see General Statutes of Connecticut (1949 rev.), Chap. 360.
CHAPTER 22

Water Rights

22-1. Introduction. This chapter has to do with certain of the rights of landowners to the use and benefits of water on, adjacent to, and under their lands. The term *riparian rights* is often used to denote the portion of this subject dealing with the rights of persons who own land on the banks of a watercourse. Every engineer should have some knowledge of what is involved in the subject of riparian rights—and water rights in general—because his work is likely to bring up many questions regarding the use as well as the control of water.

According to *Webster's New International Dictionary*, *riparian rights* are "The rights of a person owning land containing or bordering on a watercourse or other body of water in or to its banks, bed, or waters. At the common law a person owning land bordering a nonnavigable stream owns the bed of the stream to the *filum aquae*, or thread of the stream, and may make reasonable use of its waters."\(^2\)

Another definition of *riparian rights* might be stated as follows: "One has the right to have water come to him in its natural state in flow, quantity, and quality, and to have it go from him without obstruction."

*Riparian land* generally means a parcel of land which includes part of the bed of a watercourse, pond, or lake; it may also denote land which borders on a public watercourse or lake whose bed is owned by the public.\(^3\) Land not adjacent to a natural watercourse is not considered to be riparian; and the term *nonriparian* is often used to describe land which, although in the watershed, lies beyond another's land bordering the stream and which therefore does not have direct access to the watercourse.\(^4\) *Riparian proprietor* and *riparian owner* de-

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\(^1\) The authors are indebted to Clarence Blair Associates, Inc., New Haven, Conn., for reviewing and making suggestions for this chapter.


\(^3\) The term *littoral* is to be used to describe land constituting the shores of the sea, of tidal waters, of large lakes, and of other bodies of water not having the characteristics of a watercourse.

\(^4\) To illustrate this point, assume that a man owns a strip of land 500 ft wide,
note the possessor of riparian land. *Riparian water* customarily means water which is below the ordinary flow level of the stream; this term contrasts with *floodwater*.

The term *riparian use* is frequently employed to signify use of the water by a riparian owner for domestic purposes, irrigation of his land, power for his mill, etc. Contrariwise, *nonriparian use* refers to the use of the water elsewhere than on the land of the riparian proprietor, e.g., diversion and sale of the water beyond the owner’s premises and use for domestic consumption, irrigation, etc., by nonriparian owners, particularly by those far from the stream, or even outside its watershed.

The demand for water for agricultural, domestic, and industrial uses has increased rapidly. In many places, the water taken from the streams approaches the entire dry-weather flow. Drought in some areas has added to the shortages of this element which is so vital in our daily lives. The population growth and general development of the West and Southwest have intensified the problems of water supply in that general area, particularly in those portions where the annual rainfall is not substantial. Fortunately, recognition of the need for conservation of our water resources is steadily growing, and people are becoming more and more conscious of the necessity of using our available supplies for the best interest of the public in general. Customs and regulations regarding riparian rights and the use of water have changed as the nation developed. Throughout the country the various governmental authorities are trying to enact laws and make executive regulations or codes which will serve to meet the problems of their particular areas. Some of these laws and codes relate to water conservation, irrigation, pollution, and industrial usage of water; some are to establish regulatory bodies; and some provide for construction of dams and other public works that will aid in water supply and control problems. A number of states have codes and legislation bearing upon the use of water which is in the soil as well as of water which is above the stream or lake bed. It is probable that, as time goes on, the increasing need for water and for the wise utilization of it will bring about still more laws and regulations affecting riparian rights. The ordinary engineer who has to deal with such problems should determine what are the applicable laws\(^6\) and

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extending 1000 ft along the east bank of a stream. He is a riparian owner as far as that stream and that piece of land are concerned. The owner of the property east of this man’s holdings is not a riparian owner because his land does not border the stream.

\(^6\)The situation in regard to riparian rights varies with the jurisdiction. In many localities it is difficult to find specific provisions that tell clearly what the various rights and privileges may be. Much depends upon local customs and pertinent court decisions.
customs regarding riparian rights, and he should do so before undertak-
ing work in the area. He should not try to act alone in dealing with
such problems but should obtain the assistance of a lawyer or other
person who is experienced in these matters and is familiar with the
applicable laws, regulations, and customs.

This one chapter can serve as no more than an introduction to this
important subject. The authors have attempted to set forth various
principles, as they understand these principles, and to give the reader
sufficient illustrative information to enable him to understand the gen-
eral nature of water rights and the problems incident thereto. Admit-
tedly, much of what is stated herein may not apply in a particular state,
but the data which follow will show the general philosophy of typical
rules and regulations affecting riparian rights.

22-2. Types of Waters. The different types or classes of waters may
be defined as follows:

Watercourses. This term includes not only the flowing water of
a surface stream but the banks and bed of the stream as well. Even
though the stream may go dry at times, it is still a watercourse. It
must be of natural origin and have a clear and well-defined channel, be
it a rill or a river. A spring is generally evidence of a watercourse,
especially if it has an apparent channel for discharge.

Surface Waters. This appellation can be assumed to apply to the
general runoff from the surface of the ground during and soon after
storms and during the melting of snow. Surface waters are not to be
confused with watercourses. If storm water is running in a sheet over
the surface of the ground or standing thereon, this is so temporary a con-
dition that, as a normal thing, there are no laws applicable to it. The
owner of the land is usually free to catch the runoff if he can.6

Percolating Waters. This term denotes water below the surface of
the ground. There may be considerable doubt about whether certain
underground water is a subterranean watercourse (stream) or percolat-
ing water, and the doubt may be difficult to resolve. To constitute an
underground stream the water must flow more or less continuously in a
well-defined channel. On the other hand, percolating water (ground
water) spreads in all directions through the soil, seeping "downhill" to-
ward the most easily reached outlets. Ground waters flowing under
and alongside a stream bed in the same general "channel" as the surface
waters are considered to be a part of the stream itself. If the water is
definitely proved to be an underground stream, the same riparian rights
generally apply as for a stream on the surface, and proprietors are not

*On the other hand, it is reported that Indiana's Flood Control and Water Re-
sources Commission has recommended that the State Legislature enact a law to the
effect that surface waters be declared public waters and subject to regulation.
authorized to disregard each other’s rights to the use of this underground stream.

*Natural Lakes and Ponds.* Legally, these may be thought of as bodies of reasonably permanent standing water in natural depressions on the surface of the earth; there is practically no current through such bodies of water. They are, technically, part of a watercourse. The distinction between a lake or pond and a pool is that the latter is generally a small enlargement of a stream above or below a rapid or waterfall, and it has an appreciable current as the water flows through it.

*Navigable Waters.* These are watercourses, lakes, estuaries, rivers, etc., sufficiently deep for transportation uses. What “sufficiently deep” means may be open to question in a given situation. It usually connotes a depth that will accommodate at least such commercial traffic as oil barges, coal barges, and the like. From the narrow standpoint of riparian rights the term *Navigable Waters* is not taken to include seas and oceans.

*Public Watercourses and Lakes.* These are watercourses and lakes owned by a governmental agency. They are often large and are commonly used for public purposes, such as navigation, fishing, and bathing. Sometimes these waters may be under private administration but subject to public easements.

22-3. *Some General Principles.* One maxim in the field of water rights is: “let it flow as it has been accustomed to flow.” This means that if a property owner has in the past had the benefit of a stream flowing over or adjacent to his land he cannot be deprived of continued, reasonable use of, and benefit from, this water without his consent or without due process of law. This concept works both ways in that said owner, in turn, must not materially interfere with the lawful, reasonable use of this water by others; i.e., he must not deprive another rightful user of the water of the latter’s privileges. Each person should use his own privileges in such fashion as

1 There are somewhat similar bodies of water which are created artificially and which are also commonly called *lakes or ponds.*

6 The right to the use of the water is really a part of the ownership of the land, but such right must not be exercised maliciously or to the injury of others. Notice that riparian rights are “attached” to the soil and pass with the title to the land.

9 Much of the early impetus for the development of riparian-rights principles stemmed from the needs of agriculture, mining, and similar industries.
not to injure the rights of others. What is fair in each case depends, of course, upon the circumstances of that particular case. At any rate, one must not use his privileges negligently or with selfish disregard of others.

Notice that a fundamental principle of riparian rights is that each riparian proprietor has the right to make a *reasonable* use of waters of a stream, subject to the *equal* right of other riparian proprietors likewise to make reasonable use of the water.\(^{10}\) No proprietor, by mere use of rights pertaining to his own land can establish a *servitude*\(^{11}\) or a right upon the land of another; furthermore, silence, or even acquiescence, where a party is not injured and has no cause for complaint and objection, probably will not, on the ground of presuming that he has given a grant to another, deprive him entirely of his rights.

A riparian proprietor is not liable to a nonriparian proprietor for using water to which the former is entitled, even though such act interferes with the latter’s use of the water, unless the latter has acquired some sort of special privileges in the premises. On the other hand, if a riparian proprietor is “negligent, reckless, and ultrahazardous” in his use of the water, there may be a liability running to the nonriparian proprietor.

A riparian owner whose land borders a watercourse is to have access to and use of the water of the stream. Furthermore, as stated previously, he has ownership of the soil under the stream to its “thread,” and he also has the right to any accretions (deposits of soil) which the stream leaves on his property. The owner also has the rights of navigation, boating, fishing, and the like on and in the waters, including the right of access to the water for such purposes and, usually, the right to build a pier from shore to the line of navigability.

The natural streams of water are considered to exist because of the bounty of the Creator, and they are looked upon as existing for the benefit of the land through which they flow, as incidental features which are an inherent part of the land itself. The natural streams were not created by the owners of the land or by any agreement of the proprietors. Such waters are not to be obstructed, diverted, or contaminated to the injury or disadvantage of adjacent owners unless the party who does so has been granted special privileges by the other landowners who will be affected by his operations. For example, the construction of an extensive irrigation system that will employ a great portion of the available water might be successfully opposed by property owners down-stream.

\(^{10}\) A use of the water may be deemed *unreasonable* if the resulting harm done to others outweighs the benefits derived by the user.

\(^{11}\) A burden resting upon one estate for the benefit of another.
If one can prove that, for some twenty years, he has made continuous use of the water passing over or adjacent to the land of a riparian owner, or even land in the public domain, he is said to have made prior appropriation of that water. It is probable that the user has thus, by what is known as prescription, the more or less absolute right to carry on with such use. An action to force discontinuance might be successful if such action is obviously in the public interest and is founded upon extremely good cause; presumably the party whose use is terminated will receive some recompense. In one case (Tyler v. Wilkinson, 4 Mas. Rep. 397) a court stated that the law "acts with reasonable reference to public convenience and general good, and it is not betrayed into narrow strictures subversive of common sense, nor into extravagant looseness, which would destroy private rights."

The acquisition of water rights by prescription is illustrated by the case of Mally v. Weidensteiner. In effect, the trial court found that the defendant had continually diverted 1 1/2 cu ft of water per second from Grouse Creek for a number of years and had used this water upon his nonriparian homestead. Therefore, as a result, he had acquired by prescription the right to use that quantity of water upon his nonriparian homestead, regardless of the effect upon the plaintiff—dry weather caused a greatly diminished amount of water to flow in the creek, leaving practically none for the plaintiff. However, the Supreme Court disagreed with the lower court and held that, because Weidensteiner had customarily diverted 1 1/2 cu ft of water per second for use on his nonriparian land and because this quantity was approximately one-third of the normal flow in the creek, Weidensteiner's prescriptive rights should be limited to the same one-third of the flow during the period of low water, leaving the remainder to be used by riparian owners situated downstream.

The actual time required to have elapsed may vary in different jurisdictions.

Appropriation of flowing water means the capture and diversion of it from its natural course (usually by means of pipes, ditches, or canals) and private or personal (present or contemplated) use of the water for the benefit of the one who takes it.

The reader should note that, as we use them, we define (for our purposes herein) certain terms as follows:

1. Common-law riparian rights (or riparian rights) means the rights of a landholder to use the water flowing over or adjacent to his land.

2. Prior appropriation means that the user has taken the water for some time in the past and has made use of it for his own purposes (even though he is not a riparian owner).

3. Prescription denotes the acquired right of continued use by one who has previously (and continuously) appropriated the water.

88 Wash. 398, 153 Pac. 342 (1915).
As indicated previously, riparian rights do not in general apply to other owners whose holdings are situated landward from the shore property. However, an easement for access to the stream might be secured from—and an agreement entitling the second party to certain stipulated rights might be made with—the one who holds the riparian property.

There may be a question regarding the priority of various uses of water, particularly when the supply is inadequate for all. For example, in Texas, relative preference in allotment and appropriation of water seems to be given in the following order:

1. Household and municipal uses, including water needed for domestic animals
2. Conversion of materials into higher forms, including water for cooling, for condensers, and for many other industrial purposes
3. Irrigation
4. Mining and recovery of minerals
5. Hydroelectric power
6. Navigation
7. Recreation and pleasure

The list is not the same in all states, but the preceding is sufficiently representative for our purposes here.

Besides the affirmative right to use of water, riparian proprietors usually have privileges regarding the disposal of water on the part of other persons. In brief, the discharge of water from property located upstream must not cause harm to other persons downstream. This means that the user must not initiate harmful variation of flow, flooding, or contamination which results in injury to others. Neither shall he obstruct the waterway and cause flooding of another's property upstream unless he has the latter's permission to do so.

For example, assume that a highway is to be built across a piece of rural land which contains the natural course of a brook (or over which only surface waters flow during and after a storm). The highway officials should provide one or more culverts to permit the water to pass freely rather than to impound it on the uphill side. Furthermore, once the highway has been finished, the persons who build on or otherwise use the adjacent land should not interfere with the aforementioned drainage; i.e., an upstream owner must not block the culverts and force the water to flow over the road. By the same token, a downstream owner should not interfere with passage of the water away from the culverts. Each owner may construct various works (preferably with the approval of the highway officials), but he should not interfere with the functioning of the culverts.
Here is an instance which illustrates some of the principles relating to the flow of water from one’s land.

It seems that water from a spring flowed across A’s property, through a ditch, to a pit dug by him; thence it flowed underground into B’s cellar, causing damage thereto. The court awarded damages to B, reasoning in this fashion:

1. If A, the owner of the dominant estate, did nothing to change the natural flow of water over or from his property, he is not liable for any injury or damage (caused by the water) to B’s property, regardless of whether the water comes from springs, streams, or the surface of the land.

2. If the proprietor of the upland diverted or discharged surface water upon the lower land without the consent of the owner of the latter property, the owner of the dominant estate, A, is liable for damages.

3. The important question to answer is whether or not the ditch and pit are artificial and made by A. If they were designed and built by A, then he is liable; if they are natural in origin, this will absolve A from liability.

4. Inspection by the court, and the testimony of B’s witnesses, showed that at least the pit was artificial and designed to receive the flow of surface water. Therefore, A was to pay B for the damage done by the water.

22-4. Boundaries. Since the bed of a watercourse is considered to be real property, a man who owns the land on both sides of a stream will own the intervening portion of the bed also. When the stream runs between adjacent properties owned by different parties, the actual boundary line between their lands may ordinarily be taken as the line along the center of the main channel (the thread of the stream). It is readily apparent that the boundary can vary considerably from one side of the waterway to the other as erosion and deposition by the stream cause the channel to shift. However, when the main channel of a stream is changed radically, as it might be by a great flood, the formerly established boundary between properties may have to be retained; otherwise, one of the landowners would obviously suffer loss.

In the case of tidal waters, the boundaries of adjacent real estate may be set by law or custom, perhaps as “mean high-tide line”; or they may be established in recorded deeds or by some other means. Along major rivers the boundaries may be fixed by state authority, by former surveys,

36 Unless some other arrangement is specified by deed, law, or agreement.

37 Thus, where there is involved a meandering river like a portion of the Mississippi (whose main channel in some places is slowly being altered by erosion and sedimentation), state boundaries are likely to vary somewhat with the passage of time.
or by appropriation and use on the part of the several owners of adjacent land. The "high-water-line" and "low-water-line" are concepts too indefinite to serve as satisfactory boundaries, because these lines are almost impossible to determine with any degree of assurance. An unusual flood or drought may cause the water to reach unprecedented levels one way or the other.

As regards such portion of a navigable river as lies within a state's boundaries, the title to the bed of the stream will probably belong to the state. When a navigable stream is a dividing line between two states, the boundary may or may not be at the middle of the river. In New York City, for example, the boundary between the states of New York and New Jersey was the subject of much dispute for many years. Ultimately, the boundary line was established as the middle of the Hudson River, then through the Kill Van Kull and Arthur Kill west of Staten Island. Apparently, the exact line was established by a "reasonable" survey and did not necessarily follow the thread of the streams.

For another example, back in the 1700s, governmental land grants or edicts gave Kentucky the rights to the Ohio River, and the limit of Kentucky's jurisdiction was set as the low-water mark on the north side of the stream. Then, in 1803, Ohio joined the Union, and the Ohio constitution recited that the state was bounded on the south by the Ohio River. The question as far as Kentucky's claim was concerned became: "Exactly where is the low-water mark after all the development and changes that have occurred along the river?"

Boundaries of land alongside ponds and lakes also give rise to many uncertainties. In the case of large lakes, boundaries may be set in the same terms as are usual with tidal waters; i.e., the "normal high-water mark." Or they may be established by survey, by prior appropriation, etc. At any rate, the boundaries should be definitely ascertained, rather than merely assumed, when one intends to take any action involving such lakeside properties.

22-5. Reservoirs. A municipality that wishes to build a reservoir cannot simply buy the required land and proceed as it wishes with construction of a dam. Owners for many miles downstream have rights to the use of water flowing from the watershed involved, and, in many cases at least, their approval of the project will have to be obtained in advance of construction of the reservoir project. This may involve extended negotiations and various ramifications.

A prime example is afforded by New York City's desire to divert to its own supply system vast quantities of water from the Delaware River. Even though the Delaware River rises in New York State, the watershed covers parts of Pennsylvania and New Jersey as well, and the river waters serve both of these states over a distance of many miles. The
city is not entitled to take whatever water it wishes to obtain; thus, New York's action was a matter of negotiation among all parties involved in an effort to arrive at a sort of treaty or compact spelling out an equitable arrangement for the allocation of the available supply.

Another illustration concerns the possible use of the water of the Connecticut River by the city of Boston. The river flows between the states of Vermont and New Hampshire and crosses Massachusetts and then Connecticut. Boston is not entitled to do as it wishes with the water of the Connecticut River simply because the city is located in Massachusetts and would thus be in a position to appropriate the water before it reached Connecticut. On the other hand, the various parties interested should agree upon an arrangement for the use of the river's water by all concerned.

In some cases it is agreed that a specified minimum flow must be maintained for the benefit of those located downstream from a dam. Under such circumstances, the construction project is to be designed and operated somewhat for river control as well as for water storage.

Again, where a natural lake is used as a municipal water supply or where a dam is built to increase the lake's capacity for this purpose, the property owners in the affected area may have the right to insist that the water level shall not fluctuate to the extent of rising above a specified maximum or falling below a specified minimum. Violation by the municipality may entitle such owners to damages for flooding, on the one hand, or for loss of the use of water, on the other.

The objections of a few riparian owners cannot always be allowed to prevent the construction of works which are clearly in the public interest. The exercise of the government's right of eminent domain in the taking of property, court proceedings to determine the extent of damage resulting from the taking of the water, or contracts to supply these proprietors in need with water from the reservoir—these are some of the steps that may be resorted to in order to settle disputes that stand in the way of a contemplated reservoir project.

22-6. Irrigation. The rights of riparian owners are of great importance in the construction of irrigation projects, as well as of reservoirs for municipal water supplies. It is obvious that, where irrigation is necessary at all, the scarcity of rainfall and of available water enhances the value of whatever water supplies are present. It is not fair for a landowner (or even for a group of owners or a state agency) to divert all of the water from a stream for his own private benefit, letting downstream proprietors suffer loss. On the other hand, the latter should not be allowed unreasonably to prevent the construction of irrigation works or similar worthwhile projects. The determination of just what can and should be done about such problems often requires the judgment of a
Solomon. A decision is needed about what is reasonable and fair use of the water, the rights of all parties being considered. The subject can only be mentioned here and the engineer cautioned that he has many things to consider when he tackles a project such as an irrigation job.

22-7. Flooding. Any sensible man will realize that he should not construct works that will result in flooding another's property unless he secures the latter's approval\(^\text{18}\) (probably in return for satisfactory compensation), unless he purchases the property that will be damaged by the impounded water or unless the property is taken by due process of law.

In one case, a proposed dam would without question cause flooding of a portion of some industrial property and would thus greatly handicap operation and future expansion of the plant. A court decided that the owner of the affected establishment should be paid a sum of money sufficient to defray the cost of constructing a protective levee and certain pumping facilities which would enable his plant to operate at its full potential. In addition, the property owner was to receive (1) an extra sum that would, when invested prudently, earn enough to pay for the operating expenses of the pumps and (2) a sum equal to the estimated value of such land as would be rendered useless for the future.

In a similar case, a contemplated hydroelectric power dam would cause flooding (at maximum high water) of some 10 ft of land at the edge of a farmer's property. The latter refused to sell this strip of land. The power company thought this obstacle unimportant and proceeded with plans and construction. A surprising amount of trouble and expense ensued for the company before the affected land was finally purchased. This episode shows the importance of reaching some advance agreement with the owners of any property which is likely to be damaged or destroyed by work in prospect.

The preceding examples involve big business, but the same principles apply where the "little fellows" are concerned, e.g., in the building of a small dam across a brook to make a swimming pool or a fishpond.

22-8. Rights to Water Power. The right to develop a major hydroelectric power site may be a matter of vast importance, and it is quite possible that there will be laws affecting a specific location. There are often complicated questions whether the right to develop the available power belongs to the federal government, to the state in which the site lies, to the contiguous states jointly (if the stream constitutes a common boundary), or to private interests.

Assume that a medium-sized stream runs through private property and affords the potential for the development of a minimum of 3000 kw

\(^{18}\) Preferably in writing.
electric power—the generation of this power being possible even under ordinary low-water conditions. However, the owner has not yet made any attempt to develop this natural resource. Assume further that a neighboring city proposes to build upstream a municipal reservoir which will greatly reduce the stream’s flow below the dam in dry weather. This will mean that the downstream owner cannot rely upon generating adequate power continuously at his site if he should in the future desire to exploit the resource which he had previously neglected. Has this property owner the right to claim damages for the loss to him of this potential power development? This question cannot be answered without a detailed study of the situation. At least the following four points would have to be considered:

1. Is the private owner’s potential power development a sound project from an engineering standpoint?
2. Would it cost more to develop this power than it is worth?
3. Even at present (with no city reservoir in being) is the minimum stream flow reliable?
4. Is there a market for the sale of the prospective power, or could the private owner himself use it profitably?

If the private owner’s potential project is feasible and offers a good investment, its worth would be measured primarily by the capitalized value of its estimated earnings, and this sum might well be claimed by the owner as compensation for the loss of his chance to undertake future development.

In one case in Connecticut, an industrial plant had built a low dam across the adjacent river to impound water for use in its bleachery. The plant owners also had studied the possibility of building a small hydroelectric power development at this dam. Meanwhile, a power company secured the right to construct a large dam downstream from this plant and was authorized to purchase all flooded land below elevation 200—through the exercise of the right of condemnation where necessary. After completion of the power company’s dam and raising of the water to the prescribed elevation, the bleachery’s dam would be inundated so that no power could be developed there by the bleachery. The latter claimed damages for the loss of this potential power development. In this case, however, the court found that the bleachery’s hydroelectric power site was of little value because the development of the available power would have cost more than the expense of purchasing the equivalent energy from the power company.

This was the proposed elevation of the future high-pond level above the power company’s dam.
22-9. Percolating Water. The terms *ground water* and *percolating water* are used to denote water in the soil beneath the surface of the ground. The same designations are used sometimes to include as well any water in seams in rock below the ground level. In contrast to stream flow in well-defined channels, percolating water is assumed to be stored in the ground or to pass slowly (seep) through the soil or rock seams from a higher to a lower level, moving in any direction to whatever outlets may be available. If a man digs a hole in porous, water-bearing ground, the water will percolate through the soil into the hole. It will continue to do so until the level of the water in the hole equals that of the ground water in the immediate vicinity. This is the principle of the operation of both dug and driven wells in granular soils.

*Artesian water*, on the other hand, exists under pressure in seams of rock or in porous strata of soil underlying impervious soils which prevent its escape. When a drilled hole or driven well provides an outlet channel, the water will rise in the hole until the pressures are equalized, or it may actually flow out at the surface if the pressure behind it is sufficient. Such an artesian condition is exceptional and will not be classed as ordinary ground water herein.

The volume of water stored in the ground in the United States as a whole is tremendous. In dry climates this ground water is especially important. Even in the Atlantic drainage region, percolating water plays a large role in human affairs.

Many questions arise regarding who owns percolating water, who can use it, and how much each landowner can legitimately claim for himself. Ground water moves slowly from one place to another, the exact pattern of movement being largely unknown. Many of the arguments result from projects which have altered the previously existing level and condition of the water. Is the first man who can get it entitled to free use of this ground water regardless of the interests of others? Since percolating waters spread everywhere they can go, one cannot be prevented from disturbing them, at least to a degree, without giving up the right to the enjoyment of his land (i.e., of doing thereon whatever serves a useful purpose for him and yet is not calculated to harm society).

Each proprietor should be considerate of the needs and rights of others. It is obvious that a spring or a farmer’s well which serves as its owner’s source of water is very important to him. Generally speaking, it is improper for another person in some fashion to knowingly intercept and exhaust the supply, causing the spring or well to go dry. On the other hand, when one digs or drives a well he cannot foretell exactly where the water will come from, nor can he know, as a rule, whether trouble will ensue for someone else. In many instances, it is difficult to draw the line between the rights of the parties in a situation of this
kind. It may be that sharing of limited supplies is the only fair solution.\textsuperscript{20}

Similarly, if one does something that raises the water table to the detriment of others, he may be subject to claims for damages. Thus, one man owned about two acres extending upstream along a brook (which ran through his property) and behind the house of a neighbor. He built a small dam so as to create a little fishpond entirely on his own property. However, the pond occasioned a rise in the level of the ground water and caused water to enter the neighbor’s basement. The first property owner found it advisable to discontinue the pond in order to avert a suit for damages.

Ground water is particularly important with respect to agriculture. Operations which lower the water table may deprive the land of the moisture needed for the growing of crops; on the other hand, those which raise the ground-water level may flood out the land or make it so swampy that crops will not grow satisfactorily.

Matters relating to ground-water supplies can have considerable effect upon an engineer’s plans, as shown by the following instances.

1. The New York State Thruway planned to carry its highway construction through an area that was the site of wells furnishing water for a certain municipality. The local authorities feared that the construction would interfere with and damage their water supply. It is the authors’ understanding that the local authorities were able to compel the highway authorities to modify their plans so that the city’s water system would not be injured.

2. A sea-level canal has been proposed across the state of Florida. Among the very powerful opponents of its construction were local authorities who were fearful that (a) the excavation for the canal would harmfully lower the ground-water level and endanger subterranean

\textsuperscript{20} Assume that a suburbanite builds a house in a rural area, near an existing dwelling. He constructs a well that is somewhat deeper than his neighbor’s and thereby causes the latter’s well to go dry because of the lowering of the water table. The ensuing controversy might prove difficult to resolve.

In a typical case, \textit{Canada et al. v. City of Shawnee}, 179 Okla. 53, 64 Pac. 2d 694 (1937), a city constructed wells from which to obtain water for its residents. As a result of the pumping, the wells of nearby farmers went dry. The court required the city to buy the lands involved. (Another solution that has been used for such a problem is a guarantee by the city to furnish necessary water to the affected farmers.)

As another example, a metallurgical plant in the arid region of northern Mexico had to sink wells about 2000 ft deep into a subterranean valley to secure needed water. Before being allowed to do this, the plant owners had to agree to supply water to the townspeople in the area in the event the deep drilling operations dried up the shallow wells of such people.
water supplies over an extensive area and (b) in other places the salt water might seep from the canal and cause contamination of local water supplies.

One can readily see that it is very difficult to evaluate damage caused by a disturbance of the previously existing conditions regarding percolating water. All sorts of trouble can follow substantial interference with the ground-water level. The engineer should endeavor to anticipate what will happen as the result of his operations and take any indicated precautions. He should not blindly go ahead with his project and assume that he can easily remedy afterward whatever difficulties may arise.

One should bear in mind that percolating water in the ground comes originally from rainfall or melting snow. When a storm occurs, some of the precipitation falling in the watershed may run off promptly, some may evaporate, some may be taken up by vegetation, and some may penetrate into the ground or even into seams in the underlying rock. Obviously, except as underground storage is depleted, there cannot be more water taken out of the ground than rainfall puts in.

The general public is not familiar with the principles governing the use of ground water. This lack of understanding often gives rise to costly mistakes. For example, a contractor built forty houses on high ground in a rural district. Each house was equipped with a driven well furnishing 3 to 7 gal of water per minute, and the several owners had all they needed. The builder then constructed sixty more houses in the same vicinity and provided similar wells for each. After the last houses had been sold and occupied for a few months, most of the property owners found that their wells furnished much less water than needed. This contractor had unwittingly exceeded the maximum possible draw-off, or yield, from that drainage area. Naturally, what is an adequate supply for forty houses may be entirely insufficient for more than twice that number.

The general rules likely to control the various problems in the field of water rights boil down to just this: "Let it flow as it flows." Thus, if one builds a dam to make a small fishpond on his property but thereby causes water to flow on or across his neighbor's land, the neighbor may claim injury therefrom. If the pond causes harm to the neighbor because of a change in the ground-water conditions, he may also have a valid claim for damages. Furthermore, if the builder of the fishpond diverts the water away from his neighbor's land so that he no longer has the use of it as a surface stream, a spring, or a source of supply for his well, the neighbor may again seek damages.

22-10. Examples of Various State Laws. The so-called common-law version of riparian rights seems to be predominant in the Eastern states,
but the principle of prior appropriation (and prescription) has been adopted in many of the Western ones. The older, Eastern states do not have, in general, a serious shortage of water. The early Eastern settlers who were riparian owners used the streams and lakes for their own private purposes, and there was usually enough water for everyone. Hence the use of water by riparian proprietors in accordance with the common-law principles of riparian rights became well established.

In many of the Western states water is not abundant; therefore, the state governments seem to have taken positive action regarding the use of available supplies. In Arizona, for example, the State Water Code prescribes the steps to be taken in the appropriation of water, i.e., applying to the state land commissioner for a permit, meeting whatever requirements apply to the situation, and receiving a certificate of authorization. According to this code, "The water of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, flood, waste or surplus water, and of lakes, ponds and springs on the surface" is water which belongs to the public and is to be subject to appropriation by those who take it for their own beneficial use. In 1910 the Arizona State Constitutional Convention apparently declared that the common-law doctrine pertaining to riparian rights should not be in effect in the state. However, a prior decision of the Territorial Supreme Court had stated that the water of well-defined underground streams could be appropriated by those who needed it but that percolating waters in undefined and unknown channels in the soil were not subject to appropriation and belonged to the owner of the soil.

In California there is also an official water code. In that state there apparently are rights of use of water by prior appropriation but also riparian rights which accompany the ownership of lands bordering streams or lakes and land overlying ground water. The right to the natural flow of a watercourse inheres in the land adjacent to that watercourse. Use of the water does not create these rights, nor does failure to use the water destroy them except as the result of prescription. In California, too, the riparian owner is entitled to a reasonable use of the water for irrigation, as long as such use does not do violence to the needs of other proprietors along the same watercourse. Water in excess of that required by riparian owners and by others with lawful rights to it is deemed public water of the state and subject to the state's use and regulation.

There has developed what is known as the "California doctrine of cor-

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23 This means satisfying really important personal needs.
relative rights” regarding the use of percolating water. This rule, as the authors understand it, gives to owners of land overlying diffused waters (ground waters which are a common source of supply) equal rights for reasonable use of the water on their own land, each owner to have a fair proportion if the supply is not adequate for the needs of all. Under the foregoing doctrine, excess water may be appropriated for use elsewhere. However, the right of an appropriator is secondary and is limited strictly to excess water (unless the appropriator has been allowed to take nonsurplus water in the past, thereby securing right to continued use of it).

One case in California concerned a situation where the landowners and the appropriators had been pumping ground water for many years, overdrawing and depleting the supply. The court held that prescriptive rights had thus been acquired by both overlying landowners and prior appropriators and that henceforth the water taken by each party should be proportionate to the volume taken by him during a stated period in the past. Therefore, no owners of overlying land could claim the right to all of the available water; neither did the fact that others had been appropriating supplies deny to owners of overlying land the right to pump a fair share. The total pumpage was supposed to be limited henceforth to the safe yield of the area.

Colorado is apparently another jurisdiction in which the rule of prior appropriation, not the common-law riparian doctrine, applies. Here a stream’s sources of supply, whether they are surface flow or percolation, are a part of the stream system and subject to the same appropriation as is the stream proper. However, apparently, the owner of land on which seepage commences or on which a spring exists (which spring forms no apparent part of a natural stream) has prior right to such water for use on his own land. Return flow from irrigation, as it percolates through the ground to a stream, is considered just as much a part of the stream as is percolation from natural sources.

The Oklahoma Groundwater Law seems to give the state control over rights to use of percolating water not flowing in underground streams with “ascertainable” beds and banks. This makes possible claims for prior appropriation, exempting use for domestic and stock purposes.

In Kansas there is a good example of the changing of ideas regarding water rights—appropriation versus common-law doctrine. It appears that, at first, the Supreme Court of the state said that riparian rights extended to all of the flow of a stream “without diminution or alteration.” A law passed by the Kansas Legislature in 1886 stated that water could be appropriated legally by adequate posting and by filing a notice. Then, in 1905, the court reaffirmed the common-law doctrine and stated that reasonable use of water included use for irrigation, after domestic
requirements had been satisfied. Finally, in 1945, legislation was passed stating that all waters within the state were "dedicated to the use of the people of the state" and were thus subject to governmental control and regulation. The rights and welfare of the people in general were to take precedence over those of an individual. Both surface and ground waters might be appropriated for beneficial use, but vested rights to continue an existing beneficial use of water were not to be disturbed without compensation.

22-11. Administration. The administration of laws and regulations affecting the use of water varies from state to state. Here are a few illustrations showing what appear to be the administering bodies in some states:

1. Arizona: the State Land Commission
2. California: the State Engineer, Department of Public Works
3. Idaho: the Department of Reclamation
4. Kansas: the Chief Engineer, Division of Water Resources
5. Nebraska: the Department of Roads and Irrigation
6. Oklahoma: the Oklahoma Planning and Resources Board
7. Texas: the State Board of Water Engineers
8. Washington: the State Supervisor of Hydraulics

22-12. Mining. The use of water is an important part of some mining operations. Various rules and customs regarding its use for that purpose have grown up, particularly in the Western states. Just what the customs are is often difficult to determine, but they are real enough and should not be overlooked or ignored.

Many mining projects were first started on public lands. Claims were established by prospectors and others, then land and mining grants were issued by the governmental authorities. The appropriation and use of water was governed by whatever regulations the federal government established for any particular area. The general rule for appropriation and use of water in mining operations seems to have been "first come, first served." However, all parties recognized the necessity of having water available, and seemingly the principle of reasonable use was applied to a considerable extent. The mining lands were part of the public domain, and the miners were, at least in the beginning, merely trespassers who made and enforced their own rules governing the use of water in connection with their claims. These rules were based upon priority of possession, diligence in building works and utilizing the water, and "beneficial" use. Details might vary with the locality, but these general principles were followed as a matter of custom, were later recognized by the courts, and were substantially incorporated into the California law in 1872.
It is obvious that mining shafts, tunnels, pits, etc., are likely to disturb the previously existing condition of ground waters (and therefore of the streams) in the vicinity of the mining operations. Much litigation has occurred as a result. In one case,\textsuperscript{23} for example, a farmer brought a successful suit against a gold-mining company because a drainage tunnel excavated by the latter dried up the spring-fed creek upon which the plaintiff was dependent for water for domestic uses, irrigation, etc. The fact that the farmer diverted the water of the creek by means of "a pipe, flume, and ditches" did not destroy his rights. It is an elementary principle that private property (the use of the water, in this case) cannot be taken for private use or diverted for private benefit upon the ground that "it is more valuable to the taker than to him from whom it is taken."\textsuperscript{24}

22-13. Navigable Waterways. In the early days of the development of the United States there was much uncertainty about whether the federal government or the states were to be responsible for the improvement and control of navigable waterways and of interstate commerce. The states finally agreed to allow the federal government to take over these matters, together with harbor dredging and similar works.

