THE MAKING OF BOOKS
SEÁN JENNETT

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THE MAKING OF BOOKS

FABER & FABER
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16
PART ONE

*  
PRINTING
AND
BINDING
I

A SURVEY OF DEVELOPMENT

JOHANN GUTENBERG of Mainz is usually credited with the invention of printing, and great honour has been accorded him on that account; but it is a rare thing for an invention to be the work of a single man, and in spite of the history books and the important service rendered by Gutenberg, printing is no exception to the rule: Gutenberg did not invent it.

The principle of the transfer of an image by impression is almost as ancient as the known history of man. The merchants of Babylonia and Sumeria and the noblemen of Egypt knew the use of seals, and perhaps used them as signatures, as rubber stamps are sometimes used to-day. The Babylonians impressed bricks with relief stamps perhaps carved out of wood, or possibly of soft clay afterwards fired. They even reached the stage of impressing a whole 'page' of characters in one operation. They got no further. If it was not beyond their ingenuity to develop 'printing' of this kind, quantities of documents large enough to make the labour worth while were no doubt beyond their need.

The need apparently existed in China, for it was here that printing began. The earliest printed book that survives was produced in China in A.D. 868, and contains an imprint giving the equivalent of this date. It was found with a quantity of manuscripts in 1900 in a sealed chamber in a cave in Szechuan, where it had apparently lain concealed since the eleventh century. So early a date may appear incredible to a European, and yet printing had been practised in Japan a century earlier for the mass production of paper charms; further, it is considered that printing was introduced into Japan
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from China, where it may have been known in the seventh century. To these achievements we of the West must pay humble tribute. To such an extent was printing advanced in China that in the year 932 the Chinese could put in hand an immense and ambitious project of printing a collection of the classics, and complete it in a hundred and thirty volumes in 953. They used the process called block printing, by which books were printed in Europe during the fifteenth century. Some time in the eleventh century a man called Pi-Sheng introduced separate, or movable, types. Chinese, however, not being written alphabetically and like most non-alphabetic scripts having an enormous number of characters, is among the languages least suited to the use of movable type, and Pi-Sheng’s invention expired with his death.

It is difficult to say how much influence Chinese printing could have had upon that of Europe, for the Far East was not altogether unknown to the men of the West in the fifteenth century A.D.; but it is interesting to remark that printing did not appear in Europe until after Marco Polo and other enterprising travellers had visited China and brought back with them tales full of impossibilities, improbabilities, and incredible actualities; and not until after the Golden Horde had swept half across Europe, bringing with it not only destruction but also knowledge and ideas.

With the close of the middle ages three kinds of book printing appeared in Europe, evidence of men’s growing eagerness for books. Until this time books had been supplied by the labours of scribes, generally in monasteries, but their efforts could not result in large numbers of copies. With the advent of the press their days were numbered, and the production of books, immensely increased, passed from the scriptorium into the hands of the lay craftsman.

The three kinds of printing were that from wooden blocks, à la Chine, that from movable type attributed to Janszoon Coster, and Gutenberg’s method, also using movable type. There is a difference among scholars about the precedence of these (and a question of the validity of Coster’s work), some affirming that block books did not precede movable type,
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others that they did. We need not enter into the controversy here. It cannot be proved that block printing came first, as no copy of a block book survives that is certainly earlier than the earliest book printed from movable type; but it is certain that it did not survive very long in competition with Gutenberg's process. From the standpoint of development, block printing is certainly the most primitive; and the Coster method of printing from movable type is cruder than Gutenberg's.

The block printer began with a planed piece of wood a little larger than the type area he intended to print on the page, and on the smooth surface he wrote the letters that comprised his text, or transferred them from a written sheet. It was necessary to have the letters on the wood in reverse, to obtain a print the right way round. When the writing was complete the surface of the wood was cut away wherever it was not covered by ink, so that finally only the letters stood, in relief, at the original level. This must have taken a great deal of time and a great deal of exacting labour, for a separate block had to be made for every page contained in the book it was intended to print. When the cutting was finished the block was ready for the press, and was capable of printing thousands of copies—certainly more than were likely to be required by the reading public of the time. The disadvantages of the process were numerous. If any error crept into the text in the cutting—and no printer is immune from misprints and the sins of omission and repetition—the block concerned could not be altered easily or satisfactorily. The initial cost of the blocks was high, because of the amount of labour that had to be expended on them, and that cost could not be spread over several books (as it was with type); when the demand for the book had been exhausted the blocks were of no more use than so much firewood.

At some unknown date in the fifteenth century, Janszoon Coster is said to have begun experimenting with movable types. It may have occurred to him that if each letter were cut on a separate block, and a mould made from it so that a large number of replicas could be cast, the letters could be assembled to correspond with the text of the book to be printed, and after
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printing could be taken apart and reassembled for another book. There are many advantages in doing this. In any book each letter of the alphabet occurs many times over; in block printing no use can be made of this repetition, whereas it is the very factor that makes movable type advantageous. It is easier and cheaper to cast a number of letters than to carve them one by one, and the cost of assembling, or composing, type does not outweigh the saving. Again, correction is made easy, since only that portion of the page in which the offence lies need be altered, and that with far more facility than in block printing. Finally, type can be used repeatedly, until it wears out.

It is not certain how Coster made his type. If he did make moulds and cast his letters in metal, it was revolutionary enough, in all conscience; but his craftsmanship was bad and aesthetically the productions claimed for him cannot compare with those of Gutenberg and his followers.

Apparently about the same time Gutenberg, first in Strasburg and later in Mainz, was working on the same problem. It is impossible to say when he first began, or whether he owed anything of his inspiration to the Dutchman of Haarlem, of whom he may or may not have heard. The existence of Coster as a printer is questionable; that Gutenberg existed and was a printer is certain, but what his contribution to printing was is not known. He did not invent the printing press or discover the principle of transfer by impression; he was not the first to think of making books mechanically. It seems possible, however, that his invention was the type mould and a method of making punches to produce matrices for use with the mould. If this is so it is no small thing, for the mould and the matrix are the basis on which the whole edifice of printing has been erected, and on which it still stands. Without these two small components neither composing machine nor printing press could have grown as they have. They represent the only way of making type. Without an efficient mould practicable types cannot be cast, and without type the progress of the whole world must have been inconceivably retarded. Whatever uncertainty there may be concerning Gutenberg's invention, there is ample evidence
in his products that he had found a way of making type with a sufficient degree of precision, and of printing from it competently. With his work printing as we know it to-day began.

Gutenberg was familiar with the work of goldsmiths and silversmiths, if he was not one himself. He must have known something of their methods of casting metal, and this knowledge would be useful to him in dealing with the problem of casting type. He was backed financially by a goldsmith called Fust, who appears, over a period of years, to have spent a considerable amount of money on Gutenberg's ideas for little return up to 1454. In that year and in the following one Gutenberg printed some indulgences remarkable for the neatness and clarity of comparatively small sizes of type. They mark the first astonishing flowering of his work. In these years he was working also on the famous 42-line Bible, but he was handicapped by lack of means and had to apply to Fust for further support. The goldsmith was now becoming impatient of the dilatory printer, and although he lent him the money, he later sued him for it, perhaps despairing of ever receiving a return for his capital. A couple of indulgences were not enough to satisfy Fust. The unfortunate Gutenberg lost the case and found himself sold up by his backer, who took over his apparatus and entered into partnership with one Peter Schoeffer, who may have been one of Gutenberg's assistants. This was in 1455, and in the following year the great Bible appeared, the fruit of Gutenberg's labours gathered by his former collaborators.

For a while Gutenberg disappeared into obscurity, during which he possibly printed another Bible in Bamberg, but later he emerged with another book, the Catholicon, conjecturally printed at Mainz in 1460. Eventually the Archbishop of Mainz gave him a pension that sufficed to make his last years comfortable; but no doubt he found it galling to see Fust and Schoeffer carrying his invention from success to greater success.

If Gutenberg did not invent printing, and though, in fact, we do not know exactly what he did invent, it is clear that with his work printing as we know it to-day commenced. His was the first successful venture in mass production, and, unlike those
of the manufacturers of a later day, his products lost little in appearance and quality compared with the hand product that had gone before. He was fortunate enough to appear at the right time, when all over Europe a subtle air was clearing away the fogs and vapours of the middle ages; and as the medieval conception dissolved before a new type of mind, a demand for books arose that the scribes, copying books one by one, must eventually have found impossible to cope with. The infant craft of printing grew all at once mature to supply the demand; and in doing so it first impoverished the scribes, and eventually put them out of business altogether.

With surprising rapidity in an age of uneasy transport printing spread throughout Europe. Men learned the mystery in Germany and then trekked over frontiers and set up their presses in typographically virgin lands; or they came from their own countries and carried the knowledge away with them. Gutenberg lived to see printing established in Italy (1465) and in Switzerland (1468), as well as in various towns of Germany; and after his death in 1468 the process of expansion continued with the setting up of presses in France (1470), the Netherlands (1470), Belgium (1473), Spain (1474), England (1476), Denmark (1482), Sweden (1483), and Portugal (1489).

The early printers were their own typefounders—was not typefoundering the essence of the thing?—and indeed manufacturers of almost everything they required; but specialization soon appeared and separate workshops came into existence for the founding of type. Printing houses one by one closed down their foundries and allowed themselves to depend on the specialists for their material. This tendency led to a gradual improvement of the technical quality of type, and no doubt cheapened the cost of its manufacture; it also left the printers free to concentrate on their business of printing. The founders held their field from the end of the sixteenth century until the early part of the twentieth.

The history of printing from the sixteenth century to the end of the eighteenth is mainly a record of the development of type design, and with this I shall deal in a later chapter. Technically,
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various minor improvements during this period made printing more certain in its results and increased its capacity—the art of punch-cutting, for example, reached a high stage of development, and moulds for casting type were greatly improved—but there was nothing evident of the brilliant flare of invention that made the fifteenth century remarkable. The press of the year 1700 was in all essentials the same as that used by the printers of the incunabula, and a hundred years later no serious advance had been made other than to build the machine of iron instead of wood, of which it had been made hitherto. Certainly presses became larger, with many minor improvements, and their use in batteries to make printing cheaper and more expeditious was developed. The iron hand-press possessed distinct advantages over its wooden prototype, but it was out of date almost as soon as it appeared, despite the fact that it has continued in use into our time, for a new factor had entered the workshop and was about to invade the press room. It was the incalculable power of steam.