In the field of maintenance and improvement of navigable waterways, the federal government now has charge of such works as the following:

1. Dredging of harbors and channels
2. Protection of shores against erosion
3. Establishment and maintenance of various types of signals, buoys, etc., for the aid and protection of ships
4. Establishment of pierhead and bulkhead lines\textsuperscript{25}
5. Determination of locations, depths, and widths of navigable channels
6. Determination of horizontal and vertical clearances for bridges

Through its control of navigable waterways the federal government probably can have something to say about what is done in nonnavigable streams tributary of these waterways, especially in connection with projects which may affect commerce and navigation.

It is obvious that, when planning any work involving any of the items in the preceding list, the engineer must be sure to ascertain and com-


\textsuperscript{24}Scott et al. v. Fruit Growers' Supply Co., 202 Cal. 47, 258 Pac. 1095 (1927).

\textsuperscript{25}Pierhead lines are boundaries beyond which no pier construction should project toward navigable water; bulkhead lines set the riverward limit of any bulkhead or other fixed shore development. Between the two boundaries is the area for piers and other facilities for docking ships.
ply with all the regulations and governmental requirements which may affect his work.

22-14. Flood Control. As time progressed, the federal government took over more and more of the work connected with flood control on the large rivers. This was done partly because of the great cost involved and partly because such projects usually involve more than one state and bear upon the welfare of the general public.

It is obvious that the riparian rights of individuals, and even of states, may have to be subordinated to whatever seems to be in the best interest of the people in general and of the nation. Private work contemplated along major rivers may have to be coordinated with plans and requirements of federal agencies. The engineer should investigate the situation before proceeding very far.

22-15. Pollution. Contamination of water, a matter dealt with in many laws and regulations, is a problem which has grown tremendously in importance because of our continuing industrial development, as well as because of increasing population. The amount and type of waste material discharged into some streams have polluted them to a serious degree. Polluted streams and lakes pose a real hazard to the public health, since many municipalities are largely dependent upon filtered river or lake water for both residential and industrial use.

It seems to be an accepted principle that riparian owners are entitled to water of acceptable quality if the stream is nonnavigable but that, in the case of tidal waters and navigable streams (when title to the beds rests in a state) riparian owners are not entitled as a matter of right to have the water flow by their property in its natural, unpolluted state.

The principle of use and prescription in the disposal of wastes has seriously handicapped attempts to remedy the pollution situation. This principle holds that, if a manufacturer has discharged the wastes from his plant into a given stream for a certain extended period of time, he cannot be deprived, without his consent, of the privilege of continuing such practice.

Avoidance and reduction of stream pollution are so important that the engineer should investigate the existing regulations on waste disposal and should consider the probable future requirements before going ahead with a project that could be expected to produce harmful wastes. At the very least, he should plan his construction so that waste-disposal

Many industrial states are taking active measures, either by legislation or by persuasion, to reduce stream pollution. For example, the Ohio River Valley Water Sanitation Commission has made excellent progress in bringing about the construction of disposal plants for sewage and industrial wastes. This commission is an outgrowth of an eight-state compact.

Enactment of a pertinent statute is one way to deal with such a nuisance, of course.
facilities can be added if and when they become necessary. It is not wise for him to overlook such planning even if the new project does not appear to increase to any great extent the pollution that already exists. After all, a cleaning-up of the stream may be demanded in the future, and advance provision for waste-disposal facilities would then come in handy.

It is necessary to guard against not only chemical and biological pollutions but also the dumping of inert wastes into streams; wastes may cause silting and clogging of the channel downstream. Millions of dollars had to be spent to dredge the Schuylkill River near Philadelphia in order to remove vast accumulations of fine coal which had been deposited in the river as the result of washing operations at the mines upstream. Elsewhere, in regard to a mining project recently developed, the authorities would not permit muddy wastes (called "tailings") to be deposited where they could directly or indirectly find their way into a natural stream. Special dams and pumping works had to be planned and built to impound the muddy waters and to remove the clear water after the waste material had settled.

It may be possible for a municipality or an industrial plant to obtain permission from all the affected riparian owners to discharge wastes into a stream or body of water. However, such permission is rare these days and is becoming increasingly difficult to secure as pollution problems multiply and receive widespread adverse publicity.
23. Nature of a General Partnership. Section 6 of the Uniform Partnership Act defines the ordinary partnership as "an association of two or more persons to carry on as co-owners a business for profit." The persons concerned must, of course, have the capacity to contract. A corporate unit, restricted as it is by its charter and by the laws of its state of domicile, cannot in the usual case find the authorization to join a partnership. Partnership arrangements, which normally are geared for a considerable period of time, feature community of interest in profits, losses, and the capital employed, as well as joint control of the operation. When a person has contracted for proprietary rights in a business, he is an owner thereof, and, if there are other owners of the same business, he is by definition a partner. Apparent intent of the parties, profit sharing, and mutual control are three factors bearing upon the existence of a partnership.

Each member of an ordinary partnership has certain rights and privileges, chief among them the following:

1. Privilege of sharing in the management and control of the firm's operations.

2 Adopted, more or less verbatim, by a goodly number of states. See, for example, New York Partnership Law, art. 1ff.

3 A minor may join a partnership, but his contractual undertaking is voidable by him. His investment in the business, however, is subject to the claims of creditors. In many jurisdictions it is also subject to the claims of his fellow partners, unless the minor was induced by fraud to enter the partnership in the first place.

4 Not infrequently an individual who is not really a partnership member represents himself as a partner or permits firm members to create the impression that he is one of them. Third persons, relying upon the individual's apparent association with the enterprise, may thereupon extend credit to the partnership or enter into other dealings with same. As against outsiders thus deceived, the ostensible member will be deemed a partner by estoppel and subjected to the same liability as though he were indeed a full-fledged associate in the firm.

5 The partnership agreement will govern such things and must be consulted in a particular case.
2. Right to share in profits (balanced, of course, by the correlative duty of sharing in losses).

3. Right of co-ownership of specific partnership property. Each partner is entitled to use the property for any partnership purpose. He is, however, essentially a fiduciary as respects his associates and must—on a theory of constructive trust—account to them for any personal profit realized through his private use of the firm's assets.

4. Power to act as agent for the partnership.

5. Right of contribution from his associates in case he makes payments from his own pocket on partnership accounts.

Although it has its own assets, carries on its own business activities, etc., a partnership—unlike a corporation—technically is not (except for certain limited purposes\(^8\)) treated as a legal entity separate and apart from the individuals composing the firm. Thus, while it files an informational federal tax return, the partnership as such pays no income tax, all of which enables the individual partners to avoid the double taxation to which corporate stockholders are subjected.\(^6\) Incidentally, partners are taxed on their aliquot shares of the profit, whether or not distributed to them.

One extremely significant aspect of the situation is the unlimited liability of each of the several partners for debts of the enterprise\(^7\)—as compared with the status enjoyed by stockholders of properly formed corporations; the liability of the latter is limited to their capital investment in the business.

Each partner acts as principal for himself and as agent for his fellows. As such, he may enter into any agreement which is within his actual or apparent authority, and the firm will be bound to honor such agreement. In other words, each partner has from his associates full power to act for the entire group in disposing of property and entering into varied obligations in the course of the business. It can readily be seen that partnership, as a form of business relationship, carries with it some elements of real danger. Consequently, it goes without saying that one should exercise caution in selecting his partners and that the partnership agreement should be drawn with great care. Delectus personae is of the essence of partnership as a special form of business association;

\(^8\) For example, the Federal Bankruptcy Act treats partnerships as legal persons, and the firm itself may be adjudicated a bankrupt. Broadly speaking, though, the partnership is not insolvent unless all the members are also insolvent.

\(^6\) The corporation pays a tax on its earnings, and the stockholders, as is well known, pay taxes on dividends received—although some relief to stockholders was afforded by the 1954 Revenue Code.

\(^7\) That is to say, the personal fortune of a partner is vulnerable in its entirety.
no outsider can join a partnership without first securing the consent of each of the members.

It seems appropriate to mention here that a partner does not own a divisible share of his firm's property or assets; that is to say, his interest in the business is not such that he can sell or assign it to an outsider without consent of the other partners, who have a perfect right to choose their associates as they wish. However, each partner has a right to share in any surplus available upon dissolution of the business, and this interest can be freely assigned, since the assignee would not thereby become a partner with power of control, etc.

23-2. Articles of Partnership. Unless the jurisdiction involved has legislated otherwise, it is entirely possible to form a partnership merely by oral agreement, but written articles of partnership (signed by the several parties in interest and setting forth in reasonably complete fashion the terms and conditions of the agreement) provide the customary and much-to-be-preferred method of partnership formation. Moreover, an oral contract of partnership is, under the usual statute of frauds, unenforceable if it is to last more than a year. Oral contracts for periods of less than a year are outside the purview of the statute of frauds; consequently, these understandings are fully binding and, absent unanimous consent, can be abrogated during the contract term specified only at the risk of damages for breach.

Quite apart from any statutory considerations, it is advisable as a matter of common sense for the partners to have at their disposal a written memorandum of agreement, fixing among themselves their respective rights, duties, and liabilities and thus reducing the likelihood of serious controversy arising within the membership. Leaving aside possible obstacles presented by statute or concepts of public policy, the partners may include in their formal articles any agreement they wish respecting such things as sharing of profits and losses, priorities of distribution on winding up the business, etc. Articles of partnership vary widely in the subjects they cover and in the degree of detail involved; much depends, of course, upon the nature and scope of the prospective enterprise. A typical list of contents for a partnership agreement might run about like this:

1. Name of the firm and names of the copartners
2. Nature and location of the business to be carried on
3. Date the enterprise will commence operations, and intended duration of the partnership

*However, if the parties commence operations under a long-term oral contract, a partnership at will is deemed in effect. Such an arrangement is perfectly legal but may without penalty be terminated by any party at any time.
4. Statement of capital—the “what” and “how” of each partner’s contribution
5. Designation of services to be rendered by each member and statement about compensation, if any, and drawing accounts
6. Management of the business—duties and restrictions
7. Statement of the respective shares of the several partners in profits and in losses
8. Statement about banking matters—keeping books of account, making periodic inventories, etc.
9. Provision for arbitration of disputes, frequently “in accordance with the rules, then obtaining, of the American Arbitration Association”
10. Designation of the rights of the parties upon dissolution and statement about the method to be employed in the final winding-up

It should be borne in mind, of course, that at any point in the proceedings any or all of the provisions in the partnership agreement can be amended, waived, or abrogated by consent of all the partners.

23-3. Each Partner as Agent of the Firm. By virtue of the partnership relation, each member has the capacity to bind his firm by all acts and representations ostensibly within the scope of its business. The point is thus expressed in Section 9 (1) of the Uniform Partnership Act:

“Every partner is an agent of the partnership for the purpose of its business, and the act of every partner, including the execution in the partnership name of any instrument, for apparently carrying on in the usual way the business of the partnership of which he is a member binds the partnership, unless the partner so acting has in fact no authority to act for the partnership in the particular matter, and the person with whom he is dealing has knowledge of the fact that he has no such authority.”

The articles of partnership may purport to place definite limitations on the powers of a member of the firm, but such restrictions are ineffective as respects outsiders who deal with a partner unaware of any curtailment of what appears to be his full and complete authority to bind the partnership. On the other hand, limitations thus imposed by the partnership agreement are effective with third persons who are aware of the true situation and, of course, among the partners themselves.

* Partners are not entitled to charge each other or the firm for personal services unless there is a special agreement permitting them to do so. However, the Uniform Partnership Act (sec. 18) allows a surviving partner “reasonable compensation” for his efforts in winding up the firm’s affairs.

** It is particularly important to indicate what result is to follow upon the death of a partner, how the decedent’s interest is to be evaluated, etc. Many agreements provide the surviving associate an option between purchasing the decedent’s interest and liquidating the enterprise forthwith.
Since each member of the partnership acts as agent of the whole, it follows that notice (of anything relating to affairs of the enterprise) duly given to any one partner constitutes communication to the partnership itself. Similarly, information which a member has acquired in a partnership transaction is considered to be also in the possession of such member’s principal, the partnership.

23-4. What a Partner Cannot Do. While a partner, in his role of agent of the firm, has power to bind his fellows by any acts within his apparent authority, it is possible for him to go too far. Thus, for example, he may not give the firm’s note in payment of a personal debt nor charge the partnership for property purchased by him for his individual account. And he may not, absent the express consent of each of his copartners, make a general assignment for the benefit of the concern’s creditors or take action of any sort which would make it impossible thenceforth to carry on the ordinary business of the partnership. After all, he is an agent for the purpose of advancing the interests of the business, not for the purpose of destroying the enterprise.

Where a partner has breached his obligations to his associates, the ordinary and appropriate remedy is an accounting in the course of dissolving the firm.

23-5. Tort Liability. Responsibility for a partnership tort is joint and several in the sense that every member of the firm is individually liable and that the victim may proceed against all the partners jointly or against such of the partners as he chooses. Under these circumstances, recovery is obviously not dependent upon the personal wrong of the particular member against whom the claim happens to be asserted. Indeed, liability attaches to each partner even if the tortious conduct is actually that of a mere employee of the firm.

Whether the tort involved is truly a partnership tort, and thus one for which the various members will be answerable, depends upon whether the wrong was committed within the ordinary course of the partnership’s business.\(^{11}\) Typically, the tortious conduct with respect to which the partnership is sought to be charged stems from the negligent operation of a motor vehicle by one of the partners. It is often a close question whether, at the crucial time, the partner was engaged in an undertaking related to the firm’s business as distinguished from his own purposes.

23-6. Contract Liability. Unlike the situation in regard to partnership torts, the liability of members for partnership contracts is joint only. That is to say, where the alleged obligation is contractual, all

\(^{11}\) That a given tort is willful in nature does not necessarily preclude its having been committed in the course of the firm’s business—though the willfulness is a factor of no little significance in this regard.
partners can be said to be necessary parties. Under the modern-day judicial process, the partnership may be sued in its own name and jurisdiction of the firm acquired by serving one of the members thereof.

The corollary of the above proposition is that a contractual obligation running to the partnership is regarded at common law as the joint right of the various partners. An action to enforce such must consequently be brought in the names of all the copartners, unless statutes of the particular jurisdiction involved permit suit to be filed in the firm’s name. The important thing is that suits on partnership claims must be brought on behalf of the firm. A partner may not in his individual capacity recover upon obligations owed his firm.

Although for most purposes a partnership is not in the eyes of the law an entity separate from its members, statutes in many jurisdictions provide that persons carrying on business as partners may sue or be sued in the partnership name whether or not such name comprises the names of the individuals themselves. Such laws amount to a recognition of partnerships as legal entities for procedural purposes.

23-7. Incoming and Retiring General Partners. One who is brought into a going business as a new partner is not personally liable on pre-existing obligations of the firm unless he expressly assumes such personal liability. On the other hand, under the Uniform Partnership Act his share in the partnership property is clearly available for the satisfaction of these old debts.

Unless there is an understanding by which the creditors agree to substitute the credit of an incoming member for that of a retiring general partner, the latter remains liable for the firm’s obligations outstanding at the time of his withdrawal. Furthermore, as for subsequently incurred obligations, the former partner may find himself answerable to third parties who, unaware of his retirement therefrom, have continued to deal with the concern. To be fully effective, a retiring general partner’s notice of withdrawal requires (1) personal notification to those who dealt with the firm during his tenure and (2) notice by publication to others in the area.

13 See, for example, New York Civil Practice Act, sec. 222-a.

13 In return for admission to the firm, the new member may have promised his copartners or a retiring member that preexisting claims would be paid in full. Such a promise could presumably be enforced against the incoming partner by the creditors concerned—using a third-party-beneficiary approach.

14 If the associate who is retiring was a dormant partner, he need not give notice to creditors as a prerequisite to escaping liability for partnership debts arising in the future. A dormant partner, by the way, is so far inactive in partnership affairs that his connection with the firm is generally unknown. Nevertheless, he is in most respects a full-fledged partner and, as such, is liable for all partnership obligations incurred during his association with the enterprise.
23-8. Termination of the Partnership. Actually, *termination* is a two-step process. First comes *dissolution* of the firm and then *winding up* of its activity.

There are a number of situations which would occasion dissolution of the ordinary partnership. Perhaps the most common of these are (1) death,\(^{15}\) bankruptcy, or withdrawal of a general partner; (2) mutual consent of the firm members; and (3) expiration of the time for which the partnership was formed.\(^{16}\) Notification regarding the dissolution should go to those with whom the firm has had dealings. Dissolution of itself has, of course, no effect upon existing liabilities of the partnership.

A dissolved partnership retains its existence in the eyes of the law until the often-complicated winding-up process is completed. This entails such actions as the payment of debts, the collection of accounts receivable, and the fulfillment of commitments undertaken prior to dissolution. Under the Uniform Partnership Act, the death of one partner means that his right in and to specific assets of the firm vests in the surviving partner or partners,\(^{17}\) who will eventually render to the deceased member's estate an accounting of the decedent's interest.

The surviving partner, engaged in liquidating the business,\(^{18}\) will find his powers and duties governed largely by the pertinent probate and partnership laws in the particular jurisdiction. If it had been intended that he should exercise any extraordinary powers in the premises, the partnership agreement would presumably have so indicated. Thus, unless the articles of partnership expressly authorize a surviving partner to purchase the interest of his deceased associate, he is not automatically entitled to do so.

In reducing the partnership property to cash and distributing the proceeds, certain priorities must be recognized:

1. In the vanguard come creditors of the firm, that is, creditors other than partners.\(^{19}\)

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\(^{15}\) However, the partnership agreement may have stipulated that the surviving partners would have power to continue the business.

\(^{16}\) The partners, of course, are free to ignore the fact that the winding-up date originally agreed upon has been reached and may simply carry on indefinitely. Continuance under these circumstances really amounts to an implied agreement for a *partnership at will* under the same terms as initially set.

\(^{17}\) Unless the deceased was himself the last survivor, in which event title passes to his legal representatives.

\(^{18}\) Normally, either by statute or through provision in the partnership agreement, the surviving partner will be entitled to reasonable compensation for his services in closing out the enterprise.

\(^{19}\) Should the firm's assets prove inadequate to meet liabilities, the individual partners must themselves contribute to make up the difference.
2. Next in line are the claims of partners for loans and advances beyond the amount of their agreed capital contributions.

3. After the foregoing categories of claims have been satisfied, under the usual partnership agreement members are entitled to a return of their respective capital contributions. If there is insufficient property available for this purpose, the loss is normally to be shared by the solvent partners in the proportions in which they were supposed to share profits. By way of illustration, assume that partners X, Y, and Z have subscribed, respectively, $20,000, $10,000 and $4,000 of the concern's $34,000 of capital and that the articles of partnership called for sharing profits equally. Assume further that, upon dissolution and the settlement of debts, there remained $10,000, which result represented a capital loss of $24,000. Equal sharing means a debit to each partner of $8,000. Therefore, X would get $12,000 and Y $2,000, while Z was paying in an extra $4,000 to meet the deficiency.

4. If the dissolved partnership has been a very successful enterprise and some undistributed assets remain after the various demands above-outlined are taken care of, the balance will be disposed of among the partners in the form of profits.

In the matter of marshaling assets, partnership creditors have priority over partnership assets, but creditors of an individual partner are generally recognized as having priority with respect to that partner's individual assets. If the latter creditors' claims are not fully satisfied from an individual partner's personal assets, they can reach their debtor's share of whatever surplus firm assets might be left undisturbed after the firm's business has been finally settled; they have no legitimate claim against such firm assets until an accounting of the debtor-partner's interest has been made. This cross-application principle works both ways in that, if the partnership lacks the wherewithal to satisfy its creditors and one of the partners has personal assets on hand after paying his individual creditors, these assets will be available to meet the firm's need.

23-9. Limited Partnership. A limited partnership, which must be formed strictly in accordance with applicable statutes, has at least one general partner and one or more limited (or special) partners; the latter contribute cash or property as investors but do not contribute services and have no powers of management.

The principal object of limited partnership is to protect the special partner by exempting him from general liability and placing only his invested capital in any jeopardy. The limited partner has certain rights, of course, by virtue of his position; among these are the right to share in the firm's profits and the right to seek return of his capital contri-
bution upon dissolution of the business. In the absence of a definitive provision in the limited-partnership agreement, the interest of a limited partner is assignable, with the assignee acquiring the right to receive the share of the profits to which the assignor would otherwise have been entitled. As long as he shuns active conduct of firm affairs, the special partner's liability is limited to the amount of his investment; any show of management interference, however, will lose him his cloak of partial immunity and render him fully liable as a general partner.  

Like corporations, limited partnerships were unknown to the common law and are purely creatures of statute. As previously noted, the applicable statutory requirements must be closely followed if the special partner would achieve and retain his privileged status. The law in many jurisdictions requires each limited partnership to file a certificate setting forth, among other things, all substantive provisions of the limited-partnership agreement.

In various respects a lender—one who loans money to the firm without associating himself therewith—is in a better position than a limited partner. For one thing, the lender often finds it possible to exercise some measure of control over the firm which is indebted to him; contrariwise, as we have seen, if he treasures his limited liability the limited partner must leave the reins of control to others. Moreover, upon dissolution of the partnership and distribution of its assets, the lender (as a general creditor of the firm) enjoys the highest priority. The limited partner is not so fortunate and must wait his turn.

23-10. Subpartnership. A contract of subpartnership is an agreement between a partner and an outsider, called a subpartner, whereby the latter, typically, is to share on a fifty-fifty basis with the partner prof-

21 An 1843 case in New York (Madison County Bank v. Gould, 5 Hill 309) outlines the law of that state at that time in regard to limited partnerships and contains a good discussion of the essential nature of a limited partnership:

"Under our law of limited partnerships, an individual, called a special partner, is allowed to have an interest in the profits of a particular business without incurring any other hazard than that of losing the sum which he has contributed to the common stock. To secure this immunity, the partnership must be formed and published in a particular manner, and the special partner must contribute in cash some portion of the capital stock. . . . From the nature of the case, this contribution can only be made by placing the money at the disposition of the general partner; and no part of it can be withdrawn by the special partner at any time during the continuance of the partnership; but he may have interest on the money, and a share of the profits, if such payments will not reduce the original amount of capital. . . . The business of the partnership is to be transacted by the general partners exclusively, who may sue and be sued in the same manner as though there were no special partner. . . . The special partner must neither be named as a member of the firm, nor transact any business on account of the partnership. . . . Such is an outline of the terms upon which an individual may be a special partner, without incurring any other peril than the loss of his contribution to the common stock."
its and losses arising from such partner's association with the firm; that is, the subpartner agrees to participate in the contracting partner's share only.

The subpartner performs no active function, nor has he any power of control over partnership affairs. Since his contract is on a purely personal basis with an individual partner, the "sub" is not directly liable to partnership creditors as a co-obligor on the firm's commitments. He is in no sense a member of the firm and has no contractual relationship whatever with partners other than the one with whom he made the profit-and-loss arrangement.

The subpartnership device has shown itself to be both popular and useful in the present-day business world.
Chapter 24

Corporations

24.1. Forming the Corporation. A corporation is created under authority of a charter granted by the state of intended domicile, which charter defines the several rights and powers of the prospective organization. Both in their formation and in their operation, corporate entities are subject to rather rigid supervision by the state. There are certain prescribed fees, of course, payable in connection with the incorporating process and a wealth of information which must be filed with the proper government officials. Before the corporation will be permitted to do business, it will have to show that its minimum authorized capital has been paid in.

Frequently, a corporation organized and chartered in state A desires to extend its activity to states B and C as well. In that event, it must secure a license from each of these other jurisdictions and must meet whatever requirements they impose upon such a "foreign" corporation in return for its enjoying the privilege of doing business within their confines. Normally, this will entail such things as filing a copy of the corporate charter, designating a local resident (typically the secretary of state) as agent for service of process, and paying any stipulated fees.

A word should be said here about the "promoters" who actually get the corporate entity on its way, prepare a prospectus for use in soliciting stock subscriptions, and enter into certain contracts "in behalf of" the embryo organization—contracts they hope the corporation will adopt as its own once it is on its feet. As regards any commitments so made during its formation period, the corporation as such has no automatic

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3 There are some corporate instrumentalities created by the federal government. The Tennessee Valley Authority offers an example. It came into being in 1933 as the result of congressional action. Conservation activity is one of the TVA's important purposes. In addition, it has constructed dams on tributaries of the Tennessee River so as to control the flow of water into the main stream, is operating a number of steam electric plants, and is assuring the unified development of the various resources of the entire watershed.

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liability, since it was not technically in existence at the critical time. However, the corporation will ordinarily, in due course, expressly or by implication accept these prior good-faith contractual arrangements by its promoters.

24-2. Certificate of Incorporation. As might be expected, corporation laws in the various states are not at all uniform regarding what information must be contained in the certificate of incorporation as prepared and filed by the incorporators. The Connecticut statute, which is perhaps representative, lists the following information to be included in the certificate:

1. Name of the corporation
2. Name of the town in which the corporation is to be located
3. Nature of the business to be transacted or the purposes to be promoted or carried out
4. "The amount of authorized capital stock with par value which shall not be less than two thousand dollars, the number of shares into which the same is divided and the par value of each share, which shall not be less than one dollar, or, if the stock is without par value, the number of shares and the fact that the shares are without par value; and, if there be more than one class of stock, a description of the different classes with the terms on which they are respectively created"
5. Amount of paid-in capital, of cash or property, with which the corporation shall commence business, which shall not be less than one thousand (1000) dollars
6. Period, if any, "limited for the duration of the corporation"

Once the state has given its seal of approval to the certificate of incorporation, the official existence of the corporation commences, and until directors can be elected by the stockholders the incorporators have charge of the affairs of the enterprise.

24-3. Defectively Formed Corporations. When a corporation is created in strict accordance with any and all applicable requirements of law, the corporation is referred to as one "of right," or de jure. It sometimes happens, though, that compliance with the pertinent laws, while

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3 The term charter is used interchangeably.
4 Partly to prevent confusion to the public and partly to protect prior rights of a corporation already operating in the state, a new corporation will not be permitted to take a name identical or substantially similar to that of such other corporation.
4 This figure can subsequently be changed only by amendment of the charter upon the vote of the stockholders. Incidentally, the term capital stock means something far different from the term capital, which refers to the assets owned by the corporation.
substantially complete, is defective in some regard or other. Where the deviations are relatively minor, the corporation will be treated as one "in fact," i.e., *de facto*, and, as such, its right to operate can be attacked only in a direct *quo warranto* proceeding brought by the state. Four prerequisites are commonly cited to test a defectively formed corporation claiming *de facto* status:

1. Existence of an enabling act or valid law under which the particular type of corporation involved might be organized
2. "Colorable compliance" with such law, that is, a bona fide attempt to incorporate thereunder (as by filing the necessary certificate with the secretary of state, etc.)
3. Good-faith belief on the part of the prime movers in the enterprise that incorporation has indeed been achieved
4. Actual operation of the corporate franchise

In the eyes of the law, a *de facto* corporation differs from a *de jure* one in this respect only: The former alone is vulnerable to a direct ouster proceeding at the instance of the state. In brief, it may be said that the *de facto* organization has the legal power to operate as a corporation, though it lacks the legal privilege to do so.

If the defects in its formation are so serious that the enterprise cannot make the *de facto* corporation grade, then the would-be incorporators, "stockholders," etc., may find themselves personally liable as partners with regard to the obligations of the supposed corporate entity.

24.4. Types of Corporations. Corporate organizations are of several different types and are formed to serve a variety of purposes. Perhaps the basic distinction lies between public and private corporations. The former are founded by a governmental unit and belong entirely to it. A municipal corporation (i.e., a city or a town) and an incorporated school district typify this category. Upon such corporate entities the creating authority confers whatever powers and imposes whatever restrictions the public benefit may require.

On the other hand, a corporation is private when the entire interest therein does not belong to the government. Put another way, it may be said that all corporations are private which are not truly public. There is a sizable group of corporations popularly called "quasi-public"; standard examples of this group—which partake of a little of the nature of both public and private—are the telephone companies, water and power companies, and other "public utilities." Quasi-public corporations are subject to particularly strict regulation because their operations are such as to directly affect the public interest. Normally, however, public utilities are conducted for private gain and, as such, are properly
classed as private rather than as public corporations, despite the fact that they are commonly vested with certain powers of a public nature, such as that of eminent domain.

Within the broad category of private corporations are those with and those without capital stock. The latter are otherwise known as membership corporations and include the bulk of the charitable, social, and educational organizations.

24-5. Characteristics of the Private Stock Corporation as a Form of Business Association. While the impetus comes from the organizers themselves, a corporation is technically a creature of the state and operates within the tight framework of its own charter and of applicable laws. The corporation's powers, which will be dealt with at some length in Art. 24-6, are limited to those enumerated in the charter (or necessarily implied therefrom) granted by appropriate government authority. As previously noted, moreover, the corporate form of enterprise is carefully regulated, must prepare various reports for the perusal of government officials, must send annual statements to stockholders, etc.

The corporation as a distinctive type of business association has several significant advantages. Not the least of these is the fact that corporate shares are readily transferable. Another is the perpetual duration which a corporation enjoys in contradistinction to a partnership, which latter may be subject to dissolution on the death or withdrawal of a partner. Since a corporation is an entity unto itself, the death of any of its directors, officers, or stockholders need not affect its existence or, in most cases, even cause a temporary disruption of its operations.

Perhaps the limited liability afforded its stockholders is the primary advantage of the corporate form of undertaking. Subscribers are responsible to their corporation\(^6\) for payment in full of stock subscriptions, and satisfaction of this debt can be compelled. But the stockholder, generally speaking, has no individual liability for any indebtedness of the firm and, in the event of corporate failure, stands to lose only his investment. One exception to this happy state of affairs should be mentioned here. When it can be shown that a corporation has been organized to perpetrate a fraud or perhaps has set up a dummy subsidiary to evade some pertinent statute, the courts may very well "pierce the corporate veil" and render the responsible stockholders individually liable.

Incidentally, the federal income tax laws exact a "price" for the limited-liability privilege. Thus, the corporation is treated as a separate taxable entity and is assessed on its income before dividends\(^7\); the

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\(^6\) Or to its creditors in case the corporation is insolvent.

\(^7\) Various expenses, of course, such as reasonable salaries, are deductible by the corporation before it declares its income for tax purposes.
stockholders are then taxed individually on the dividends distributed to them in cash when the total value exceeds a certain amount.

The separate-entity idea as applied to corporations has been referred to previously. Unlike partnerships, as we have seen, corporations do pay a federal income tax. Likewise, acting through their officers and agents, corporations can be guilty of at least certain torts and criminal violations. In short, the corporation has a name and an existence of its own quite apart from that of its stockholders, who indeed may enter into contractual arrangements with it and either sue or be sued by it.

24-6. Private Corporation's Powers in General. While it is a fact that the powers of a corporation are limited, it is not quite accurate to say that its legitimate activity is defined entirely by the precise outline of powers spelled out in its charter. There is a class of general powers, which may or may not be listed in a given charter, common to all corporations regardless of the purpose for which each of them may have been formed. To this class belong such rights as those of suing and being sued, of having a common seal, of continuing to function despite the withdrawal or death of a member, of drawing up bylaws relating to the conduct of the business, and of doing all things "reasonably necessary" for carrying out the purpose for which organized. The last-named power is necessarily vague and, not surprisingly, has been on occasion abused by overzealous corporate officials. One result has been a number of court decisions which serve to lay down a few basic ground rules. For one thing, a corporation instituted for a purpose such as banking cannot deal in stocks for speculation. Nor may a corporation, without express power in its charter, purchase stock of other corporations with a view to gaining control of them. If, however, a stock purchase can be shown to be for a purpose incidental to the business of the purchasing corporation, it will normally be permissible.

Both large and small corporations upon occasion find it necessary or desirable to borrow money. Various types of bonds are commonly issued as evidence of indebtedness. The list includes such forms as mortgage bonds, debenture bonds, income bonds, and equipment bonds.

24-7. Ultra Vires Activity. It follows from what has been said thus far that a corporation may enter into only such contracts as come within the scope of its express or implied powers. Any contracts which go beyond this point are spoken of as ultra vires. If the contract in question violates a statute or contravenes public policy, there is no question but

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8 A special rule pertains where stock dividends are involved.
9 That is to say, these powers are at common law implied in connection with the creation of any corporate entity.
10 However, the federal antimonopoly laws would, under certain conditions, serve to cloud the picture.
that it is utterly unenforceable. On the other hand, if the ultra vires contract is not "illegal" in the strict sense of the word but is merely "unauthorized," a more difficult question is presented. As a general rule, the courts seem to resolve the matter in this fashion: (1) If the corporation has exceeded its authority in making a particular contract but there has been full performance on both sides, the courts will not interfere one way or another; (2) if the unauthorized contract is entirely executory on each side, neither party can enforce it; (3) if the contract is partly executed, the party which received the benefit cannot urge ultra vires as a defense when pressed for counterperformance.\(^{11}\)

It is usually held that the directors, officers, and agents who enter into ultra vires contracts on behalf of their corporation do not thereby render themselves personally liable to the other contracting party, either on a warranty of authority basis or otherwise. After all, the other party is chargeable with a degree of constructive notice regarding the limitations contained in the corporation's charter or imposed by statute.

The commission by a corporation of an act beyond the scope of the powers conferred upon it\(^{12}\) does not, in and of itself, put an end to the corporate existence. What it does do is furnish the state's attorney general, via a so-called quo warranto proceeding, with the justification for claiming forfeiture of the charter.

24-8. The Stockholders. The corporation's charter fixes both the total amount of stock and the classes or types thereof which may be issued. Also, if par-value shares are to be utilized, the charter will stipulate what that face value is to be. If a change in any of the foregoing items is contemplated, the charter must first be amended accordingly.

The two basic categories of capital stock are common and preferred. Generally speaking, the former carries voting rights and thus ultimate control of the enterprise, while the latter has preference in regard to dividends and (should the corporation be dissolved) in regard to asset distribution but lacks the "control" aspect. Frequently, a corporation will be authorized to issue both cumulative and noncumulative preferred stock. The distinction between the cumulative and the noncumulative varieties is well expressed in the following passage from Day v. United States Cast Iron Pipe and Foundry Co., 96 N.J. Eq. 736, 126 Atl. 302, 304–305 (1924):

11 The judicial treatment of ultra vires contracts, particularly those in category (3) above, varies considerably from one jurisdiction to the next.

12 Incidentally, a corporation is not relieved of liability for a tort simply by reason of the fact that the activity out of which the tort arose was ultra vires. The key question relates to the individual who committed the delict: Was he acting within the scope of his authority from his principal, the corporation?
"... while dividends (not in liquidation) upon each can, of course, only be paid out of profits or surplus ..., the dividends upon cumulative preferred stock have at all times and for all years past and present, until paid, priority in payment over any and all unpaid dividends upon common stock, whether the net earnings for any particular past or present year were or were not sufficient to pay the stipulated cumulative dividends upon preferred stock for that year; whereas the like priority of dividends upon noncumulative preferred stock (wholly or partially as the case may be) is limited to the unpaid dividends for those years when such net earnings were sufficient (wholly or in corresponding part) to pay such dividends."

The stockholders are not, in their individual capacities, agents of the corporation, and really they can act for it in one way only—by voting at meetings. They do elect the directors and thus retain a measure of control in that they can eventually unseat directors whose conduct displeases them. But the directors, by virtue of their position, are expected to exercise independent judgment in furtherance of the corporation's business, and the stockholders must not seek to influence their elected representatives.\(^13\)

As far as shareholder meetings go, the formalities to be observed are determined by the certificate of incorporation, the bylaws,\(^14\) certain common-law rules, and the provisions of any applicable statutes. There must be a quorum on hand, and modern-day corporation statutes prescribe that, for the election of directors (and for the performance of a few other listed functions), there is needed at least a majority vote of the shares represented at the meeting. Corporation laws in the several states generally provide for and regulate proxy voting.\(^15\) The proxy is deemed to bear a fiduciary relationship to the stockholder appointing same. A proxy designation is revocable unless coupled with an interest.

Apart from voting powers, stockholders, generally speaking, have a number of rights and privileges, chief among which are these:

1. The right to share ratably in whatever dividends are declared on the particular class of stock held (the source of all dividends, of course,

\(^13\) Agreements among shareholders which directly or indirectly limit the discretion of directors are usually held invalid as contrary to public policy. A director cannot bargain away his privilege of independent judgment, which he is supposed to utilize for the benefit of the shareholders collectively.

\(^14\) A corporation's bylaws, once adopted by the stockholders, provide the detailed rules for day-to-day conduct of its business.

\(^15\) Incidentally, the solicitation of proxies must, in every respect, meet Securities and Exchange Commission requirements; e.g., the proxy must be voted just as the absent stockholder has indicated or must be rejected outright and the stockholder notified to that effect (so that he can attend personally if so inclined).
is *surplus* rather than *capital*, the latter being reserved for the benefit of creditors).

2. The right of pre-emption, which means that, when the corporation becomes authorized to increase its outstanding capital stock by the issuance of new shares, its stockholders of record, in their respective ownership proportions, have first chance to subscribe for the additional shares.\(^{16}\)

3. The right to participate in the distribution of assets should the firm be liquidated.

4. The privilege of immunity from personal liability for corporate debts.

5. The right to reasonable inspection of the concern's records. Where necessary, this right can be enforced by mandamus proceedings.

6. The right to bring suit against the corporation or, under certain conditions, to bring suit in its behalf.\(^{17}\)

**24-9. The Directors.** The business activities of a corporation and the management of its property are controlled by its board of directors, who, in turn, select a president and other administrative officers (who are removable at the pleasure of the board). The directors themselves are elected by and are ultimately responsible to the stockholders. All matters relating to the legitimate objects of the enterprise, as outlined in its charter, may be handled by the directors without the sanction of the stockholders.\(^{18}\) As for outsiders, the directors are agents of the corporation;\(^{19}\) as for the stockholder-owners and the corporation itself, however, the directors fill a role closer to that of trustees. Strictly speaking, they cannot be *trustees* in the full sense of the term, since a trustee is legal owner of the trust *res* (and title to corporate property is not vested in the directors, but rather in the corporate entity). However, it is certainly true that the directors are fiduciaries and, as such, owe a high duty of loyalty and diligence to the interests of the corporation.

In conducting the firm's affairs, the directors must operate in accordance with its bylaws. It was mentioned earlier that the power to enact bylaws resides with the stockholders. The directors themselves

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\(^{16}\)The doctrine of pre-emptive right of shareholders is a judicial interpretation of general principles of corporation law to the effect that existing stockholders are owners of the business and are entitled to have that ownership continued in the same proportion. *Ross Transport v. Crothers*, 185 Md. 573, 45 A.2d 267, 270 (1946).

\(^{17}\)The matter of stockholder litigation will be dealt with in Art. 24-12.

\(^{18}\)In this connection, it is a generally accepted tenet that actions by a board of directors which are not illegal but are beyond the scope of their authority can be ratified by vote of the stockholders and thus made fully binding on the corporation.

\(^{19}\)Accordingly, notice to or pertinent knowledge of a director will be imputed to his principal.
possess no such power, unless it is specifically granted to them by statute, by the articles of incorporation, or by the shareholders. 20

The directors cannot act individually and may exercise their powers only as a unit brought together at a properly called board meeting with a quorum in attendance. If the full board proves difficult to assemble by reason of size or geographical complications, it may be possible to provide for the delegating of some functions to an executive committee comprising a relatively few members of the parent board.

Compensation to directors for their services may take the form of fees for attending meetings or of a fixed salary or, perhaps, of a profit-sharing arrangement of some sort. A director is not a mere office boy, and he has certain rights of tenure. Unless the bylaws provide otherwise, he cannot be removed before the expiration of his term except when good cause is shown.

The standard of care to which directors are held is that of "reasonable men" in their particular position. In other words, any director is required to give such care and attention to his duties as are corporate directors in general. 21 Ordinarily, directors acting in good faith and within the bounds of their authority are not liable for the disastrous consequences of an honest mistake in judgment. Were the rule otherwise, few directors would take the job.

Assume, however, that there has been gross negligence and mismanagement which results in loss to the corporation. Even in such circumstances, where violence has been done to the "duty of care," the attendant liability of the directors runs to the corporation but usually not to its creditors. The latter are hardly without remedy, but they must reach the errant directors obliquely through action aimed at the corporation (for example, by way of bankruptcy proceedings or creditor's bill). Some statutes, on the other hand, impose upon directors personal responsibility to their corporation's creditors under stated conditions of misfeasance. 22 Illustrations include (1) paying dividends (out of capital) when there are no profits, (2) making loans out of corporate funds to a director or officer, and (3) authorizing publication of false financial reports.

Mention has been made of the director's fiduciary capacity and of his duty of loyalty to the corporate organization. This gives rise to the

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20 One practical reason for voting the directors authority to enact bylaws as needed is the fact that stockholder meetings are usually held but once a year.

21 A director who absents himself from meetings does not thereby necessarily secure exemption from responsibility for actions taken by the board.

22 Likewise, responsibility may run to outsiders other than creditors. If, for instance, a director consents to unfair competitive practices by his corporation, he could in some situations be forced by the injured third party to answer for the consequences.
common-law doctrine that, if a given director's vote was needed for corporate approval of a contract in which he has a personal interest, such a contract—without regard to the fairness of its terms—is voidable at the option of the corporation. Furthermore, while a director is not precluded from selling his own property to his corporation at a profit,²³ any such self-dealing transactions are subject to careful scrutiny. The dividing line between what is proper and what is not is often vaguely defined.

An allied problem involves the director's relationship with an individual stockholder from whom he intends to purchase shares of the corporation with which they are mutually connected. There exists a divergence of opinion about whether the director is in fiduciary position with respect to the individual stockholder such that he must disclose facts (known to him by reason of his position but presumably unknown to the stockholder) which tend to increase the apparent value of the shares that are about to change hands. Clearly, the director must refrain from active fraud or active concealment of significant information, but beyond that his duty is unclear.

24-10. The Officers. While retaining ultimate control of the situation at the policy-making level, the board of directors will name a slate of executive officers²⁴ (of which the principal ones are ordinarily board members) to whom considerable administrative authority may be delegated. Officers derive their power from any of several sources: statute, charter, bylaw,²⁵ or resolution of the board. In addition to the express powers conferred upon them, the officers—primarily the president—have a certain amount of "apparent authority" which stems from the nature of their position.

The principal executive official, of course, is the president, and his function may be stated broadly as that of running the detailed every-day operations of the corporate enterprise. He has at least implied authority to make for the corporation such contracts as are reasonably related to its ordinary activities. There is a rebuttable presumption of authority on his part to perform any act within the scope of the company's business, or—put another way—to do anything the board could specifically have authorized him to do. Established practice of the particular corporation enters into the picture, also. Thus, if the board traditionally

²³ Contrariwise, the director, having learned of his firm's interest in a piece of realty, cannot "race" the corporation to such property, purchase it, and then sell to the firm.

²⁴ Some jurisdictions permit direct selection of officers by the stockholders.

²⁵ Where a power is one which by generally accepted practice is in the domain of a particular officer rank, it is usually held that a bylaw purporting to eliminate that power is ineffective as against a stranger who has no actual notice of the said bylaw.
acquiesced when the president exceeded his delegated authority and entered into a certain type of contractual commitment, the president will be deemed clothed with "apparent authority" as regards the outside world, and the corporation will be held responsible for any breach on its part of the contract so made. In the final analysis, whether or not a specific action taken by the president comes within some aspect of his authority is a question of fact (for a jury's determination, if need be). If there is any reasonable doubt about the president's capacity to bind the corporation to a particularly important contract in contemplation, the other party involved will do well to be on the safe side and insist upon a certified copy of a board of directors' resolution granting express authority to the president to proceed.

Ordinarily, in the typical small corporation setup and with the president on hand, the vice-president has no contract-making powers. The treasurer maintains financial records, prepares reports therefrom, and (under the broad supervision of the board) receives and disburses corporate funds. More often than not, the treasurer has no express or apparent general authority to borrow money, though the board might ratify a treasurer's overreaching in this respect. Without specific authorization in the bylaws or directly from the board, the treasurer of the average corporation (excluding banks) cannot in the name of the firm issue promissory notes or guarantee letters of credit. The remaining official in the standard organizational arrangement is the secretary. He is largely a recording officer who keeps the minutes and various other official records, supervises the mechanics of stock transactions, and has custody of the corporate seal.

The officers, or any one of them, may be discharged at any time even though they hold long-term employment contracts. If the firing, of course, is not "for cause," the officer involved has available against the corporation an action seeking damages for breach. In these days an increasing number of employment contracts written for executive officers carry for their protection a liquidated-damages clause to apply in the event of their summary dismissal (for a reason other than misconduct).

24-11. Miscellaneous Control Devices Available to Stockholders. There are several legitimate means by which an organized minority of the stockholders can secure representation on the board and a measure of control over the corporation's destiny. One of these is the system of cumulative voting, which (where permissible) works in this fashion: Each share is entitled to as many votes as there are directors to be elected; assuming three directors are to be chosen, the stockholder has three votes per share and can cast them all for one man or can distribute the votes as he wishes.

26 The corporation is bound by his records.
The voting trust, where legal, is another useful stockholder device. The individuals involved pool their stock in the hands of a trustee, directing him to vote the shares in a stipulated fashion. In many states the permissible duration of a voting trust is limited by statute. It goes without saying that the trust must be neither intended nor used for a purpose which is illegal or is contrary to public policy.

Other intracompany mechanisms for concentrating and perpetuating control are (1) using a capital-stock structure which includes a significant percentage of preferred and of nonvoting common stock, (2) staggering the expiration dates of directors' terms of office, (3) granting long-term employment contracts to key officials, and (4) efficiently soliciting and using proxies.

24-12. Stockholder Suits. There are really two proper types of stockholder suits. The first is the derivative action to enforce a corporate right. Assume, for example, that the corporation has a cause of action against some outside party, but the directors unaccountably do not avail themselves of it. A stockholder, disgruntled at the failure to prosecute the cause of action, can step into the breach as plaintiff if he has first established his standing in court by proceeding as follows: He must show that he has asked the directors to sue in the company's name and that they declined for no justifiable reason, or he must show that it would be futile to make such a request (perhaps because of alleged collusion between the directors and the prospective defendant); in other words, the stockholder must exhaust internal channels before resorting to litigation. If and when the derivative suit is brought, plaintiff sues not in his own right but in that of the corporation—and any benefit flowing from the action is taken by the corporation and only indirectly by the stockholder-plaintiff.

The other basic type of stockholder suit is based upon a claim that the directors and/or officers are liable for some wrong (by way of fraud, gross negligence, etc.) occasioned the plaintiff and others similarly situated. Among other things, the complaining stockholder must establish that he is not himself guilty of laches by reason of having theretofore acquiesced in whatever deed or course of action the suit purports to remedy.

24-13. Subsidiary and Affiliated Corporations. It is common knowledge that a great number of today's corporations have, for one reason or

27 For a typical statutory provision setting forth the requirements for a valid voting trust, see 1953 Supplement to Connecticut General Statutes, sec. 1935c.
28 Sometimes a corporation will enter into indemnity agreements with its directors and officers to protect them in the event of such stockholder action.
29 The suit is representative in nature so as to prevent a multiplicity of actions based upon the same alleged delict. Occasionally, as in closely held corporations, the plaintiff will be the only shareholder harmed by the complained-of action.
another, established subsidiaries\(^9\) or worked out affiliations with independent concerns. Where the subsidiary is judicially determined to be merely the instrumentality of the parent corporation, the latter will be potentially liable for the torts and debts of its offspring. In deciding whether the subsidiary is truly a separate entity designed in all respects to stand on its own feet, or whether, on the other hand, it is just the alter ego of the parent, the court will check for signs of (1) frequent, direct intervention by the parent in management affairs, (2) underfinancing of the subsidiary, and (3) commingling of assets as though the two ostensibly separate concerns were one and the same.

24-14. Holding Companies; Investment Trusts. A holding company is organized for the specific purpose of consolidating, through the medium of stock ownership, control over a number of concerns operating in the field of particular interest. It is, in a sense, a "supercorporation" which holds a dominant interest in other companies and is thus able to prescribe (or, at least, to materially influence) the management policies they will follow.

The holding company is readily distinguishable from the investment trust. The latter is a business entity organized to acquire and administer through trustees, for purposes of investment and speculation, securities of a number of enterprises (usually representing a variety of industries). The trustees distribute to contributors a form of certificate which evidences the holder's proportionate right to share in the profits and income of the investment trust.

24-15. Bankruptcy, etc. It would not serve the purposes of this book to discuss such matters as bankruptcy proceedings, receivership, corporate reorganization, creditor's bill in equity, and similar extremely complicated subjects which deal essentially with involuntary corporate liquidation and are of no tangible interest to engineers.

24-16. The Massachusetts Trust. For want of a better place, brief mention might be made here of a unique creation called the "Massachusetts trust," a form of unincorporated business association whose considerable popularity of a few years ago appears to be on the wane. Investors in such a trust do not want the corporate form of organization, perhaps for tax reasons, and, at the same time, desire to avoid the unlimited personal liability which would be theirs as partners. In the Massachusetts-trust setup, property is conveyed to the trustee, in accordance with an instrument of trust, to be held and managed for benefit of the holders of (transferable) certificates representing the shares into

\(^9\) Subsidiaries are organized, as a rule, to handle a particular phase of the parent's business, e.g., its foreign activities. Thus, the X Company, incorporated in New York, operates several hundred retail outlets in Great Britain and Ireland through X Company, Ltd.
which the beneficial interest in the transferred property has been divided. The shareholders are not responsible for the acts of the trustee, and creditors of the enterprise can look only to the trustee and the trust estate itself. The arrangement is valid if there is a bona fide trust and if title to the property concerned has actually gone to the trustee. If, however, the transfer is defective for some reason or if the investors seek to retain management control, they will be held as partners, with the trustee deemed to be their agent.
CHAPTER 25

Patents

25-1. Definitions and Purposes. A patent is essentially a right given by proper governmental authority to a person (or persons) entitling him for a limited period of time to exclude everyone else from making, selling, or using the process or article which he has invented.

Article I, Section 8 of the Constitution of the United States recognizes the need for stimulation and protection of inventions as a matter of public interest. Accordingly, the patent system of the United States has been developed.

The patent system was inaugurated in 1790. It is administered by the Patent Office in Washington, D.C., and protection of inventions under the patent law is effective throughout the United States and its territories.

A patent is a contract between the inventor and the government. Courts and legislatures will treat patents as they do other contracts. The inventor is obliged to describe his invention fully through the medium of the issued patent; the government is obliged to protect and vindicate the right created by the patent. Of course, a patent on the particular article or process will be granted to the "first inventor" only.

In some ways a patent differs from ordinary contracts. The latter may be voided for such reasons as absence of consideration; otherwise, when a man makes a contract he has to stick to it whether or not his bargain is favorable to him. A patent, however, may be given up or made invalid for various reasons which will be discussed later.

The "life" of a patent in the United States is seventeen years from date of issue. The inventor is therefore given, by the government, the

1 The authors are indebted to Roy L. Parsell, manager, Patent Department, Olin Mathieson Chemical Corporation, Winchester Operations, New Haven, Conn., for his cooperation in reviewing and making helpful suggestions about the material contained in this chapter.

2 "The Congress shall have power—to promote the progress of Science and useful Arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

3 The life (or term) of a "design" patent (such as for a piece of jewelry) is 3½.

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right to exclusive use of the patented device for this period. However, this privilege is conditioned upon the complete disclosure of all details of the invention so that, after the expiration of the patent, anyone will be in a position to make, sell, or use the device. In this sense, patent means "opened" or "disclosed."

As the Constitution recites, a patent is intended to "promote the progress of Science and the useful Arts," not just to serve as an instrument for private enrichment. It is a wise public policy for the government to encourage invention, because the ultimate benefits to the nation may be tremendous. For example, the reader may well ponder the beneficial effects of such inventions as the cotton gin, the sewing machine, the steamboat, the telephone, the typewriter, the incandescent lamp, and the motion picture. The possible reward flowing to the holder of a patent right is meant to be an incentive toward creative effort and invention. Misuse (such as a restraint of trade) of a patent may destroy the privilege extended thereby.

Issuance of a patent does not necessarily mean that the patentee has the right to manufacture the article involved; additional governmental or other authorization may be needed before he can do so. The patent itself merely prevents others from using the process or making the article in question.

Placing a patent label or patent number on an article is a way of serving legal notice that the maker relies upon his rights under the patent and presumably that he will prosecute anyone who violates them. The words "patent applied for" have no legal significance and merely tend to deter another person from trying to get a patent on the same idea, since the first party's application would obviously be ahead of his. Similarly, "patent pending" means little—only that an application for a patent is being prepared, has actually been submitted to the Patent Office or is under consideration by the Patent Office. "Application pending" means almost nothing; the so-called "inventor" may try to use this label as a means of keeping his invention for himself, believing that the use of the quoted phrase will scare off others who may wish to manufacture the article. If there is some secret material or process involved, the "inventor," by using the device labeled as aforesaid, will be risking discovery by others of the idea in-

7, or 14 years. The specified term of any patent can be extended only by special act of Congress.

* Perhaps someone else holds a patent on certain important features incorporated in the new invention (which dominate it).

* The courts will not allow a patentee who has failed to affix such label or number damages for any period prior to formal notice to the other party that he is infringing the patent.
volved and therefore may lose all right to patent the invention later on. The patent law will not protect an invention until the patent is actually granted.

A patent will accomplish nothing unless it is put to use; that use is the purpose of the system. Profit for the inventor is incidental. If production under a patent is practicable and economical but a party purchases the patent in order to keep the item out of production, such behavior represents an abuse of the patent system and may be illegal as violating the principles of the antitrust laws.

The patent system is supposed to make inventions available to the public sooner than they might be if the inventors and manufacturers endeavored to keep all their new developments and the products secret for as many years as feasible. By offering an opportunity for inventors to secure protection, it serves to encourage investment in research and development, and it fosters competition in invention—each imaginatively inclined person trying to outdo others in the creation of better products and processes. A patentee should not use his temporary monopoly in any way that effects an unreasonable restraint of trade or does violence to the public interest.

Infringement of a patent is the premature use of the invention by another person without the permission of the inventor. The infringement may be unintentional or deliberate. It is necessary for the inventor to take action in order to stop the infringer’s activities; possession of the patent will not alone do the job. If a product or process does infringe, or seems to infringe, upon a patent, the dispute between the parties is not for the Patent Office to resolve but is within the jurisdiction of the federal courts.

Prior to the formal patent application in respect of a given device, the Patent Office will not try to determine whether or not an alleged “invention” will infringe upon an existing patent. Neither will the Patent Office give advance counsel to the inventor about whether or not his article or process is worth patenting. The inventor may always apply for a patent if he wishes; then the Patent Office will consider the application when its turn comes.

25-2. Patent Records. The Patent Office, in order to promote the progress of the arts and sciences, maintains an excellent library of data on patents for the use of all who wish to learn what has already been developed. The information about patents is arranged in accordance with a predetermined classification, and it includes material about foreign as well as domestic patents. Similar information is also on file in various other libraries throughout the country; the New York Public Library is particularly helpful in this respect. Clearly, it is intended that persons who think they have developed a new process or product
can readily ascertain whether or not someone else has preceded them. Such checking frequently avoids the waste of time and money entailed in a hopeless attempt to secure a patent.

It is obvious that one should not embark upon any commercial venture involving the manufacture, use, or sale of what seems to be a new device without first searching the records to be sure that he will not be guilty of patent infringement.

A copy of any given patent may be secured by written request to the Commissioner of Patents, Washington, D.C., and payment of 25 cents (10 cents for a design patent).

25-3. Patentability. By no means is every new process or article patentable. Some of the fundamental principles regarding patentability are the following:

1. The new development must have the element of invention. It is not to be merely a routine improvement\(^6\) of something. An improvement, to be patentable, must reveal the exercise of genius or of unusual ingenuity—it must represent an advance that would not ordinarily be anticipated. Expressed the other way around, the patent laws\(^7\) state that an invention is not patentable "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains."

2. The invention must not be frivolous, and it must not appear that it would have an injurious effect upon the morals and health of people.

3. Prior use or public sale of the article or process by another person for at least one year will render the applicant's "invention" nonpatentable; furthermore, if an inventor has used it himself for profit for more than one year in advance of his application, the invention cannot be patented.\(^8\)

4. The invention must be useful. This requirement may, however, be met by something (e.g., a design) that merely caters to a whim of the public.

5. The invention must not have been previously patented in this country by someone else or described in a printed publication. A prior application by another person for a patent on the article in question may block any later applicant.

6. A patent will not be granted if the invention has already been

\(^6\) An improvement which one might reasonably expect would be made by someone who is "skilled in the art."


\(^8\) Of course, such prior use is not presumed and would have to be shown.
patented by the applicant in a foreign country as the result of an application filed there more than one year before the filing of the application in the United States.

7. A man is not entitled to a patent on someone else's invention.  
8. If the applicant has, since filing, abandoned the invention, a patent will not be granted him.

A patent may cover such subject matter as the following:

1. A process or way of making something—often referred to as an "art"—such as a new process for manufacturing sulfuric acid
2. An article of manufacture for sale or other use, such as a new type of outboard motor
3. A piece of apparatus, such as a machine for extruding aluminum tubes
4. A composition of matter, such as a new plastic compound
5. An agricultural development, such as a new variety of plant
6. A new design whose value comes from its appearance, such as a new pattern for table silverware

25-4. Application for a Patent. The preparation of an application for a patent is a very serious and exacting matter. An engineer who plans to apply should secure the services of an experienced patent attorney or agent who is registered at the Patent Office, unless the engineer has himself become sufficiently experienced in patent matters. Otherwise, he may make errors of commission or omission that will prove very costly in the future, even to the extent of defeating the application.

One of the first steps to be taken is a search of the files of the Patent Office in Washington, D.C., to see whether the idea or principle of the device involved has previously been patented. The search may also reveal that someone has come so close to the same invention that patentability by the newcomer may now be doubtful. Of course, the inventor (or the engineer, on his behalf) may make this search personally, but it is desirable for him to engage an experienced man to do it.

A patent will be granted only when there is an application properly filed with the Patent Office. The application must be complete in every respect and accompanied by payment of the fee described below. The application must contain complete disclosure of the invention and satisfy the requirement that the article or process be new and useful. The mere submission of an idea or suggestion for an invention is insufficient.

* But see discussion of estate in Art. 25-4 and of assignment in Art. 25-14.
The application for a patent must include a petition, addressed to the Commissioner of Patents, giving a designation to the device and stating the inventor's name, residence, and post-office address. The application, signed by the inventor, is to contain a sworn statement to the effect that, so far as he knows, the applicant really invented the device which he seeks to patent. The petition must also include specifications, drawings (when they are applicable and essential), and "claims" of exactly what the invention is intended to accomplish and what the patent is to cover. Proper preparation and wording of the foregoing data are extremely important; the information must be comprehensive and yet specific. The application for letters patent must be legibly printed or written in ink and must be in English.

Payment of the necessary fee ($30, plus $1 for each "claim" in excess of twenty) is to accompany the ordinary patent application. An additional fee of $30 is usually charged when the patent is granted. There are variations from these figures for special cases.

Applications are given serial numbers in the order in which they are received by the Patent Office. They are examined in the order of filing and are classified according to the subject matter of the invention. They are kept secret unless written authority is given to the Patent Office (by the applicant) to reveal certain information. If the subject of the invention is a matter that should be kept secret in the interest of national defense, the Commissioner of Patents, on his own initiative, will have the right to withhold revelation of the invention from the general public by labeling the application "secret."

The application is to be made by the inventor personally. If two persons really worked together in the development of the process or article, they may apply for a joint patent. When there actually are joint inventors, neither one alone is allowed to patent the invention exclusively for himself. One who merely supplied money to enable the inventor to proceed with his endeavor cannot qualify as a joint applicant. Independent inventors of separate improvements in the same article or machine cannot obtain a joint patent.

If an inventor dies before any filing can be done, an application for a patent on his invention may be made by his executor (or administrator), and the patent will be granted if the application meets the usual requirements, with the executor signing the necessary oath. If an inventor dies after filing his application, the patent may be issued to the

10 Claims will be discussed in Art. 25-6.
11 The total cost to the inventor of obtaining a patent may be at least $100; it could mount to $2000 or far more, depending upon the cost of the development of the invention and preparation of the application (with its drawings, lawyers' fees, etc.).
executor or administrator, if the latter files the proper papers to evidence his appointment as the representative of the decedent’s estate.

If a certain patent application conflicts with someone else’s somewhat similar application submitted previously, the Patent Office will conduct what is called an interference proceeding. A board of examiners will be appointed to determine who is the real inventor and thus entitled to the patent. In such a dispute, one can readily see how important may be adequate records kept by the respective parties in interest.

No more than one invention can be claimed in a single application.

25-5. Specifications. In connection with a patent application, the term specifications denotes a written description of the invention. The specifications should include illustrative drawings when they are needed to clarify the disclosure. The description is to cover how the device is made and how it is to be used. The data must be very complete and clear but also concise. The invention should be described in such detail that anyone skilled in the art can understand it and, by following the specifications, could make the same thing himself. A patent will not be given if the description is not clear enough to enable persons other than the inventor to make or manufacture the device.

In making the disclosure, the applicant should exercise extreme care to ensure that the description of the invention is correct. He should state the suggested method for constructing the invention, but he should be careful not to limit the ways in which his invention can be made. In this connection, the applicant may use alternatives; for example, he might say that a certain portion of his machine may be a casting or it may be fabricated by means of welding pieces of steel together. The listing of alternatives could, in certain unusual cases, be confusing or even harmful.

Making the drawings for a patent is almost an art unto itself. These drawings should be clear and neat and so prepared as to bring out the special points which the inventor wants to emphasize. For example, the drawings of a mechanical device should generally show a label or number for each pertinent piece, so that the specifications can, through cross reference, clearly describe each item and its function.

The specific requirements regarding drawings are too detailed for any adequate description here. Such requirements are most exacting and must be complied with in every detail. Models, in lieu of drawings,
will not be accepted unless the substitution has been requested by the Patent Office.

The following suggested arrangement\(^{15}\) of items is one which may be "observed in framing"\(^{16}\) the specifications:

1. Preamble, stating the name and residence of the applicant and the title of the invention
2. General statement of the object and nature of the invention
3. Brief description of the several views shown on the drawings (if the invention admits of such illustration)
4. Detailed description
5. Claim or claims
6. Signature of applicant

25-6. Claims. The term *claims* as used in connection with an application for letters patent denotes the statements describing what the invention is expected to accomplish. The claims must convey clearly the scope and character of the invention.\(^{16}\) Usually, the first portion of the claims material will constitute a general coverage of what the patent is intended for. Subsequent portions will be increasingly specific and will relate to details of the invention. The claims must be worded very carefully and accurately. If they are too broad, the prior art may prevent securing a patent. If they are too narrow, it may be easy for another party to circumvent the patent. The preparation of these claims is so important that it should be done by an expert patent attorney, preferably one who is a specialist in the particular field which includes the subject matter of the invention, e.g., chemistry or mechanical engineering.

The following example\(^{17}\) has been prepared to illustrate the character of claims. All four items are shown as they might appear in the application for one patent on the device. The drawings accompanying the claims are grouped in Fig. 25-1 and are numbered to accord with the corresponding claims.

**Claim 1.** A table comprising a platform and vertical supports

**Claim 2.** A table comprising a platform and vertical supports, said supports being rotatably mounted on said platform

**Claim 3.** A table comprising a platform and hinged vertical supports, said supports being rotatably mounted on said platform, each of said supports being equipped with adjustable braces

\(^{15}\) *Ibid.*

\(^{16}\) One can be sure that a court will interpret a patent in the light of the specifications and claims.

\(^{17}\) Application for a patent on a card table has been used as a means of illustrating the ideas.
Claim 4. A table comprising a platform, said platform being substantially rectangular, and four hinged vertical supports rotatably mounted on said platform, each of said supports being equipped with a three-hinged adjustable brace.

Notice that Claim 1 (with its drawing) is very broad and might include a table of any shape and size and that the number of legs is not given. Claim 2 is somewhat more specific (narrow) and restricts the device to a table supported by hinged legs. Claim 3 is still more specific because it restricts the table to one in which the hinged legs have devices to hold them rigid when the legs are extended for use. Claim 4 is most specific of all because it restricts the table to one which has four legs, each leg equipped with one adjustable brace of a specified type, and the table is to be square or square with rounded corners.

A patent issued to cover several claims will probably be treated as though each claim were covered (or represented) by a separate patent. In the preceding illustration, the first claim dominates (i.e., includes) the second, third, and fourth claims. In general, the more elements the claim has, the more specific it becomes. One should try to make the claims broad and simple. The Patent Office will decide whether or not the claims are too broad, but it will not try to determine whether they are too narrow.\footnote{If the claims are too narrow, the field of applicability of the patent may be so restricted that competitors can easily circumvent the patent by making a slightly different device.}
Calvert\textsuperscript{19} says:

"A claim covers all that it does not exclude. It excludes those structures that omit one or more essential features ('elements') recited in the claim. The claim does not exclude but, to the contrary, covers a structure containing all elements of the claim and an additional part or element."

If the invention is a method of doing something, the claims should state in detail the various steps to be taken to accomplish the desired objective. Nevertheless, someone else who can achieve the same result in fewer steps or in different ones can assert that his invention is a new or different method and that it therefore does not infringe upon the patent of the first inventor.

One cannot add new material to his patent application once the same has been filed and at the same time preserve the original filing date. It is essential to include as much as possible in the first place. Claims can be expanded during the course of their presentation to the Patent Office if the specifications mention the point involved in the attempted expansion. Of course, a new, enlarged application can be filed, but it will necessarily bear a later date than that of the original.

If a patent application is about to be rejected because one or more of the claims are invalid, it may be possible for the applicant to make a disclaimer of the invalid claims,\textsuperscript{20} thus paving the way for patenting of the remainder. Otherwise, an invalid claim may cause rejection of the entire application. This matter of invalid claims is, of course, one for the applicant's attorney to consider.

\textbf{25-7. Validity.} A claim in an application for a patent is invalid if the circumstances and material do not meet the requirements for patentability stated in Art. 25-3.

It is possible that an inventor has been utterly unaware of prior publication or prior art concerning the substance of his "invention." Nevertheless, proof of such prior activity will cause his application to be rejected or will invalidate the patent after it has been granted (assuming the unlikely event that there has been some oversight by, or lack of information in the hands of, the Patent Office).

The patent must be taken out in the name of the real inventor. As noted earlier, if the invention is the joint product of two or more persons, proof of this circumstance will invalidate a patent issued in the name of one of the parties alone.

There may be considerable disagreement about whether an invention is \textit{sole} or \textit{joint}. If one inventor conceives the idea for the device and


\textsuperscript{20} See Art. 25-7 on the subject of claims validity.
then in detail instructs other persons\textsuperscript{21} in the making of a drawing, a working model, or an experiment, the invention is really the product of the first individual alone. On the other hand, if the first man has a general conception of the prospective invention but has to depend upon the \textit{unusual} skill and imagination of someone else to develop the invention, then it will probably be a \textit{joint invention}—the product of the efforts of both parties. If one person develops a patentable article but an assistant develops an ingenious additional feature to add to the original scheme, then the two inventions should be separated into two patents, since the total product is not really a joint invention because the item produced by the first inventor is separable from that produced by the second inventor.

\textbf{25-8. Date of Conception of Idea.} If a person conceives an idea which he thinks is potentially patentable and makes a dated record of this idea, such action alone will probably be insufficient to establish the \textit{idea date} in connection with his subsequent petition for a patent.\textsuperscript{22} The man should do something beyond marking his own records; he might, for instance, write an outsider the general outline of his idea—and do so promptly upon conceiving it. The date of conception in the eyes of the law for the purposes of securing a patent is likely to be the date of the first \textit{disclosure} of the idea to someone who is competent to understand it and later to verify the fact of the disclosure.\textsuperscript{23} If such observer makes a written record of the disclosure on behalf of the inventor and if the former signs and dates this record forthwith, the document may well be a valuable one for the inventor to keep.

It is apparent that, when one is developing what he hopes will be an invention, he should try to obtain at once such excellent proof of the date of conception of the idea that he will have an airtight case if and when needed. Letters, sketches, and tentative descriptions that have been dated, witnessed, and signed—preferably by more than one competent observer—are very useful instruments in this connection. The observers should understand that they may have to appear in person in support of the inventor’s claims.

Remember that one may have to prove the priority of his invention; he must be able to overcome interference\textsuperscript{24} from other persons interested

\textsuperscript{21} Such as draftsmen or mechanics.

\textsuperscript{22} It is obvious that no one can have a picture of a man’s mind. Judgment regarding his thoughts in matters of invention must be based upon his acts.

\textsuperscript{23} This “observer” should not be a joint inventor—one who is also working on the invention.

\textsuperscript{24} In case of an interference (an investigation conducted under the auspices of the Patent Office to determine who is entitled to the patent), the date of conception of an invention will be judged by such as the following:

1. The date of the first verbal disclosure to someone else
in virtually the same product; and he must defend his own claim that his invention has not been used, "published," or disclosed in any way by others. As stated previously, any disclosure by others more than one year before an inventor submits his application for a patent will void the latter's application.

25-9. Reduction to Practice. It is important to prove that one's invention really works in practice, not merely under ideal laboratory conditions. An inventor should have at least one witness to the fact that the invention indeed does what it is supposed to do. This testing in operation is called reduction to practice.

For example, assume that A invents a garage door that will automatically open and roll up overhead when a car approaches it. He should build a sample of such a door, install it in his garage or that of a friend, and demonstrate to a competent observer how well the mechanism operates.

Naturally, an inventor will want to maintain secrecy so that no one except his trusted confidant will learn of his invention before the patent application can be submitted. This security problem is one for the inventor to work out with the aid of the friend to whom he disclosed the invention.

If the final perfection of an article or process to be patented will cost so much that the inventor cannot immediately finance the necessary work of development, he may nonetheless file his application for a patent in order to protect his rights. This course of action is known as constructive reduction to practice—which means that the device described in the petition does not yet exist. The inventor then may make arrangements with someone who will finance the perfection of the invention in return for a share of the benefits, on whatever terms may be mutually agreeable.

25-10. Diligence. After conception of his invention, the inventor must be diligent in perfecting it. Exactly what will be regarded as diligence in a particular set of circumstances is not predictable. However, if one does nothing of any moment to perfect his invention within a few months of the conception of the idea, he probably will be deemed to have been dilatory. 25

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2. The date of the first written description of the invention
3. The date of the first drawing showing the invention
4. The date of the first reduction of the invention to practice (see Art. 25-9)

25 Some inventions may require years for their perfection; others may be completely developed in a few months. The reasonableness of the time which elapses from conception of the idea and perfection of the invention to application for a patent thereon will be judged in accordance with the factual circumstances of a given case.
Assume that A thought up the idea for an invention in January, 1954, and assume that B, who knew nothing about A or his activities, came to the same conclusions independently in June, 1954. Suppose, also, that A did little to perfect his idea, whereas B developed the invention promptly and applied for a patent in October, 1954. Shortly thereafter, A heard about B’s application and tried to secure the patent for himself by applying in December, 1954, claiming that he had the idea first. It is probable that B would be granted the patent because A had been dilatory by comparison. Thus, time passed in idleness is of no value as far as establishing one’s precedence in conceiving an invention idea is concerned. In one case, the court stated as follows:

“It is obvious from the foregoing that the man who first reduces an invention to practice is prima facie (at first sight) the first and true inventor, but that the man who first conceives, and, in a mental sense, first invents, a machine, art, or composition of matter, may date his patentable invention back to the time of its conception, if he connects the conception with its reduction to practice by reasonable diligence on his part, so that they are substantially one continuous act. The burden is on the second reducer to practice to show the prior conception, and to establish the connection between that conception and his reduction to practice by proof of due diligence.”

Although it is advisable to proceed as quickly as possible to develop an invention, the inventor’s work should not be so hasty and incomplete that his claims will be disallowed because of errors, imperfections, or even failure of his invention to function as advertised.

It is advisable for an inventor not only to have a record of the disclosure of his invention idea to at least one competent person (preferably two or three) but also, from time to time, to have outsiders witness and verify his procedure and his progress in developing the invention—always being sure that any records kept are properly dated and signed. The witnesses should also observe the functioning of any model of the invention, its performance under tests, and even the preparation of descriptive matter and drawings. It goes without saying that any witness should be a person of integrity.

25-11. Keeping Records of Invention. If one starts to work on an invention (or what he hopes will become one), it is very important for him to maintain a running record of his pertinent activities. Preferably, these records should be kept in a bound notebook so that others cannot claim that the inventor inserted information at a later date than was

26 Christie v. Seybold, 55 Fad. 69, 76 (4th Cir. 1893).

27 It is well to involve several individuals so as to reduce the possibility that, when the need for testimony arises, no one will be available for one reason or another.
actually the case or that he deleted some pages, as would be possible with a loose-leaf notebook. It is also desirable for the inventor to date and sign or initial each page as he records his notes. Furthermore, at intervals he might well have these notes read, dated, and signed by a trusted friend (or, better still, by several friends) who will be able to verify the accuracy of the record. To preclude suspicion, such notes should not show erasures or alterarations. If changes have to be made, it is best to add a supplementary statement correcting what was recorded previously.