It was first utilized in a printing office in 1814 in the production of The Times newspaper. This firm obtained the services of two German engineers, Koenig and Bauer, who set up in The Times office a new machine which for the first time utilized in printing the power of steam coupled with rotary motion. It was an undoubted success, and though it was soon superseded by an improved version, it became the ancestor of the presses of the present day. The stop-cylinder and two-revolution machines used for printing books are derived from it, as well as those vast and ingenious affairs that turn out the morning papers in millions, already folded and counted. Later, steam too was superseded, and the presses were linked to the new power of electricity.

Type seems to have altered very little during all this time. There is no direct evidence to show what Gutenberg’s type looked like, but there is something to show the shape of that used by a slightly later printer. About 1476 a book called Le Lèpre morale was printed at Cologne, and an accident annoying for the printer but delightful for the historian caused one of the
letters to be drawn from its fellows, to lie broadside upon them, and to be printed in this way. The impression shows plainly that the type of the fifteenth century looked very much like the type of the twentieth. The length of the shank has varied from time to time and from country to country, but the basic shape has remained. Early type may not have been cast with the precision of the modern typesetter, but it was precise enough to serve its purpose. No revolution in the character of type has occurred;

4. The shape of type in the fifteenth century

the revolution, when it came, and it was a long time coming, affected, not the type, but the manner of manufacturing and of composing it.

The basis of the alloy from which type is cast seems from the first to have been lead. By itself this metal is too soft to allow of many impressions, and at some early date tin and antimony were added to make an alloy that can be cast easily and that is hard and tough and resistant to wear.

For four centuries type was composed solely by hand. To compose a book meant picking up each letter singly and assembling it with others, in an instrument called a composing stick, according to the wording of the manuscript, which the compositor read phrase by phrase as he went along. Compositors achieve considerable dexterity in this work, but there is a limit to the speed of the fingers, and in the nineteenth century ingenious men were trying to devise a machine that would perform this operation more quickly. Various models were built and put to use in printing houses, but with little real success. There were several difficulties, and two in particular

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seemed insuperable. These were justification, or the spacing out of the line to the full width of the measure, and the problem of what to do with the type the machine composed after the book was printed and it was no longer needed. If the machine could compose the type, it was unable to distribute it again and to fill its own magazines, and this fact imposed a distinct limit upon its usefulness, upon the amount of time and labour it dispensed with.

The solution of the problem lay in an unexpected direction and was demonstrated by the invention of the Linotype composing machine, the first commercial model of which appeared in 1886. The magazine of this machine does not hold type, but matrices, or moulds, for casting the face of it; these matrices are assembled by the operation of a keyboard, and in conjunction with a mould for casting the body of the type, are used for casting a whole line in one piece. Justification is achieved by a system of wedges, and distribution is simply provided for—the used type going back into the melting-pot for re-use in the machine. The unexpectedness of the process lay in the combination of type-founding with composing.

In the nineties Tolbert Lanston of Washington was perfecting his Monotype machine. Despite its undoubted advantages there has for many printers always been something a little unsatisfactory in the Linotype method; for example, letter design has to be accommodated to the exigencies of the machine, and this is not always in the interest of the design; again, in the opinion of many, a solid line of type is not as satisfactory for printing as a line made up of separate types, in which each letter makes its own individual impression. The Monotype machine imposes the minimum of restriction on the designer or the design, and it produces separate types. This machine is also operated from a keyboard, and uses matrices and a mould for casting the type, as it is composed, from a crucible of molten metal. With the Monotype, as with the Linotype, one man can do in an hour as much work as six or seven compositors could do in the same time; unlike the product of the Linotype, the completed Monotype page presents on the printing machine the same proposition
5. Types of various sizes, with four sorts to show nicks, pin marks, and the arched casting of larger sizes

6. Leads, quotations of several sizes, and metal furniture, with a 72-point letter to show scale and type height
7. A compositor setting type from a double case

8. A closer view of the compositor’s hands to show the action in detail
A SURVEY OF DEVELOPMENT

as hand-set type, with this important difference, that every letter is new and sharp. Monotype offers, too, all the advantages of easy correction and manipulation, and does not demand a procedure in handling different from that confirmed by the tradition of four centuries of printing.

Other composing machines appeared and achieved enough success to retain their hold on the market; notably there is the Intertype, a machine very much like the Linotype, and the Typograph, which works on rather a different principle but casts a slug, or line of type all in one piece, like the Linotype. Nothing, however, has successfully challenged Tolbert Lanston's invention in the composing and casting of movable type.

The Linotype and the Monotype have undergone much improvement since they first appeared, and are now much more effective machines than they once were. To some extent their uses are divergent, the Linotype being used principally in magazine and newspaper offices, where its solid slug is a distinct asset in the rush and bustle of getting out a newspaper, while the Monotype is used by the book printer, for which the better design of its type faces and the convenience of movable type suit it. This is a generalization, however, and in no way exclusive; Monotype machines are found in some newspaper offices (The Times has a battery of them), and a great many books have been composed on the Linotype. In America the Linotype appears to be the staple machine for all purposes.

Among the models of the Monotype more recently introduced is the super-caster. This is not a composing machine at all, but simply an instrument for casting large sizes of type for hand-composition, and it brings the printer back to the position in which his predecessors of the fifteenth century stood: he becomes his own founder again—though with the difference that he casts his type automatically and easily, and with precision.

The fact that such a machine as the super-caster should be necessary is evidence of the importance of the hand-compositor in modern printing. He has by no means been superseded. Where a large quantity of matter is to be set all in one size of type he cannot compete with the machine; but the machine
PRINTING AND BINDING

is restricted in the setting of display matter in which several sizes of type are used, and to-day there is more display matter than ever. In the setting of books the compositor is responsible for title-pages, chapter headings, part titles, and so forth; and it is he who arranges the type produced by the machine in the columns or pages required for a newspaper or book.

Another machine for the compositor is the Ludlow. The compositor sets matrices, not type, by hand, and inserts them line by line in this machine, to cast from each a solid line of type resembling a Linotype slug.

It will be seen from this account that we are to-day in the second of two periods of great technical advance in the craft of printing, the years between 1500 and 1800 approximately being barren of technical invention of great importance. During this period there was much improvement in the manufacture and use of printing implements and materials—it contained, for instance, the experiments of John Baskerville with the printing qualities of paper, and the advent of the iron hand-press—but it was no more than modification of existing ideas. The fifteenth century was, typographically, a period of intense and brilliant revolution, and there has been nothing like it until comparatively modern times. With the industrial revolution came steam power and a fervent exploration for and application of the principles of mechanics. We are still in the midst of the ferment. It is likely that in the near future type will be displaced altogether, and books will be composed photographically and printed on lithograph machines. Experiment has been going on for some time on photographic composing machines: some are in an advanced stage of development, while others are at last available and in commercial use. But that is, for the present, out of our province; and it is by no means certain that the enduring compositor will not survive photography as he has survived other inventions that seemed to threaten his existence.
II

TYPE, SPACES, AND FURNITURE

Apart from the products of slug-composing machines, with which I shall not deal in this chapter, there are two kinds of type in use in the printing house to-day, and these are founders’ type and monotype. The difference between them lies more in the manner of their manufacture than in their use by the printer, though there are superficial points of dissimilarity, and I shall mention them in a moment. In the meantime a description of founders’ type will apply equally well to monotype.

I remarked in the previous chapter that the founding of type early became a specialized trade, separate from that of printing, and foundries still exist to-day. It might have seemed that with the introduction of the Monotype, and particularly of the supercaster, the foundries were doomed, and perhaps they are; it would be a pity if this were so, for their passing must create a monopoly, and any monopoly, it seems to me, must eventually damage the craft. It is true that many founders have closed down and that their numbers have been further reduced by amalgamation, but those that remain, and in particular Continental founders, are competing strenuously with the threat to their existence. Foundry type is no longer used to any appreciable extent in the setting of text matter in books, but for display work it has peculiar advantages. Display sizes of type are not returned to the melting-pot after use, as are text sizes, but are distributed back into cases for further use, and the superior quality of the alloy of founders’ type allows for harder and

1 It should be noted that the word ‘Monotype’ designates the machine as well as its product: monotype is produced by the Monotype. I have used the capital initial for the machine and lower-case for the type.
PRINTING AND BINDING

longer wear. Another factor, and perhaps the most important one in the survival of type foundries, is type design. Type designs are copyright, and if a printer wishes to use a particular design of type issued by a founder it is only by buying that founder's type that he can do so.

Figure 9 shows a piece of founder's type with the various parts indicated and named. It will be noticed that the parts of type are named after parts of the human anatomy—an odd thing, though apt enough.

The body (or shank or stem) is all that part of the type from the feet to the flat surface at the upper end from which the moulded letter rises. It is the foundation on which the letter rests, and it is more than that: for the body is precisely rectangular in section, and this fact allows large numbers of types to be placed side by side in words, and above and below in lines, as on this page, when the whole assembly can be put into a frame and held so rigidly by a system of wedges that type and frame can be lifted and transported in one piece. This would not be possible if the body were not rectangular and accurately made.

At the base of the body is the groove, between the feet. When type is cast a fragment of metal, the tang, is left adhering at the
TYPE, SPACES, AND FURNITURE

base from the orifice in the mould through which the molten metal is injected. This tang is broken off and the resulting roughness of the fracture ground down; the grinding produces the groove, and the groove inevitably produces the feet. The groove has no particular value in printing.

Like any cubic form a piece of type has six surfaces. One of these is occupied by the feet and the groove. Of the vertical surfaces two are sides and one the back and one the belly. In the belly are a group of horizontal furrows, known collectively as the nick, and this has a twofold purpose. When he is setting type the compositor has no time to look at the face of every individual piece to see which is the right way up, and the nick, which in English types is always in the belly, and therefore level with the base of the letter, tells him at a glance, in whatever attitude the type may be lying, or he feels it with his finger as he picks it up. The nick also serves the purpose of identification. Large furrows are combined with small ones, and square ones with round ones, to make a compound nick that is characteristic for every letter of the particular size and design of type, thus distinguishing it from other founts. This system is particularly useful when there are two types of similar appearance in the composing room, when the difference in nicks prevents them, or should prevent them, from becoming mixed. It should be remarked that although there may be no difficulty in distinguishing between two types on the printed page it is not at all as easy to distinguish them in metal. Nevertheless, the days when the nick system was really invaluable have passed with the advent of the Monotype. When type had to be distributed back into the cases from which it was composed the nick saved much inconvenience and annoyance arising from the mixture of types—a calamity that sometimes happened in the best regulated of printing houses because of the number of people who had access to the cases—and among them apprentices of varying skill and experience, who had to have access, and perhaps had to make mistakes, if they were to learn their craft properly. At such times the atmosphere of the composing room was blue. Nowadays book sizes of type are not founders', but
monotype, and this is not distributed but melted down for the further use of the machine; while those display sizes that are distributed are large enough to be recognized easily without any assistance from the nick. All that is necessary now, and all that the Monotype provides, is a simple nick to distinguish the belly from the back. The back of the type is the surface opposite the belly, and it is blank.