The aforementioned record of the invention's development should contain all relevant data and should include such information as the following:

1. When the inventor first conceived the idea
2. What he did at each step.
3. What results he obtained along the way and whether such were good or unsatisfactory
4. When and to whom he disclosed his idea
5. When he reduced it to practice
6. Who has seen it work or has verified the results
7. When the witnesses saw it work
8. When and through whom the inventor took steps to prepare the application for letters patent
9. Whatever else may assist in securing the patent and in establishing the inventor's precedence over some other applicant

25-12. Ownership of the Patent. Sometimes there are serious misunderstandings about who should own a patent. Here are a few principles which may serve as a guide.

1. An individual who develops his invention entirely independently and who meets all the requirements for securing a patent is usually entitled to it personally.
2. An individual who develops his invention independently but who uses his employer's time and facilities to do so probably can secure the patent, but the employer may have "shop rights" to manufacture the article in question.
3. An individual who is part of a research organization is generally hired for the very purpose of inventing. As a rule, the employer of such an individual requires him to agree in advance to assign to the employer any patent which the employee receives in line with his regular work.
4. A member of a research organization may be individually entitled to retain a patent on an invention which he develops entirely outside his employer's field of interest and perhaps largely on his own time.
25-13. Secret Information. Not only should one be careful about divulging his unpatented invention when attempting to sell the idea, but also whoever receives such information should use caution. Ordinarily, a firm or individual is reluctant to accept confidential information from an “inventor” unless the latter has patented the invention to which the information relates, has applied for a patent, states in writing that he will rely entirely upon any patent rights available to him, or agrees to a stated compensation if his invention is accepted by the recipient before its disclosure to the latter. One can easily understand the receiving party’s reluctance; he might eventually find himself subjected to utterly unreasonable claims by the inventor about the value of the latter’s device. It is unwise for one to accept broad or vague ideas which may be used by their author as the basis of claims for compensation should the recipient later develop anything which appears to have been even remotely suggested by the volunteered information. All of this does not mean that the exchange of new ideas is an undesirable practice. It simply means that both the author and his audience should conduct themselves with caution and honesty.

Negotiations regarding secret information may take place even when a discovery is apparently useful but not patentable; e.g., the winner of a national cake-baking contest may sell her recipe to the sponsoring corporation in spite of the fact that the formula is not a patentable item. On the other hand, a man may have an excellent idea, but he himself may be unable to finance the development of it; hence he may wish to join forces with someone who can provide the necessary money and equipment to perfect the invention. The intended rights and obligations of the several parties participating in such an arrangement should be clearly defined and the agreement reduced to writing.

Suppose a manufacturer receives what appears to be the sender’s offer to disclose the idea for a new gadget of some sort. The manufacturer would do well to proceed cautiously, if at all. He ought to notify the sender that he has not examined the data and that he will not do so unless and until a proper agreement is reached between the parties, setting forth what the first party is to receive (if his idea proves worthwhile) and what the second is to pay for the disclosure. The arrangement may be such that the manufacturer can cancel if the invention proves to be (1) unworkable, (2) nonpatentable, (3) previously disclosed to others, or (4) valueless for some other reason.

It appears that in settling disputes over the disclosure of inventions the courts give considerable weight to whether the idea was completely new to the recipient and to just how the latter made use of it. In case no agreement had been reached regarding the measure of compensation to be paid the inventor for utilization of his “secret” idea, the courts will try
to determine what is a reasonable compensation—perhaps an amount comparable to what might have been expected in the way of royalties for use of the process or article if it had been patented.

The following form, with names deleted, is that used by one corporation in handling receipt from outsiders of information relating to new ideas or alleged inventions.

**DISCLOSURE AGREEMENT**

*L-M-N* Corporation:

I request that *L-M-N* Corporation consider my idea relating to

described in the material submitted herewith and listed below. All additional disclosures relating to the idea submitted herewith shall be subject to the provisions of this Agreement.

I understand that no confidential relationship is established by or is to be implied from this submission or consideration of the submitted material, and that such material is not submitted "in confidence."

By this request and submission I do not grant *L-M-N* Corporation, or any of its subsidiaries, any right under any patents on the idea submitted. I agree that, except as this Agreement may be superseded by a subsequent agreement in writing, I will make no claim against *L-M-N* Corporation, or any of its subsidiaries, with respect to the idea here submitted except for patent infringement.

The foregoing may not be changed or waived except in writing signed by an officer of *L-M-N* Corporation or by the General Manager of a Division of the Corporation.

**List of Documents and Samples**

Agreement acknowledged:

*L-M-N* CORPORATION

By__________________________

Dated:_____________________

Signed_____________________

Address____________________

25-14. Licenses, Assignments, and Grants. An inventor may sell\(^{28}\) his patent and all rights pertaining to it, or he may permit another person a license or grant\(^{29}\) to "make, use, and vend" whatever is covered by

\(^{28}\) An assignment is a sale, and it should be registered in the Patent Office within three months of its completion—preferably by means of a photostatic copy.

\(^{29}\) It seems that a grant gives more exclusive rights than does a license. Both should be written or printed, properly signed, and recorded in the Patent Office.
any (or, perhaps, all) of the rights under the patent (or under the application for patent). A license may or may not be exclusive, and the agreement between the parties should clarify this point. The license may cover manufacture of the article, its use, its sale, or some combination of these possibilities.

The licensor may make payment in the form of royalties, which means that the total paid out will vary with the volume of sales by such licensee; he may pay the patentee a lump sum\(^{30}\) for the rights; or he may make any other legal arrangement agreed to by the other party. The patentee can give a license free of charge if he wishes to do so. Naturally, the patentee can decide whether he will grant an exclusive license to one person or extend the license privilege to several persons. Unless the agreement between inventor and patentee provides otherwise, the license carries with it the implied right for the licensee to resell the patent or to make use of the invention himself.

Both the patentee and the licensee should be very careful when preparing the agreement on licensing arrangements. To be covered are such matters as powers of the respective parties, limitations on these powers, royalties or other payment, agreed-upon efforts to market the device, actions which constitute infringement by others, time or territorial limits affecting the license, reports, labeling of the article, kind of use authorized, and prevention of misuse. If payment is to be on a royalty basis, the licensor will want to be sure that the licensee is going to make a sincere and adequate effort to produce and market the product involved. On the other hand, the licensee will wish to be protected in the event something occurs which may cause the patent to be declared invalid or use of the patented item to be declared illegal. It is well to make clear in the agreement which party will have to bear the burden of bringing suit against any outsider who infringes the patent.

An assignment transfers to the assignee the inventor's interest in the patent or an agreed portion of the interest, and the assignment is effective throughout the United States.

If the entire interest in an invention, or in a patent already applied for by the inventor, is assigned to another party, the patent will be issued to the assignee. If the assignee is to hold only a part interest in the invention, the patent will be issued to the inventor and assignee jointly. However, in such a case, the assignment must have been filed with the Patent Office not later than the date of payment of the final fee for the patent.

\(^{30}\) A lump-sum payment made for a license by the licensee can be treated as a capital gain as far as the income tax payable by the inventor is concerned. On the other hand, the receipt of royalties constitutes regular taxable income for the inventor.
Proper notarization will serve as an acknowledgment of the execution of an assignment. Once recorded at the Patent Office, an assignment, even though bearing various conditions regarding payment, etc., is considered “absolute” and will remain effective unless and until canceled by the parties or by action of an appropriate tribunal.31

*Patent pooling* is an arrangement between patent owners for the interchange of patent rights so that they (or even some outsiders they designate) have the right to use any of such patents or to license others so to do.

*Package licensing* denotes an arrangement under which a patentee licenses others under one or more of his patents—sometimes under all of them. If all the patents are included in the package, this may avoid the keeping of complicated accounts relating to the use of the individual patents.

Under an agreement for *cross-licensing*, A agrees to license his patents to party B if he will agree in turn to license his patents to A.

In all the three arrangements discussed in the immediately preceding paragraphs, it is important that the purpose and operation of the agreements should not result in a full-fledged restraint of trade or in any other way be detrimental to the public interest.

One should not buy a patent or license privileges under a patent without looking up the patent records in advance, and he should have the advice of a competent authority regarding exactly what the patent covers. Furthermore, it is desirable to purchase a patent or to obtain a license for its use directly from the original inventor—not through some third party.

25-15. *Copyrights and Trade-marks.* Patents are not granted upon printed matter and trade labels or slogans. The author or the publisher may, however, “register” printed matter, thus securing protection against unauthorized copying of the material.

A *copyright* is somewhat similar to a patent in that a word, a symbol, a phrase, a title, a sentence, and even an entire book can be made the exclusive property of a qualified applicant for such uses as a trade-mark or an advertising slogan or to serve as part of a publication. The copyright may remain in force for twenty-eight years and is renewable for a certain period. The owner of a copyright may grant permission to others for the use of the protected material if he is so inclined. The importance of a copyright in the business world is obvious, and it is a subject deserving of careful investigation by those who have occasion to be concerned therewith.

A *trade-mark* is a convenient method for distinguishing manufacturers'  

31 In some instances, there may be a time limit set on the duration of the assign-
products. The trade-marked name or slogan is registered but not guaranteed; it is supposed to be reserved exclusively for the use of the owner and/or whomever else he may authorize. The exclusive right to the trade-mark will last twenty years and, like a copyright, is renewable. A trade-mark must be actively utilized; otherwise, the right will be lost. A man cannot obtain a trade-mark on each of a series of names or slogans which he thinks he may want to use at some time in the future, thereby preventing someone else from using them in the interim. He should attempt to secure a trade-mark only on such material as he intends to use in the immediate future.

It is reported that corporation A registered the word "cellophane" as a trade-mark. However, the word had been employed as a generic term to denote the transparent plastic film which is now known by that name. Corporation B subsequently manufactured the same or a similar product and sold it as "cellophane." Corporation A tried to stop B's use of this name. However, the court ruled that a generic term could not properly be registered as a trade-mark. It seems that corporation A should have called its product "cellophane film," "cellophane plastic," or something of that sort.

The foregoing decision means that one cannot secure a trade-mark on such a comprehensive word as "steel"; he might, however, accomplish his purpose by registering a descriptive name like "nickel-manganese steel" to describe a particular (and probably patented) kind of steel, i.e., one alloyed with nickel, manganese, and copper.
CHAPTER 26

Evidence

26-1. Introduction. The rules of evidence form an integral part of our system of justice. Innumerable cases before the courts have turned upon the admissibility of a single bit of evidence offered by a litigant as bearing upon a point in dispute. The present brief chapter will attempt to highlight a few of the basic evidential principles.

Despite their great importance in the over-all scheme of things, the rules of evidence (unlike, for example, the law of contracts or that of torts) can be classified as procedural or adjective law, rather than as substantive. While many of the underlying ideas are universally accepted, application of some of the evidence rules will vary from one jurisdiction to another.

26-2. Some Definitions. Almost everyone who has attended a trial or two or has watched a movie containing a courtroom scene will recall the lawyer's classic objection that certain information being offered by opposing counsel is "incompetent, irrelevant, and immaterial" and therefore should not be allowed on the record. The competency of evidence has to do with its appropriateness in the particular circumstances; thus, where the terms of a written contract are in dispute, the document itself would constitute entirely competent evidence of its contents. Relevant evidence is such as is pertinent to the matter in issue and thus might tend to influence the trier of the facts one way or the other. The materiality of evidence goes to its weight and significance; evidence is material if it appears that it would have a real bearing on the case.

The two great categories of probative material which may be produced in court are testimonial evidence and real evidence. The former can be readily subdivided into (1) direct and (2) circumstantial. When, as regards a fact in dispute, a witness can impart knowledge which he has acquired by means of his senses, the evidence he gives is direct; thus, a witness who has personally seen or heard something relevant and material to a point in issue is in a position to give direct evidence. Very often, however, it becomes necessary for litigants to rely heavily upon
a somewhat less satisfactory form of evidence, known as circumstantial. This type aims at establishing some collateral fact or set of facts from which the jury may reasonably infer the existence (or nonexistence, as the case may be) of the critical fact in contention. Examples of circumstantial evidence are legion. To mention just one, the fact of an accused's flight and related conduct is admissible as pointing to his apparent consciousness of guilt.

As distinguished from testimonial evidence (direct or circumstantial), real evidence involves observation by the tribunal itself. Thus, when a question arises whether a certain object is green or blue, the ideal proof of the true color would be the exhibit of the object to the jury. Real evidence is resorted to in an infinite variety of instances, one of the most familiar being the demonstration by plaintiff of the injury of which he complains. Where the approximate age of some individual is a material factor in the trial, personal inspection by the court or jury is often employed as a means of getting at the truth.

Documentary evidence comprises (1) public or official records and (2) private documents. The former category includes all writings made by government officials setting forth data which the duties of such officials require them to record. Public documents are evidence of the facts therein stated and, if properly authenticated (by seal or otherwise), are normally admitted without the testimony of the officer who prepared them. Admission on this basis constitutes an exception to the so-called hearsay rule, to be discussed in Art. 26-6. Any writings which do not qualify as public records are private documents, and before these can be received in evidence, the offeror must show that the paper was indeed duly executed by the person who is alleged to have executed it.¹

26-3. Function of Judge and of Jury. In cases heard without a jury, of course, the judge or judges (who are commonly referred to as "the court") handle all phases of the trial. When there is a jury, however, a problem arises about the respective prerogatives of judge and of jury. Broadly speaking, it may be said that questions of fact are for the jury, and questions of law are for the court. As usual, there are exceptions, the primary one being that the court will decide certain "preliminary" questions of fact, such as those necessary to its determination of the admissibility of evidence or the competency of witnesses. By way of illustration, the qualifications of a would-be "expert" witness constitute a preliminary factual question for the court. Another sizable group of facts which are treated as preliminary in nature and thus within the province of the judge are those which are subject to judicial notice. The latter term refers to a convenient doctrine by which the judge will

¹ There are a few exceptions under which proof of execution will be excused; e.g., the adverse party may concede due execution of the private document in question.
take official cognizance of a well-known fact without requiring the presentation of evidence relating thereto. In any given lawsuit, a proposition is indisputable when it has been judicially noticed. The range of things of which judicial notice will be taken is very broad indeed and includes such diverse items as the provisions of the Constitution of the United States, the existence of foreign governments, the sequence of the seasons of the year, standard weights and measures, and the kicking propensity of the mule.

The jury, for its part, decides upon the credibility of the witnesses it has heard examined (and, usually, cross-examined) and weighs the evidence presented.

Under the accepted theory of jury trial, there should be submitted to the jury only matters in dispute about which reasonable men could differ. If the evidence offered by one side so heavily overbalances that presented by the other that a jury verdict for the latter would have to be set aside as against the weight of evidence, the judge will direct a verdict in the first instance and never send the case to the jury. If, however, submission appears warranted, the court will charge the jury. Along with instructions regarding the substantive law applicable to the controversy, the charge usually includes a reiteration of the issues of fact which have been submitted to proof, a statement about which party has the burden of proof, and a more or less adequate summary of the evidence on the record.

26-4. Burden of Proof; Presumptions. The burden of proof is the task of proving a proposition either by a preponderance of the evidence, if the case is civil in nature, or "beyond a reasonable doubt," if the action is a criminal one. There is no question about which party has the burden of proof in criminal cases. Regardless of the nature of the defense, the prosecution carries the burden throughout the trial, and from this circumstance stems the well-known saying that "every man is presumed innocent until proved guilty." Though it is somewhat dangerous to generalize on the rule in civil cases, the situation raised by the pleadings is usually such that the plaintiff must take the initiative and persuade the tribunal of the truth of his allegations. Occasionally, the defendant's answer to the complaint will admit the several points raised by plaintiff but will set up additional facts by way of defense. In such circumstances, defendant has brought up the only matters in issue, and the burden of proof is, consequently, upon him. Incidentally, the burden of proof does not shift from one party to the other during the course of the trial. What does vary is the duty of going forward with the evidence at any particular stage.

It is imperative that the jury be correctly charged as to which side has the burden of proof, since the verdict must be against that side if
the evidence presented by the several parties is in equilibrium. Another important point regarding the burden of proof is that it is accompanied by the right to open and close the presentation of evidence and argument.

Some matters involved in a lawsuit are not subject to proof. We have seen that this is true with respect to facts of which the court will take judicial notice. It is likewise true of admissions, either as contained in the pleadings or as made in open court; thus, if defendant's answer admits the truth of an allegation in plaintiff's complaint, the latter need not introduce evidence in support of that particular allegation. Similarly, evidence is unnecessary to prove what is presumed, at least until the party adversely affected has taken steps to rebut the presumption. A good example of this latter proposition is afforded by the presumption of the innocence of an accused criminal. He may rely upon the presumption and decline to introduce evidence in his own behalf, at least until the prosecution has assembled a substantial case against him. Presumptions of law, some of which are conclusive and many more rebuttable, stem either from statute or the common law. The party against whom a conclusive presumption operates is prohibited from offering evidence on the point. A typical presumption of this sort is contained in Section 816 of the New York Penal Law, stating that infants under seven years of age are deemed incapable of committing crimes. The list of rebuttable presumptions of law is a long one. One illustration of the rebuttable type is this: Every negotiable instrument is regarded as having been issued for a valuable consideration, but, for any person except a holder in due course, the presumption may be rebutted.

26-5. Competency of Witnesses; Privileged Communications. As mentioned in Art. 26-3, it is part of the judge's function, in instances where a question has arisen, to pass upon the competency of prospective witnesses. Lack of mental capacity is probably the most common basis of disqualification, though the common law (as modified by statute here and there) affords other grounds as well.

For reasons of public policy, the law recognizes several relationships as confidential in nature and places in a privileged category certain information passing between the parties to such special relationships. In perhaps the typical jurisdiction, the list would include confidential communications involving husband and wife, physician and patient, penitent and clergyman, and attorney and client. If we take the last-named relationship as an example, we find that, unless the client waives his right to claim privilege, the attorney would not be allowed to divulge information which he and his client have exchanged in confidence and which pertains to the lawyer's professional services in behalf of the client. Likewise, the client himself cannot be required to testify about such confidential communications.
26-6. The Rule about Hearsay Evidence; Exceptions. Probably the greatest rule of exclusion in the law of evidence is the so-called hearsay rule, which is designed to keep out, generally speaking, all statements not tested by oath and cross-examination. Subject to a number of exceptions, some of the more prominent of which will be mentioned in the next paragraph, hearsay evidence (whether oral or written) will be excluded upon timely objection.\(^2\) Just what constitutes hearsay evidence? Where testimony about the existence of a fact is not derived from the personal knowledge or observation of the witness, but is based rather on a statement someone else has made, the evidence in question is hearsay.\(^3\) As an illustration, suppose Smith sues dentist A for malpractice. Testimony by the plaintiff about what dentist B had told him as to the condition of his mouth is hearsay. The second dentist should be called to the stand for direct questioning about what he had said, and the adverse party thus has an opportunity for cross-examination.

The hearsay rule serves in the average case to bar considerable testimony pertinent to the issues at hand. It would exclude a great deal more were it not for a rather lengthy list of exceptions to the rule. Illustrative exceptions include:

1. Dying declarations
2. Spontaneous utterances
3. Certain declarations of pain and suffering
4. Declarations against interest
5. Book entries made in the regular course of business

In criminal cases involving homicide, dying declarations of the late victim will be admitted despite the hearsay rule if they relate to the circumstances of the killing and if several other prerequisites are met, as follows: (1) the declarant, at the time the statements were made, must have been at the very point of death (i.e., in extremis) and must have entertained no hope of recovery; (2) the declarant, if living, would have been a competent witness. The justification for permitting dying declarations to come in is twofold: (1) the fact of impending death affords some guarantee that the statements are trustworthy; and (2) the declarant is unavailable as a witness, and evidence other than what he would have presented is difficult, if not impossible, to obtain.

\(^2\) Only in rare instances will a trial judge invoke on his own initiative a rule of exclusion.

\(^3\) Sometimes a point in issue will be whether or not a given remark by X was or was not made. Under such conditions, anyone who heard the statement made can testify to the fact. Such testimony is not hearsay, since no effort is being made to establish the truth or falsity of X's statement, but simply whether it was uttered.
Spontaneous utterances and involuntary expressions of pain and suffering represent two out of a number of parts of the res gestae doctrine which constitutes a broad exception to the hearsay rule. Just what the res gestae doctrine encompasses is apparent from the following language, contained in an ancient court decision:

“When the act of a party may be given in evidence, his declarations, made at the time, and calculated to elucidate and explain the character and quality of the act, and so connected with it as to constitute one transaction, and so as to derive credit from the act itself, are admissible in evidence. The credit which the act or fact gives to the accompanying declarations, as a part of the transaction, and the tendency of the contemporary declarations, as a part of the transaction, to explain the particular fact, distinguish this class of declarations.”

By way of an example in line with the above quotation, the general rule is that any witness who happened upon the scene of an accident can testify that the victim groaned or cried out. There exists a conflict of authority whether spontaneous declarations of a bystander are admissible along with those of a participant in the event.

Declarations against interest form a significant exception to the hearsay rule. Such declarations are admissible as a form of proof, if, at the time uttered, they were against the pecuniary or proprietary interest of the since-deceased declarant and if the latter had competent knowledge of the matter on which he spoke and had no real motive to misrepresent the facts.

By statute in some jurisdictions and under the common law in others it is possible to put in evidence a writing or report, prepared in the regular course of business, without having to call as witnesses all those who had a hand in the writing. Thus, the New York Civil Practice Act, Section 374a, reads in part as follows:

“Any writing or record, whether in the form of an entry in a book or otherwise, made as a memorandum or record of any act, transaction, occurrence or event, shall be admissible in evidence in proof of said act, transaction, occurrence or event, if the trial judge shall find that it was made in the regular course of any business, and that it was the regular course of such business to make such memorandum or record at the time

4 Res gestae means “things done.”
5 Lund v. Tyngsborough, 9 Cush. (Mass.) 36, 42.
6 The opposite of a declaration against interest is known in law as a self-serving declaration. The latter type is normally inadmissible when offered in favor of the party by whom made; otherwise, he would be in a position to create evidence for himself in advance of the trial. Although the foregoing is the rule in general, there are instances in which self-serving declarations are admissible—as, for example, where they are part of the res gestae.
7 This is the book-entries exception to the hearsay rule.
of such act, transaction, occurrence or event, or within a reasonable time thereafter. All other circumstances of the making of such writing or record, including lack of personal knowledge by the entrant or maker, may be shown to affect its weight, but they shall not affect its admissibility. The term business shall include business, profession, occupation and calling of every kind. The terms 'writing' and 'record' as used herein shall include a hospital bill provided it bears a certification by the superintendent, acting superintendent or other head of the hospital or by the controller or other responsible employee in the controller's or accounting office thereof that the bill is true and correct, that each of the items shown thereon was necessarily furnished or supplied and that the amount charged therefor is the fair and reasonable value thereof."

26-7. Admissions and Confessions. Where one of the litigating parties has in the past made some acknowledgment of fact or taken some action which contradicts the position he is adopting at the trial, proof will be received against him about such prior inconsistent behavior, and the proof is said to be in the form of an admission. The testimony relating to past conduct is introduced as probative evidence on points in dispute and in an effort to discredit the party involved by showing that he has "changed his stripes," so to speak. An admission need not have been against the interest of the declarant at the time it was made, but it must appear to be against his interest at the time of the trial. Another requirement is that the admission be used only against a party to the action or against his privies in interest. Technically, admissions represent still another exception to the hearsay rule. As is the case with other forms of evidence, the weight to be given a particular admission is for the jury's determination.

Criminal cases are often marked by the introduction of the accused's confession, a direct acknowledgment of guilt. To be admissible, the confession must have been given freely and not under the influence of threats or deception.

26-8. Best-evidence Rule. If it becomes necessary in the course of a lawsuit for one party to prove the contents of a writing, the document itself is the best evidence of its terms, and it must be physically produced (unless extenuating circumstances are present, permitting the introduction of secondary evidence). The best-evidence rule aims at eliminating some errors by minimizing reliance upon copies of an

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8 The affected party may—and usually does—offer an explanation of his change of position. He can do this through his own testimony or otherwise.

9 The "original" of the document, and not a "copy," is to be produced. But where "duplicate originals" of a contract have been executed, all are treated as "originals," and any one of them may be produced in court. In such a situation, absence of all the duplicate originals would have to be shown to the judge's satisfaction before secondary evidence (copies or oral testimony) would be proper.
original writing or upon recollections of a witness regarding the contents of the document in dispute. The rule pertains to all kinds of writings which are sought to be used for evidential purposes. Here is a common-place illustration: A sues B, alleging trespass upon A's ranch. If A is asked whether he really owns the property, an objection to the question will be sustained; title to realty cannot be established by oral testimony, since the deed is the best evidence.

There are a few unusual circumstances under which the rule is inapplicable. One such exception involves judicial records and public documents. Because removal of such records would result in inconvenience to the public at large and would create the danger of loss, pertinent entries in public documents may be proved by means of certified copies.

Apart from the relatively few situations in which the best-evidence rule does not apply, there are extenuating conditions (referred to in the first paragraph of this article) under which production of the original document—otherwise necessary—will be dispensed with and secondary evidence allowed. Adequate excuses for inability to produce the original writing include its loss or destruction and the fact that it is unavailable because it is outside the jurisdiction of the court or is in the possession of the uncooperative adverse party. If one of the foregoing explanations can be shown to pertain, a foundation exists for the introduction of secondary evidence, i.e., (1) a copy of the instrument or (2) oral testimony from a witness who remembers what the writing says.

26.9. Parol-evidence Rule. Almost invariably the parties to a written instrument will have engaged in a number of preliminary talks or negotiations which eventually culminate in the execution of the document itself. The parol-evidence rule holds that testimony about such prior conversations is inadmissible to contradict or vary the terms of the writing, which latter speaks for itself. The rule is generally regarded as a salutary one, giving effect to the supposed intention of the parties—to protect themselves from the uncertainties of oral testimony by reducing their agreement to writing.

In common with practically every rule in the field of law and elsewhere, the parol-evidence rule has its exceptions. For one thing, it is not unusual for the parties to a written instrument to regard it as only part of their contract. In such circumstances, many decisions have permitted the introduction of parol evidence not to vary the terms of the

26 The parol-evidence rule does not preclude testimony as to a collateral, independent oral agreement between the parties, even though same relates to the very subject matter as the written contract and was made at about the same time. Similarly, the rule would not operate to keep out oral evidence proving a new agreement (with its own consideration) which purports to replace the written document in suit or to modify it in some fashion.
writing but to show the complete understanding of the parties. Another situation often described as representing an exception to the rule is this: Parol evidence will be admitted whenever its purpose is to show that no valid contractual obligation ever existed in the first place—perhaps because of want of consideration, or because of fraud in the inception. It could be said that everything depends upon the reason for the offer of parol evidence. If the effort is to modify or alter an admittedly valid contract, the evidence is objectionable. If the purpose is to show that the apparent contractual obligation is not binding because the agreement is invalid in law, the extrinsic evidence should be admitted. By the same token, where the validity of a written document has been attacked, parol evidence *sustaining* the contract will not be excluded.

There are a few miscellaneous circumstances in which oral evidence is admissible to help in the interpretation of an instrument in writing. Thus, parol evidence is proper as a means of identifying the parties to the contract and of showing the capacity in which each acts. If the language of the writing is unclear to the court—perhaps technical terms are employed, or words peculiar to a certain local area—explanation by oral testimony is appropriate. And parol evidence of circumstances attending the execution of the written document may be needful to show the intentions of the parties, where identification of such intentions is important and is not made clear in the writing. There are additional circumstances of the sort mentioned in this paragraph, but the several listed herein will suffice as illustrative.

The parol-evidence rule, as we have seen, precludes testimony in contradiction of a written instrument whose terms and conditions the litigants have put in issue. It should be pointed out that the rule affects only those who were parties to the writing and their privies. The parol-evidence rule has no applicability in so far as strangers to the instrument are concerned. The rule cannot be utilized in favor of or against such outsiders.

26-10. Opinion Evidence. While it may be stated as a general proposition that witnesses are supposed to confine their testimony to facts and avoid expressing conclusions and opinions, it is nonetheless true that a great deal of legitimate opinion evidence finds its way into the average trial. We shall first consider the conditions under which the ordinary lay witness may give his opinion for the record, and then turn to the so-called expert witness.

One way of putting the matter, as far as the ordinary (i.e., nonexpert) witness is concerned, is to say that his opinion based upon observation will be admitted when the nature of the subject to which the opinion

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11 Parol evidence cannot supply any of the terms of a contract which the applicable statute of frauds requires to be in writing.
pertains is such that no more satisfactory form of evidence is obtainable. Not infrequently, a witness will have no way—other than by giving what amounts to a conclusion or opinion—of expressing himself about what he saw or heard. Suppose a point in dispute relates to whether a particular sound represented the report of a gun or the backfiring of a car. The lay witness should be entitled to give his opinion, since he cannot be expected to separate the various indications upon which he reached his conclusion from the very conclusion itself. In other words, it is often impossible for a witness—if he is prevented from stating anything in the line of an opinion—to detail all of what he saw or heard and to do it in a fashion which would enable the jury (who were not, after all, eye-witnesses to the facts being described) to reach reasonable conclusions. Accordingly, as a practical necessity, the ordinary witness may express an opinion on a number of subjects which do not call for particular skill or background. The list includes, among many others, such matters as quantity, color, weight, estimated age of a person, and identification of an individual by his voice.

An expert witness is one who has, through study or experience, acquired such special skill or knowledge on the subject under consideration that he can assist the jury in understanding and resolving points which the untrained layman is unable to handle without guidance. The real distinction between the expert witness and the nonexpert variety is that the former gives the results of a process of reasoning which can be mastered only by those of special skills, while the nonexpert testifies about subject matter readily comprehended by the ordinary person and gives the results of a reasoning process familiar to everyday life.

The position of the expert witness varies with the type of case. In some situations he will testify only to facts, and in others it is proper for him to state his conclusions as well. The following quotation from an old New York case\(^\text{12}\) does a good job of drawing the dividing line:

"It may be broadly stated as a general proposition that there are two classes of cases in which expert testimony is admissible. To the one class belong those cases in which the conclusions to be drawn by the jury depend upon the existence of facts which are not common knowledge and which are peculiarly within the knowledge of men whose experience or study enables them to speak with authority upon the subject. If, in such cases, the jury with all the facts before them can form a conclusion thereon, it is their sole province to do so. In the other class we find those cases in which the conclusions to be drawn from the facts stated, as well as knowledge of the facts themselves, depend upon professional or scientific knowledge or skill not within the range of ordinary training or intelligence. In such cases not only the facts, but the conclusions to which they lead, may be testified to by qualified experts. The distinction be-

\(^{12}\) *Dougherty v. Milliken*, 163 N.Y. 527, 533 (1900).
tween these two kinds of testimony is apparent. In the one instance the facts are to be stated by the experts and the conclusion is to be drawn by the jury; in the other, the expert states the facts and gives his conclusion in the form of an opinion which may be accepted or rejected by the jury.

"... If the knowledge of the experts consists in descriptive facts which can be intelligently communicated to others not familiar with the subject, the case belongs to the first class. If the subject is one as to which expert skill or knowledge can be communicated to others, not versed in the particular science or art, only in the form of reasons, arguments or opinions, then it belongs to the second class."

When a party offers a witness as an expert on some matter in issue, the trial judge must pass upon the necessity for expert testimony and must also decide whether the prospective witness has the special skill or experience to qualify as an expert. Unless the other side concedes the point, the offering party must proceed to establish the standing of his would-be expert, and opposing counsel is entitled to cross-examine about the claimed qualifications.

The opinion of an expert may be founded upon facts derived from his own knowledge or observation—which facts he states to the jury before giving his conclusions—or the opinion may be based upon hypothetical questions embracing a set of assumed facts, some of which may have come out in testimony produced earlier in the trial. Quite often the expert will be asked to explain the reasons for his opinion.

As we have seen, every expert opinion is supposed to rest upon fact. If a hypothetical question is involved and the facts are of an assumed nature, the weight of the opinion will depend upon the jury’s finding whether the assumed facts were ultimately proved. If, on the other hand, the conclusions are based upon the expert’s personal knowledge of the facts, the average jury is inclined to have somewhat more confidence in the opinion expressed, though the trustworthiness of the witness is yet open to consideration. The adverse party, of course, is very likely to try to undermine the jury’s confidence in “expert number one” through the introduction of contradictory testimony by other experts.

Chapter 27 is devoted to a further discussion of the function of the expert witness and deals specifically with the problems of an engineer cast in that role.

While the admissibility of expert testimony is for the court to determine, its weight is for the jury.

When the expert has personal knowledge of the facts which form the foundation for his opinion, the court may allow him to state the conclusion without first detailing the underlying facts. However, such facts may then be elicited either on direct examination or on cross-examination of the witness.
CHAPTER 27

The Engineer
as an Expert Witness

27-1. Introduction. Engineers are not infrequently called upon for court appearances in the role of expert witness. Their testimony is in demand in many types of lawsuits, and an engineer who is called upon a number of times may well find that his reputation and professional future depend in large part upon how well he conducts himself on the stand.

Engineers may also be asked for testimony and statements of opinion in (1) arbitration proceedings, (2) commission hearings, (3) legislative-committee hearings, (4) conferences pertaining to contract disputes, (5) hearings to establish valuations of property and rates for services, (6) hearings before zoning boards, (7) public or private meetings to consider matters relating to building codes, and (8) many other proceedings which are not held in courts but which are nevertheless of great importance. The ability of the individual to express his ideas cogently and to conduct himself well while serving in the capacity of an expert witness and while giving factual evidence or opinions under difficult circumstances may be a great asset to him.

An engineer should not appear in court as expert witness on a contingent basis, i.e., with his remuneration depending upon whether or not "his side" proves victorious. He should render his service at a fixed per diem rate which has been agreed upon and which will apply regardless of the outcome of the case. And the engineer should be prepared, if circumstances warrant, to state in open court the arrangement concerning his fee.

27-2. The Function of an Engineer in a Lawsuit. Apart from the possibility of being himself a party, an engineer may have one or more of the following functions to perform in connection with a lawsuit:

Knowledge that the engineer is working on this basis will be likely to make the jury believe that he is strongly prejudiced in favor of the side which engaged him.
1. He may be called upon as an expert witness to explain some technical matter or to give his opinion regarding a particular point at issue.

2. He may assist his attorney during the latter's cross-examination of witnesses for the opposition. He may do this by sitting at the counsel table and making suggestions to the attorney regarding the questions to be asked and weak points to be attacked in the statements of the opposing witnesses.

3. He may serve as a general assistant to the lawyers for his side in the development of their case and not appear at all in the courtroom.

When serving in one of the first two capacities listed, the engineer should be in constant attendance at the proceedings because what has been said by others may have a great deal of effect upon what he tries to bring to the attention of the court in his own testimony or indirectly through advice and suggestions to his attorneys.

27-3. Knowledge of Subject. Above all things, one should not attempt to act as expert witness regarding a matter about which he is not well informed. If he does so, the opposing lawyers and their engineering advisers will be likely to detect his shortcomings, and the result may be the utter discrediting of his testimony and the discomfiture of himself. It is amazing what unexpected complications will develop during a trial or hearing. An expert witness will doubtless need to call upon all the knowledge, experience, and breadth of information he possesses.

A witness on the stand is fair game for opposing counsel and is in no position to try any bluffing. Erroneous statements open the floodgates; hence a witness should avoid making broad assertions unless he is sure of his ground. When a witness is asked for a fact rather than an opinion and he cannot answer with assurance, it is best to say, “I do not know.” One individual is not expected to have answers to everything, and occasional admission of ignorance is no disgrace.

In this discussion the word “his” in referring to a lawyer or an attorney and expressions of similar import refer to the person or persons who have caused the witness to appear in support of the position they represent.

Probably his lack of the necessary qualifications would be discovered anyway in the preliminary questioning. In this connection see Art. 27-7.

There have been cases wherein the supposed “expert” witness actually weakened his side by ill-advised answers on the stand. In one instance, a witness had testified to certain facts. The opposing lawyer then asked him about some related things which were really matters handled entirely by another man. In trying to answer without prior study of the points in question, the witness made a statement that he subsequently had to admit was in error. This episode gave the cross-examiner an opportunity to criticize the witness severely and thus to cast doubt upon his credibility.
It is also obvious that a witness should not attempt to give a general opinion or conclusion based upon mere assumptions, instead of checking the facts first. For example, an engineer testified that certain equipment and expense would be necessary if a dam were to be built in the river adjoining a particular industrial plant. He offered this opinion without having seen the final plans for the proposed construction. Later on, the plans were presented in court, and they proved to be much different from what he had assumed was the case. His testimony was made to appear ridiculous in the light of the actual situation.

27-4. Commencing a Suit. The attorney for a would-be plaintiff in an action may want the help of an engineer in preparing a formal complaint outlining the various allegations which plaintiff will be prepared to prove. Preparation of this important document entails a thorough study of the entire situation and of the evidence ostensibly available. Even at this early juncture, the expert advice of engineers and other technicians can help the attorney in deciding what prospective evidence is—and what is not—of value in establishing various relevant and complicated engineering points.

Some time ago a certain gas explosion occurred because of a cracked pipeline. Four persons were killed, one house was wrecked, and a second house was badly damaged. Counsel for the families of the deceased called in an engineer and also an expert in applied biodynamics. Together the three parties made a careful study of the evidence and laid the groundwork for filing a lawsuit against the gas company. Before instituting suit, the attorneys assured themselves that their two expert advisers really believed that the prospective plaintiffs had bona fide cause of action. Obviously, close cooperation between attorneys and their technical advisers is a matter of importance from the very outset.

27-5. Necessity for Honest Advice. When an engineer is assisting an attorney in the study or preparation of a case, the former should be absolutely honest and straightforward in giving his opinions and advice. The engineer and the attorney have diverse fields of knowledge and must rely upon each other to a considerable extent. Even though the engineer's opinion on matters in his own field of activity may not coincide with what the lawyer wishes to hear, the engineer should nevertheless express his ideas as completely and as convincingly as he can. If any serious flaws in the case can be found, it is better to detect them in advance (even if it means dropping the suit) than to have them brought out by the opposition at a particularly embarrassing stage of the trial.

By way of illustration of the above, consider the following. A man built a cinder-block house about ¾ mile from a stone quarry. By the time two years had elapsed, the front porch and one corner of the house

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8 He had seen only preliminary layouts sometime in the past.
had settled and cracked badly. The interior plastered partitions had settled near the center of the structure, and they also were badly cracked. The owner engaged a lawyer to sue the quarry operators for damages, claiming that the cracks were caused by the blasting of rock. The attorney called in an engineer to assist in some research. The engineer made a careful study of the situation and learned that the owner had built the house himself, without engineering or architectural aid and without the assistance of a contractor. The porch and corner that settled had been founded upon newly filled-in soil, the subsequent compaction of which had evidently caused their subsidence. The floor in the center of the house was supported upon a central wooden beam which had shrunk at least $\frac{1}{4}$ in. in drying out, thus causing the partitions to sag at the center, whereas they were supported upon unyielding masonry walls at the outer edges. When the engineer advised the owner and the attorney of his findings, it was decided to forgo the suit because the situation appeared hopeless. The engineer’s advice had saved the owner considerable money which would otherwise have been spent in fruitless litigation.

In another instance, the construction of a power dam was, without doubt, going to cause the flooding of a portion of a valuable industrial plant site. Since direct negotiations between the parties had failed to effect a settlement, the owners of the plant brought a “friendly” suit against the power company in order to have the court determine the payment which the power company should make to the owners of the property to compensate them for the “damages.” The attorneys for the power company called in an engineering firm to design protective works for the site, intending to offer the plant owners the estimated cost of these works as a settlement. The engineers insisted that, although complete protection would cost more than a less effective construction job, they would not present to the court a plan which they could not defend wholeheartedly, because, if their plan could be proved inadequate by the opposition, the power company might be in a very unfortunate position and, as a result, might have to pay even more than the cost of really proper protective facilities. The lawyers for the power company finally approved this idea. Subsequently, the hearings revealed the wisdom of this course, because the opposing attorneys were unable to prove that the proposed construction would constitute inadequate protection. A settlement substantially equal to the estimated cost of the proposed works was ordered by the court.

27-6. Preparation for Taking the Stand. It is generally essential that the engineer who is to act as witness should first become thoroughly familiar with the over-all case and particularly with his special part in it. This normally involves close advance cooperation with the attorneys
for his side. There should be a definite understanding about what the expert will be asked, what information he is in a position to give, and what his knowledge or experience limitations may be.

In a protracted case, it is desirable for a prospective witness to be on hand during the entire trial so that he will have a firsthand knowledge of what has been said up to the time of his taking the stand. This procedure may also enable him to suggest to his attorneys certain questions they might ask him in order to bring out in concise fashion the desired information. The witness himself (while off the stand) should take the initiative in bringing to the attention of counsel for his side any point he thinks is pertinent and useful. He should not expect attorneys to have firsthand knowledge of the technical aspects of engineering.

27-7. Qualification of Witness as an Expert. When an engineer-witness takes the stand, he (like any other witness) will give his name and address and will be sworn in. Then he will be asked for information about his background and qualifications. The usual questions relate to his education, practical experience, writings, special activities of pertinence, accomplishments in his profession, and technical organizations with which he is connected. It is helpful if the witness can state that he is licensed as a professional engineer (or architect) in one or more states. The public recognizes that the licensed engineer has had to pass suitable examinations to prove his ability in the art and practice of his particular branch of work and that he is bound by codes of ethics to conduct himself in accordance with proper moral and professional principles.

Here are some of the questions asked by an attorney during the "qualification" of an engineer as an expert in a suit involving waterworks (the witness having taken the oath "to state the whole truth and nothing but the truth").

What is your occupation?
What college did you attend?
What degree or degrees have you received?
Are you a licensed professional engineer?
In what states do you hold a license?
To what professional societies do you belong?
Where and by whom are you employed?
What is the title of your position?
What is the general nature of your duties in that position?
Will you state briefly an outline of your professional experience?
What are some of your other activities in your profession?

*The lawyers, of course, may decide not to use the information or ideas suggested by the engineering expert, but the latter will have done his part by alerting counsel.
Have you written any books on engineering subjects?
If so, what are they?
Have you written any articles for engineering periodicals?
If so, to what subjects do they apply in general?
Have you ever worked upon the construction of waterworks?
Has that work been in the office or in the field?
Please explain in some detail the character of this work and your responsibilities in connection with it.

The apparent qualifications of the expert will have considerable bearing on the weight his opinion carries with the trier of the facts. The opposing attorney may challenge the standing of an expert witness on the basis (1) that he has not had adequate training in the particular field concerned, (2) that he is too young to have had satisfactory experience, (3) that he is too old (perhaps retired) and out of touch with the most recent developments in the particular field, (4) that his training is too broad on the one hand or too specialized on the other, or (5) that he is too closely connected with the case to have an unbiased opinion. If at all feasible, the expert chosen to testify should be a recognized authority in his field.

The importance of the relative qualifications of expert witnesses may be illustrated by the jury’s problem in judging the weight of opposing testimony given as “opinion” evidence in connection with the failure of a bridge during its erection. The attorney for the plaintiff asked “his” witness, “In your opinion what was the cause of this failure?” The witness replied, “I believe that the timber piles under the erection bent were not properly braced in a lateral direction. This allowed the erection bent to ‘jackknife,’ which means that it buckled sidewise at the top of the piles.” The second expert witness, called by the opposition, stated in reply to similar questioning that he believed the temporary steel bent or post on top of the piles failed, thus causing the structure to fall, and that the piles were braced properly. The jury was thus faced with conflicting expert opinions. Since it was impossible, after the structure had fallen, to obtain absolute, factual proof of the cause of the collapse, the jury’s finding would depend in large part upon its estimate of the qualifications and credibility of the respective expert witnesses.

27-8. Direct Examination. When an expert witness first takes the stand, the attorney for the side which brought about his presence will conduct the so-called direct examination. He will ask questions designed to bring out certain points he believes will be relevant and helpful in establishing his case. As previously mentioned, the substance of what the witness can be expected to say on direct is generally no secret to “his” attorney. The principal function of the witness will be either (1) to bring out technical information or opinions in support of his side
or (2) to present involved facts or expert opinion, the tendency of which is to refute statements made by witnesses for the opposition.

"His" attorney may find it advantageous to recall the witness to the stand several times during the course of the trial, usually to take issue with something brought out by the adverse side. This type of return appearance is called redirect.

The exact wording of questions asked the witness is a very important matter and one for the lawyer to handle. The answers should be direct ones and should be carefully given. For example, here is a question asked in one case: "Do you have an opinion, based upon your experience and upon reasonable probability, regarding the likelihood of uneven settlement of a structure erected upon the soil in question?" The witness replied, "It will almost inevitably settle unevenly." That is not a proper answer; the witness should have said, "Yes." Then the lawyer would surely ask, "What is that opinion?" Whereupon the witness could have replied, "The structure would be likely to settle unevenly."

When the expert has not actually observed the facts on which his attorney would have him base an opinion, then the lawyer may have to get his conclusions by asking one or more hypothetical questions which will enable the witness, through his answers, to make the desired statements.

Sometimes a witness will give testimony in reply to instructions from his attorney rather than as an answer to a direct question. For instance, a lawyer said to a witness: "Have you ever designed an important pipeline?" The witness replied, "Yes." The attorney then said: "Please describe some of the most important pipelines which you have designed." The witness then gave a general description of such structures.

A witness should be very careful to make certain that he understands the question before he tries to answer it. He may ask to have the question repeated if he is not sure of what it was. To illustrate: In connection with the protective works referred to in a previous article, a pumping station was to be installed by the power company for the benefit of the plant owner, and it was to be operated by the latter. The witness had been told in advance that his attorney would ask him if this pumping equipment would be inexpensive to operate. Actually the question as asked was: "Will this pumping equipment be expensive to operate?" The expert, being a bit inattentive, replied: "Yes, we designed it that way." To the embarrassment of the witness, the lawyer said, "I believe that you misunderstood my question." Then he repeated it, and the witness was allowed to correct himself.

To the extent possible, the expert should give his testimony in generally understood language, rather than in highly technical terms. He should aim at making himself clearly understood by the judge and jury.
and, accordingly, should try to keep his statements (and any illustrations which he uses) within the range of common experience.

27-9. Cross-examination. After completion of direct testimony by a witness, the opposing attorney will conduct his cross-examination. Naturally, this attorney's objective is to break down or nullify the effect of the direct testimony given by the witness. The attorney may try in various ways to discredit the "expert" and will likely ask questions intended to confuse him, to get him to contradict his previous statements, and to find any discernable weakness in the position he took on direct examination.

This undergoing of cross-examination can be an ordeal, since the witness is very much alone on the stand. If the cross-examiner can prove, through the interrogated witness or through other witnesses, that even a small part of the direct testimony given by the witness was inaccurate, this circumstance is likely to shake the jury's confidence in such a witness.

The expert should guard against being drawn into an argument with the opposing attorney. He should also endeavor to keep from making statements that are so broad and general that their applicability to the point at issue can readily be challenged. He should also guard against making any irrelevant statements that may becloud the issue or serve as openings for the opposing lawyer to discredit the witness.

The following episode illustrates the role of cross-examination in discrediting a witness. A financial expert had been asked on direct to testify regarding the interest rate that should be used in estimating the capitalized value of certain annual expenses that a manufacturer could expect to incur in the future. He stated that a yield of 2 1/2 per cent was the maximum obtainable from really prudent investments. Under cross-examination the witness admitted that he was trustee of certain funds and that these monies were currently invested so as to earn interest and dividends ranging from 3 to 4 per cent a year. The witness-trustee was thereupon asked if he considered such monies prudently invested, and he naturally had to admit that such was the case. Thus, his previous statement that 2 1/2 per cent was a maximum return on a "prudent" investment was made to appear foolish.

Absolute honesty under cross-examination is essential even though it may occasion temporary embarrassment. A witness, testifying in a suit for damages, was asked by the opposing attorney if he had seen a certain 24-in. pipeline to which he had supposedly been close. In an

7 Apart, of course, from such help as his attorney can afford through timely objections to questions.
8 The expert's own attorney, by raising thoughtful objections, can help keep testimony pertinent.
attempt to trip the witness, the attorney inquired, "Didn't you see that big pipeline lying there on the ground?" The witness replied, "No, I was examining the topography and water levels to the south of that area." This admission may appear to show a lack of keen observation on the part of the witness, but, if the latter had made a blind guess at the actual condition (which is really lying under oath) and had answered in the affirmative, his honesty and reliability would obviously have been open to question when independent evidence later established that the pipeline was buried underground and could not have been seen.

It is customary for the engineers assisting the opposition to pass notes to their attorneys as the trial proceeds, suggesting troublesome questions that should be asked a particular expert for the other side, or suggesting that one of them should be called or recalled to combat some aspect of the other side's evidence. At any rate, before the cross-examination of any given expert is finished, opposing counsel will be satisfied that they have impaired the effect of his direct testimony or that they cannot succeed in such an endeavor.

One may be sure that, during intermissions and adjournments, the opposition will be looking for assailable weaknesses in a witness's testimony. Should they succeed in their search, the witness will become aware of the fact when he is called for further cross-examination. He should, of course, look for such flaws himself as a means of preparing for any possible reappearance on the stand.

If a witness is asked questions which he cannot at once answer completely, it is sometimes possible for him to ask for the privilege of consulting his attorney, other engineers, or available data, in order to make sure that he will be answering correctly. One may also ask for a reading of certain previous testimony in order to refresh his memory. Such devices are especially useful when complicated figures or statements made earlier in the trial are involved.

27-10. Objections. While a witness is under examination by the attorney for his own side, opposing counsel will be paying close attention so that he may raise pertinent objections to questions he finds embarrassing or to answers which he wishes to have stricken from the record. Under the rules of evidence there are a number of grounds upon which to base possible objections. Should the judge overrule a particular objection, of course, the question concerned will stand as originally pronounced (or, perhaps, as rephrased), and the witness will be directed to make answer.

In a typical case a witness was asked his opinion of a certain dam's

9 As was true with direct testimony, a witness may be recalled repeatedly for additional cross-examination (termend recross).

10 The court will rule on the request.
construction. The opposing lawyer objected, asserting that the witness was not experienced in the design of dams and knew nothing about the one in question. A series of further questions by the first attorney sufficiently established the qualifications of the witness respecting the subject under discussion, and the objection was not sustained.

Having a number of objections raised during his appearance may prove very disconcerting to the witness who had planned to make certain statements in reply to anticipated questions. The problem for his attorney becomes one of rephrasing those questions about which valid objections are interposed so as to bring out the desired information in such form as will meet with the court’s approval.

A cast-iron pipeline carrying illuminating gas broke under a street, causing an explosion and a serious accident. A witness for the plaintiff had worked upon many cast-iron pipelines carrying water or sewage, and he had worked upon many cast-iron drainage lines. When the plaintiff’s lawyer asked the witness about what constituted good practice in the construction of cast-iron pipelines, defendant’s attorney objected on the ground that the witness had not worked on a cast-iron gas pipeline. It then remained for the plaintiff’s lawyer to show that what is necessary to constitute good construction for the support and protection of a water main under a street is equally necessary in the case of a similar pipeline carrying illuminating gas.

It is certainly of great importance for the lawyers to obtain expert witnesses who have such extensive experience, such knowledge of the particular subject matter about which they are to testify, and so fine a reputation that their qualifications cannot be effectively questioned by the opposition.

27-II. Conduct in Court. When in the courtroom, a witness should conduct himself with dignity and confidence. It is clearly desirable for an expert witness to create the impression that he knows his business, that he is earnestly trying to reveal the facts as he sees them, that he is honest, and that he is confident of the accuracy of his testimony. He must be thoroughly competent and able to defend his opinions. He must be absolutely fair and able to convince the court of his fairness. He should not attempt to be an expert witness for a plaintiff (or defendant, as the case may be) whose general position—at least on the matter about which expert testimony is desired—he cannot wholeheartedly endorse and support.

A witness on the stand ought to be courteous at all times, keeping his self-control and good manners. Although he may be under nervous tension, he should not reveal this by his actions. And he must not allow himself to become angry on the one hand or intimidated on the other. If he is sure of his ground, he need not be afraid of opposing counsel be-
cause he will realize that he probably knows far more about the subject than does the lawyer.

In court a witness should be dressed neatly and in good taste, appearing as a gentleman in every respect; all of this will help create confidence in his ability. During questioning, a witness should look directly at his interrogator, or occasionally at the judge or jury. He should make short, clear answers. If the opposition lawyer tries to overpower him with rapid-fire questions, the witness may ask for the repetition of each question and may answer each one individually. If the cross-examiner becomes abusive, the witness’s attorney may appeal to the court. The witness should not allow opposing counsel to wrest control of the situation from him or demoralize him to the extent that he will make some unwise, untrue, or contradictory statement.

A prospective expert witness should not be reticent about appearing in court and expressing himself before a crowd. He should be mentally prepared for his task and able to think clearly and speak effectively under difficult circumstances.

A witness ought not to blindly accept unproved facts as true nor indicate agreement with counsel’s statements unless the expert believes them to be correct. He should be on guard against leading questions. When he cannot answer a question with a direct “yes” or “no,” he should state that he cannot make an unqualified answer. However, he can ask for permission to answer with an explanation. If the witness is not positive regarding his answer, he can say, “To the best of my knowledge. . . .”

A witness should not try to make his answer cover so many fine points that it will be confusing to the judge and jury. He should try to emphasize the important features. Later, if necessary, he may arrange with his attorney to have the latter ask him additional questions which will bring out any further details desired. Similarly, it is dangerous for a witness to volunteer more information than the questions call for. He may thereby unwittingly give the opposition something to attack or to use as a red herring to divert the attention of the judge and jury from the really pertinent information.

The witness should not be unduly partisan when he is on the stand. It is in accordance with human nature for the expert to experience some partisan feeling in favor of the side for which he is appearing, but it

[21] Leading questions are those which are so worded as to suggest their own answers. For example: “When you inspected the site, did you notice the fine, water-bearing sand running into the excavation?” This form of query virtually puts words in the mouth of the witness. The question would properly be put in this fashion: “When you inspected the site, what did you see?” Leading questions may be acceptable in direct examination regarding preliminary matters and in cross-examination, but not at other times.
is incumbent upon him to maintain a sense of honesty. He should
not say anything which is incorrect or misleading. If he inadvertently
does so, a correction at the earliest opportunity is indicated. Of course,
false evidence deliberately given amounts to perjury.

Before and during the actual court proceedings, the expert witness
will do well to remember that the lawyers on his side are trying, partly
through his testimony, to bring out certain points relating to the issues
at bar, which points they think might help tip the scales in favor of the
client they represent. The opposing lawyers, of course, will be en-
deavoring either to preclude the recording of any damaging expert testi-
mony in the first place or to attack its accuracy or value in some fashion
once it has "come in."

It goes without saying that one engineering expert can, with complete
propriety, disagree with a colleague's expressed opinions, but ethics and
good taste stand in the way of any disposition to defame the other
engineer.

27-12. Presentation of Information. When giving evidence in a trial,
a witness should remember that the court stenographer is taking down
what he says and that the written record must be depended upon for
future reference and as the foundation for a possible appeal to a higher
tribunal. Therefore, he should be sure to speak slowly and distinctly
so that the record will be intelligible. To illustrate a related point, as-
sume that a witness is making reference to a map which shows in red
the location of a certain pipeline. The map has previously been placed
in evidence and bears a certain exhibit number. Suppose that the wit-
ness points to a location on the map and says, "The pipeline is here."
Those present in the courtroom will understand his testimony, but the
record will mean nothing. Actually, the witness should have said
something like this: "The pipeline is shown on Exhibit K by the red
line extending eastward from the water tank to the northwest corner
of the building designated on this map as No. 3."

Furthermore, an expert witness should bear in mind that hearings on
engineering matters will doubtless involve technical terminology with
which the court stenographer is not familiar. It is the courteous thing
for the witness to spell out such words as he thinks necessary, thus mak-
ing certain that they are recorded correctly. When an engineer is trying
to explain or illustrate some technical matter to a judge or jury, he
should remember that their background and experience are probably
much different from his own. What is a commonplace thing to him may
be utterly unknown to them. His terminology and examples should be
chosen with this general situation in mind.

"Presumably, the lawyers will move to clarify the record, but the witness can
help the situation immeasurably by intelligent testimony in the first place."
In one instance, a lawyer asked an expert witness to explain what the latter meant when he said that a certain piece of cast iron "probably failed because of fatigue." The witness replied: "Let us assume that we have a 2 by 10 plank lying flat on two blocks 15 ft apart. A man who weighs 150 lb steps on the center of the plank. It sags 3 or 4 in. but does not fail. Now, if the man steps on and off the plank time and time again, it may be that eventually the plank seems to get tired out and finally breaks under the weight of the man whom it supported safely so many times before. In a way, that is what I mean by 'fatigue.'" The example selected was sufficiently down to earth that the average layman could readily see the point.

The use of maps, charts, models, and similar materials is often helpful in illustrating what a witness has to say. However, such maps, etc., should be simple, attractively prepared, and readily understood. They should be large enough to be visible at a distance or should be in such form that they can be passed around to all persons entitled to see them. A witness will not make a favorable impression on the court if he tries to illustrate points by reference to visual aids which are not easily seen and understood by the judge, jury, and other interested parties.

The engineer must be sure that all materials which he intends to use in court are correct to the smallest details and are consistent one with another. In one instance of litigation resulting from a contract, an engineer (expert witness) discovered that there was a reference in the specifications to something that had been removed from the drawings prior to letting of the contract. Both the specifications and the drawings had been put in the record as exhibits. During a recess, the witness told his attorney about the discrepancy. The latter took the initiative and immediately brought the matter to the court's attention. The opposing attorneys attempted to show that the inconsistency between specifications and drawings was evidence of poor preparation of the contract documents. However, they accomplished little or nothing compared to what they might have achieved if the engineer's lawyer had not voluntarily exposed the situation.

If a witness can use some statements made by the opposition's witnesses to prove his point, this is helpful in that the other side cannot very well attack the validity of their own source of information. The foregoing possible opportunity reveals one of the reasons why a witness may benefit if he attends all the trial sessions preceding the giving of his own testimony. In one case, witness A had stated that the building of a proposed dam would cause sufficient flooding of part of the plaintiff's land to destroy its use (and, therefore, sale value) as a site for a future industrial plant or for other structures. He claimed that this flooding would cause a decline of at least $50,000 in the value of the property
in question. Witness B, appearing for the defendant, showed the court certain records which revealed that the land in question had been flooded many times in the past when severe freshets occurred in the adjacent river. Witness B pointed out that, if flooding caused by the proposed dam would injure the sale value of the land, the similar and frequent flooding of this land by the river would cause similar loss of value of the property. Furthermore, since flooding of this land would undoubtedly recur many times in the future, the effect of the construction of the dam on the value of the land could not be very detrimental. Thus, witness B was able to use the statement by A to show that the asserted loss was not a fact.

In many cases it is necessary to present to the court the ultimate results of detailed calculations or even to explain the calculations themselves. It is best to have these sets of figures complete and in proper form so that they can be placed in evidence as exhibits. Upon being offered for the record, prospective exhibits have to be submitted for the perusal of the judge and of opposing counsel (who will doubtless show them to his engineering experts or other technical advisers).

27-13. Use of References. When an expert witness is trying to prove a point in an engineering matter during redirect, it may be very effective if he can mention some book written by a recognized authority in the field and cite therein, by page and paragraph, specific statements that accord with his own position. As a matter of fact, it sometimes seems that written material used secondhand in this manner is more effective than if the author of the book were to appear in person and repeat his published statements orally.

Books and similar material may also be used effectively by the opposition for cross-examination purposes. For example, the cross-examiner may ask the witness if he is familiar with A. B. Smith's book on structural design. The witness answers in the affirmative. Then the attorney may ask if Smith is a reputable and capable engineer. Upon receiving a second affirmative answer, the lawyer might point out that, on page 210, Smith makes a statement which flatly contradicts the position which the witness has taken on the point in question. This maneuver, of course, is designed to raise doubts in the court's mind regarding the accuracy of the witness's testimony.

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13 One should be very careful to avoid making hasty mental or written computations while on the stand. Under pressure, a witness may make errors that, to his chagrin, will later be pointed out by the opposition.

14 It is difficult to refute testimony that is thus substantiated, unless the opposition can find a contradictory statement by an equally eminent author.

15 On the other hand, under redirect, the attorney at whose behest the witness appeared may ask the latter if he is familiar with a book by C. D. Jones, who is also admittedly a reputable author in the field of structural design. Then, as a result
It is obvious that a witness must be on guard when writings are likely to be used against him. He should be prepared to state (1) whether a particular author is competent and a genuine authority on the subject at issue, (2) whether the written material (to which his attention is directed on the stand) is now out of date or really inapplicable to the case, and (3) whether other authors disagree with the one being quoted—with the result that the latter’s statements are of questionable value. The expectant witness should prepare himself as much as he can for cross-examination by imagining temporarily that he is on the opposing side and that he is trying to counteract the very testimony which he plans to give in court. This sort of exercise will help him get ready to meet anticipated attack from the opposing side.

The lawyers like to be able to cite to the court previous judicial decisions, to the extent that these are helpful in establishing a point or principle which favors their particular arguments. The other use of past cases, logically, is to refute contentions presented by the opposition. An engineer can be useful to his attorney in helping to determine which cases will prove valuable for citation purposes because the engineer will know their applicability to the technical subject at hand.

27-14. Depositions. There are occasional situations in which an expert witness is, for good and sufficient reasons, prevented from appearing in court. Arrangements may then be made to have his testimony recorded under oath on the outside. Direct and cross-examination will be conducted by the respective attorneys, and there will be opportunity for redirect and recross, all as though the witness were physically present in the courtroom. This recorded testimony is termed a deposition and will be read in open court so that the judge and jury may hear all the questions and answers. Of course, such a reading may not prove as impressive as would the same testimony given in person to the court, but it is certainly better than losing altogether the benefit of what the witness has to say.

Under the deposition procedure, the several attorneys may object to certain questions as they are put to the witness. There being no judge present at that stage to rule upon the sufficiency of the objections raised and the admissibility of the disputed evidence, unresolved issues of this nature will remain to be settled by the judge when, at a subsequent time, the deposition is read in court. The official stenographer will have recorded in the deposition transcript (at appropriate points) the various objections and the reasons presented in support of same, so that

of questioning, the attorney may bring out the fact that Jones, in his published work, makes a statement substantiating that given by the witness and opposing that of author Smith.
the court can make timely rulings as the reading proceeds. Thus, the
witness whose deposition is being taken will answer questions for
transcript purposes despite opposing counsel's objection, but the judge,
if he eventually sustains such objection, will have the answer stricken
from the records of the case.

27-15. Fees. There is apparently no published schedule of fees for
the compensation of one who serves as an expert witness. It is cus-
tomary, however, for the expert to base his charges primarily upon the
amount of time which he has to spend in connection with the prepara-
tion and presentation of his testimony. For this service he will normally
charge about the same rate per diem as he would for important con-
sulting work, but the exact rate will depend upon several factors. It is
obvious, for one thing, that the expert should charge more for his as-
sistance in matters involving specialized knowledge and skill of a high
order (acquired in a lifetime of effort on his part) than he would for
testimony that entails somewhat less imposing qualifications. Again, the
fee to be charged for expert testimony is likely to be affected by the
size of the case and by the relative importance of the expert's role in
the proceedings. In other words, if the witness is to be the key man in
determining the answers to very important questions at issue, and par-
ticularly if his professional reputation hangs in the balance, the measure
of his compensation for services should tie in with these considerations.
CHAPTER 28

Arbitration of Disputes

28-1. Function of Arbitration. In Art. 12-27 it was stated that the engineer should ordinarily be empowered to settle disputes between the contractor and the owner. However, this authority usually pertains only to misunderstandings arising from the execution of the work, e.g., questions regarding the quality of the materials and of the contractor's performance and the interpretation of the plans and specifications. Questions of breach of contract and many other arguments may lie beyond the intended peacemaking authority of the engineer.

Disputes between the contractor and the owner or the latter's representative which cannot be settled satisfactorily by the engineer should be resolved, if possible, without resort to lawsuits. To accomplish this end it is advisable to establish in advance some arbitration procedure that is to be followed if need for it arises. The stipulation and description of this procedure are properly a part of the contract documents.

28-2. Definition of Arbitration. Arbitration denotes the voluntary submission of a dispute (by the parties involved) to a disinterested person or persons for final decision. The following are definitions which have been used for describing this procedure:

1. "Arbitration is a contractual proceeding whereby the parties to any controversy or dispute, in order to obtain an inexpensive and speedy final disposition of the matter involved, select judges of their own choice and by consent submit their controversy to such judges for determination, in the place of the tribunals provided by the ordinary processes of law." The arbitration may be either under common law or by virtue of express statute.

1 Martin Domke, director of legal research, American Arbitration Association, New York, has assisted by reviewing and making suggestions for this chapter.
2. Arbitration is the submission of a disputed matter to selected parties and the substitution of their award or decision for the judgment of a court; and the award of arbitrators has the same force as a judgment of a court, and a controversy, adjusted or settled in this manner, cannot afterward be retried in an action at law, unless the pleadings state facts sufficient to avoid the award.

Notice that arbitration is an extrajudicial determination of a controversy—a determination made not by judges but by one or more persons selected to act as such and chosen by the interested parties. Its purpose is to avert court action by either party. Arbitration is a summary, businesslike, and inexpensive method of settling disputes; it avoids the formalities, delays, and expense of ordinary litigation. Arbitration proceedings are generally favored by the courts, and the latter will generally give considerable weight to the decision of the arbitrators before taking action to overturn the award.

Arbitration can be a very serious matter, with the decision involving many thousands of dollars. The outcome of the proceedings is of obvious importance to the parties involved.

28-3. Distinctions. Miscellaneous agreements which leave to third parties the making of decisions which may be necessary regarding prices, values, quantities, qualities, and amounts are not really submissions to arbitration, and such third persons are not properly called arbitrators. Appraisement, for one thing, is often confused with arbitration. Arbitration presupposes a controversy and is designed to resolve such, whereas appraisement is a stipulated method of procedure to prevent future disputes and to set a value, a price, or the like. Arbitration is a sort of judicial procedure usually involving a hearing, whereas appraisers generally act upon the basis of their own knowledge and investigation without the necessity of formal hearings.

A referee also differs from an arbitrator in that a referee is appointed by a court as its officer, while an arbitrator is selected by the disputants. Sometimes, if the parties are not willing or able to appoint an arbitrator when the time comes to do so, the court will make the appointment, but such appointment is based on prior agreement of the parties to arbitrate.

28-4. The Submission. The submission may be defined as the act which brings the matter in dispute before the arbitrators for decision. Without a submission there can be no arbitration and thus no valid award. The agreement to submit must cover everything that is necessary to give the arbitrators the power to make a binding determination.

Thus, the first step toward arbitration is for the parties to agree to have their differences arbitrated. A submission implies an understanding to abide by the award.

*Morgan et al. v. Teel, 109 Okla. 17, 234 Pac. 200, 201 (1925).*
There may be an agreement to submit future disputes to arbitration or an agreement to submit existing disputes to arbitration. Both types of agreement may be either oral or written but must fulfill the requirements of a contract, e.g., proper subject matter and competent parties.

28-5. Disputes Subject to Arbitration. As a general rule, a great many matters or disputes (not involving the commission of a crime) are regarded as proper for settlement by arbitration. Generally, issues submitted to arbitration are factual. And, of course, illegal matters and illegal transactions cannot be arbitrated because they are not enforceable in the first place.

28-6. Existence of Agreement. Where a question of their authority has arisen, it is not for the arbitrators themselves to decide whether or not they are acting or have acted within the powers granted them. If interpretation of an arbitration agreement becomes necessary, this is a job for a court. An effort will be made to give effect to the intent of the parties. A liberal interpretation of the extent of the arbitrators' powers is usually made by the courts, but any matter obviously not included in the submission cannot be validly settled by the arbitrators.

28-7. Reference to Courts. If contracting parties have agreed that certain questions, should they come up, will be submitted to arbitration, it is usually held that such submission is a condition precedent to a right of action in the courts. The following passage sets forth this idea more fully:

"It has been long established by authority, both in this country and in England, that if parties stipulate in contracts of insurance and other similar contracts to submit to arbitration the question of the amount of damage, or any similar matters that do not go to the root of the action, it is entirely competent for them to make such an agreement a condition precedent to the right of action; and if it appears from the express terms of the contract, or from necessary implication, that such was the intention, it will be upheld by the courts, and no action can be maintained upon the contract without proof on the part of the plaintiff that he has fulfilled the stipulation in the contract, or made all reasonable efforts to fulfill it. The effect of such an agreement is not to refer a cause of action, but to provide that a cause of action shall arise as soon as the amount to be paid has been determined, and not before. It does not deprive the courts of their jurisdiction, but simply provides a reasonable method of estimating and ascertaining the amount of the loss, and leaves the general question of liability to be determined by the judicial courts."

An agreement to submit future disputes to arbitration should be incorporated in the construction contract itself in order to compel adherence to such procedure.

Disputes of a criminal nature are of concern to the general public and are not subject to arbitration.

28-8. Definitions and Qualifications of an Arbitrator. An arbitrator may be defined as a private, extraordinary judge chosen by the parties and endowed by them with power to decide the matter in dispute. In a way he seems to be both judge and juror.

A referee is appointed by a court. In a sense, he therefore exercises the judicial power of the court; he acts under its rules, direction, and control; and his acts are subject to its confirmation.

Any competent, disinterested person may be an arbitrator unless prescribed qualifications in the agreement (or in some applicable statute) prevent his appointment. He must be impartial and non-partisan, and he must not be financially interested in the matter in dispute. It goes without saying that he should also be experienced in the particular area involved in the dispute. Engineers, architects, and contractors are, by the nature of their work, in a good position to settle disputes arising from construction contracts.

If arbitrators are unable to agree upon their decision, an umpire may be selected to decide the matter. In effect, then, the umpire is in the position of a sole arbitrator.

The authority of arbitrators is usually revocable prior to the making and publication of a valid award. After the making of the award, their duties naturally terminate as far as the matter in dispute is concerned.

28-9. Selection of an Arbitrator. Ordinarily, when arbitration is to be resorted to, the contract will state specifically the procedure to be followed in the selection of the arbitrator or arbitrators.

One arrangement is the choosing of a single individual (a sole arbitrator) whom both the contractor and the owner believe qualified by reason of his competence, reliability, and impartiality. The selection may be made through a conference or through correspondence between the contractor and the owner. The proposed arbitrator should then be asked by the parties to serve. He should be informed of the general nature of the dispute, and arrangements for his compensation should be agreed upon at the outset. Then the arbitrator may be formally appointed in writing by the owner and by the contractor. Upon his written acceptance, the details for hearings can be set.

An alternate procedure is the naming of a board of arbitration. A common practice here is the selection of one person by the owner, the selection of a second individual by the contractor, and the subsequent selection of a third person by the other two appointees. The advantage of a board over a single arbitrator is supposed to be that the combined judgment of three persons is more likely to be correct and acceptable than the opinion of one individual. It is good practice to have the third appointee made chairman of the board.

If one arbitrator is not believed to be sufficient, another possible
procedure is the appointment of three or more members, each of whom is officially approved by both the owner and the contractor. These several members comprise the board and choose one of their number as chairman.

In the case of a board of three or more, the majority vote governs, unless the agreement requires unanimity.

28-10. Resort to Arbitration. Arbitration may be resorted to even while work under the contract is progressing. As stated previously, utilization of this medium avoids both the costs of litigation and the delays that frequently are necessary because of crowded court dockets. Largely because it can proceed with relative haste, the arbitration expedient is especially beneficial if the dispute is such that it has caused or may cause performance under the contract to be suspended pending a settlement. In a situation of that sort, the arbitrator(s) should be authorized to direct that work under the contract is to proceed until a decision is reached, if such an order seems to be in the best interest of the project.

It is likely that arbitration will be needed to settle, on the spot, disputes that materialize after performance of some portion of the work but prior to final winding up of accounts. It may also happen that disputes arising during construction are held over to be resolved later on. Here is an illustration of the latter situation. A contractor was making a large excavation, strictly according to the plans. One side of the cut caved in and caused serious settlement of some adjoining construction. The engineer and the contractor agreed that the latter should take immediate remedial steps to save the structure, keeping account of all expenses involved. They agreed that the question of responsibility for the failure (and thus the question of which side must assume the cost) was to be settled by arbitration later on. This was an intelligent approach.

Note again that, even though a contract does not require arbitration of differences, the parties concerned can nevertheless agree along the line to settle questions in this manner. In other words, they can submit the question to arbitration even though such action is not mentioned in (nor a fortiori required by) the contract.