Blank, too, is one of the sides. The other, in foundry type, bears the pin-mark, or occasionally two pin-marks. This mark is of no sort of use to the printer, except that in larger sizes of type, where the mark is larger, it sometimes bears the name of the founder, and reminds him, when he wishes to be reminded, where he got the fount. The pin-mark is formed by the mechanism that ejects the type from the mould when it is cast.

The remaining surface, the upper end, is the business end. On this surface the letter is moulded, and it is the face of the letter that is inked—the diagram shows the face black, as it would look after the inking roller had passed over it. The face of type is the part that demonstrates itself to the reader, and on its shape depends the character of the letter on the printed page, by which the type is judged aesthetically. The quality of the metal of which the type is cast and the manner of its casting, the finish and accuracy of the body, and the nick system are technical matters subserving the purpose of type, which is the impression of ink in a predetermined pattern upon paper; but the design of the face enters into the field of aesthetics besides that of utility, and it is all important. This is so well understood among printers and people having to do with print that type designs are more often spoken of as type faces than otherwise—in fact, it may be said that the purpose of the type designer is to produce type faces. A printer may have a particular design in a dozen different sizes, but it is all one face. A type-founder’s catalogue is seldom called a list of type designs, but nearly always a list of type faces.

Between the surface and the edge of the body are a steeply sloping portion and a flat portion, and these together are the beard. That part of the beard below the lower serifs is called
TYPE, SPACES, AND FURNITURE

the shoulder, and is occupied in the case of such letters as the g and y by the descender.

In italic founts of type these descenders often project beyond their own body and rest on the shoulder of the adjacent letter (see Figure 10); the same thing happens with other letters in italics, for instance the right arms of W and V, the tail of Q, the head and tail of f, and many others. These projecting parts are called kerns, and on the printed page their presence may be detected in letters that extend over or under their neighbours.

10. Examples of kerned letters

If it were not for kerns proper spacing of italic letters in a word would be impossible, and what we may term the 'calligraphy' of the face would be seriously affected, because the design must be altered to confine the letters concerned within the area of their own bodies. The sweep and freedom of italics must thereby be lost. This shift has had to be resorted to in the faces of the slug machines.

Type in any particular country is a standard height from foot to face, and in England and America and some other countries it is \( \cdot 918 \) of an inch—nearly the height of a shilling. There is no magic in this figure—it seems merely to have been that adopted by a group of founders influential enough to make their size the standard. All sizes of type are of the same height, so that when assembled together they present an even, plane surface to the paper; thus any combination of type sizes may be used, and the reader may refer for example to the large initial at the head of each chapter in this book, standing cheek by jowl with the letters of the text.

A distinction should be noted here to prevent possible confusion later on. Type height, or height to paper, is not the same thing as height of face. The latter is the measurement of the

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PRINTING AND BINDING

printed character from the serif at the foot to the serif at the head.

Type height, since it is standard, does not concern the printer in itself; though he may be concerned with departures from it caused by wear of the face or by foreign bodies under the feet, the one causing the letter affected to print too lightly and the other too heavily. Type, however, is measured in two other ways that concern him a great deal, and these are point-wise and set-wise measurements.

Type sizes are measured in points, a point equalling 0.013837 inch—which is near enough for most matters to one seventy-second of an inch; the odd decimal figure is out of all reason, the expression of a standard that is pragmatic rather than logical. The measurement is taken from the belly of the type to the back, and since, naturally, the face is proportionate to the size of the body, point size is an indication of the size of the face. It is an accurate statement of the distance from the tail of the longest descender, generally p or q, to the top of the longest ascender, the letter l, say. It is not, however, a reliable indication of x-height, which is the size of the letter x and other such letters as a, e, r, w, etc., that have neither ascender nor descender. It is by these letters that the apparent size of type is judged, and in different faces they are not in the same proportion to the ascenders and the descenders. An example will make this clear:

This is a line of 11 point Perpetua
and this is set in 11 point Times New Roman

These two lines appear to be set in two quite different sizes of type, yet they are both the same point size and a dozen lines of either would occupy exactly the same amount of room. Perpetua, having long descenders and ascenders, and a small x-height, would appear to have more space between the lines than Times, which has short descenders and ascenders and a large x-height. A type like Times, which is 'large on the body', must sacrifice something to achieve its effect, and what it sacrifices is the just proportion between the x-height and the
length of descenders and ascenders; it is questionable whether
greater legibility is achieved by this cropping at top and bottom.
It will be clear from this that point size is not a good indication
of the apparent size of type, and in fact there is no ready-made
rule that can be relied on; the only way of knowing whether a
type is large or small on the body is to know what that par-
ticular face looks like—in other words, by experience.

Standardization in point sizes is young in the history of
printing, for it was not until after 1900 that it began to overset
the English system, although, in the United States, from which
it came, it had been adopted some time before. Nevertheless,
there was nothing new in the idea. The French—that 'logical
people'—had adhered to the Didot system, which is much the
same thing in principle, a hundred and fifty years before the
English determined upon standardization of type sizes. The
Didot system now extends through most of Europe.

Standardization, more, rationalization, was sorely needed.
The question was a bone of contention between printers and
typefounders; the latter, reasonably enough, since they did not
have to use the types that they themselves cast, balked at the
expenditure of capital necessary if they were to adapt their
plant. But they could not uphold for ever the manifestly absurd
English system. What has come to be called the English system
of type sizes was indeed irrational, and nothing could have been
more undependable. The sizes went by charming names, hal-
lowed by long custom, and rooted in the past; but they were
woolly in meaning. Below is a list of the names, with the
nearest point equivalent of the sizes they indicate:

<table>
<thead>
<tr>
<th>English</th>
<th>Point</th>
<th>English</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minikin</td>
<td>3</td>
<td>Nonpareil¹</td>
<td>6</td>
</tr>
<tr>
<td>Brilliant</td>
<td>3½</td>
<td>Minion</td>
<td>7</td>
</tr>
<tr>
<td>Gem</td>
<td>4</td>
<td>Brevier¹</td>
<td>8</td>
</tr>
<tr>
<td>Diamond</td>
<td>4½</td>
<td>Bourgeois¹</td>
<td>9</td>
</tr>
<tr>
<td>Pearl</td>
<td>5</td>
<td>Long Primer¹</td>
<td>10</td>
</tr>
<tr>
<td>Ruby</td>
<td>5½</td>
<td>Small Pica</td>
<td>11</td>
</tr>
</tbody>
</table>

¹ Pronunciation is not what might be expected. Brevier is pronounced 'breveer', nonpareil 'non'prell', bourgeois 'burjoy'ce' and primer 'prim'mer'.

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PRINTING AND BINDING

<table>
<thead>
<tr>
<th>English</th>
<th>Point</th>
<th>English</th>
<th>Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pica</td>
<td>12</td>
<td>Great Primer</td>
<td>18</td>
</tr>
<tr>
<td>English</td>
<td>14</td>
<td>Double Pica</td>
<td>22</td>
</tr>
<tr>
<td>2-line Brevier</td>
<td>16</td>
<td>2-line Pica</td>
<td>24</td>
</tr>
</tbody>
</table>

The progression of type sizes in this list is very good, and we have not bettered it; indeed, it would have been perfect if the sizes had borne any real mathematical relation to each other, but they did not do so, for there was no common unit on which they could be based. The rubs were multitudinous. As the sizes were not accurately related, the compositor could not count on two lines of pica, for instance, occupying the same amount of space as one line of two-line pica, and this made any combination of type sizes unnecessarily difficult and troublesome. Even the names were a snare. Double pica was the equivalent of neither two lines of pica nor of one of two-line pica; nor could it be depended on to be exactly twice the size of small pica. These confusions might have been supposed to have been enough, but the type-founders thought otherwise. Each had his own idea of the meaning of each name, and the small pica of one founder was not necessarily the same size as the small pica of another; indeed, it was much more likely to be different. A printer using types from two different foundries had to keep them separate, a task in which even the nick could not always help him, many of the accessories of type having no nick—spaces, for instance. Spaces supplied with the fount might have the nick of the fount; then if he had several different founts of the same size from the same founder, he would have a quantity of spaces all of the same size but with a variety of nicks. Mixing of founts in the case was very liable to occur, a calamity not to be despised, as I have indicated; while the compositor, endeavouring to justify his types, became a skilful bodger, introducing strips of card or paper to make up the difference.

People who ought to know better, journalists, for instance, will still talk glibly about minion, nonpareil, english, etc., as though these were current technical terms. In fact they are as dead as they are ever likely to be; only the words nonpareil and

1 Pica is pronounced 'py'ka'.
This page shows specimens of Caslon Old Face in sizes ranging from 6 point to 72 point. This face was cut in 1712 by William Caslon, who had been an engraver of the stocks and barrels of guns.

Its appearance marked the end of the supremacy in England of Continental type designers as founders. Caslon Old Face is a type of excellent moderation and good proportion.

The ascenders and descenders are not unusually long nor are they unusually short, and Caslon can be described as a face of average or medial line. From the foundry started by William Caslon in London at the beginning of the eighteenth century nearly every other English foundry of importance was derived in one way or another, and the Caslon Letter Foundry itself continued in existence until 1937, when it was merged with that of Stephenson, Blake which also owes its origin to the Caslon house.

11. A page of Caslon to show the progression of type sizes from 6 point to 72 point
PRINTING AND BINDING

pica have survived, and any other of the English names in the mouth of a printer is a sort of hoary joke—another printer will know what he means, and what he means is the nearest point equivalent. Nonpareil to-day means exactly six points, and pica is twelve.

The English system has given way to the point system practically completely in less than forty years, and this is a measure of the printer's need of it and of his welcome for it; for to him, as to the founder, the change meant considerable expenditure of capital. To-day it is very rare to find any of the older sizes in use, though they are still made, apparently for the diehards who cannot change. The compositor can now count upon his type being exactly the size it is stated to be, from whatever founder it may have come, and count upon the sizes being in strict point relation one with another. The result is that what were once annoying and time-consuming difficulties, involving precarious bodging for their solution, are now reduced to problems in simple arithmetic.