Some disputes may lie beyond the capacity of an arbitrator to settle. He customarily decides such matters as disputes about what is or is not included in the contract, the proper interpretation of drawings and specifications, adjustment for mistakes made and poor workmanship performed by the contractor, claims for liquidated damages, adjustments of the computed quantities to which the bid unit prices are to be applied when these cannot be settled otherwise, claims for delays, and disputes about extras and allowances. On the other hand, default by the con-
tractor, injuries to persons or property, probably some extreme claims for liquidated damages, and a determination whether or not some disaster is an act of God—these typify matters which may require court disposition.

The American Arbitration Association\(^8\) has prepared its Commercial Arbitration Rules for the conduct of arbitration proceedings. These are perfectly applicable to disputes of an engineering nature. The association does not act as an arbitrator, nor does it give legal advice. However, for a specified fee it will assist through presentation of a list of persons considered to be competent to act as arbitrators in the type of case involved; it will furnish rules for the guidance of the arbitrators; it will actually appoint an arbitrator or arbitrators, if this is desired; and it will assist in various other administrative capacities. If the parties elect to conduct the arbitration under these rules, both sides are bound thereby throughout the proceedings.

The association suggests that, if the contract is to require that any arbitration found to be needful must be conducted under its rules, the following clause should be inserted in the contract:

"Standard Arbitration Clause

Any controversy or claim arising out of or relating to this contract, or the breach thereof, shall be settled by arbitration in accordance with the Rules of the American Arbitration Association, and judgment upon the award rendered by the Arbitrator(s) may be entered in any Court having jurisdiction thereof."

Efforts have been made to educate people to the advantages of arbitration so that disputants will resort to this device in lieu of bringing suit. Furthermore, attempts seem to have been made to set up rules and regulations making arbitration procedures more uniform in the various jurisdictions. Also, in 1956, the National Conference of Commissioners on Uniform State Laws prepared a first draft of a uniform state arbitration act which includes a provision for the enforcement of any agreements to arbitrate future disputes. If and when a uniform act is adopted in the several states, use of the arbitration procedure will be greatly encouraged.

28-11. Procedure in Arbitration. If the agreement of submission or some pertinent statute stipulates certain rules which are to govern the arbitration process, such rules must be followed. Otherwise, the arbitrators generally have considerable latitude in their procedure. For

\(^8\) This association has offices in New York; Boston, Mass.; Charlotte, N.C.; Chicago, Ill.; Cincinnati and Cleveland, Ohio; Dallas, Tex.; Detroit, Mich.; Hartford, Conn.; Los Angeles, Cal.; and Philadelphia, Pa. It has representatives in Atlanta, Ga.; Buffalo, N.Y.; San Francisco, Cal.; and Washington, D.C.
instance, they need not follow technical rules of evidence, but proceed-
ings must nevertheless be conducted with honesty and fairness. They
should hold a hearing within a reasonable time after their appointment,
and, of course, they must themselves be present at that hearing. They
cannot compel the attendance of witnesses, but they may be able to
limit the number of witnesses.

Both parties have the right to be duly notified of any pending hear-
ing and to present evidence before the arbitrators. In the usual situ-
ation, an award made without a full and proper hearing* may be invalid
unless the losing party waived his right to be heard or refused to attend.

It goes without saying that the subject matter and scope of the dis-
pute that is to be arbitrated should be made entirely clear to the arbitra-
tors. Their function is to settle the question at issue completely, not
merely in part, but their decision should not go to the extent of covering
matters beyond the scope of the submission.

When a hearing is held before the arbitrators, it is customary for
representatives of both parties to present evidence somewhat as though it
were a court or commission proceeding. In major cases the lawyers of
both sides are the ones who should conduct the presentation of the
evidence. Engineers normally act as witnesses in the arbitration, and
they may also help in the preparation of facts and figures to substantiate
whatever point of view they represent in the argument. Direct examina-
tion and cross-examination of witnesses may take place. The arbitrators
will play the role of judges in determining whether proffered evidence
is or is not relevant and admissible. As indicated earlier, there may be
no fixed procedure for the presentation of evidence and arguments by the
opposing parties. Normally, the entire affair is relatively informal.
Each side should conduct itself in a dignified manner; of course, each
will try to present its case in as favorable a light as possible. The
arbitrators are supposed to be given all available data. They may ask
for additional material from either or both parties, if they think the in-
formation offered is inadequate to enable them to reach a decision in the
matter. When they do render their decision, both parties must accept
the award if the contract makes this obligatory and if there is no element
of possible fraud, etc., in the picture. If either party believes that
great injustice has been done, he should obtain the advice of counsel
about whether any logical further steps are available to him.

28-12. The Award. An award is the decision or judgment made by
the arbitrators in the exercise of their function. Unless abandoned by

* There may be cases in which the arbitrators are appointed as experts to decide
the dispute, basing their decision upon their own knowledge and dispensing with
testimony of outsiders. In these circumstances, they are not arbitrators in the usual
sense.
both the parties, it supersedes any claims which were submitted for arbitration.

An award will usually stand up in a court of law if it represents the honest judgment of the arbitrators. The latter must have acted fairly, reasonably, and within any time limit on their powers. The award must cover every point included in the submission and should fix responsibility for the costs of the arbitration (unless the handling of such costs has been the subject of an arrangement between the respective parties).

An award should be consistent unto itself, complete, and definite, thus leaving no room for future dispute on the point involved. Even though the award may be excessive, or seem a bit unjust, the courts will generally not invalidate it unless the arbitrators acted beyond their authority, failed to conduct the arbitration properly, departed materially from the requirements of the submission, misconstrued their duties, made a significant mistake, or were guilty of fraud or other misconduct. As with other contracts, a valid award, made as the result of prior agreement to arbitrate, can be enforced at law. Sometimes a court of equity will enforce an award with a specific performance decree.

It is entirely possible for arbitrators, like everyone else, to make a mistake. If this should happen, reconsideration of the matter by the arbitrators can generally be arranged through agreement of the interested parties.10

The arbitrators are to make their decision on the basis of their judgment regarding a proper and fair conclusion, considering all the data available to them. They need not explain to the parties exactly how or why they arrived at a determination, though they may wish to do so voluntarily.

28-13. Allocation of Costs of Arbitration. An arbitrator is entitled to reasonable compensation for his service, assuming he has not been guilty of fraud or collusion. Sometimes the amount of compensation is stated in the agreement; if not, it is implied that the compensation is to be fair and reasonable so as to pay for the expenses involved and the service rendered. If the agreement directly or by implication allows an arbitrator to fix the amount of his own compensation, the fee charged should be reasonable.

Unless the contract clarifies the matter, a question may arise about who pays the cost of arbitration proceedings. If the owner is obligated by the contract to pay the arbitration bills, the contractor could cause him considerable expense by insisting upon submitting some petty issue at every opportunity. Obviously, the shoe would be on the other foot if the contractor had to meet any and all arbitration costs. If the expense

10 Of course, perjury by a witness or fraud by a party will be likely to void the decision and the whole arbitration.
of arbitration, according to the terms of the contract, is to be divided equally between the owner and the contractor, this arrangement may help to prevent needless resort to arbitration by either party. It is often desirable to empower the arbitrators, as a part of their decision, to allocate costs; they can then "penalize" a party who has been unreasonable in bringing to arbitration a minor issue which should have been settled amicably without the intervention of an outsider.
Glossary

a fortiori  Literally, "with stronger reason." Thus, given fact A, related and more probable fact B must likewise exist.

aliquot  A fractional part of something else, supposed to divide the latter without a remainder.

alter ego  A second self; broadly, a confidant.

assignee  One to whom an assignor transfers property or rights under an assignment. See Art. 5-14ff. for discussion of assignment.

beneficiary  One who is the recipient of advantage, profit, or other benefits.

breach  Violation of a right or of law, either by an act of commission or by nonfulfillment of an obligation or duty. Thus, breach of contract is the unexcused failure to satisfy one's contractual undertaking.

caveat emptor  Let the buyer beware. In other words, the buyer should take pains to discover for himself any obvious defects in an article he is about to purchase.

de facto  In fact.

de jure  Of right; lawful. De facto and de jure are contrasting terms. The former is used to refer to an action or a state of affairs which is essentially without legal justification but which must nonetheless be accepted for all practical purposes.

defeasance clause  A condition whose fulfillment defeats the operation of an instrument and renders it null and void.

delectus personae  Choice of the person. Thus, the right of partners to pass upon prospective members of the firm.

delegatus non potest delegare  A delegate cannot (further) delegate. Without authorization from his principal, an agent cannot delegate his non-ministerial functions and duties to another.

delict  A violation of duty, public or private; a wrong.

devisee  One to whom realty is given by will.

donee  The recipient of a gift.

emancipation  A term used primarily with reference to the "setting at liberty" of minors. When the parents, expressly or by implication, surrender the

1 The great majority of the technical legal terms and Latin phrases employed in the text are fully defined therein at the point first used. In order to reduce the length of this glossary, most such definitions are not repeated here.
right to the custody and earnings of their child and renounce their parental duties, such child becomes his own master and is thus *emancipated*.

equity of redemption The right of a mortgagor, upon paying his debt (together with interest and costs), to redeem his property after a breach of the mortgage conditions has led to its forfeiture.

estoppel One who has by his conduct induced another to act in a particular manner is precluded (*estopped*) from thereafter adopting an inconsistent position and thus causing injury to such other person. The bar is raised when the party against whom it operates has brought about such conditions as make it inequitable for him to claim a right to which he would otherwise be entitled.

et seq. And the following; an abbreviation for *et sequentes* or *et sequentia*.

expressio unius est exclusio alterius The express mention (as in a list) of one thing (or person or place) is, by implication, the exclusion of another.

fee simple The largest estate known to the law; an absolute estate in which the owner is entitled to the entire property with unconditional power to dispose of same during his lifetime and which passes to his heirs if the owner dies intestate.

filum aquae The middle line or thread of a stream, which divides it into two parts and often serves as the boundary between the riparian owners on each side.

fraud Intentionally deceitful practice aimed at depriving another person of his rights or doing him injury in some respect.

grantee One to whom real property is transferred by grant.

gravamen The material part, or gist, of a complaint or charge.

in extremis In the last (i.e., the ultimate) illness.

in loco parentis Acting in the place of a parent.

in pari delicto In equal fault; equally to blame.

in personam See *in rem*.

in rem Actions *in personam* and those *in rem* are distinguishable on the ground that the former are directed against specific persons and seek personal judgments, while *in rem* proceedings seek to determine rights in particular property as against all the world. Similarly, rights *in personam* are those primarily available against certain persons, while rights *in rem* are good against the world at large.

infant A person under the age of legal majority.

infra Below, beneath; often used in this fashion: "page 6, *infra.*"

injunction A writ issued by a court of equity ordering a person to refrain from a given course of action. The nature of an injunction is discussed in Art. 2-5.

intestacy The circumstance in which a person dies without leaving a valid will to indicate his wishes about the disposal of his property.

jurisprudence Broadly speaking, the science and philosophy of law and of legal relations.

laches Unreasonable delay in doing what in law should have been done, or neglect in seeking to enforce a right at a proper time.

lessee The person to whom a lease is made.
lex non scripta  The unwritten or common law.
lien  A charge imposed on specific property as security for a debt or other obligation.
liquidated damages  A fixed sum agreed upon, at the outset of a contractual arrangement, as the proper compensation to be paid to the injured party in the event of breach.
malfeasance  An act which the party has no right to do and ought not to do; an illegal act.
mandamus  A court writ issued to compel the performance of a public or official duty owed by the person to whom the order is directed.
ministerial  Pertaining to an action done under the authority of a superior and with relatively little reliance upon the judgment or discretion of the doer.
misfeasance  The performance in a wrongful and injurious manner of an act which might have been done in lawful fashion. Thus, misfeasance is the doing of a lawful act in an unlawful manner, as distinguished from malfeasance, which is the performance of an act positively unlawful.
imposition  Broadly speaking, an untrue factual statement made with intent to mislead.
modus operandi  Manner of operating.
mortgagee  The person to whom property is mortgaged.
nonfeasance  Failure to do something which ought to have been done.
parol  Verbal.
per se  By itself.
prima facie  On first appearance; at first view.
privity  Mutual or successive relationship to the same property rights; a connection between parties.
promisee  One to whom a promise is made.
pro rata  Proportionately.
quantum meruit  Literally, “as much as he deserved.”
quid pro quo  Something for something; one thing for another. The term is used in connection with contract consideration.
quo warranto  Literally, “by what authority”; the writ by which government seeks to recover an office or franchise from the individual or entity in possession thereof. The writ requires the defendant to appear and show by what authority he maintains possession.
ratification  Confirmation; broadly, agreement by A to adopt an act performed for him by B.
reformation  The correction of defects so as to bring an instrument in line with the actual intent of the parties, which intent having been, through inadvertence, improperly expressed in the agreement as originally drawn.
rescission  Annulment; cancellation.
scienter  A term frequently employed to signify the defendant’s guilty knowledge—his awareness, for example, of a situation which he should have guarded against and which led to the plaintiff’s injury.
situs  Location, position.
subrogation  Substitution of one person or thing for another in regard to rights, claims, etc.
supra  Above in position; upon. "Page 6, supra" refers the reader to an earlier page in the same book.

testator  One who has left a will to control disposition of his property upon his death.

tort  Wrongful behavior (aside from breach of contract) for which a civil action will lie; the unprivileged commission (or omission) of an act whereby another individual incurs loss or injury. See Art. 20-1 for a more comprehensive definition.

tort-feasor  One who commits a tort; a wrongdoer.

trespass  In its ordinary sense, trespass refers to an unlawful act committed with actual or implied violence and resulting in injury to someone else. In a more limited sense, trespass denotes an unauthorized entry upon the real property of another, usually entailing some measure of damage to such property.

vendee  One to whom a sale is made; a purchaser.

waiver  Voluntary abandonment, surrender, or relinquishment of a known right or privilege.
Questions for Review and Examination

The following questions have been prepared for the benefit of readers who are using this text for class work. They are intended to give one an opportunity to test himself to see how well he has understood and assimilated the important principles discussed in each of the correspondingly numbered chapters.

CHAPTER 1. INTRODUCTION

1-1. Under what circumstances may an engineer have occasion to deal with lawyers?
1-2. In what kinds of “legal proceedings” may an engineer be involved?
1-3. Define “owner,” “engineer,” and “contractor” as used in contract documents.
1-4. What are the engineer’s responsibilities in handling contract work for the owner?
1-5. Define reasonable skill; reasonable diligence.
1-6. How can an engineer be of service as consultant to a lawyer in court?
1-7. What is the importance of contract documents and specifications?
1-8. In what ways may the engineer serve the owner?
1-9. Is the engineer liable for deficiencies in his plans and specifications? Can the owner collect damages from him?
1-10. Does interference by the owner actually relieve the engineer of the latter’s responsibility for attaining a satisfactory job either in the preparation of contract documents or in the conduct of contracted work?
1-11. A designer, working for a firm of consulting engineers, designed a long-span floor of very thin construction. Theoretically, it could support the necessary floor loads, but it sagged so badly under the effect of its own weight alone that it crushed some of the thin partitions in the story below. Was this just a mistake in design, or was it failure to use good judgment? Who should be held responsible?
1-12. Brown engaged Black to take charge of his engineering work. Thereafter, Brown decided to buy a piece of land for a new factory. Black knew that the topography and the nature of the soil rendered the contemplated site unsatisfactory. What should Black do?
CHAPTER 2. LAW AND COURTS

2-1. Define "law."
2-2. Briefly define each of these terms: municipal law; substantive law; constitutional law; international law; criminal law.
2-3. Define and illustrate "statute law."
2-4. Define and illustrate "common law."
2-5. What constitutes the written law of the United States?
2-6. Explain the effect of court decisions upon both statute law and the common law.
2-7. Can statute law change a common-law principle?
2-8. Describe the setup and general operation of the federal courts; of the state courts.
2-9. Define "equity" and "court of equity."
2-10. State four of the maxims of equity.
2-11. List several of the remedies available in equity.
2-12. Define and illustrate "specific performance."
2-13. Define "maritime law"; "commercial law."
2-14. What is the supreme law of the land?
2-15. Is the common law uniform throughout the United States? Explain.
2-16. The town of Northville made plans to build an incinerator at the edge of a housing development. The residents objected to the anticipated smoke, odor, and traffic. Can the residents do anything about it? How? What steps might the town take to remedy the cause of the objections?

CHAPTER 3. THE LAW OF CONTRACTS:
INTRODUCTION AND DEFINITIONS

3-1. Why may one wish to have work done under a contract rather than hire laborers to perform the work?
3-2. What is meant by "contract law"?
3-3. Distinguish between formal and informal contracts.
3-4. What are the characteristics of a negotiable instrument?
3-5. What are the customary forms of negotiable instruments?
3-6. Differentiate between an "express" contract and an "implied in fact" contract. Illustrate each.
3-7. What is meant by a "meeting of the minds"?
3-8. What is a quasi contract?
3-10. What is a bilateral contract? Illustrate.
3-11. Distinguish between "joint" and "several" contracts.
3-12. Distinguish between an "entire" contract and a "severable" contract.
3-13. What is a condition precedent, as the term is used in contract law?
3-14. What is the meaning of "quantum meruit"?
3-15. When is a contract voidable; void?
3-16. Under what circumstances may a contract be unenforceable?
3-17. What is a subcontract? Illustrate.
3-18. On May 1, 1955, Pratt signed a note for $500 payable to Smith on Nov. 1, 1955. This note, endorsed by Smith and by Jones, was given to
Brown by Jones in payment for merchandise. On the due date, Brown presented the note to Pratt for payment, but found that Pratt had gone bankrupt. In the meantime Jones died, penniless. What recourse does Brown have?

3-19. Powell wrote a check for $100 payable to Ross. Ross endorsed it "in blank" and told his fifteen-year-old son to cash it at the bank. Can the son do so? How? What could happen to the check if the son lost it on the way to the bank and someone else found it? What would Ross have done if he had wanted to use a "restrictive" endorsement?

3-20. A told B that he would resingle the roof of B's house for $450. B said, "I want to think it over." Two days later, A arrived at B's place, put up ladders, and prepared to shingle the roof. B saw what was going on but went off to work, saying nothing. A finished the job and sought payment therefor. B claimed there was no contract to do the work, and hence he had no liability. Was he correct? Why?

3-21. A contracted with B (the owner) to build a warehouse alongside the waterfront as soon as C completed the adjoining bulkhead which would retain the ground on which the warehouse was to be built. C got into financial difficulties and was unable to finish the bulkhead. What is A's obligation with respect to B?

CHAPTER 4. THE LAW OF CONTRACTS: FORMATION PRINCIPLES

4-1. How many parties constitute the minimum needed to form a contract? Why?

4-2. Under what conditions can a minor be released from his contract?

4-3. If a fifty-year-old businessman contracts to sell an automobile to a minor, can the former subsequently avoid his promise? Can the minor avoid his part of the bargain?

4-4. Explain the meaning of "ultra vires" in connection with the contracts of a corporation.

4-5. In contract law, what significance has mental weakness of one of the contracting parties; actual mental incompetence of one of the parties?

4-6. Under what conditions will a person be bound by a promise which he made when intoxicated?

4-7. For a $50 commission, A agreed to shop around and get a secondhand car for B. What is unfortunate about such a contract from B's standpoint? Has B any control over what he will receive?

4-8. A agreed to pay B $5,000 for certain diamonds which B was to smuggle into the country. When B delivered the jewels, A refused to accept them. What can B do about it? Why?

4-9. A called a builder, B, on the telephone, described in considerable detail an additional room which he planned to build on his house, and asked B how much it would cost. After a lengthy discussion, B said, "I think it will cost you $3,000." A said, "That will be satisfactory." The next day B called A and said that after making a careful estimate of the job, he found the addition would cost $3,400. A claimed that B had already contracted to do the work for $3,000. Is A correct? Why?

4-10. X sent to Y the plans and specifications for the complete electric lighting system for a new factory. Y replied that he would do the work for
$4,500. X announced that he "hereby" awarded the contract to Y but that certain fixtures were to be relocated and other changes made in the plans. Is Y bound to go through with the project?

4-11. Under what circumstances may silence be treated as an acceptance of an offer?

4-12. A had a nephew, B, who was nineteen years and two months old, at which time A loaned B $2,000 for the latter's educational expenses. In return, B gave A a promissory note calling for repayment (without interest) two years from the date of the note. One year later, B quit school and joined the Army. Two months after B's twenty-first birthday, on the due date, A demanded payment. B refused. Can A collect? Explain.

4-13. Murray wrote to Giegler stating that he would install a completely new heating system in Giegler's house, in accordance with the latter's specifications, for $1,200. Giegler was away on vacation when the letter reached his home, and he had left no forwarding address. The next day, Murray discovered that he had made an error in his estimate. He therefore wrote Giegler another letter, repudiating the first one, and stating that the cost would be $1,400. Giegler received both letters simultaneously upon his return home. Can Giegler force Murray to put in the system for the original figure of $1,200? Explain.

4-14. If the offerer makes an honest mistake in his offer, what can he do to remedy the situation?

4-15. Explain the effect of duress or undue influence upon contractual relationships.

4-16. Carlson, a builder, promised Pratt that he would engage the latter to install all the hot-air furnaces in houses to be built by Carlson during the year 1954. Pratt ultimately sued Carlson for loss of anticipated profits because Carlson changed all of his house plans and installed hot-water heating systems instead of hot-air. Can Pratt collect? Explain.

4-17. What is the meaning of "consideration" as the term is used in contract law?

4-18. Can an agreement not to do something be a proper consideration for a return promise?

4-19. Brown was interested in buying Gray's secondhand truck, and happened to tell his daughter that he was willing to pay $1,000 for it. Gray called at Brown's house when the latter was away, and Gray told Brown's daughter that he would sell the truck for $1,000, whereupon the daughter accepted the offer and arranged for delivery next day. Is Brown obligated to pay? Give reasons.

4-20. A had agreed to sell his house to B for $20,000, and stated that he would confirm his offer by letter the next day. When A wrote the letter, he made a typographical error, stating that the selling price was $2,000. What are the rights of the parties?

4-21. Black agreed to sell certain secondhand machinery to Green for $20,000. The following week, Black learned that the machinery was actually worth $40,000, and he thereupon refused to sell at the lower figure. Was Black's position sound? What can Green do?

4-22. X told Y that he would buy Y's old tractor at a "proper" figure as soon as Y received delivery of a new machine which was on order. Have the parties made a contract? Elaborate.
4-23. X owed Y $500 but was unable to pay on the date due. He told Y that he could pay only $300 in cash, but that he would let Y have two pointer pups in addition, if Y would "call it square." If Y accepts, what is the status of the $500 debt?

CHAPTER 5. THE LAW OF CONTRACTS: INTERPRETATION AND CONSTRUCTION

5-1. Define and illustrate an express condition in a contract; an implied condition; a condition precedent.

5-2. Sullivan, an architect, contracted to make the plans for Russell's new house in accordance with the latter's wishes and to meet with the latter's approval. When the plans were finished, Russell did not like them. Sullivan refused to change the plans unless paid an extra for so doing. Can Russell compel him to make the revisions without an extra? Explain.

5-3. On Apr. 2 Conners contracted to deliver 50 cu yd of topsoil to Buck for grading the latter's lawn. In spite of Buck's telephoned requests, Conners had not delivered the soil by May 15, whereupon Buck purchased the topsoil from Perkins (without notifying Conners), and had the job finished on May 21. A week later Conners started delivery and insisted that Buck go through with the bargain. If litigation ensues, what result can be expected?

5-4. At a fee of $2,000, Kinney agreed to make the detail drawings for the reinforcing bars for Kimball's new warehouse. After the drawings were completed, Kimball claimed that the $2,000 charge was excessive, and demanded a refund of $500. Can he collect it? Why?

5-5. Ferris bought a secondhand motor boat from Lewis, to be delivered to Ferris's son on June 1 in return for $500. Just prior to June 1, the elder Ferris died. Can the son force Lewis to deliver the boat for the stated sum?

5-6. An expert sculptor contracted to make a bust of a movie actor. He tried to sublet the job to another sculptor but the actor refused. Did the latter have this right?

5-7. Can X, who has a contract with Y, assign his rights under the contract to Z; his duties? Is Y's approval of the assignee (Z) necessary?

5-8. A contracted to furnish certain bridge steelwork "complete and delivered to the site" for $30,000. He fabricated all the steel members properly and deposited them at the designated location, but refused to erect the structure. Was he obligated to erect it? Explain.

5-9. Black contracted to deliver to storekeeper Brown three hogs per month for twelve months at a stated sum per pound; that was all the contract stipulated. Black delivered the first two months' allotments "dressed," and Brown paid for them. Then Black brought the next three hogs butchered but not dressed, and claimed payment based on their "live" weight. Was Brown correct in refusing to pay for more than the dressed weight?

5-10. Will vague terms in a contract be construed against the one who composed them? Elaborate.

5-11. A promised B to build a small bridge for $48,000, constructing and maintaining in the meantime a detour that would be satisfactory to the
state highway department. Later on, A discovered that the detour would cost him so much that he would lose heavily on the job. He therefore tried to annul the contract on the ground of inadequate consideration. What are his chances of success?

5-12. Brown, a consulting engineer, agreed to sublet the checking of all shop drawings to Black—provided Brown secured the contract for designing a certain large bridge. Assuming that he would get the job, Black agreed to employ White at a salary of $600 per month. Brown failed to get the award. Is Black nonetheless obligated to hire White? Can White, without penalty, decline to work at the $600 figure?

5-13. Does a third-party beneficiary of a contract have the right to demand enforcement of the contract? Explain.


5-15. A contracted to deliver "200 pairs of Firestone tires of assorted sizes" to B by Jan. 1. B intended to send A a list of the desired sizes but did not make this fact clear. A promptly shipped 200 pairs of tires, determining on his own the several sizes and the number of pairs of each. B refused to pay, and A brought suit. Will B have to accept and pay for the tires in the assortment tendered?

5-16. In the preceding example, if A, expecting word as to sizes, received no pertinent instructions from B, and if he therefore made no delivery before Jan. 1, can B declare the contract breached by A's failure to deliver? Explain.

CHAPTER 6. THE LAW OF CONTRACTS: PERFORMANCE OR BREACH OF CONTRACT OBLIGATIONS

6-1. What is a "tender" of performance?

6-2. Illustrate the difference between specific performance and substantial performance.

6-3. A plumbing contract called for certain "Crane" fixtures but the contractor installed "Standard" fixtures, which he claimed were equivalent to the stipulated type. The owner claimed a deduction because of the substitution. Was he justified in so doing?

6-4. Lewis contracted with the government to dredge 2,000,000 cu yd of silt from the ship channel in New Haven Harbor. After excavating 1,500,-000 cu yd, he quit the job. Should he be paid anything for partial performance?

6-5. A particular contract stated that "time is of the essence." What legal significance is there in the quoted wording?

6-6. Illustrate a contract in which "personal taste" would determine what constitutes satisfactory performance.

6-7. What interpretation and effect should be given to a clause stating that all work is to secure the approval of the engineer?

6-8. A ordered a 5-ton truck "on approval" from B. When the truck was delivered, A objected to the color of the paint, and refused to accept the vehicle. Did A have this right?

6-9. Who has the right to waive imperfections in the quality of performance? What does "waiver" mean?
6-10. Impossibility may be an effective excuse for nonperformance; inconvenience is not. Explain.

6-11. Distinguish between subjective and objective impossibility of performance.

6-12. What is meant by "act of God"? What effect may such an occurrence have upon a contract; under what conditions may it fail to relieve the contractor of the obligation to perform?

6-13. X contracted to do personally certain engineering work for Y for the sum of $2,000. When the job was 25 per cent completed, X fell seriously ill. Can X avoid his contract? Can he have someone else finish the work?

6-14. Farmer Clark contracted with Pillsbury to furnish 10,000 bushels of wheat to the latter on Sept. 1. Lack of rain caused a poor crop and Clark was able to raise only 7,000 bushels. Can Pillsbury collect damages from Clark for the shortage of 3,000 bushels? Explain.

6-15. Douglas contracted to drive a well for Tucker for the sum of $500, and to furnish potable water at a flow of 5 gal per minute. After spending $800 on the work, Douglas was unsuccessful and quit the job. What payment, if any, is Tucker obligated to make?

6-16. Explain what is meant by "breach of contract."

6-17. Name several ways in which a contract may be breached.

6-18. Can one part of a severable contract be breached without breaching the whole contract? Explain.

6-19. Define each of the following types of damages: (a) nominal, (b) compensatory, (c) punitive, (d) liquidated.

6-20. What is meant by restitution? Under what contract circumstances does this concept enter the picture?

CHAPTER 7. THE LAW OF CONTRACTS:
TERMINATION OF AGREEMENTS

7-1. In what ways may a contract be terminated?

7-2. A contracted to paint B's house for $600. A tried twice to make arrangements to start the job, but B kept stalling him off. Then A got another big job, and when B finally wanted him to start painting, A refused. Is A's position defensible?

7-3. What are the differences among the following terms as used in referring to a contract: (a) abrogated, (b) avoided, (c) terminated, (d) discharged, (e) rescinded?

7-4. Under what circumstances may the right to cancel a contract unilaterally be properly reserved to the owner?

7-5. Cox had contracted to build an addition to Bollard's factory. A sudden flood practically destroyed the factory. What can Bollard do about his commitment?

7-6. A agreed to purchase from B 100 tons of steel sheet piling. Later on, A found some secondhand piling which he could buy cheaper. What can A do about the situation?

7-7. In the preceding case, would B have the right to let A substitute a promise to purchase 100 tons of reinforcing bars from B?

7-8. X made a contract with Y for the benefit of a third party, Z. Under
what conditions can either of the contracting parties release the other; waive the contract?

7-9. As the term is used in contractual relations, what is the meaning of an “accord and satisfaction”?

7-10. What are the essential elements of “novation”?

7-11. Evans contracted to buy 10 acres of Olsen’s land for a factory site. Thereafter, the Zoning Board rezoned the area which included the property site into a “commercial” or business section. Is Evans nevertheless obliged to go through with the purchase or answer in damages?

7-12. Brown contracted to build a house for Gray for $22,000, starting May 10. On May 9, Brown brought his equipment for excavating the basement. Gray told him that he had decided to postpone his project for one year, and that Brown should build the house then at the same price. Is Brown under any legal obligation so to do?

7-13. Abbott contracted to deliver to Olcott 1,500 cu yd of fill for grading a low area in the latter’s property. In return therefor, Olcott was to deliver to Abbott 25 tons of ¾-in. reinforcing bars. Abbott delivered 500 cu yd of fill, and that was all. What is Olcott’s obligation?

7-14. When and why may it be desirable to have in the master contract a clause empowering the prime contractor to cancel any or all of his subcontracts?

7-15. Where a contract is rescinded by mutual agreement, the concept of “restitution” is often in the picture. What does it involve?

7-16. Assume that Long contracted to design the superstructure and building foundations for Short’s new factory, for a stated percentage of the contract price. After the contract was let, Short asked Long to augment their agreement so as to include thereunder (at 0.5 per cent remuneration) all foundations for the machines. Can Long decline, and enforce the contract as originally constituted?

7-17. B had a contract with A whereby the latter was to furnish B’s restaurant with all the baked goods needed for one year at stipulated unit prices. During the year, B sold his restaurant to C. Does A have to fulfill the remainder of his contract with B? What if C agrees to assume B’s obligation but A does not want any part of the substitution?

CHAPTER 8. CONTRACTS FOR CONSTRUCTION AND ENGINEERING SERVICES

8-1. Explain the principal difference between public and private work.

8-2. What are five of the provisions of the Code of Ethics of the American Society of Civil Engineers?

8-3. What are the pros and cons in the debate regarding engineers bidding for engineering services on the basis of price; engineers advertising for receipt of bids (on a price basis) on such work to be done by other engineers?

8-4. On what basis is it customary to make contracts for engineering and architectural services?

8-5. What are the pros and cons regarding liquidated damages as the concept is applied to contracts for engineering services?
8-6. What safeguards should be provided if you are planning to contract for rendering your own personal services as an engineer?

8-7. Why is it advantageous for an engineer to have charge of the inspection of work performed under contracts which he has prepared?

8-8. Into what parts are the documents for a construction contract generally divided?

8-9. What legal requirements have to be considered in preparing a construction contract?

8-10. What is the primary purpose of requiring an engineer to have a license as a professional engineer?

8-11. Explain the features and advantages of each of the following types of contract: (a) lump-sum, (b) unit-price, (c) cost-plus-percentage, (d) cost-plus-fixed-fee.

8-12. What sort of contracts are unsuited to lump-sum bidding?

8-13. Why is the engineer usually authorized to require that certain items of a unit-price contract be bid on a lump-sum basis? Illustrate the advantages of this system.

8-14. Upon what logical basis might a contractor determine the percentage to charge in case of a cost-plus-percentage contract?

8-15. Illustrate a situation in which the subdivision of work into several contracts may be preferable to having the entire work performed under one general construction contract.

8-16. What are the good and bad features of having a single contract cover both engineering services and construction?

8-17. What is meant by "construction by force account"? How is such work handled?

8-18. What is the principle of "caveat emptor"?

8-19. An engineer who was engaged to design a large building made studies of the soil conditions. As a result, he decided to use piles to support the structure. The owner, without notifying the engineer, called in Mr. Doe, a fellow engineer, and asked the latter to make a separate and secret study of the problem to see if piles could be eliminated. What should Doe do about it when receiving this request?

8-20. What steps can a consulting engineer properly take in order to secure clients for design work?

8-21. Why is it perhaps inadvisable to have fixed rates for engineering design work; for field supervision of engineering work?

8-22. Under what circumstances might an owner prefer to have his project built under a lump-sum contract instead of under a unit-price contract?

8-23. Does the contractor always make more profit on a unit-price contract than (a) on a lump-sum contract, or (b) on a cost-plus-fixed-fee contract? Elaborate.

8-24. How is the total payment under a unit-price contract determined?

8-25. What are the advantages and disadvantages of cost-plus-percentage contracts and cost-plus-fixed-fee contracts from the standpoint of the several parties concerned?

8-26. When a unit-price contract requires certain minor work to be done and material items to be furnished for which there is no stated payment item in the contract, what is the bidder supposed to do to obtain compensation therefor? Illustrate.
8-27. From what viewpoint should the engineer prepare the contract documents applying to his client’s project? Elaborate.

8-28. When preparing the contract documents is it the purpose of the engineer to try to prevent the bidder (contractor) from making a profit? Can the engineer accomplish this purpose? Explain.

8-29. A private citizen (not an engineer) wished to employ a professor of engineering and some of his students to make a study of, and report on, a certain flood-control project—the intent being to use the report in opposition to one already made by engineer X. What should the professor do about it? Explain.

8-30. Explain some reasons why it may be difficult for an engineer to predict accurately the cost of engineering planning and the preparation of contracts.

8-31. A consulting engineering firm is engaged to prepare the contract for the construction of a large bridge. Discuss the advantages of making the payment for these services on the basis of cost of preparation of the documents plus a percentage of that cost, instead of making payment on a lump-sum basis.

8-32. How may an individual who is a contractor be of service to an engineer in the preparation of contracts?

CHAPTER 9. CONTRACT DRAWINGS

9-1. What kinds of information are best given by way of contract drawings?

9-2. Is any particular size essential for contract drawings?

9-3. Which are more important, the line drawings or the accompanying notes?

9-4. Why is it important to have on the drawings a permanent record of the various revisions made in them?

9-5. Can contract drawings be supplemented by the contractor; by the engineer?

9-6. What should be the procedure in revising contract drawings? Give reasons.

9-7. Why should there be on file, in the office of the owner or the engineer, a set of the original contract drawings?

9-8. What relation have “shop drawings” to “contract drawings”?

9-9. A dimension on a drawing showed the desired length of a truss to be 75 ft, but, according to the scale of the drawing, the truss measured only 70 ft. Which (if either) can the contractor assume to be correct?

9-10. The drawing of a basement showed no drain around the outside, but a note in one corner of the drawing said: “Provide 4-in. drain and discharge line around foundation.” Is the contractor obliged to install such a drain?

9-11. Why might an engineer want to have in his files a copy of each of the drawings for a factory building which he has designed?

9-12. What is meant by “incorporation by reference”?

9-13. (a) Why is it desirable to list the contract drawings in the specifications or in some other part of the contract documents? (b) How should the listing be done?

9-14. After preparation of the specifications was completed, but before the contract documents were issued to the bidders, the engineer wanted to
add two more drawings to the contract drawings. Could he do so? Explain how.