Type faces are classified into three kinds among printers, and this classification depends partly upon size and partly upon the design of the face. The three kinds are book faces, jobbing faces, and poster types. There are no hard edges in the classification. Book faces are those that are suitable for the text of books, jobbing faces those that are suitable for display, and poster types the large types used for placards. The larger sizes of book faces can be used as jobbing faces, the smaller sizes of some jobbing faces for bookwork, and the large sizes of either for posters.

The smallest type in ordinary use to-day is 6 point, though smaller sizes are available and are used for special purposes—in some timetables, for example; and the largest size ordinarily used in bookwork is about 72 point—but larger sizes are found on wrappers. Page 39 shows the progression of type sizes from 6 point to 72 point. This range is the one usually available, but not all series are complete. Some differ in not possessing a 16 point, while a few include 20 point or 22 point—these two sizes indicate that the type face in which they are found is of
TYPE, SPACES, AND FURNITURE

Continental origin. The largest size of type capable of being cast by the Monotype is 72 point.

Above 60 point the body of the type is generally made hollow, the groove being deepened and widened until the body is no more than an arch of metal on which the face is supported; this cutting away is done to reduce weight, for it should be remembered that type metal is mostly lead, and is consequently heavy.

Beyond about 96 to 108 point type ceases to be made of metal, and boxwood takes its place. This also helps to reduce weight. Though wood cannot be worked to the accuracy of metal, it is of little moment, as extreme accuracy is unnecessary in poster sizes. Because of this it would be misleading, besides being cumbersome, to denote the sizes as so many points, and they are measured in lines: a ‘line’ is roughly twelve points, and a twelve-line type is therefore (approximately) 144 points deep.

Besides being measured from back to belly, type is also measured from side to side, and this measurement is termed set. It is essential to the estimator if he is to work out with any degree of accuracy the space a certain amount of copy will occupy when set in a particular type. It will be noticed that as x-height differs in two different faces, so too does the width of each letter differ in the two faces, as the following example shows:

This type is 11 point 9½ set (Bembo)
This type is 11 point 11 set (Times New Roman)

Set measurement is obtained by assuming—and it is a reasonable assumption—that the letters of a face are in fairly constant proportion to the widest letter of the fount, and the width of the widest letter—usually M or W—is measured in points to give the set figure.

SPACES

Under this heading I include all spacing material used in conjunction with type, though in fact only one kind of spacing
material is properly called spaces. The others are leads, clumps, reglets, quotations, and furniture.

Spaces have no representation on the printed page, unless a blank can be called representation, but to the printer they are something solid and tangible. The gaps between the words you are reading, as well as the large voids of blank pages and chapter endings, are in type so much solid metal. Type, as I have indicated, is held together when assembled, or composed, by lateral pressure, and there must be something to occupy the blanks or the pressure could not operate. That something is the space, under whatever name it may go.

An example of the kind of space used between words can be seen clearly in Figure 5; it needs little description, for it looks very much like a piece of type, except that it has no face and is not as high as type and therefore neither receives ink nor touches the paper.

Founders' spaces are made in nine different thicknesses for each size of type, and each thickness is based on the thickness of the em quad. An em quad is a space as thick as the type size it belongs to is deep; thus a ten-point em is ten points wide, a twelve-point em twelve points wide. The en\(^1\) quad is half this thickness; next there are thick spaces, equal to a third of an em; middles, equal to a quarter; thins, equal to a fifth; and hair spaces, which vary with the type size from half a point to one point thick. Wider than the em quad are two-em, three-em, and four-em quads, which are used for filling up the short lines at the end of paragraphs.

Monotype spaces do not conform to these proportions, and I will deal with them in the chapter on composing machines. The largest space available on the Monotype is the em quad, which is not always a true square, but equals in width the set of the face.

It frequently happens that more space is required between the lines of type than the type itself allows when set solid, and

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\(^1\) The names are said to come from the letters m and n, which are cast on bodies of (approximately) em and en width respectively. In a busy and noisy composing room there is no time to distinguish between the closely similar sounds of em and en and printers call these spaces muttons and nuts.
when this is so the compositor inserts a lead. This is a flat piece of metal, a space of a special kind, as long as the line is wide and varying in thickness; leads are made 1, 1½, 2, 3, and 4 points thick. Leads six and twelve points thick or more change their names and become clumps—why 'clumps' I do not know, but there is something endearing in the technical terms of printing (Figure 6).

Clumps are also made of wood, when they are called reglets. Very large quads, used for filling up large areas of space, are termed quotations. They are usually hollow, simply four walls, sometimes strengthened by one or more internal girders.

Quotations are nowadays included under the heading furniture, but furniture proper is still larger than quotations. Metal furniture is made on a girder principle, and can be had in almost any multiple of 12 point ems long and wide. Wooden furniture is, of course, solid; it is also made in sizes of multiples of twelve-point ems. Both kinds are used for filling up large blanks such as blank pages and the wide open spaces of dedications, half-titles, etc.

The pica was once the unit by which furniture, length of line of type, depth of page, and many other things were measured; now the unit is the twelve-point em, which has assumed the name 'pica'. In this book, as in the printing house, the word em or en with no qualification of size will invariably mean the twelve-point em and en. The twelve-point em is nearly equal to a sixth of an inch, since seventy-two points are just a shade under an inch.
III

COMPOSING AND THE COMPOSITOR

A piece of type is a unit designed to combine with other units to make a composite whole. The act of assembling the units is called composing, and the man who performs the operation is the compositor.

He is an ancient figure in the history of printing. The conception of movable type presupposed his coming into existence. From the first he had to have special qualities. Nimble fingers and strong, sure hands are necessary, but they are among the least of his qualifications. In an age when to be able to read at all was to be counted something of a scholar, he had to be able to read more quickly and more accurately than most people; further, he had to be able to spell, and literacy and orthography are not the same thing. Nowadays—and it is in no small degree due to the printer—it is no uncommon thing to be able to read; but accurate reading is by no means common, and by comparison the ability to spell is rare. Orthography appears to be innate, a gift of birth, and if you do not possess it you will have to labour greatly to achieve it, and possibly fail.

In some of the incunabula there are woodcuts showing scenes inside printing houses, and in these woodcuts there often appears a compositor working at the case that holds his types. The alteration and decay of centuries have turned the bones of these men to dust and erased their memory, but they have not vanished utterly, for in the modern comp at his frame they labour still. Essentially there is little change. The costume is different, the tools and materials are infinitely improved, but the compositor of to-day is doing the same kind of work, in recognizably the same way, as his fifteenth-century predecessors.
12. An early printing house. In the background are the compositors at their cases. In the foreground are two pressmen, one taking off the sheet, while the other inks the forme with a pair of ink-balls.

He has lost something in prestige, no doubt, because literacy is common now, and the responsibility of design has been mainly taken from him; but he can, if he wills, be a craftsman still, and no mere labourer. And his craft is still a mystery to the layman.

So far as the type and implements with which the old compositor worked are concerned, we have more than contemporary woodcuts to go by. In the Musée Plantin-Moretus at Antwerp a whole printing house has survived, arranged as it was in 1576. It is the office of the famous printer, Christopher Plantin. A
modern compositor would not, I think, find it altogether unfamiliar; even a modern pressman, working in a way that might seem to have progressed out of all recognition compared with the sixteenth century, would need no introduction to the primitive presses.

The compositor's work is to compose the separate letters of type in accordance with the author's manuscript or typescript, which he has before him as he works. With his coat off and his shirt sleeves rolled up so that they cannot brush against the type and upset it, and with his clothes protected by a white apron with a bib, he stands before a frame on which are two cases resting at an angle, one behind and above the other (Figure 7). A case is not what is ordinarily meant by the word, but a tray a little over an inch deep and 32½ inches wide by 14½ inches from back to front. Each of the two cases is divided by partitions into a number of boxes, the upper case into boxes all of the same size, and the lower case into boxes of various sizes. The two cases together contain a fount of type, which is made up of the following characters:

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
WXYZÆŒ

abcdefghijklmnopqrstuvwxyz
WXYZÆŒ

abcdefghijklmnopqrstuvwxyz
```

In practice, not all the fount is kept in the pair of cases, and room is made wherever possible for characters outside the fount but used with it, such as fractions and arithmetical signs. To include some of these the accented letters must often give up their boxes in the upper case and be stored elsewhere. Spacing material must, of course, be easily available, and spaces of the
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various thicknesses are kept in boxes in the upper and lower cases.

The manner in which the characters are distributed among the boxes of the pair of cases is termed the lay of the case, and is shown in Figure 13, which also shows the relative positions of the two cases in use. The upper case contains the capitals and small capitals and a number of the less frequently used signs and fractions, etc. The arrangement of the alphabet is conventional except for one peculiarity, the expulsion of J and U from their normal positions and their addition after Z, like an afterthought. And in fact, it is an afterthought. In the early days of printing J and U did not exist, I and V doing their work; but the distinction of sound was beginning to be indicated in writing by a distinction of character, which in time was introduced in type. By that time, however, compositors had become used to a lay without J and U, and to insert them in the

13. A pair of cases, showing the lay
upper case in their alphabetical order would have meant altering the relative position of every letter after I, and confusing the case. So J and U were put in at the end of the alphabet, and there they have remained.

The peculiar arrangement of the lower case, with its boxes of different sizes and its alphabet completely out of order, is in fact no more peculiar than the arrangement of the keys on a typewriter. Both arrangements are attempts to solve what is fundamentally the same problem, and it seems to me that the typographical (and very much earlier) solution is less arbitrary and more efficient than that of the designer of the typewriter keyboard; nevertheless, it is not perfect. In any language the several letters of the alphabet are used in widely varying proportions, and in English and most European languages the letter most frequently used is e; therefore e must have a large box to hold a large number of types, and it must be placed in the case so that it will be convenient for the compositor's hand. Thus it has the largest box, which is set in the middle of the case. The other letters are apportioned boxes of position and size according to their frequency of use, and the result is the lower case shown.

In some printing houses one of the boxes in the case is set aside for the reception of defective or battered types, which can be resold to the founder as scrap metal; this box is known as the hell box, because it is where the bad type goes.

This lay is in the main standard throughout the English-speaking world. There are minor variations from printer to printer—infrequent letters like k and z and some of the signs are apt to be unsettled of habituation in either case, but the main arrangement is always the same. A compositor may go from one printer to another with no fear of having to learn a new lay at each remove. This is important, because the act of composing type becomes ingrained as a habit; and habits are notoriously difficult to alter. If the lay of the case were unique in each printing house the compositor would have to learn it when he went there and at the same time disengage himself from the lay he had worked with before. It would be weeks,
14. A printing house in the sixteenth century
perhaps months, before he was an efficient workman with the new lay.

Because they are kept in the lower case small letters are invariably known among printers as lower-case letters, or more simply, lower-case; and capitals, for a similar reason, but not invariably, are known as upper-case. A printer will speak of upper and lower-case, or caps and lower-case; a man who spoke of caps and small letters would at once be suspected of knowing very little about printing. The phrase ‘caps and smalls’ does exist in typographical language, but it means capitals and small capitals.

The frame on which the pair of cases rests at working level was once nothing more than a framework of timber, and from this the name is derived; but for many years these frames have been utilized as racks for storing cases of type, and modern ones are made of steel and so designed that they are almost completely dustproof when they are full of cases—they are really cabinets, but they are still popularly called frames. The top case in a frame at which a compositor works is used by him for storing the tools of his trade and papers appertaining to the job; and some manufacturers of the cabinet frames recognize this and provide a drawer for the purpose; otherwise each frame usually contains cases of one face of type in various sizes, and italics.

When composing, the compositor stands rather to the left of the middle of the case so that his right hand shall have unhindered access to all parts. In his left hand he holds a composing stick set to the measure of the line required. The stick is really a small, three-sided tray, five-eighths of an inch deep, about two inches wide, and for bookwork about eight inches long (see Figure 8). One of the side walls is adjustable as a slide and can be fixed firmly in any position along the stick by means of a simple screw or wedge mechanism. The measure the stick is set to is the width of the line required, and this is calculated in ems—the line you are reading now, for instance, is twenty-four ems wide. The stick is held as in the photograph, with the thumb inside, and a brass setting rule is used inside the stick

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so that there is a smooth hard surface on which the type can slide.

The copy to be set rests on the upper case, over the small capitals, where it can be easily seen and need not often be disturbed. The compositor reads the first sentence, memorizing the wording and punctuation exactly, and proceeds to compose the type. Just as a typist knows the keyboard of a typewriter so that she can type without looking at it, so the compositor knows his case. His right hand goes without hesitation to the boxes holding the letters required, and the left hand follows with the stick. As each letter is picked up it is conveyed to the stick and the thumb of the left hand holds it in position in the growing line. At the end of each word a space is added and the following word commenced. The type is not inspected as it is picked up to see which is the right way round of the face; the compositor can tell by the shape of the type on which end the face is, and the nick shows the right way round of the letter.

When the measure of the stick is all but full the compositor must pause and take stock of the line. If he is in the middle of a word he must consider whether he has room to complete it, or whether it must be divided and a hyphen inserted; or if he has completed the last word he must consider whether it is possible to get another word into the line. In any case the line must be justified—it must be spaced out until it is a firm fit in the measure. If there is a little room left at the end of the line, but not enough to include another word or part of a word, the spaces between the words are removed one by one and wider ones inserted, until the line fits the measure to which the stick has been set. If another word can be included the spaces are reduced to make room for it. This is the solution of that subtle mystery that puzzles every small boy—how the lines of a printed book come to be all exactly the same length. It is unlikely that the line can be spaced out with spaces all of the same width, and the compositor spaces—or should space—unevenly but in such a way that the eye is persuaded that the spacing is equal. More space can be inserted between letters with vertical strokes, for example between a word ending in
and one beginning in h; and neighbouring words ending and beginning with rounded letters can do with less space.

Not only should the spaces be optically equal in the line, they should be equal, or more or less so, over the whole book. This is not always easy to achieve, and is particularly difficult in narrow measures, but there is no doubt that text matter looks better evenly spaced.

At the beginning of a paragraph an em quad is inserted to give the paragraph indentation, and at the end two-em, three-em, and four-em quads are set as necessary after the full point to bring the final short line out to the full measure. It should be remembered that it is essential that all lines should be the same length in type metal, even though they may not appear so on the printed page.

When the line is completed the setting rule is transferred from the back to the front and the composing of the next line commenced.

Type cannot be composed by hand as quickly as words can be read, nor even as quickly as they can be written. The speed of hand composing on straightforward matter is between one thousand and fourteen hundred ens per hour, which is, roughly, that number of letters and spaces. The economy of printing is not in the setting up of the type, but in the facility, once it is set up, with which large numbers of copies can be printed.

If more space is required between the lines than the type itself allows for, a lead of the appropriate thickness and length is inserted after each line.

When the stick is full the compositor reads it before emptying it, to discover any errors he may have made. If there are any they are corrected—the offending letter is abstracted and the correct one put in its place, and any difference in width made up by respacing the line as necessary.

The way in which a compositor reads type is apt to strike the layman as something marvellous if he comes upon it. The compositor sets the type with the face upside down; and this is how he reads it. Besides being upside down, it is also, as is
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to be expected, in reverse. The paragraph you have just read
appears like this to the compositor:

Reading in this way becomes a mere question of habit, and,
like swimming and riding a bicycle, once it is acquired it is
seldom lost again. After several years’ absence from printing I
found myself still able to read, without effort, as a compositor
reads.

Type is not read with the face upside down for any idle reason.
By reading in this way the lines can be taken in their proper
order, and, what is important, the normal habit of reading from
left to right is preserved. The compositor’s way of reading,
which seems at first so very strange, in fact is the way involving
the least disturbance of the normal manner of reading. Anyway,
the custom is fixed in the compositor’s subconscious, and if he
were handed a page of type ‘top side up’ he would do what any
other man would do if he were handed a book upside down—
turn it round.

An apprentice learning to read type must mind not only his
p’s and q’s, according to the maxim, but also his d’s and b’s as
well, and other letters too. The letters p and q, as they are
reversed, are particularly liable to be confused by the unwary
lad who has not altogether acquired the habit of reading type;
worse still, if he forgets that he is reading upside down, his con-
fusion will be increased by his taking them for d and b.

After reading and correction the type in the stick is lifted out.
Compositors achieve great dexterity in the lifting of hundreds
of separate pieces of type with no more support than a couple
of leads and the pressure of their fingers, and can carry or move
type around in a way that might seem highly precarious to the
layman.
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When, as occasionally does happen even with the best of comps, a disaster occurs and the type falls or collapses, the resulting disordered heap is the famous printer's pi. Formerly, when all type was founders, pi was given to an apprentice to sort out and distribute back into the case; to-day, with monotype, it is simply shot into a box to be melted down for the caster.

The type from the stick is placed on a galley, a shallow, three-sided tray of zinc or steel—one of them may be seen resting on the frame in Figure 7. Galleys are made in a multitude of different sizes for different purposes, a book galley being about two feet long and six to eight inches wide and rather more than half an inch deep. Each stickful of type is placed on the galley as it is completed, until there is a long slab of type about eighteen or twenty inches long (Figure 15). This is the equivalent of three or more pages, but the exact length is no matter yet—the galley is only a temporary receptacle.

When there is sufficient type on the galley a piece of metal furniture is set against the last line to prevent it from falling over and a long strip of wooden furniture is placed down the whole length of the free edge; between this strip and the side of

15. A galley of type ready for proofing

the galley, wedges (quoins, pronounced 'coins') are inserted and tightened up so that a firm pressure is applied to every line. The galley is now ready for proofing, and is set down on the proofing press, inked, and printed on to a long strip of paper. This is the galley proof or slip proof. Proofs of several galleys are gathered together in their right order and sent with the appropriate copy to the reading room for checking. Any errors found by the reader are marked by him in the margin of the slip, and are

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attended to by the compositor when the slips return to the composing room, the corrections being made in the type in the same way as the errors the compositor himself discovered were corrected in the stick.

Correction in galley is very much easier than after the type has been made up into page form, and consequently cheaper; if the publisher or author has foreseen that there is likely to be a large number of amendments in the text he will have asked for galley proofs. In this case, after the type has been corrected, new slips together with the copy are sent out to the publisher, who will pass them on to the author: and eventually they return to the printer with the author’s alterations marked. Correction of the type is made as before.