9-15. What are “preliminary drawings,” and how are they used in connection with the actual construction work?

9-16. (a) Does the contractor generally prepare the “detail drawings”? (b) Can the engineer do so when he wishes to? (c) Explain when and why the engineer might prefer to make the “shop drawings.”

9-17. Who can revise the contract drawings? Does the contractor’s approval of revisions have to be secured?

9-18. Jones sent a “freehand” pencil sketch to Smith, a builder, showing the dimensions and other pertinent data for a garage which the former wanted to have built. Smith quoted Jones a figure of $1,500 for the complete job. Jones accepted the offer. Does the freehand sketch constitute a contract drawing in this case? Explain.

CHAPTER 10. SPECIFICATIONS FOR MATERIALS

10-1. The drawings showed that a steel structure was to be field bolted but the specifications stated that it was to be field riveted. The contractor bid on the bolted work. Was he justified in so doing? What can the engineer do about the situation?

10-2. The specifications called for the coating with linseed oil of all “finished” surfaces of machinery. The drawings did not indicate any coating. What should the inspector require of the contractor? Explain.

10-3. When and how can the specifications use to advantage a reference to a standard product of a particular manufacturer?

10-4. Why specify “or approved equivalent”? Who does the approving?

10-5. What are “standard specifications”? What use can be made of them? Illustrate.

10-6. What is the ASTM? How can its work product be utilized? What advantages are there for the engineer in using such available material?

10-7. When and why use copies of previous specifications when composing a set of contract documents?

10-8. (a) What is a “performance” or “service” type of specification? (b) Illustrate its use. (c) Who is responsible for results where this type is employed?

10-9. What is the function of material specifications; do they in any way protect the contractor?

10-10. Why is it often advisable to have representatives of steel manufacturers help prepare specifications for structural and cast steel?

10-11. A specification stated: “The insulation shall be 2 in. thick and of an approved type.” Is this a satisfactory way to put it? Why?

10-12. If the contract drawings differ from the specifications, what is the contractor to do?

10-13. Why is it desirable to include in the contract documents a description of the project?


10-15. (a) Why is it generally inadvisable to have substitutions for specified structural materials determined on the basis of competitive bids? (b) Is this method satisfactory in the case of certain equipment?
10-16. Has the engineer the right to specify what he wants regardless of the opinions of contractors?

10-17. Does an engineer act properly when he seeks the advice of contractors and manufacturers before preparing his specifications for some article or process? Why?

10-18. A specification states: “Suitable pumps shall be installed to prevent flooding of the excavation.” Has the engineer proper control over what pumps are to be provided—the types, capacities, etc.?

10-19. What are the advantages and disadvantages of specifying products by name and catalog number?

10-20. What is the purpose of public works regulations which require that at least three acceptable and equivalent products be specified (as alternates) instead of one?

10-21. What advantages and disadvantages may there be in specifying a list of acceptable alternates for a given purpose?

10-22. Under what conditions might it be desirable for the engineer to specify one named product, and one only?

10-23. An engineer specified that a bridge crane should “have a capacity of 50 tons, with a 10-ton auxiliary, a span of 75 ft, an acceptable speed of travel, and be driven by 440-volt, 120-cycle power.” Is this specification satisfactory under ordinary circumstances? Why?

10-24. Can a contractor propose substitutions for specified products (a) before the bids are received; (b) after the contract is awarded?

10-25. Can an engineer specify a material having different properties than those given in the ASTM specifications? Why?

10-26. Does the ASTM specify how and when portland cement, type II, is to be used? Why?

10-27. What is the difference in character of a building-code specification and one prepared by the ASTM?

10-28. (a) As references, are “standard specifications” always to be used? (b) If standard specifications are thus employed, can the engineer specify anything which differs from them?

10-29. Why should the specifications for a construction contract be definite instead of allowing a great many alternates?

CHAPTER 11. SPECIFICATIONS FOR WORKMANSHIP

11-1. The specifications stated that all joints of a steel oil tank were to be scarfed and butt welded, and the tank was “not to leak.” Is this a satisfactory specification? Explain.

11-2. A contract for certain machines specified that all bearings should be finished to a tolerance of 0.01 in., but it did not specify how the work should be done. Is this a proper specification?

11-3. A contract specified that the parts of a certain large steel box should be connected by means of $\frac{1}{4}$-in. continuous fillet welds. When the contractor finished the job, the box was found to be badly distorted (out of shape). The contractor claimed that this result was entirely due to the required welding. What defense can be made by each party?

11-4. What is the danger of itemizing in the specifications the procedures which the contractor is to follow in order to attain the required results?
11-5. Name some standard specifications for workmanship. Illustrate their use and explain the advantages of employing them.

11-6. What is the meaning of "best quality workmanship"; what value has this statement in a set of specifications?

11-7. Is it proper to specify that "the roofing is to be applied in accordance with the manufacturer's recommendations"? Explain.

11-8. A specification stated: "All work is to be done to the satisfaction of the engineer." (a) What does this statement mean? (b) How does the bidder know what will be required? (c) When is such a statement in the specifications useful?

11-9. A specification states that the contractor is to "carry out the intent of the plans and specifications." (a) When and why is such a statement useful? (b) When is it not useful? (c) Does it make any difference whether the contract is lump-sum or unit-price?

11-10. Illustrate a situation in which an "independent" contractor is not actually independent.

11-11. When digging the excavation for a basement, the contractor found that the soil was very wet. No surrounding drains were called for in the design. Should the contractor simply go ahead and follow the design without question? Why?

11-12. (a) A specification states: "The concrete shall be properly cured." Is this a satisfactory specification? (b) Compare the preceding statement with the following: "The concrete shall be kept moist by covering with burlap and sprinkling with water twice each day for fourteen days after pouring." If the curing in the latter case is not satisfactory, what can the engineer do about it?

11-13. The drawings showed the positions and details of the anchor bolts for a machine but nothing was said in the specifications about how these bolts were to be erected. During pouring of the concrete, the bolts were displaced so that they were 1 in. too far apart. Can the engineer do anything about the situation? Explain.

11-14. A sheet pile cofferdam was designed by the contractor. He proposed two sets of interior wales and braces. The engineer notified him that the former believed that three sets of bracing should be used. In such a case, should the engineer's idea be given as a suggestion or as an order? Explain.

11-15. Concrete pavement for the apron of a pier was to be screeded level and then broomed. When the work was partly done, a violent thunderstorm occurred, spoiling the finish on the completed portion. The engineer discovered the situation the next day. What possible courses of action can the engineer take?

11-16. If standard specifications, like those of the AISC, are used as reference, can any deviation from them be specified? Explain.

11-17. Name a typical standard specification which covers workmanship, explain its character and scope, and write a clause showing how you would incorporate the reference in your specifications for some selected piece of work.

11-18. Do the statements "as directed by the engineer" and "as approved by the engineer" mean the same thing? Illustrate.

11-19. What are the limits (if any) to the application of the statement that "all work is to be done to the satisfaction of the engineer"?
11-21. A specification contained the statement: "The contractor shall carry out the intent of the plans and specifications." Certain storm-water drains were obviously necessary but were not called for. (a) Should the contractor install these drains? (b) Does he deserve payment therefor?
11-22. What should the contractor do about certain materials which he finds were not included in the specifications but are necessary in (a) a lump-sum contract; (b) a unit-price contract?
11-23. An item of work is obviously necessary in a structure (and the engineer orders it done) but this item has been omitted from the specifications. What control has the engineer over the quality of workmanship applicable to this extra work?
11-24. How is a court likely to determine the intent of the plans and specifications?
11-25. A specification stated: "When concrete is deposited in freezing weather, it shall be properly protected and cured for seven (7) days after pouring." What does this statement really mean?
11-26. If a specification states that certain work is to be done "in accordance with the best modern practice," how is the contractor to know in advance what to expect?
11-27. A contractor was to build a bridge pier in a stream. The drawings showed the finished structure required but the specifications said nothing about how the work was to be conducted. What should the contractor do about this problem?
11-28. If the specifications state that certain work is to conform to XYZ Standard Specifications but also specify the requirements for a particular special feature which differs from the standard, what is the contractor to do? Does it make any difference whether the special requirement is better or worse than the standard? Explain.
11-29. The specifications stated: "All girder splices shall be subpunched and reamed while assembled or reamed to metal template." Which type of work is the contractor to bid upon?
11-30. The specifications stated that the wall of a building alongside a proposed excavation was to be underpinned by grouting the soil under the footing with cement. The contractor found that the soil was so fine and dense that the grout would not penetrate it. What can the engineer do about the situation?

CHAPTER 12. CONTRACT CLAUSES RELATING TO FINANCES

12-1. Describe the function of the contract clauses in relation to the performance of a construction contract.
12-2. Differentiate between "standard contracts" and "standard contract clauses." When and how may each be used to advantage?
12-3. Describe a situation which might justify the suspension of a contract; annulment of a contract.
12-4. Assume that Elkins contracted to build a large addition to Cromwell's plant just before the end of World War II. When peace was declared, and before Elkins started the work, Cromwell annulled the contract.
QUESTIONS FOR REVIEW AND EXAMINATION

What can Elkins do about the loss of his anticipated profit (a) if the contract contained a proper annulment clause; (b) if the contract contained no clause dealing with annulment?

12-5. If work under a contract is revised, (a) what procedure should be followed? (b) Is the contractor obliged to follow the revisions?

12-6. When may claims by the contractor for extra payment be justified in a lump-sum job? How may they be computed?

12-7. When may claims by the contractor for extra payment be justified in a unit-price contract?

12-8. The logs of the borings shown on the drawings for two piers of a bridge indicated the presence of boulders at the site. The successful contractor included in his bid the cost of large cofferdams to surround the piers and to permit removal of these boulders. When work started, it was discovered that the job could be done (and it was) without resort to cofferdams. Does the contractor have to make a refund to the owner because of the decrease in the actual cost of doing the work? Explain.

12-9. What would be the situation if a contractor bid on the previously mentioned job and assumed that no cofferdams were necessary but found later that they had to be used?

12-10. Black contracted with owner White to build large transmission towers at a stated price per tower. White subsequently decided to use longer spans for the wires and he reduced the number of towers. Is Black entitled to any extra compensation therefor? Explain.

12-11. A contractor designed a cofferdam for his use in building a bridge pier. Because of the engineer's objections to the use of certain details which seemed to be weak, the contractor strengthened these details of the cofferdam. After the cofferdam was built, the north wall caved in. Who was responsible for the resultant damages?

12-12. The engineer telephoned the contractor, instructing him to hold up work on some retaining walls, pending receipt of revisions. The contractor notified the resident engineer, who was conducting a conference at the time. Twenty minutes later the resident engineer sent the foreman to halt the work. At the time the foreman arrived, 10 cu yd of concrete had been poured in the walls, and trucks with 10 cu yd more concrete were waiting and ready to deposit the concrete. What should the foreman do? Who should pay the bill, if any?


12-14. Describe one way in which the evils of "bid shopping" may be remedied.

12-15. Crammer subcontracted to Williams the furnishing and installation of all equipment for a large pumping station. The operation of the pumps was guaranteed for one year (by the contractor). When the plant started to operate, certain defects in the pumps were discovered. To whom will the owner look for remedy—the contractor or the subcontractor?

12-16. What is the purpose in allowing the owner to withhold a portion of partial payments due the contractor? What happens to this money when the job is completed?

12-17. When and how are final payments computed and made to the contractor for a lump-sum contract; a cost-plus contract?
12-18. Explain the purpose and operation of liquidated damages.
12-19. What is meant by "the contractor shall indemnify and save harmless the owner in case of any claims for damages"?
12-20. Brown orally told Black to build him a wooden garage 25 ft long and 12 ft wide having a concrete floor, overhead doors, and a sloping roof covered with asphalt shingles. No other specifications were stated. The agreed-upon price for the garage was $1,500. The agreement and details were not recorded in writing. Black built the garage, but he included no windows and no electric lights. Brown claimed that these two items were included in the agreement by implication. Is Brown correct in this matter?
12-21. For what purposes may standard contracts be used?
12-22. If you were running an engineering office, when and why might you have use for standard contract clauses?
12-23. If a contract is suspended by the engineer for five days because of changes which the owner wants to make, does this affect the cost to the owner? Explain.
12-24. A contract required the job to be completed July 15. The engineer ordered the contractor to suspend operations from May 1 to May 15. The engineer therefore changed the completion date from July 15 to July 31. Should he have done so?
12-25. Explain why the owner should have the right to annul a contract but the contractor should not have this right.
12-26. Describe what the contractor should do if notified of suspension of the contract; of its annulment.
12-27. Under what conditions might the conduct of the contractor himself be proper cause for the owner to annul the contract?
12-28. Should it be possible for the owner to annul part of a contract as well as the whole? Why?
12-29. Should a contractor be able (at his own discretion) to transfer his contract to another? Why?
12-30. When might the owner be glad to have the contract transferred to another contractor?
12-31. Who should have the right to make revisions in a contract? Why?
12-32. Why may revisions justify extra compensation for the contractor?
12-33. What compensation should the contractor receive for making revisions due to mistakes or oversights of his own men?
12-34. In case of revisions of a unit-price contract, (a) when will the unit prices be applicable? (b) When will they be inapplicable or insufficient?
12-35. Explain why foundation work may be a fruitful cause of extra charges by the contractor. Illustrate.
12-36. Should the engineer ordinarily get and issue data regarding soil conditions at the construction site or should the general contractor do so? Explain.
12-37. Should the bidder make his own interpretation of the results of soil explorations at a construction site? Explain.
12-38. Explain when and why the contractor may claim extra compensation when the quantity of work in a unit-price contract is increased.
12-39. Explain when and why the contractor may claim extra compensation when the quantity of work in a unit-price contract is decreased.
12-40. Illustrate a case in which the contractor is evidently entitled to extra compensation because of a change in the quality of the work required in a unit-price contract.

12-41. If the contractor has completed the job on a unit-price basis, can the engineer compel him to build some added part at the same unit prices?

12-42. A contractor claims that the work as performed is more difficult than that shown on the contract drawings and called for in the specifications, hence he claims extra compensation. Who is to judge the correctness of his assertion?

12-43. Who is to judge whether the owner or the contractor is responsible for delays resulting in claims by the contractor for extra compensation?

12-44. A contractor bid $100,000 on a job, and he was awarded the contract. He later found that it cost him $110,000 to do the work. Can he justly claim extra compensation if no changes or delays were caused by the owner or the engineer?

12-45. Under what conditions would you grant the contractor an extension of time for completion of a contract?

12-46. The contract stated: "The contractor shall not be entitled to damages because of delays or hindrances caused by anything whatever." A hurricane caused the contractor's work to be delayed an estimated equivalent of two weeks. Can the contractor collect damages because of this unavoidable delay? Explain.

12-47. Explain why delays caused by the engineer failing to furnish information fast enough may entitle the contractor to damages.

12-48. Explain the advantages and disadvantages of subcontracts as far as the owner is concerned.

12-49. Should the engineer have any control (a) over the selection of subcontractors; (b) over the acts of subcontractors?

12-50. What is the meaning of "bid shopping"?

12-51. Compare the advantages and disadvantages of handling contract work by subcontracts with doing that work through several separate contractors.

12-52. Explain the "bid depository" system of bidding on subcontracts.

12-53. What specifications apply to subcontracts?

12-54. Explain the purpose and operation of partial payments made to the contractor in case of a unit-price contract.

12-55. Should partial payments be based upon elapsed time or upon the quantity of work done? Why?

12-56. (a) May the partial-payments principle be applied in case of a lump-sum contract? (b) If so, how may these payments be computed?

12-57. How is the final payment to the contractor determined for a lump-sum contract; a unit-price contract?

12-58. When is final payment due, and what may delay its execution?

12-59. What rights should the contractor have if the owner fails to make specified partial payments?

12-60. Why might liquidated damages be stipulated in a contract? Who determines their amount?

12-61. Explain the meaning of "time is of the essence" in a contract.

12-62. In case of liquidated-damage claims against the contractor, what things or events might be used in defense by the contractor?
12-63. If no time for starting and completion are given in the contract, can the contractor neglect the job and do the work when he sees fit?

12-64. What can the owner do to the contractor if unsatisfactory results of the latter's work are proved to be caused by the design? Why?

12-65. Who should carry insurance on a construction job prior to its completion? Why? How should the amount of insurance be determined?

12-66. Who should be responsible for the protection of the public during construction operations? Why?

CHAPTER 13. CONTRACT CLAUSES RELATING TO OPERATIONS

13-1. A contract called for the building of a large oil tank on silty soil near a wharf—all in accordance with the design. Under one edge of the area to be occupied by the tank, the contractor unexpectedly encountered a group of old wooden piles. He cut them off just below the future tank bottom, and he covered them with a little dirt. He did not report the situation to the engineer. When the completed tank was tested by filling it with water, the greater resistance of the piles (compared with the bearing on the neighboring soil) caused uneven settlement; as a result, the side of the tank over the piles buckled. Who is responsible for remediying the situation? Explain.

13-2. The contractor designed the falsework for a large bridge, and the engineer approved the drawings. Subsequently one erection bent collapsed. Who is responsible for the resulting damages? Elaborate.

13-3. Describe some of the duties and responsibilities of and limitations upon an inspector in the field.

13-4. An inspector of the fabrication of structural steelwork noticed that a large gusset plate in a bridge truss seemed too thin, although its size agreed with that shown in the design. (a) What should he do about the problem? (b) What could he do if the gusset plate was the right size but attached opposite hand from what the design showed? Elaborate.

13-5. Explain the principal powers of the engineer in connection with the conduct of work in the field. What is his responsibility in case of an emergency?

13-6. Who should be responsible for coordination of work done (a) by the contractor and subcontractors; (b) by two different contractors; (c) partly by the owner and partly by the contractor? Explain.

13-7. What are the principal procedures for and the significance of final inspection and acceptance of a job? Does this acceptance relieve the contractor of subsequent responsibility for the quality of his work?

13-8. Why should the engineer specify that he is to approve all the contractor's drawings?

13-9. The contractor designed the bracing for some sheet piling alongside a deep excavation. The engineer examined the contractor's drawings and concluded that the bracing was not adequate. (a) Has he the right to forget the seeming inadequacy and to let the contractor go ahead? (b) Should he do so?

13-10. Should the contractor check the engineer's plans? Why?
13-11. Who is to do the inspecting of work done by the subcontractors—the engineer or the contractor—since the owner has no direct contact with the subcontractors?

13-12. If the engineer is not able or willing to send someone from his organization to inspect certain products before shipment from the factory, must he accept these products regardless of deficiencies?

13-13. If the inspector accepts work done by the contractor, does that mean that the contractor is no longer responsible for proper performance and quality of the work which has thus been accepted?

13-14. Does the inspector in the field have the right to tell the contractor how to perform his work? Explain.

13-15. Why make a final inspection when all the work has supposedly been inspected and approved before?

13-16. If defective work done by the contractor cannot practicably be replaced, what can the engineer do about it?

13-17. If the contractor guarantees a structure for one year, (a) what is the usual starting time of the guarantee, and (b) what sort of things would the guarantee usually cover?

13-18. What is the significance of “substantial performance” in construction contracts?

13-19. Who is to judge if performance is “substantial” or not?

13-20. What value may be attached to the clause: “The contractor shall perform his operations in a workmanlike manner”? Elaborate.

13-21. Why may it be desirable for the engineer to establish all lines and grades for a contract for a large concrete dam? Explain.

CHAPTER 14. MISCELLANEOUS CONTRACT CLAUSES

14-1. Why is it desirable for the contract documents to contain a clause which requires each bidder to visit (or to have one of his men visit) the site of a construction job before submitting his proposal on the project?

14-2. What kinds of things are supposed to be covered by a bidder’s warrant; by the contractor’s guarantee? Why should the engineer require the bidder to warrant and to guarantee these things?

14-3. Ordinarily, who should establish the order in which the contractor is to perform various major portions of a large construction job? Explain.

14-4. A contractor was building a highway underpass in an urban area. The contract stated that he was to maintain traffic and to maintain and relocate all utilities. He encountered an old sewer which was not shown on the plans or mentioned in the specifications. (a) Is maintenance and relocation of this sewer his responsibility? (b) Can he properly claim extra compensation for this work? Explain.

14-5. A contract states that the work is to be completed in thirty days. What does this mean? Is the statement proper?

14-6. A contract states that the work is to be completed promptly. What does this mean legally?

14-7. In a construction job, who should provide the necessary land; access; power; sanitary facilities; permits; licenses? If not specified, what can be done about these matters?
14-8. A store with a deep basement was to be built alongside an old building, the foundations of which were shallower than those of the new structure. The edge of the old building next to the excavation settled \( \frac{1}{2} \) in. after the excavation was completed. Who is responsible for the obvious damage to the old building? Explain.

14-9. What is meant by “the right of support of one’s land”?

14-10. When building next to an existing structure, what are some of the steps which should be taken by the engineer to protect the owner of the new construction against future claims (by the owner of the adjacent property) for damages allegedly resulting from the construction operations?

14-11. Why should a contractor be responsible for the protection of the public at a job site; for the maintenance of discipline?

14-12. Explain why it is important to confirm (in writing) telephoned messages between the engineer and the contractor, when these messages relate to the construction job.

14-13. A power line was to be built across 40 miles of muskeg in Minnesota. A bidder visited the site and, from his examination, concluded that the work could be done economically only when the swamps were frozen. Therefore he did not believe that the job could be done in the specified time. (a) What should he do about the matter? (b) What should the engineer do about it?

14-14. Why should the engineer require the bidders to warrant that they are solvent? Does a statement to that effect by them prove anything?

14-15. Does the contractor accept all risk when he takes the job? Why ask him to state officially that he does so?

14-16. Why make the bidders warrant that they are familiar with all laws, ordinances, pay rates, tax regulations, etc., affecting the job?

14-17. Why might the engineer want to specify the order of completion of portions of the contract work? Illustrate a case.

14-18. Has the engineer the right to require the contractor to prepare a construction schedule? Why is one desirable?

14-19. (a) Who should provide the building permit? (b) Why is one necessary in many cases?

14-20. When might a bidder be prevented from doing work in a state even though he is a competent contractor?

14-21. What is meant by “closed shop”? Why may this be important?

14-22. What form of contract is best suited for underpinning jobs? Why?

CHAPTER 15. PROPOSALS

15-1. Illustrate a situation in which standard proposal forms might be used advantageously. Explain the advantages of the use of such proposal forms.

15-2. Why may use of the “shears and paste-up” method of writing proposal forms be advisable? What are its advantages?

15-3. Who should usually determine the type of contract to be used for a given construction job? On what basis should he determine it?

15-4. For a unit-price contract: (a) How are the quantities which are given in the proposal form determined? (b) Are these quantities guaranteed to be accurate? (c) What are the quantities used for?
(d) Are the quantities the same as the actual quantities that will probably be used in the job?

15-5. Assume that you are a consulting engineer and your job is the design and preparation of contracts for a $20,000,000 plant for extruding aluminum shapes. List several of the typical items of cost which should be covered by the percentage or fixed fee in a cost-plus contract.

15-6. Describe how a contractor would go about preparing his bid on a school building to accommodate 400 pupils, assuming that it is to be a lump-sum job. List several of the typical work items involved.

15-7. For the school mentioned in the preceding question, describe how a contractor might prepare his bid if it were to be on a unit-price basis.

15-8. Who determines the contingency figure in the cost estimates for a construction job?

15-9. Who ultimately pays the cost of preparing proposals on a contract in the case of (a) the successful bidder, (b) the unsuccessful bidders?

15-10. How does a bidder determine the estimated profit to be obtained from the performance of a contract on which he makes a proposal (assuming a unit-price contract)?

15-11. What are “escalator” clauses as used in connection with proposals on unit-price construction contracts, and why are they used?

15-12. (a) Does the engineer generally make an estimate of the cost of a project before obtaining proposals? (b) How does he do so? (c) Why does he do so?

15-13. What is an unbalanced bid; why might one be made?

15-14. On what basis is the successful bidder determined in the case of (a) a lump-sum contract; (b) a unit-price contract?

15-15. In what respect may a proposal be improper? What should be done by the engineer in such a situation?

15-16. Explain how and when alternates might be used when one is seeking proposals on the construction of a large building project.

15-17. In connection with proposals, is there ordinarily any time limit before a proposal will cease to be binding on the bidder?

15-18. When a bidder submits his proposal, is that act something which completes a contract?

15-19. Why is the use of a printed proposal form advisable for construction contracts?

15-20. Is a printed proposal form essential for the making of a construction contract? Why?

15-21. What happens if the actual quantities used in a unit-price contract differ from those stated in the proposal form?

15-22. Does the fact that a proposal for a construction project is on a unit-price basis mean that the cost of the job will be less than if the proposal were made on a lump-sum basis? Explain.

15-23. What is the meaning of “classified work” in a unit-price contract? Is there usually other work to be done under the contract in addition to that specifically stated in the payment items?


15-25. What principles would you apply (as the engineer who is preparing the proposal form) in selecting the payment items for a unit-price contract for a concrete highway 2 miles long with two steel overpasses and five pipe culverts? Make a list of the payment items which you select.
QUESTIONS FOR REVIEW AND EXAMINATION

15-26. If the plans and specifications are vague and incomplete, what can the bidder do to protect himself?
15-27. How can a bidder determine the percentage or fixed fee to charge in connection with a cost-plus contract?
15-29. Is it probably wiser to have alternates applied to a main contract as additions or to have them applied as subtractions? Explain.
15-30. Explain when and why a bidder might add a contingency item in his proposal.

CHAPTER 16. SURETY BONDS

16-1. As used in construction contracts, what is a surety bond?
16-2. In the ordinary case of surety bonds used in the construction industry, who is the principal?
16-3. What types of surety bonds are in common use in the construction industry?
16-4. Under what conditions is a surety bond for performance desirable?
16-5. Whom is a surety bond designed to protect?
16-6. Define surety.
16-7. Why should the owner have the right to approve or reject a specific surety?
16-8. Explain the function of a performance bond.
16-10. What substitutes are sometimes used instead of surety bonds?
16-11. (a) Who usually determines for the required size of a performance bond? (b) On what does he base this determination?
16-13. When and why might the engineer require multiple sureties?
16-16. Why should the surety have the right to object if major revisions of the contract are made?
16-17. What happens to the performance bond when the contract has been completed satisfactorily?
16-18. A contractor furnished a performance bond having a face value of $100,000. The contract price was a lump sum of $1,000,000. The contractor had completed over 60 per cent of the work and had been paid $540,000 by the owner. Then the contractor defaulted, leaving unpaid bills of $100,000. The owner had withheld $60,000 of partial payments due the contractor for work done prior to the default. The owner engaged another contractor to finish the job for $475,000. Does the surety for the performance and payment bond have to pay? If so, how much? Explain.
16-19. A contract required submission of a bid bond for $10,000 with each proposal. The lowest bid was $500,000, and was made by Morse. The next lowest bid was $520,000 and was made by Whipple. Morse later refused to sign the contract. The owner then accepted Whipple's proposal, and awarded the contract to the latter. (a) What is the
obligation of Morse's surety?  (b) What does the owner gain or lose? Explain.

16-20. Kiley performed part of the work required by his contract with Daniels, then defaulted. Kiley's work was, in part, very unsatisfactory. By agreement with the surety, Daniels had another contractor finish the job for $15,000 additional cost, and he also had this contractor replace Kiley's defective work for $8,000. The face value of the performance bond was $25,000, and it promised "satisfactory performance" by the principal. Daniels presented the surety with a bill for $23,000. Can Daniels collect this sum? Explain.

16-21. What is a "labor and materials" bond, and how does it function in a construction contract?

16-22. Is it customary to require a single performance bond covering the satisfactoriness and completion of the contractor's performance as well as payment of his employees and materialmen? Is it possible to provide such a bond?

16-23. Should a performance bond be oral or written? Why?

16-24. Are there any specific and limited provisions for a surety bond?

16-25. Can a performance bond be made to cover 100 per cent of the contract price? Can it cover more?

16-26. A clause stating that the contractor is to furnish a performance bond for $50,000 specifies the required surety by name. Is this customary? Why?

16-27. (a) When might a surety "reinsure" the obligation assumed by him in a performance bond? (b) Does the surety have to get the owner's approval for this action?

16-28. If the contract calls for multiple sureties, can one surety take over the complete obligation?

16-29. Does the surety usually take over when the contractor gets into difficulties or only when he quits?

16-30. How can the owner, engineer, and surety know how they stand if the contractor defaults on a unit-price job?

16-31. Describe the advantages and disadvantages of using cash, securities, or personal bonds instead of surety bonds for performance protection of a large construction contract.

16-32. A surety posted a performance bond for $30,000 for a contractor who was to strengthen and repave an old steel girder bridge. A hurricane and flood carried away the bridge a week after the contractor started work. What do you think is the obligation of the surety? Explain.

16-33. If the lowest responsible bidder refuses to sign the contract, and if he has furnished a bid bond for $10,000, what courses of action are usually open to the owner?

16-34. What happens to the performance bond if the owner cancels the contract?

CHAPTER 17. INSTRUCTIONS FOR BIDDERS

17-1. List the principal kinds of information which should be given in the "instructions for bidders."

17-2. Why should proposals for a construction contract be sealed when submitted to the owner?
17-3. Why forbid withdrawal of any submitted proposal before actual opening of all proposals?

17-4. (a) If withdrawal of a proposal is permitted, should there be a time limit for doing so? (b) What should it be?

17-5. What reasons might the engineer state as the only justification for withdrawal of a proposal?

17-6. Why require that a bidder use the printed form prepared for a particular proposal?

17-7. What should be done if a bidder changes any portion of the proposal form?

17-8. Explain a proper procedure for the opening of proposals for a construction contract.

17-9. What sort of information may the engineer often require a bidder to give besides that contained in the proposal itself?

17-10. Jones’s proposal for a building contract was $125,500. After finding that his bid was low, he checked his estimates and found that an item of $25,000 had been incorrectly recorded as $2,500 in making the summary of costs. What can he do about the situation? Explain.

17-11. What is meant by “lowest responsible bidder” in connection with construction contracts?

17-12. Under what conditions may the lowest bid be rejected in private work; in public work?

17-13. Davis’s bid of $542,000 was the lowest on a building job. The cost of the largest construction contract which he had performed previously was $78,000. What should the engineer do to determine whether or not to let the contract to Davis?

17-14. If in the case described above the contract says, “The contract will be let to the lowest bidder,” can anything be done about it? Explain.

17-15. Explain possible procedures for and advantages of prequalification of bidders.

17-16. Why and under what conditions should the contract state that the owner has the right to reject any or all proposals?

17-17. (a) Should a contract be readvertised “as is” in case the bids previously received are too high? (b) If not, what procedure should be followed?

17-18. Explain the purpose of requiring that a certified check accompany a proposal.

17-19. Why should special requirements regarding taxes, union labor, wage rates, and performance bonds be included in the instructions for bidders?

17-20. Why should the engineer specify that a deposit is to be made by prospective bidders in order to obtain copies of the plans and specifications for the purpose of bidding on a construction job?

17-21. Sullivan, a contractor, notified the engineer, Quinn, that he had been ill and could not complete his proposal on a street-paving job within the stated time. (a) Can Quinn do anything to give Sullivan more time? (b) Should Quinn do so?

17-22. The contract documents for the construction of a public library stated that proposals were to be received by J. J. Jones at 11:00 A.M., Jan. 15, 1957. Is this a satisfactory statement? Explain.
17-23. Why might the engineer specify that each proposal should be accompanied by the bidder’s proposed construction schedule?
17-24. If a contractor has been rejected for prequalification, what recourse is open to him?
17-25. Why might it be desirable to reject all bids?

CHAPTER 18. ADVERTISEMENT

18-1. Why may an engineer advertise for bids on a public construction project?
18-2. Why may an engineer advertise for bids on a private construction project?
18-3. Why does statute law generally require advertisement of construction contracts for public projects?
18-4. In what ways other than advertising may an engineer request bids?
18-5. Name acceptable media for advertising contracts for (a) construction, (b) produce, (c) machinery.
18-6. List the kinds of data which should be given in the advertisement for a junior high school. Assume all necessary information.
18-7. Why should the advertisement specify the procedure to be followed (a) for receipt of proposals; (b) for opening proposals; (c) for awarding the contract?
18-8. An advertisement for a dam contained the words; “estimated cost is $1,800,000.” Is this proper or advisable? Explain.
18-9. If a project is suddenly canceled after being advertised, what should be done about the request for proposals?
18-10. Smith’s advertisement for bids on the construction of a sewage-disposal plant stated: “$500 per day liquidated damages if not completed in fifteen months after signing of the contract.” Reynolds saw Smith and secured permission to omit this requirement. Has Smith the right to make this change? What should be done about other bidders?
18-11. Assume that an advertisement contained the following paragraph: “The Board of Aldermen reserves the right to waive informalities and to reject all bids.” Is this paragraph satisfactory? Explain.
18-12. If an owner advertises for proposals, does this mean that he has to accept one of the proposals received? Why?
18-13. Why is it advisable, in a public project, to print a copy of the advertisement in the contract documents?
18-14. When may public agencies dispense with advertising for proposals?
18-15. What is the customary minimum number of bids which must be received before a public works contract can be awarded? What may happen if only two bids are received?
18-16. Prepare a list of information which should customarily appear in an advertisement for bids on a construction contract, listing items in the preferred order of appearance in the advertisement.
18-17. Why might a contractor, who reads an advertisement of a construction project, be interested in and influenced by (a) the location of a project; (b) the name of the owner; (c) the character of the job?
18-18. What influence may the magnitude of the job have on whether or not
prospective bidders will be interested in preparing proposals for performing the work required?

18-19. Explain the principles to be followed in giving bidders an idea of the magnitude of a construction job when advertising.

18-20. Why state in the advertisement that the contract will be awarded in a specified time after receipt of proposals?

18-21. Why state in an advertisement that the successful bidder must sign the contract within a specified time after notice of award of the contract to him?

CHAPTER 19. AGENCY

19-1. Describe the agency relationship, and how it is created.

19-2. What are the duties, rights, and obligations of an agent; a principal?

19-3. Distinguish between agency, on the one hand, and employer and employee (or master and servant) on the other.

19-4. Explain the differences between an agent and an independent contractor.

19-5. Distinguish between an agent and a trustee.

19-6. Whipple is an engineer in private practice. He appoints Monroe to act as his agent in securing business. Has Whipple this right? Can Monroe himself properly hire Appleton to assist? May Monroe appoint Appleton to represent Whipple as Monroe's agent; as Whipple's agent? Explain.

19-7. Wilcox, a builder, appointed his twenty-year-old son as agent to assist in the sale of houses and the purchase of materials. May the son act in this capacity? If the son offers to sell a house for $18,000 and Wilcox disapproves the sale, can (a) the son, or (b) Wilcox, or (c) both be held to the agreement? Why?

19-8. Nelson was in the real estate business. Black, who was not Nelson's agent, told Nelson that Black had made arrangements for Brown to buy one of the houses advertised by Nelson for $20,000. Nelson made the sale. Black claimed that he was entitled to a commission thereon. Is Nelson obligated to pay anything to Black? Why?

19-9. Distinguish between the rights and duties of (a) a general agent and (b) a special agent. Illustrate both types of agency.

19-10. A is an agent for B, a realtor. A agrees to sell C's house but, unknown to B, for a "bargain-rate" commission of $400. After the house is sold, B demands that C pay the standard commission—$500. Must C pay the extra $100? Give reasons.


19-12. List several purposes for which an agency may be created.

19-13. Lindsley was a sales representative (on commission) for the Gatmann Motor Co. Lindsley, without Gatmann's knowledge, also conducted a used-car business of his own on the side. Has Lindsley the legal right to do so? How about the ethics of the situation?