Authors, who, in the printer’s eyes, are often the most inconvenient of people, sometimes take it into their heads to add three or four words, or delete them, here and there throughout the proofs. No doubt the alteration changes what was before ordinary and mediocre English into great and memorable language, ensuring the author’s fame to furthest posterity; but when it comes to paying for it he is apt to argue. Now adding a word or more in a line means, since all the lines must be of the same length, that the word at the end of the line must come out and be placed at the beginning of the next; while the word at the end of that line is in turn transposed to the beginning of the following one; and so on to the end of the paragraph, every line affected having to be respaced. If the correction occurs at the beginning of a paragraph it may be necessary to reset the entire paragraph. The cost of adding a single word may thus amount to more shillings than there are letters in the word, and the question whether it is really worth while should be carefully considered.

The type is now ready to be divided into pages, and when this is done it is proofed again and once more sent out to the publisher and author for correction, and finally corrected according to their instructions, when it is ready for the press. It goes from the composing room into the machine room, and so vanishes for a while from the scope of this chapter.
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Later, when the edition has been printed off, and it has been decided that no more editions will be printed, the type comes back to the composing room for distribution. It is placed again on galleys and each compositor takes his share of them and begins the business of putting the letters back in the appropriate boxes.

Distribution is a gentle, apparently leisurely, affair, and requires very little effort of mind from the expert compositor—though not less than is sufficient to ensure that the type is being distributed into the right case. Half a dozen or more lines are picked up in the left hand (with the face upside down, as usual), with a lead behind the lower line for support, and with the other hand a word with the space in front of it is picked up between forefinger and thumb, with the second finger under the feet of the type. The compositor reads the word and then moves his hand across the case, dropping first the space and then the letters into the proper boxes as he goes. While this is going on the forefinger and thumb are engaged in moving the type forward letter by letter, so that each one may be dropped surely and separately at the right time. It is done very quickly, so much so that it may not be apparent to an onlooker that anything at all is being done other than a few vague movements of the hand above the case. Leads, rules, ornaments, etc., are collected together later and returned to their racks or cases.

Distribution is done very much more quickly than composing, but nevertheless it has always presented an awkward problem for those people who wished to find some way of speeding up printing. If it could be eliminated a large proportion of the cost of composition would be eliminated too. It defeated the inventors of the first composing machines, though at least one of them got nearly on the right track by sending all used type back to the foundry and using only new type on his machine. As we have seen, the solution was the one adopted by Ottmar Mergenthaler in his Linotype machine, and that solution has been adopted by every subsequent designer of type-composing machines.

Because it will be of assistance in understanding composing machines and much else in composing, I have described in this
16. A printing house in the seventeenth century. The man kneeling on the left is damping paper for the press. On top of the press is a griffin with a pair of ink-balls in its talons—an heraldic device traditionally appropriated to printing.
chapter the composition of a book by hand as though this were still the practice. It is not so. Composing machines have captured the setting of text matter from the compositor almost entirely; when there are large quantities of matter to be set all in one size of type, it is not profitable to set it by hand when machines can do it much more quickly and cheaply and just as well, and with other advantages too. Nevertheless, the compositor is not ousted entirely; he still exists, and moreover is indispensable to printing. Machines are supreme in the setting of text matter, but they cannot set displayed matter in several sizes of type and perhaps in several faces, nor will they deal with text matter when they have set it. The dividing up into pages and all that goes with it is done by the compositor and can be done in no other way. Chapter heads, part titles, and title-pages and such things as advertisements are still best set by hand. Even minor corrections of machine-set type are more cheaply done by hand.

The fact that compositors are no longer called upon to set text matter means that they need less type of each kind. Only sufficient is required for text correction and the small number of words in displayed matter, and this has led to a different kind of case. The pair of cases tends to disappear from the composing room, and in their place there is a case looking like the diagram on the opposite page. This contains the capitals and lower-case letters in one case, and therefore occupies just half as much room as the pair of cases. Small capitals and accents, etc., are kept in special cases in racks where they can be easily got when required.

Compositors work in groups of five or six or more called companionships, or 'ships', under the charge of a clicker, who is also a compositor, and is responsible to the foreman of the composing room. The clicker receives the work to be done and apportions it among the members of his ship, watches its progress, and advises on any difficulties that occur, and generally supervises operations.

The companionship is an organization principally directed to the satisfactory performance of the compositor's work. There
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is another organization that concerns itself with the conditions in the printing house, with the fraternity of the men engaged there, with the regulation of apprentices, and generally with the common interests of the men. This is the chapel; its name is said to be derived from the fact that the first printing press in England was set up in the precincts or in a chapel of Westminster Abbey—Caxton’s press. The head of the chapel is the father, who is elected by the free vote of the journeymen, and its members are the firm’s journeymen compositors and those

17. A double case and its lay

apprentices near the end of their apprenticeship. It is purely an employees’ organization, and though its meetings take place in the composing room, the employer does not attend unless invited by the chapel. Its powers are wide. It can arraign any craftsman or apprentice who in his conduct makes himself odious or obstructive to his fellows, and can punish him by suitable fines; it makes rules for the conduct of the men in the composing room, and may be the court that deals with any infringement of the rules. It is a trade union in embryo, and can object to any procedure of the master printer and suggest what that procedure should be (though it cannot enforce them, he would be a foolish employer who ignored the chapel’s wishes).

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To-day the chapel is an important element in the printers' trade union organization, but is not necessarily dominated by the union. The father of the chapel is a person of consequence in the composing room, and his position is one that commands respect and not a little affection. On the benevolent side it is the chapel that assists any man in difficulties through illness or other fault not his own, that sends him flowers, fruit, and magazines if he is in hospital; and it was the chapel that arranged the annual outing—the spree that printers called so curiously a 'wayzgoose', and which seems now to be a dying custom.

Machine-minders usually have a chapel of their own.
IV

COMPOSING MACHINES

The Linotype, the Intertype and the Monotype

A great deal of inventive ingenuity was expended during the nineteenth century in attempts to construct a machine that would do the work of the compositor more quickly and more cheaply than the compositor himself could do it: or, it would be more accurate to say, that would do the composing, for no machine has ever been designed or, as far as I know, attempted, that could do the whole of the compositor's work. The main problems inventors found presented to them were those of justification, the supply of type to the machine, and the irritating question of distribution. There seemed to be insuperable difficulties in the way of successful mechanical justification, and with the first machines brought out the problem was abandoned and the mechanically set lines of type were handed over to a compositor for justification by hand. The saving of time and effort cannot have been great, if it existed at all, and these machines never became commercially practicable, although The Times ran one of them for a while.

Composing machines based on the use of founders' type left the operation of distribution quite untouched. Type had still to be distributed by hand, and in addition the letters had to be arranged in rows after or during distribution, ready for re-insertion in the magazine of the machine.

What was required, therefore, was a machine that would compose type, justify the lines, and do away with the necessity for distribution. It appeared, and perhaps it was, impossible that
any machine could do all this while still using founders' type. It was essential to get quite away from the conception of typesetting as the compositor understood it, and in consequence the

18. The Young-Delcambre composing machine. The girl on the left is justifying the lines

first workable machine incorporated many ideas that were altogether foreign to the compositor of the time, though they would not, paradoxically, have been quite as strange to the craftsman of the fifteenth century. This new machine was the
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Linotype, and it has been claimed that it inaugurated as great a revolution in the history of printing as did the invention of movable type.

THE LINOTYPE

After several attempts and failures, Ottmar Mergenthaler brought out the first commercially practicable model of the Linotype in 1890. It must have astonished the printers of the day, not only because it incorporated a type-foundry in itself, but also because it seemed to abandon the principle of movable type; for the product of the Linotype is not a line of separate letters, but a solid metal strip, or 'slug', bearing on one of the long edges the characters that go to make up the whole line. It was not truly an abandonment, however, but a development, as the following concise account will show.

The modern Linotype is in principle essentially the same as Mergenthaler's machine of 1890. The early machine solved at once the three problems of composition, justification, and distribution, but as might be expected there was room for improvement, and improvement has been brought about. As a result of the experience and development of the last fifty years or so the Linotype is now a machine of great flexibility and wide scope. To-day, while in the printing of books it has not in this country been able to compete very successfully with a later-comer, the Monotype, in the production of newspapers and magazines it is supreme, and there is little likelihood of the Monotype's being able to oust it from this field. For where time is scant and type must be handled with great speed and perhaps little care, the slugs of the Linotype are easier and safer than the separate types of the Monotype.

The modern Linotype is a tall, gaunt machine, but its shape is dictated by the work it does (Figure 20). Low down in front is a keyboard, at which the operator sits; the keys are similar to those of a typewriter, but the arrangement of the alphabet in the banks is very different. As far as I know there is no particular reason why the Linotype keyboard should be different from the
universal keyboard adopted by the typewriter companies and also by the manufacturers of the Monotype; the universal keyboard may not be perfect, and the Linotype keyboard may have, as is claimed, special advantages, but the fact that it is peculiar may well be a disadvantage in itself. Above the keyboard is the magazine containing in slides the matrices for the various characters, a matrix being a mould for casting the face of type (Figure 19). At the touch of a key in the keybank a matrix for the letter indicated by the key falls from the magazine on to an endless belt, which delivers it into a slide (Figure 21) that may be said to represent the composing stick of the compositor. Matrix follows matrix as the words are spelled out by the operator's tapping on the keys, and fall in their correct order into the slide. At the end of each word the space key is depressed and a space-band is delivered into the box. It will be seen from this that although the Linotype produces a solid line of type, the principle of movable type is retained in the composition of separate matrices. When sufficient matrices have been gathered in the slide to fill up the line almost completely the operator depresses a handle beside the keybank and commences the next line. The line he has just composed is henceforth dealt with automatically. The matrices are transferred from the slide and brought in front of a mould designed to cast the body of the line to the right point size and em measure; at this juncture the space-bands, which are double wedges, are pushed up sufficiently to make the line of matrices the full width of the measure by increasing the spaces between words. The matrices are clamped tightly against the mould, molten metal is injected from a crucible, and immediately solidifies in the form of the slug familiar to all printers. The slug is then trimmed to the correct type height and ejected upright on to a galley. The matrices are collected by an arm and returned to the magazine, where each one is made to fall into its proper slide by means of a revolving spiral and an ingenious system of notched teeth on the
matrix. The space-bands are picked up separately by a grabber and transferred to the space-box, ready for use again. In this way the magazine is kept supplied with matrices and the space-box with space-bands, so that neither can ever run short; for each matrix and space-band is used over and over again, constantly circulating from magazine to assembly slide, from assembly slide to mould, and from the mould back to the magazine again, and there is no hindrance to continuous composition by the operator.

Distribution is provided for very simply: after use on the press the slugs are returned to a melting pot and melted down into ingots, which in turn are fed into the pot of the Linotype as required. Thus the metal also has a continuous circulation: from the Linotype to the press, from the press to the melting pot, and from the melting pot to the Linotype again.

The operator is paid more than a compositor, but he can do as much in an hour as six or more men working at the case, and moreover the slugs produced represent new type for each job. Then, as I have already said, in an office where speed is the primary consideration slugs can be handled with more ease and dispatch than masses of separate types. Nevertheless, the Linotype has some disadvantages for ordinary book printing. The metal of which the slugs are cast is usually of a softer alloy than that used for type, and will not withstand a great deal of wear without tending to lose some of its freshness. Then the method of casting from assembled matrices imposes a definite restriction on the free design of the letter, and some characters have to be crushed and squeezed unnaturally—no kerns are possible, for instance, and the result is that the graceful italic f becomes this: f. As type designs are matters of tradition and long development, this malformation is a serious drawback. A not very satisfactory solution of this problem has been achieved by producing compound matrices of the kerned letter and its neighbour; appearance is all right, but the number of separate matrices required is increased, usually beyond the capacity of the keyboard, when the operator must stop to insert the required combination in the assembly slide by hand; and he has
then to be constantly on the watch for these combinations. Corrections in Linotype matter, however slight, cannot be made by a compositor; the line affected must be reset entirely on the machine and recast. Even the alteration of a full point to a comma entails the resetting of the whole line, with the possibility, which the best of operators cannot altogether avoid, of perpetrating fresh errors. Finally, the slug, or solid line of letters, it has been argued with some reason, is not as suitable a printing surface for the best work as the line of separate types.

Despite these arguments, the Linotype machine is considered by many competent persons a suitable machine for bookwork. In this country, at least, it is not operated to the best advantage, but in America it is the machine used above all others, and there is no doubt that in the hands of capable operators fine work can be done with it. Preference to some extent depends on personal opinion. Nevertheless, it is undeniable that in England the consensus of the best opinion is against using the Linotype for the better classes of bookwork, despite the fact that it is cheaper to use it. The Monotype, with its separate types, seems likely to continue to hold the field.

There is another machine similar to the Linotype, the Intertype. It looks very much the same, and it works in the same way, but it has features that are considered advances on the earlier machine—notably a system of standardization that allows improvements or additions the manufacturers may introduce to be fitted to Intertype machines already in the printer's office.

With the introduction and development of the Linotype one form of mechanical composition was provided and the compositor had largely to abandon a field in which he had had no rival. Nevertheless, the Linotype could not set movable types, as could the compositor, and there was something desirable, and indeed essential, in certain circumstances, in movable types, as I have indicated. A young man in America, Tolbert Lanston, was working on the problem in the eighties and nineties, and in 1897 he brought out a machine that proved successful. It was the Monotype.
COMPOSING MACHINES

THE MONOTYPE

The modern Monotype must, I think, be the sort of machine an engineer delight in; even the layman would be impressed by this mechanical wonder, as he would not be impressed by the Linotype or the Intertype. The Linotype (and the Intertype) is large and untidy-looking, as though it might have grown thus rather than have been designed by an engineer, and its operations are not difficult to understand. The Monotype, on the other hand, is compact and comparatively small, and such a mass of intricate mechanism and simultaneous operations that it is difficult to comprehend without study.

It is really two machines (Figures 25 and 26). One is the keyboard, on which the words to be set are tapped out as on a typewriter, and the other machine, quite separate, is the caster, which casts the letters and lines of type in the order dictated by the operator’s fingers on the keyboard. Perhaps the best way to describe the machine is to take a phrase and follow it through the keyboard to its casting in movable types on the caster. For the phrase we want there is the typefounder’s favourite—‘The quick brown fox jumps over the lazy dog’—typefounders love it because it contains all the letters of the alphabet.

The keyboard has 306 keys—which may seem an enormous quantity compared with the number on an ordinary typewriter. It is, however, no more complicated or difficult to learn, for the characters are arranged on exactly the same system, except that there are seven alphabets instead of one only, with some additional characters, such as fi, ff, fl, ffi, flf, ae, æ, and so forth, that do not occur on the typewriter at all. The kinds of type represented by the seven alphabets vary with the sort of matter for which the keyboard has been arranged, but for ordinary bookwork the alphabets are: capitals and lower-case of roman, italics, and bold face; together with small capitals. There are also keys for figures, for points of punctuation, for the ligatures mentioned above, and several for spaces of fixed widths. In the upper part of the keybank are two rows of red keys, shown solid black on the diagram (Figure 23), each row

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numbered 1 to 15, and these are used in justifying the lines as they are completed.

Above the keybank is the paper-tower, in which is a roll of paper perforated along the edges like ciné film; sprockets, engaging in the perforations, move the paper along one step at a time over a row of punches stretching across the width of the paper. The operator, sitting at the keyboard and setting our phrase, depresses first the key for the em quad, to obtain the paragraph indention, and the paper strip in the tower is moved along one step. Next the key for T is depressed, and two of the punches in the row in the tower rise and perforate the paper (Figure 24), after which the strip is moved on another step by the sprockets engaging in the marginal holes. The same process is followed for each key the operator depresses, two punches—which, by the way, are operated by compressed air released by the key—rising to perforate the paper.

As each key is depressed a calculating mechanism notes the width of the character it represents and adds it to the total of characters already set in the line; when the space key is depressed a pointer moves a step up the surface of a revolving drum engraved with figures.

There are thirty-one punches in the row in the paper tower. Two perforations are made in the paper strip for each letter, and each letter possesses its own combination of two of the punches different from the combination for any other letter. The strip unwinds from a roll, passes over the punches and is perforated, and is wound up again on another reel as the sprockets drive the strip forward.

With 'The' accounted for, the next thing required is a space. This is obtained by depressing the space bar, a long key at the foot of the keybank, very like the space-bar of a typewriter. The space is also recorded as a combination of punch-holes in the paper strip, and is taken into account by the calculating mechanism; but for the present it has no absolute value.

Tapping on the keys, the operator travels across the width of the measure until he is warned by a bell that the line is nearly full and will hold only five or six more letters—which is suffi-
20. A Linotype machine in operation

21. A row of matrices in the assembly slide of the Linotype, ready to go forward for casting
22. A punch-cutting machine; the operator traces the master letter with the pointer, and the punch is automatically cut in the upper part of the machine.
cient to complete the word he is engaged on or to divide it in a correct manner. He must now look at the pointer, which while he has been depressing the space keys has been rising up the surface of the revolving drum. On the end of the pointer is a small L-shaped frame, through which are visible two pairs of figures on the drum. These figures are the result arrived at by the calculating mechanism, which has recorded the width of each letter, and the number of spaces in the line, and now indicates how the space remaining at the end of the line should be divided among the spaces between the words in order to complete the justification. All that is necessary is to note the figures and to depress the corresponding red justification keys. This completes the line. A reversing key returns the em-scale pointer, and a new line can be commenced.

When the last word of the copy has been set and the last line justified the part of the roll of paper that has been punched is torn from the remainder and taken to the caster. The punched paper is the only link between the caster and the keyboard; and it is the master of the heavy and powerful caster, which it directs in every one of its operations.

The formative parts of the caster are the matrix case (Figure 27), the mould, and the wedges controlling the mould blade, and thus the width of the mould opening. The matrix case is rectangular, with fifteen rows of seventeen matrices each, so that there are 255 in all. The point size of the mould is fixed, and a different mould is needed for each size of body; but it is adjustable setwise between the width of the narrowest space and that of the widest character—generally the M or W.

There is a paper-tower on the caster as there is on the keyboard, but there are no punches. The paper strip passes between a duct of compressed air and a row of small holes corresponding in number, size, and spacing to the punches on the keyboard. At any moment in the operation of the caster the paper obscures all but two of these holes, those corresponding to the holes made in the paper by the punches when the operator depressed the key. As I have shown, each letter is represented by two punch holes made by two of a line of punches, each combination being
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peculiar to a particular letter. The punched paper thus bears the message in a cipher of punch-holes, and some operators can read it. The small holes opposite the air duct in the caster are the entrances to air-pipes. The paper is drawn across the air-pipes step by step as the sprockets engage and the compressed air is thus allowed at each step to pass down two of the pipes, and two only. This air causes the caster to centre the appropriate matrix over the mould, and to open the mould to the correct width; molten metal is pumped in, cooled at once, and the type is ejected into the line being set.

Our phrase, then, is a roll of paper bearing so many punch-holes. On the keyboard this was rolled up as it was punched; the caster now commences unrolling the paper, and it comes first to the end of the last line. The first holes to come opposite the air-pipe are those made by the justification keys on the keyboard, and these set the width of the space to be used after each word in the coming line. Next the holes for the full point come opposite the air-pipes, causing the matrix case to move so that the appropriate matrix is centred over the mould, while the mould blade drives in or out to make the aperture the right width for the shank of the character. Thus as each pair of punch-holes is positioned opposite the air-pipes the appropriate matrix is centred over the mould and the mould-blade determines the correct width of the body of the type. Spaces are dealt with in the same way, except that a mechanism comes into action to make the space the correct, lower height, the mould blade making each space exactly the thickness predetermined by the justification holes. This instruction holds good for the whole line, and is only cancelled by the presentation of the justification holes for the next line.

The mould is cooled by a constant circulation of water, so that the molten metal is chilled and solidified immediately it is pumped in. Each letter is cast correct in point size and type height, and after a tang that is cast with it is automatically broken off it is fully finished too, and is ejected from the mould into a channel adjoining a galley. The letter remains always on its feet, and it and its fellows dance out from the machine in a
Diagram of a standard Monotype keyboard, laid out for bookwork (seven alphabets)
continuous vibrating stream. As each line is completed it is pushed forward automatically on to the galley while the next one is being cast.

The operation of the caster is entirely automatic; once started, it will continue to cast type until the paper strip is finished, when the caster automatically stops. Thus the caster attendant may look after more than one machine at once, and he usually does.

The caster is also a type foundry, from which the compositor can draw supplies of type to fill up his cases for hand composition and for hand correction of machine-set type; and in addition it will supply many border units, rules, and ornaments.

The only limit to the speed at which the operator can compose on the keyboard is the agility of his own fingers; he cannot hope to overtake the limits of the mechanism, which are estimated at somewhere in the neighbourhood of forty thousand ens per hour. A good average speed is about eight or nine thousand ens an hour; less if the work is involved or the manuscript difficult to decipher, more, perhaps, if everything is clear and straightforward. The casting speed is a little slower, about six thousand ens per hour; though the latest machines are made for considerably higher speeds.

When the paper strip is finished or the galley holds as much type as convenient, the galley is handed over to the compositor, who deals with it as described in the next chapter. Corrections can be made by hand from monotype stored like founders' type in double cases, unless they are so extensive or awkward that it is cheaper or quicker to reset the whole paragraph or a substantial part of it; in this event it is reset on the machine and the new matter put in place of the old on the galley.

Distribution is carried out in the simple and effective manner adopted by Mergenthaler—the used type goes back into the melting pot and is melted down to make new supplies of ingots for the caster.

The type produced by the Monotype is of excellent quality, and in use is indistinguishable from founders' type. Compared with founders' type it presents the advantage of a newly cast,
24. Punched paper strip from the Monotype keyboard. The letters on the right are those represented by the holes.
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sharp face for every job. The metal used, while not quite as hard as the alloy used by founders, is nevertheless hard enough to withstand many thousands of impressions. There are very few restrictions on the free design of the face, kerns are possible wherever required, and no type design need be altered essentially to suit mechanical exigencies.