19-14. Perkins, an agent for Quade, agreed that his principal would design a large store for Dunford for the sum of $2,000. It soon became obvious that the job could not be done properly for anything like this figure. Is Quade bound by the arrangement made for him by Perkins? Explain.
19-15. When and how may an agency be terminated? Give illustrations.
19-16. May an employer discharge his employee when he wishes to do so? May a principal do likewise with his agent?
19-17. Does an agent have authority to use his own discretion?
19-18. Can a servant or employee make contracts on behalf of his employer?
19-19. Can a person be an employee and at the same time be appointed to act as agent?
19-20. If Carter has some very hazardous blasting to do, can he, by letting a contract for this work to Dawson, shift to the contractor all responsibility for possible damages to persons and property? Explain fully.
19-21. How may one determine whether a given person acting for another is an employee, agent, or independent contractor?
19-22. In the usual case, which has more in the way of discretionary powers, an agent or a trustee?
19-23. Can an agency be created by implication as well as by express contract? Explain.
19-24. Must an agency always be created by means of a writing? Elaborate.
19-25. Explain and illustrate how an agency may be established through estoppel.
19-26. An agent does something beyond his authority. Has the principal the power to ratify the unauthorized action? What would be the effect of ratification?
19-27. Distinguish between the principal's being bound (a) by estoppel and (b) by ratification.
19-28. Explain and illustrate "agency of necessity."
19-29. Is the principal as much bound by acts of a general agent as he is by those of a special agent?
19-30. Suppose the agent, exceeding his authority, has made certain contracts on behalf of the principal, which the latter declines to accept. Has the third party any recourse against (a) the principal; (b) the agent?
19-31. B had refused to buy certain goods from C. Then C engaged D to serve as his agent, instructing the latter not to disclose the agency but to try to get B's order. After D had succeeded, B found out that C was involved, and thereupon refused to accept the goods. Has C a valid complaint against B? Explain.
19-32. Blodgett is on a trip for his principal, Franklin. Just before Blodgett, as agent, signs an agreement with Gordon regarding the purchase of 20,000 tons of coal, Franklin dies. What is the legal situation; i.e., is there a binding contract?
19-33. If an agent quits without cause and before expiration of the contract of agency, can the principal (a) compel specific performance, or (b) collect damages?
19-34. Under what conditions may an agency be irrevocable?

CHAPTER 20. TORTS

20-1. Define "tort"; differentiate between tort and crime.
20-2. Distinguish contract liability from tort liability.
20-3. What elements are necessary to support a tort action?
20-4. Define "negligence," and illustrate it.
20-5. Define and illustrate contributory negligence.
20-6. What is the meaning of the "standard of care"; the "normally prudent man"?

20-7. Define and illustrate "proximate cause."


20-9. Explain and illustrate the doctrine of "res ipsa loquitur."

20-10. What is malpractice? Illustrate.

20-11. In general, are minors and mentally retarded persons legally responsible for their negligent actions? Elaborate.

20-12. What is the liability status of governmental officials in respect to their negligence?

20-13. Name one circumstance which might result in a tort liability for a landowner; a lessor of land; a lessee of land.

20-14. Differentiate among "trespasser," "licensee of land," and "invitee." What degree of care does the landholder owe to each?


20-16. What is a "public nuisance"; a "private nuisance"?

20-17. Barnes was injured by Jones in a brawl, and brought suit for damages. Before the case reached court, Barnes was killed in an automobile accident. Is the Barnes suit necessarily a dead issue?

20-18. What is the difference between "libel" and "slander"? What elements would support a suit for defamation? What defense is often presented?

20-19. What is the tort of "conversion"?

20-20. Explain the doctrine of "respondeat superior."

20-21. Hart had a dog that was known to be vicious, and Hart was ordered to keep him on a leash. One day the dog broke away and bit the milkman, who had come to make his customary delivery. Can the latter expect to collect damages from Hart?

20-22. Varney operated one of two 5-ton cranes in a factory. Both cranes were to act simultaneously in lifting a 9-ton machine. The other operator was busy elsewhere, so Varney, who was in a hurry, tried to lift the machine with his crane alone. The cable broke after the load was 10 ft above the floor, and a workman who happened to be walking under the crane, but who had nothing to do with the operation, was injured. Has the workman a valid cause of action against Varney?

20-23. Perkins was about to make a contract with Green. Murray persuaded him not to do so, but to engage Black. Green brought action against Murray. On what grounds would the action be based?

20-24. X was shingling the roof of Y's house under a contract. X accidentally dropped his hammer. It rolled down the roof and injured a neighbor's child who was playing nearby. Is X legally responsible? How about Y?

20-25. Can torts stem on occasion from inaction as well as from improper action?

20-26. Can there be several wrongdoers involved in a single tort? Can plaintiff bring action against one, or must he include all?

20-27. Horton's manager, Garnett, was guilty of negligence in connection with certain behavior which endangered Horton's property. Fortunately, the trouble was detected before Horton suffered actual injury. Do you think that Horton could sue and expect to collect anything? Explain.
20-28. In the preceding case, assume that Garnett’s negligent act caused a fire which damaged $5,000 worth of Horton’s property, and that the latter brought suit. Upon whom does the burden of proof fall?

20-29. Jackson was driving a loaded truck, gross weight 15 tons. He was on his way from his sand pit in the country to the neighboring city. He started to cross an old bridge which was posted for “10 tons maximum,” and he had been over this structure many times with excess loads. However, this time the bridge collapsed. The town authorities sued Jackson for damages. With what result?

20-30. A rented a suburban house and lot from B. Having no garage, A customarily parked his automobile under a large tree (on B’s property) bordering the driveway. During a severe ice storm, a large branch broke off the tree and fell on A’s car, causing $300 worth of damages. A tried to collect from B. What do you think of A’s case?

20-31. Vines, a plumbing contractor, sold Wilson a 40-gal hot-water tank and installed it in Wilson’s basement. Four days later, the tank burst, flooding the basement and ruining some goods which Wilson had stored there. Can Wilson collect for the cost of replacing the goods as well as of replacing the boiler?

20-32. Murray had invited Garnett to spend a week with him at his cottage at Indian Lake. One morning, Garnett proposed that they go fishing in Murray’s canoe. Murray hooked a large fish, and during the excitement which followed the canoe capsized. Both men lost all their fishing tackle, much of it expensive. Garnett claimed that Murray should recompense him. Has Garnett a just claim? Why?

20-33. On Tuesday, farmer Jones bought three of Holley’s cows, and delivery was made that afternoon. A week later, Jones discovered that one cow had a serious growth which later caused its death. Jones claimed that Holley had defrauded him. What would plaintiff Jones have to prove in order to substantiate his charge?

20-34. What duties and liabilities may there be which a property owner cannot delegate to an independent contractor who is doing some work for the former?

20-35. What is “workmen’s compensation”? How does the system operate?

CHAPTER 21. REAL PROPERTY

21-1. Define real property; differentiate it from personal property.
21-2. What is a quitclaim deed; a warranty deed?
21-3. Simpson bought a house and lot from Davis after examining the property carefully. When Davis moved out he took with him all of the hardy plants from the flowerbeds, most of the flowering shrubs, a young maple tree ten feet high, a rose arbor, a lawn mower, and a small prefabricated tool house. Did Davis have the right to take these things?
21-4. If a man buys some land and the deed he receives states, “in fee simple,” what does this mean for the purchaser?
21-5. What are the essentials in a deed?
21-6. What is a title search? Why is one made?
21-7. Explain the function and operation of eminent domain.
21-8. How are boundaries generally determined and recorded?
21-9. What is an easement? By what means is one obtained? Can the
easement be (a) sold, (b) relinquished?
21-10. What general limitations are there upon one’s use of his own land?
21-11. Do water and mineral rights usually accompany the transfer of title
to land?
21-12. What aspects of the property should one investigate before buying a
given piece of real estate? Explain fully.
21-13. Brown owned 25 acres of woodland situated off the highway behind
Sullivan’s property, and he had an easement across the latter’s land for
access to the woodland. Thompson offered Sullivan a handsome price
for his property, intending to construct a housing development thereon.
Thompson refused to concede Brown’s right to cross the land. Can
Sullivan (or Thompson, after the sale is consummated) terminate
Brown’s easement without his consent? Elaborate.
21-14. Morris had remodeled his old barn into a garage with an apartment on
the second floor. Nelson had rented this apartment for the last twenty
years. Morris sold the property to Levine but Nelson refused to
vacate, claiming that he had acquired rights by “adverse possession.”
What result?
21-15. Perkins owned a 200-acre lot of woodland bordering the entire western
shore of Placid Pond in Maine. On the edge of this property was
Buckner’s small cabin, which he had built for himself and had used
free of charge as a hunting lodge for twenty-five years, knowing full
well that the cabin was on Perkins’s land. Perkins, who was also aware
of Buckner’s encroachment, sold his entire tract to the Portland Sports-
man’s Club, and the latter demanded that Buckner vacate. What are
the rights of the various parties?
21-16. What is meant by an “encumbrance” in regard to real property? Give
several illustrations.
21-17. What control can a local or state government exercise over the use to
which real property can be put by its owner or possessor?
21-18. What is a lease? What restrictions are normally imposed upon the
use of leased property?
21-19. If a piece of real estate is sold, what of the existing mortgage thereon?
Does the mortgagee have any effective objection to the sale or to the
identity of the purchaser?
21-20. Why does a mortgagee generally require the mortgagor to sign a bond
or a promissory note as well as the mortgage itself?
21-21. Explain the proper steps to take if one is to mortgage his real property;
if one is to pay off a mortgage.
21-22. What is a license for the use of land? How is it obtained? How is it
terminated?
21-23. What is the meaning of “profit à prendre”?
21-24. Can a mortgage be assigned? Can a lease be assigned?
21-25. Explain the steps to be taken in selling a piece of realty.
21-26. Where should the instrument evidencing the conveyance of real prop-
erty be recorded? Why the recording?
21-27. If a man buys some land, what rights, broadly speaking, does he ac-
quire regarding such land?
21-28. Can two or more persons own a given piece of land? If so, on what
basis?
21-29. If two persons own a given piece of land, can one sell it despite objections by the other? Explain.
21-30. What is a "life estate" in real property?
21-31. If a man has a life estate in land, can he sell the property itself? Why?
21-32. If Salzburg holds realty in fee simple, what disposition is made of the property when he dies?
21-33. Can ownership of real property be conveyed orally? Why?
21-34. What is the mortgagee's situation if the mortgagor fails to pay the taxes, assessments, and insurance on the property? Explain. What steps does the mortgagee take to enforce his rights?
21-35. An electric trolley company had a 50-ft-wide easement across Goldberg's farm for its tracks. The company went out of business. What happens to the easement?
21-36. Pauski leased a large, old-fashioned house for five years, and agreed to use it only as a private residence. One year later he decided to turn the property into a boarding house. Schwartz, the owner, threatened to cancel the lease if Pauski persisted in deviating from the use agreed upon initially. What are the rights of the parties?
21-37. What is a "covenant" as the term is employed in the law of real property? Illustrate.
21-38. What remedies are available for breach of a covenant?
21-39. As regards realty, distinguish between sale and lease.
21-40. Under what conditions is real property transferred without the "approval" of the owner, and very likely against his wishes?
21-41. What points are generally covered in a bond for deed?
21-42. Explain what steps are involved at the "closing" of a real estate sale.
21-43. On what basis is the state able to take land (needed, for example, for a new highway) regardless of the wishes of the property owners involved? What is the justification?

CHAPTER 22. WATER RIGHTS

22-1. Define "riparian rights."
22-2. Define "riparian lands."
22-3. Define "riparian owner (or proprietor)."
22-4. Define "water course."
22-5. Define "surface waters."
22-6. Define "percolating waters."
22-7. What is meant by "reasonable use" of water as applied in matters relating to riparian rights?
22-9. What are the common-law principles of riparian rights? What uses of water do these common-law principles allow?
22-10. What is "riparian use" of water; "nonriparian use"?
22-11. What is meant by the right of use of water through "prescription" or "prior appropriation."
22-12. List (in the order of probable priority) the various uses of water which may be involved in questions of riparian rights.
22-13. Who is likely to own the land constituting the bed (a) of a small creek; (b) of a navigable stream?

22-14. Unless otherwise agreed upon or determined, where is the boundary between the land of riparian owners on opposite sides of a nonnavigable stream likely to be?

22-15. Is there any "legal" limit to the amount of water which a farmer may take from a water course adjoining his land for use in the irrigation of his land?

22-16. Does the owner of a hydroelectric power site have exclusive right to develop the water power at that site?

22-17. If a riparian owner possesses a site which is suitable for the development of hydroelectric power, can he sell the power rights without selling the land, or vice versa?

22-18. What is the difference between percolating water and artesian water?

22-19. Who ordinarily has the right to the use of percolating waters?

22-20. What were the general principles of the "miners' law" governing water use in the West?

22-21. Who may set up and enforce (a) a water code; (b) regulation affecting flood control; (c) rules regarding prevention of pollution of streams?

22-22. Carter bought some low and partially swampy land for a housing development. He filled in the land to raise the elevation of the surface approximately 5 ft. This caused the level of the ground water to rise "upgrade" from Carter's land, and this rise in the water level turned Smith's meadow into a swamp. What can Smith do about the matter?

22-23. Turner, a farmer, cut drainage ditches to drain a swampy pond in his pasture. Bradley, a neighboring farmer, then found that his spring for watering his stock dried up. What can Bradley do about his former spring?

22-24. The Standard Silver Company has discharged chemical wastes into Elton Creek for twenty-five years. Furthermore, the company now plans to expand its plant 100 per cent. (a) Can the Elton Fish and Game Club, which has recently bought 100 acres of land downstream on Elton Creek, compel the company to stop polluting the stream? (b) Can the club do anything about the pending additional pollution?

22-25. The city of Southford plans to build a reservoir on Oak Creek, using most of the water available and designing the spillway so as to divert the excess water to Roaring Brook. (a) Has the city the right to do this? (b) What steps should be taken by the city in clearing the way for construction of the reservoir? (c) What steps may be taken by riparian owners downstream along Oak Creek to protect their rights?

22-26. Clark built a dam in Rice Brook (entirely on his own land) and, during the months of July and August, piped all of the water to his new irrigation system. Dawson, who owned a farm downstream, tried to get an injunction to require Clark to permit part of the water to reach Dawson's property. Do you think that Dawson will be successful? Explain.

22-27: Alton built a small dam on his own property to create a small fish pond. The overflow from the pond continued downstream in the same channel as before, crossing Braxton's land. Has Alton damaged Braxton? Explain.
22-28. The Union Power Co. built a power dam on Hoton River. The company agreed to limit the level of the impounded water to elevation 520 ft. After an unusual spring thaw and rain, the spillway jammed with ice and the water rose to elevation 529 ft, flooding several cottages. The owners of these cottages sued the company for damages caused by this flooding. What do you think of their rights in this situation?

22-29. A brass-manufacturing company plans to build a sheet-and-tube mill on the Housatonic River. There will be considerable acid waste from pickling tanks. Can the company discharge this waste into the river as it sees fit? Explain.

22-30. Assume that the riparian owners downstream from the plant described in the preceding case did not realize that acids would be discharged into the river until after the plant was in operation. What can they do about the pollution problem at that time?

CHAPTER 23. PARTNERSHIPS

23-1. A, B, and C were partners in a contracting business. In the midst of a big job of the firm’s, B died. What should A and C do about the particular job, and about the business in general?

23-2. A, B, and C were partners. A agreed to buy a new car for the firm from D for $3,000. When the car was delivered, B and C refused to accept it. What can D do about the situation?

23-3. What are the fundamental rights and privileges, and the potential liability of ordinary partners?

23-4. Differentiate between a general partnership and a special partnership. Illustrate.

23-5. What is the federal income tax status of a partnership as compared with that of a corporation?

23-6. What are the rights and obligations of an under-age partner?

23-7. How can the existence of a true partnership arrangement be proved or disproved?

23-8. List the several points which should be covered in the average partnership agreement.

23-9. Black, Brown, and White were partners, and carried on a small business manufacturing precast concrete products, cinder blocks, etc. Black, without the knowledge of his partners, agreed to sell the business to Gray. Can Brown and White block the sale, and why? If Black’s deal were to sell Gray $10,000 worth of blocks for $8,000, what could Brown and White do about the matter?

23-10. What is the usual procedure for bringing new partners into a firm?

23-11. How and for what reasons may a partnership be terminated?

23-12. If a partnership is liquidated, how are its assets disposed of? What are the respective priorities of creditors of the firm and of creditors of an individual partner?

23-13. What are the powers, rights, and liability of a limited partner; a sub-partner?

23-14. When several persons are contemplating formation of a partnership; how important is it for each to consider the character and personality of the others who are his prospective associates?
23-15. If one has entered into a partnership, is he bound by the acts of his copartners?

23-16. List some of the possible sources of friction and disagreement that may cause trouble among partners.

23-17. What is the purpose of the Uniform Partnership Act?

23-18. Wallace, who was twenty years old, went into partnership with Yeager and Smith, who were of age. Wallace invested $5,000 (from a legacy) in the business. Within three months, the partners found that they were losing money in their small contracting concern. Wallace wanted to drop out and withdraw his investment. Could he do so? Explain.

23-19. If, in the preceding case, Yeager and Smith were deeply in debt but had told Wallace they were making handsome profits (in order to induce him to join them and contribute the $5,000), could Wallace withdraw his funds when he learned the truth?

23-20. Black and Brown, who were partners, frequently authorized their employee, Green, to represent them in important negotiations, and permitted him to act as though he were a partner. Green contracted with White to have the partnership do certain engineering work for $10,000. White believing that Green was a partner. Black and Brown refused to fulfill the commitment at such a small fee. What recourse, if any, has White? Give reasons.

23-21. In the preceding case, what difference would it make if White had known Green’s real status?

23-22. List the rights and privileges of a general partner.

23-23. Is a partner an agent for his copartners?

23-24. Can a partnership be “insolvent”?

23-25. The partnership of Duncan, Howard, and Kearny was in debt for $100,000. The firm had assets worth $10,000. What courses of action could the creditors pursue? With firm assets insufficient, can individual assets of the several partners be moved against?

23-26. A, B, and C are partners. The firm made a profit of $45,000 for 1956. What is the situation as to reporting for income tax purposes?

23-27. A, B, and C are partners. They are forced to go out of business at a time when the concern owes $50,000. A and B as individuals have been declared bankrupt. C has personal assets worth $45,000, but owes considerable money on his own. As to C’s assets, what are the relative priorities of the firm’s creditors and C’s private creditors?

23-28. Why is it desirable to have written articles of partnership?

23-29. X owed Y $3,000 which he could not pay. He gave Y a promissory note for this sum, payable six months hence, and made out in the name of X Brothers and Associates, the partnership of which he was a member. Can X thus obligate the firm for his personal debts?

23-30. What is the procedure in connection with a partner’s retirement?

23-31. What is a “dormant” partner; a “silent” partner?

23-32. A, B, and C formed a partnership to conduct certain business for five years. What steps, if any, are necessary to continue the relationship beyond the period originally stipulated?

23-33. Illustrate “limited partnership.”

23-34. What is a “subpartner,” and what in general are the rights and obligations which go along with that role?
CHAPTER 24. CORPORATIONS

24-1. What are the distinctive features of the corporate form of business organization?

24-2. What are the advantages of a corporate form of organization as contrasted with those of a partnership?

24-3. How and by whom is a corporation authorized? Organized? Controlled?

24-4. Who "owns" the corporation; who runs it?

24-5. What is a corporate charter? What is its function?

24-6. How can the ownership of a corporation be revised? How can its management personnel be changed?

24-7. What specific powers has the typical corporation? What implied powers?

24-8. What is a "proxy"? How does it operate?

24-9. How does a public utility corporation differ from other business corporations?

24-10. Under what circumstances would a city government be incorporated?

24-11. Describe the operation of (a) an investment trust and (b) a holding company.

24-12. What is a subsidiary corporation? May this type of organization prove more advantageous than having a branch of the parent organization? Explain.

24-13. Describe the nature and purpose of each of the following types of corporate securities: (a) mortgage bonds; (b) debenture bonds; (c) income bonds; (d) equipment bonds; (e) registered bonds; (f) cumulative, convertible preferred stock; (g) common stock.

24-14. What taxes does an ordinary business corporation have to pay?

24-15. How can a corporation be dissolved?

24-16. A corporation decided to go out of business. After paying off its creditors and bondholders, the firm still had assets totaling $2,000,000. There were 10,000 shares of preferred stock of $50 par value and 500,000 shares of common stock (no par value) outstanding. How much per share will each common stockholder receive as a liquidating payment?

24-17. The directors of a corporation voted to buy all its steel for a given year from the XYZ Steel Company. Can the stockholders do anything to reverse the decision? If the directors voted to sell the business outright, would the stockholders have any voice in the matter? Explain.


24-19. Are corporations and partnerships equally subject to governmental supervision? Elaborate.

24-20. If a corporation is chartered in New York, can it do business in New Jersey?

24-21. What are corporate "promoters," and what function do they perform? What potential liability do they have?

24-22. Describe a certificate of incorporation (a document also called "articles of incorporation," or "charter"). What sort of information does it contain?
QUESTIONS FOR REVIEW AND EXAMINATION

24-23. What is the difference between the "capital" and the "capital stock" of a corporation?

24-24. Differentiate between a "de jure" corporation and a "de facto" corporation.

24-25. Explain the differences between "private" and "public" corporations.

24-26. Smith owned one hundred shares of General Motors Corporation common stock. What effect would Smith's death have upon (a) operation of the firm and (b) the shares standing in the decedent's name?

24-27. Corporation A decides to discontinue business. What happens to its assets?

24-28. Corporation A was chartered for the sole purpose of operating a fleet of oil tankers. Without charter amendment, can it legitimately go into the business of building tankers?

24-29. The president of the A-B-C Corporation died. Must the corporation be reorganized and, if so, what steps are necessary?

24-30. Explain the income tax status of a corporation and of its stockholders.

24-31. Can a corporation be sued (a) by an outsider; (b) by one of its stockholders?

24-32. (a) How can a corporation borrow money; (b) on what security?

24-33. Can a corporation borrow money by selling common stock?

24-34. Discuss the "ultra vires" concept as it relates to corporate affairs.

24-35. What limits the amount and types of stock which a corporation can issue?

24-36. Can a corporation increase the number of shares above that authorized by its charter? If so, how?

24-37. Does a corporation pay dividends out of earnings or out of surplus?

24-38. Do the stockholders determine the dividend rate to be paid?

24-39. Who elects the directors?

24-40. What rights does a common stockholder have?

24-41. May a director also be a large stockholder of the corporation? Discuss.

24-42. Can a board of directors perpetuate itself? Explain.

24-43. What is the "Massachusetts trust"? What is its purpose?

24-44. Compare the relative ability of a corporation and of a partnership in borrowing large sums of money.

24-45. Is there any difference between a corporation and a partnership in regard to the holding of real property?

24-46. Compare corporation with partnership as respects the handling of business affairs. Who has immediate control in each case?

CHAPTER 25. PATENTS

25-1. What is the principal objective of the U.S. patent system?

25-2. On what authority is the U.S. patent system based?

25-3. What is a patent?

25-4. Is a patent a contract? If so, what are the rights and obligations of the parties?

25-5. What is the "life" of a patent?

25-6. When was the U.S. patent system inaugurated?

25-7. Who administers the patent laws of the United States?

25-8. What are the limits of the areas in which the U.S. patent laws are effective?
25-9. Does the Patent Office try to advise the patentee whether or not a patent will be a financial success?

25-10. List the elements which are generally necessary for patentability of an invention.

25-11. List several of the kinds (or types) of things which may be patentable.

25-12. Describe the procedure to be followed in applying for a patent.

25-13. What is the meaning of the word “specifications” when referring to patent matters?

25-14. What is the meaning of the phrase “statement of invention” when referring to patent matters?

25-15. What is an “infringement,” referring to patents?

25-16. What is an “interference,” referring to patent matters?

25-17. When and why may drawings be required in an application for a patent?

25-18. What are the “claims” made in connection with an application for a patent? Why are they important?

25-19. What is meant by “complete disclosure”?

25-20. Differentiate between (a) a “sole” and (b) a “joint” invention.

25-21. Define the word “copyright.”

25-22. Define the word “trademark.”

25-23. Of what significance is the “date of conception” of an invention?

25-24. What are the meaning and importance of the “date of disclosure,” referring to inventions?

25-25. What is meant by “diligence” in matters of invention?

25-26. Referring to inventions, what is meant by “reduction to practice”?

25-27. What procedure should be followed by an inventor when developing an invention?

25-28. What precautions should be taken by both parties when dealing with the possible disclosure of secret information?

25-29. Explain and illustrate the licensing of a party to use a patent.

25-30. What is a grant of patent rights to a party?

25-31. What is an assignment of patent rights?

25-32. What is meant by “patent pooling”?

25-33. Describe “cross-licensing” of patents.

25-34. Kimball was a mechanical engineer with an electric power company. He devised and built an apparatus for the disposal of coal ashes from the boilers of one of the company’s plants. Two years afterwards, he applied for a patent on the equipment. Do you think he could get the patent? Explain.

25-35. Nash was trying to develop and patent a new device for dust-collecting equipment. He had Martin, who was in his office, assist him in perfecting the invention, and the latter showed that certain improvements which he suggested were vital to the successful operation of the equipment. Nash patented the invention, using Martin’s suggestions, but Martin claimed that it was a joint invention. Is Martin justified in his claim? Explain.

25-36. Bronson, a machinist, made and used a clever improvement in an automatic lathe but he did not think that the device was patentable. Two years after the device was installed at the shop where Bronson was employed, a visiting sales engineer saw it, had the apparatus installed on the lathes which his company manufactured, and applied for a patent.
on the device. Bronson heard about the patent application. Could Bronson invalidate the patent which might be issued on the device? Explain.

25-37. Can the life of a patent be extended? How?
25-38. Can the Patent Office prevent the disclosure of a patent? When?
25-39. Why may a manufacturer stamp on an article (produced by him) the words: "Patent applied for"?
25-40. Long developed a special formula for a cough syrup, and he kept it secret even though he manufactured and sold the medicine. Short discovered the secret formula and he produced and marketed the same medicine under a different name. (a) Can Short patent the formula? (b) Can Long stop Short from making the competitive product? Explain.

25-41. In the case of the sale of patent rights on a royalty basis, has the purchaser any implied obligations with respect to the seller?
25-42. X patented a special fountain pen. Y copied it and started manufacturing and selling the same pen. X appealed to the Patent Office to stop Y's activities. Will the Patent Office do this? Why?
25-43. What money damages can X, in the preceding case, collect from Y for goods produced before X learned about Y's activities? How can X stop Y's production?
25-44. Will the Patent Office tell an inventor whether or not he should patent his device; or whether or not his idea infringes on other patents when he has not yet applied for a patent?
25-45. Brown invented and patented a toy airplane. He made a certain improvement in the toy and continued manufacture of the modified toy under the original patent. Is his improved device properly protected? Explain.

25-46. If claims in an application for a patent are made very narrow, what may happen?
25-47. If claims in an application for a patent are made extremely broad, what may happen?
25-48. If a chemical product is made by a certain patented process, can someone else produce and sell the same material if he can manufacture the chemical by a different process?
25-49. Smith filed a patent application on July 12. On Oct. 22 of the same year, he thought of an improvement which he wanted to make in the invention. (a) Can he add this to his prior application? (b) What should he do?
25-50. If a patent application contains six claims and the Patent Office finds that two are invalid before issue, must the application be thrown out? What can be done?

CHAPTER 26. EVIDENCE

26-1. What is the purpose of "evidence"?
26-2. Distinguish between direct and indirect evidence.
26-3. When may circumstantial evidence be necessary; what are the weaknesses and dangers connected therewith?
26-4. Explain how evidence may be relevant; irrelevant.
26-5. What is the meaning of "weight" of evidence?
26-6. What qualities of a witness should be examined when judging his testimony?

26-7. What is "opinion" evidence? Under what circumstances is it admissible?

26-8. Who determines the weight of evidence?

26-9. What is meant by the "best" evidence? What part does the best-evidence rule play in a trial?

26-10. What is "secondary" evidence? Illustrate.

26-11. Compare written with oral (parol) evidence as respects the value of each and the role each fills.

26-12. Is the application of the various rules of evidence the same in all states? Explain.

26-13. What is meant by "burden of proof"? Which party assumes it?

26-14. What is "hearsay" evidence? When is it admissible?

26-15. What is meant by "competency" of evidence?

26-16. Abbott, a contractor, called his friend Murdock on the telephone and asked if certain proposed construction, which he described in detail, would be safe. Murdock said, "Yes." Later on, part of the structure collapsed. The owner sued Abbott, but the latter claimed that Murdock was responsible. What can Murdock say in his own defense? Should he have answered as unequivocally as he did?

26-17. A lawyer asked a witness: "Did you see the traffic light?" The witness replied: "Yes." The lawyer then said: "What color was the traffic light?" The witness replied, "I think that it was green." What do you think of these answers as evidence?

26-18. A witness said: "Mrs. Jones told me that her husband had willed all of his property to her." Do you think that such a statement is admissible as evidence in a suit by other relatives who claimed a share in the estate, since no will made by Mr. Jones was found?

26-19. Assume that you are at home reading in your living room at 8:00 p.m., Dec. 20. Suddenly you hear a crash outside, and you run out to see what is the matter. You find that an automobile has hit a tree alongside the road, but that the driver is not seriously injured. The driver claims that another car forced him off the road but did not stop. He then asks you if you will be willing to appear in court to testify that he is not guilty of reckless driving. Would you be able to give proper testimony in this connection?

26-20. What is meant by "material evidence"?


26-24. Differentiate between the functions of a judge and a jury.

26-25. What is the judge's "charge" to the jury?

26-26. What is meant by "judicial notice"? Illustrate.

26-27. Who determines the "credibility" of a witness?

26-28. What is the significance of "conclusive" presumption? How does it operate?

26-29. What is "rebuttal"?

26-30. Who passes upon the competency of a prospective witness?

26-31. What are "privileged communications"? Can the privileged party be forced to divulge such communications in court? May he do so voluntarily?
26-32. What factors might make a prospective witness incompetent?
26-33. What is the hearsay rule? List several exceptions to it.
26-34. Illustrate the “res gestae” doctrine.
26-35. On what basis are “dying declarations” admitted?
26-36. Explain “declarations against interest,” and comment on their admis-
sibility.
26-37. Illustrate a situation in which a “book entry” would constitute proper
evidence.
26-38. What purpose may admissions and confessions serve in a court case?
26-39. Indicate the circumstances under which an expert may testify as to
facts; as to conclusions.

CHAPTER 27. THE ENGINEER AS AN EXPERT WITNESS

27-1. Define the meaning of the term “expert witness.”
27-2. In what kinds of proceedings may an engineer have an important part
as an expert witness?
27-3. Describe in what capacities an engineer may aid in court proceedings.
27-4. Why may “expert” opinion be admissible at a trial when opinion evi-
dence in general is not? Explain.
27-5. Explain the difference in an engineer’s situation when acting as a wit-
ness for one of the litigants, and when rendering service strictly as an
adviser to one of the attorneys.
27-6. Illustrate the procedure which may be followed in court in qualifying
a witness as an expert.
27-7. What facts may greatly affect the weight of an expert witness’ testi-
mony in court?
27-8. Explain the difference between “direct examination” of an expert wit-
ness and “cross-examination” of him.
27-9. Illustrate the raising of “objections” by an attorney during the taking of
testimony when an expert witness is on the stand.
27-10. How may visual aids be used in connection with the presentation of
testimony by an expert witness?
27-11. Explain when and how references may be used by an expert witness in
connection with the presentation of his testimony.
27-12. What is a deposition?
27-13. Explain how a deposition is used in the courtroom.
27-14. Explain how objections made by the lawyers during the recording of a
deposition are handled (a) at the time the deposition is made; (b) at
the time the deposition is read in the court room.
27-15. On the stand, an expert witness was asked: “Exactly what was the
speed of the truck when it crashed through the railing of the bridge?”
The witness answered: “I don’t know.” (a) Does that answer dis-
credit the other testimony of the witness? (b) Should the witness try
to make a specific answer? (c) Would the situation be different if the
question were: “In your opinion, what was the approximate speed of
the truck when it crashed through the railing of the bridge?”
27-16. An attorney asked an expert witness: “Did the pressure in the tank
prior to the explosion exceed that specified in the test procedure?” The
witness answered: “I believe so.” Is that a proper answer? Why?
27-17. Can an engineer be compelled to give testimony in court? How?
27-18. If an engineer is asked to serve as an expert witness, should he investigate the case before accepting? Why?

27-19. Olcott, a partner in a large Chicago consulting firm engaged in structural design, was asked to testify as to his opinion regarding why a concrete floor failed. Olcott stated that he believed that the floor was overloaded because of the weight of several rolls of newsprint paper which had been stored on it at the time. Has his testimony any weight? Explain.

27-20. What may happen if a witness makes a statement on the stand and then, under cross-examination, has to admit that he erred?

27-21. How can the court decide upon the relative value of opposing testimony presented by various expert witnesses?

27-22. Why might an engineer who is to help the attorneys in a lawsuit be asked to assist in the preparation of the "complaint"?

27-23. If an engineer sees that a case, in which he is asked to help the attorneys, is weak or has weak points in it, what should he do about it?

27-24. Why is it customary for a lawyer to go over in advance the general character of questions which he will ask an expert witness in direct examination?

27-25. In preparation for direct examination, is it proper for the prospective witness himself to suggest questions which his attorney might well ask him? Explain.

27-26. If a lawyer is to cross-examine an expert witness, is it customary for the attorney to go over the proposed questions with the witness in advance of the court proceedings? Explain.

27-27. Can an expert witness generally be recalled to the stand after he has undergone both direct and cross-examination? Why?

27-28. What is the purpose of making a stenographic copy of all proceedings during a hearing or court session?

27-29. If an expert witness is not sure that he understands what a question asked him means, what should he do?

27-30. If an objection to testimony is raised by attorney A and the objection is sustained, what can opposing attorney B do to get the desired testimony before the court?

27-31. Lawyer A came to engineer B to ask the latter to serve as expert witness. As the result of a discussion of the matter, B found that he could not agree with much of A's position and claims. Should B accept the job nevertheless? Why?

27-32. Can an expert witness, who is on the stand, ask for an opportunity to refresh his memory before answering a specific question?

27-33. When may an expert witness make use of books to prove technical points in his testimony?

27-34. Can book data, used to substantiate statements made by an expert witness, be placed in evidence as exhibits?

27-35. If a witness refers to computations and figures when giving his testimony, will such data be made a part of the record?

CHAPTER 28. ARBITRATION OF DISPUTES

28-1. What is "arbitration"?

28-2. What is the purpose of arbitration?
28-3. State three situations in which arbitration may be invoked.
28-4. Is an agreement to arbitrate necessarily a part of a contract?
28-5. Can an agreement to arbitrate be made after a contract is in operation? How?
28-6. Does an agreement to arbitrate preclude subsequent resort to court proceedings?
28-7. What is the difference between arbitration and appraisement; among an arbitrator, an umpire, and a referee?
28-8. What is a “submission,” and what constitutes it?
28-9. Can an agreement to arbitrate be revoked or waived? Can these things be done if the agreement is a part of the signed contract?
28-10. Who may decide whether a dispute is to be heard by one or by more than one arbitrator?
28-11. What are the advantages of having one arbitrator; of having two; of having three?
28-12. How are arbitrators generally chosen?
28-13. Can arbitration be resorted to only after completion of a contract? Why?
28-14. What is the American Arbitration Association, and what are its purposes and functions?
28-15. What is an “award”? 
28-16. How is an award arrived at?
28-17. Must the reasons for the magnitude and nature of the award be publicized? Why?
28-18. Will an arbitration award be likely to have any effect in subsequent litigation? Why?
28-19. A contract contained a clause requiring arbitration of disputes. During progress of the work, a serious fire occurred. The owner and contractor could not agree upon the size of, and responsibility for, the resultant damages; therefore the owner brought suit against the contractor. Is this proper procedure? Will the court be likely to hear the case?
28-20. Mursick, the contractor, claimed $10,000 compensation from Healy, the owner, because of extra work done under the contract. There was no arbitration clause in the contract. Mursick demanded that the dispute be submitted to arbitration. Healy refused. Can Mursick force Healy to arbitrate? Why?
28-21. A dispute arose between Black, the owner, and Brown, the contractor, over the interpretation of a clause in the specifications. Is this a suitable subject for arbitration? Why?
28-22. From whom do arbitrators get their authority to make an award?
28-23. Does the submission imply compliance with the future award?
28-24. Can a contract bind the parties to submit a future dispute to arbitration before the difference arises? Why would this be desirable?
28-25. What information should an arbitration agreement contain?
28-26. Can the authority of the arbitrators be revoked before the award; after the award? How?
28-27. According to the terms of a certain contract, one member of a board of arbitration is to be selected by the owner, one by the contractor, and one by these two appointees. Why is this better than keeping the third man as a sole arbitrator and dispensing with the other two?
28-28. Is it better to have the decision of a board of arbitration based on majority opinion or on unanimity? Why?
28-29. Is it customary to name the membership of a board of arbitration before a contract is started? Why?
28-30. Does arbitration have to proceed immediately after a dispute arises? Why?
28-31. What assistance can be rendered by the American Arbitration Association? Will it arbitrate disputes?
28-32. If the arbitrators make a mistake, what can be done about it?
28-33. Should the contract specify the allocation of costs for arbitration?
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