The Monotype is the only machine of its kind, and is the present limit of mechanical progress in the composition of separate types. A certain amount of simple display matter can be set by it, as it can be by the Linotype, but it is seldom worth while to use the machine for this; and there is very much more display that it cannot do at all. Where several sizes or kinds of type are to be used together the compositor is essential, and, it seems, is likely to continue so.

Composing machines have had the effect of enormously increasing the demand for matrices, and this in turn implies an increase in the demand for punches, from which matrices are made. The ambitious programmes of expansion of the range of faces available on the machines, in which all the companies indulged, only increased the demand still further. Punch-cutting was not a business that could be pursued on a mass-production basis, however. The punch-cutter required long and careful training and no small amount of innate ability, and even at best could not produce punches quickly. The supply could not conceivably fill the rising demand, and the usefulness of composing machines might have been very seriously curtailed from the first had not a method of cutting punches mechanically been developed. The Benton punch-cutting machine, which works on the pantograph principle, reduced the cutting of punches to a rapid and comparatively unskilled process, quite capable of keeping up with the demands made on it. It was invented in 1884 for his own purposes by Linn Boyd Benton of Milwaukee. By sheer accident it came to the notice of the directors of the Linotype Company at the moment when their new composing machine, already in action, but not yet perfected, threatened to prove useless for lack of matrices.
COMPOSING MACHINES

News of photographic composing machines has been appearing in the technical press for some years, and it seems now that these machines have arrived at a stage at which they are ready to make their appearance in the printing office. Their purpose is to dispense with type altogether, and to produce instead of it a photographic image that can be used to make plates for printing by lithography, letterpress, or photogravure. There are several of these machines in various stages of development, but the most promising seem to be those that use plant similar to existing machines. One of them makes use of the Intertype machine, and no doubt the Linotype could be used also, to assemble, not matrices of the ordinary kind, but letter images. Two other machines make similar use of the Monotype keyboard, which is used to produce a paper strip exactly similar to that produced for operation on the conventional caster. This strip governs a machine carrying a 'matrix-case' of letter images, which are brought in front of a camera lens in the order dictated by the punched strip.

The advantages of doing away with type are numerous, and the saving of weight and labour is only one of them; the saving of storage space is also important, together with the freeing of money at present tied up in standing type.

The advent of photographic composing promises an upheaval in the printing house of which it is difficult to foresee the extent. If it is successful and becomes widespread, many millions of capital investment in letterpress machines will go for scrap and a great many men will have to learn a very different kind of trade. That is not likely to happen suddenly, however.
THE PAGE TAKES SHAPE
Make-up and Imposition

Whether the type has been set by hand or by machine, it is not in the shape of a book, and cannot be printed as a book, while it still lies in slabs, each two or three pages long, on galleys. The slabs will first have to be divided up into page lengths, and then to each page length must be added whatever accessories in the way of page headings, folios and footnotes may be required. Paging is done by the clicker, or under his supervision by compositors of his ship. Each man has his share of slip proofs, and receives the corresponding galleys after the proofs have been read and the type corrected, and instructions have been given to go ahead with paging. First the lines of type on the galley are divided into sections each with the exact number of lines for a page. This is straightforward and easy, but there are certain conventions that introduce a little extra work; for instance, a page must not begin with the half-line at the end of a paragraph, and if the division results in this, then the paging will have to be recast slightly, or the spacing of some lines widened or reduced in order to gain or save a line, to prevent the defect. But some printers and publishers do not object to it. Then, too, it looks silly and niggling to end a chapter with a page of only two or three lines, and if this happens the paging must be revised to produce more lines for this last page or to absorb them into the previous one. Footnotes are included in the page depth, and these have to be added wherever they are indicated, and the appropriate reference numbers or signs

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27. Die case from a composition caster

28. Type emerging from a composition caster; a new line is nearly complete
inserted in the text and at the beginning of the note. Any line blocks that are to be printed with the text must also be inserted, and if the text is to run round them the lines affected must be rearranged and respaced: legends for the blocks must be included too, and properly leaded. Then the page heading and the folio number are added.

Page headings, footnotes, legends, and folios are usually set on the machine, and the compositor has them by him on galleys ready for use. If there are only a few of any of these items, it is not worth while to set them mechanically, and then they are set by hand. Any displayed matter, such as part titles, chapter titles, etc., is also set by hand.

The positioning and spacing of half-titles and chapter titles needs careful attention and each must be given the correct drop from the top of the page.

If leading of the text is required this has to be done at the make-up stage if it has not already been done on the machine. Usually it is done on the composing machine very simply and efficiently by using a mould of a larger point size than that normally required for the size of type in use. Thus an eleven-point type cast on a twelve-point body will appear as though it has one point extra space between the lines. Almost without exception type faces look better and are easier to read if they are leaded, so much so that it is generally preferable to use a smaller size of type and to lead it than to use a larger one and to set it solid. I am aware that this statement flatly contradicts the teachings of many book designers, especially of those inspired by William Morris; I am aware of it and I reaffirm it.

If leading has not been done on the machine, leads must be inserted between the lines by the compositor. With founders' type this is the only way leading can be done. It is not a good way, because leads are bought by the printer in long lengths and cut up by him into the measures required, and no amount of care seems able to ensure that every lead is exactly the right length. If the lead is too long it will endanger whole masses of type at the imposition stage later on; and if it is too short it will not support narrow letters at the ends of the lines, and these
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will slip and assume an aloof or drunken appearance. The reader will have noticed this intoxication at one time or another.

There is a tale, often repeated, that leading articles in newspapers are called leaders because they are usually leaded. Why anyone should choose to believe this when it seems more reasonable to assume that they are called leaders because they lead I cannot tell. Anyway, the newspaper leader is a ‘leeder’ and the printers leads are ‘leds’—for the very good reason that they are made chiefly of lead.

Any half-page blanks or whole blanks that are to appear in the book are made up by the compositor. Although nothing is printed on a page, it does not mean that that page is represented by nothing in type metal: and the same thing applies to the half blanks at the end of the chapters, and to the open spaces of part-titles. All these must be made up in leads and furniture to the right measure and page depth.

It will be seen from this account that the process of make-up is the assembly of all the parts of type, furniture, etc., that are required for the complete book, and their proper arrangement in page lengths. I showed that it was essential that each line of type should be exactly the same measure, and it is equally essential that every page should be the same depth. We shall see why in a moment.

As each page is completed it is tied up with cord so that it may be moved about, to a limited extent, without falling to pieces. It is then ready for imposition.

IMPOSITION

Imposition is the name given to the work of arranging a number of pages so that they will print together on a sheet of paper in such a way that when the sheet is folded in a particular manner the pages appear in correct sequence; and it is also the name for the arrangement itself.

A leaf of a book is a sheet of paper printed on both sides. The obvious way to print this is to print one page first on one side and the second page afterwards on the other; and this would be
29. Section of a thirty-two page forme showing the arrangement of furniture and quoins
the only possible way if the only size of paper available were that of the leaf. Each side would have to be imposed and printed separately in what is called sheet imposition.

If, however, paper double the size of the leaf is at hand, half-sheet imposition can be used and a great deal of labour saved. The two pages would be laid down together as in Figure 30, and the two printed at once on one side of the double-size sheet of paper, which would then be turned over and printed

![Diagram](image)

30. Half-sheet imposition for two-page leaflet

on the other side—page 1 printing on the back of page 2 and page 2 on the back of page 1. It is now only necessary to divide the sheet down the middle to give two complete copies of the leaf.

These are the two simplest forms of imposition; and while they will do for an example here, they will not in fact do for the printing of a book, since the leaves they produce are all separate and cannot be bound in the ordinary way.

It is essential in the making of a book that the minimum size of paper used should be twice as large as a leaf and that it must remain that size when complete. Thus, instead of printing pages 1 and 2 in half-sheet imposition as in the foregoing
THE PAGE TAKES SHAPE

example, and then printing them again on the back of the paper to produce two identical copies, it will be necessary to go about it in another way. Assuming that the paper is twice the size of the leaf, we shall have to print four different pages on it to produce a copy capable of being bound, and the imposition would be (sheet imposition) as in Figure 31. Pages 1 and 4 are printed on one side of the sheet and pages 2 and 3 on the other side; if the sheet is now folded down the middle a four-page section of four consecutive pages is obtained, and this can be bound by stitching through the fold.

Time and labour can be again saved if paper twice as large as the double page is used. Then the two impositions above can be combined and half-sheet imposition resorted to.

These impositions were once used for the printing of books, but are now used no longer, except for oddments of a few pages at the end. To-day larger and more powerful machines are available, more pages can be printed at once, and more com-
plicated impositions have been worked out. If you look along
the top edge of this book you will see that it has been bound in
sections of eight leaves, or sixteen pages (some of the sections
have additional pages of illustrations, which are added as
explained in a later chapter), and you will find if you refer to
other books that this is by far the most usual arrangement.
These eight leaves represent the size of the sheet used in printing
(or, it would be better to say, as I will show later, the basic
size); and the size of the leaf obtained in this way is octavo.

The sheet is therefore eight times the size of the leaf of the
book, and eight pages are printed on each side, giving sixteen
in all. The imposition would be as in Figure 32. One set of pages
is printed on one side of the paper and the other on the other
side (sheet imposition). The sheet can then be folded to give
sixteen consecutive pages. The resulting section or signature
(one is the binder’s name for it, the other the printer’s) will
have folds at the head and on the foredge and cannot be read
until these have been cut or trimmed off. This is the solution
of the profound mystery that puzzles most children when they
receive an uncut book—how the ‘writing’ was done in those
inaccessible places.

The intricacy of imposition does not stop here, for to-day
sheets four times the size of the basic sheet, or even eight times,
are in general use, and sheet or half-sheet imposition can be
used with any of these sizes. These impositions contain 64 and
128 pages respectively. Books are commonly printed on sheets
four times the size of the basic sheet (quad size). There are
several ways of folding such a sheet, and therefore several
different schemes of imposition. A frequent imposition is the
one shown in Figure 33. The quad sheet is cut into four by the
binder’s folding machine during folding.

The imposition of the pages of type is the business of the
stone-hand, who works at a table with a top of smoothly planed
steel (Figure 36). This table is the imposing surface. Formerly the
top was made of stone, and because of this the whole table was
known as the ‘stone’ and the man who worked at it the ‘stone-
hand’. Stones are now anachronisms in the composing room,
32. Sheet imposition for sixteen-page sheet to fold in octavo
| 33. Sheet imposition for sixty-four pages to fold into four octavo sections of sixteen pages each |
but the name 'stone-hand' remains, without alternative; and
the steel-surfaced table is itself still called the stone, though this
name tends to give way now to 'the surface'.

In the traditions of printing the stone plays an important
part, for around it once or twice a year, or whenever special
circumstances warrant it, the meeting of the chapel is held. The
stone forms the table of the meeting, and at it the father of the
chapels stands, with a wooden mallet in his hand, with which he
beats upon the stone to keep order.

The surface is machined accurately flat, so that type stand-
ing on its feet upon it will all stand at the same level. The
pages for the particular imposition are gathered together from
the galleys—it will be remembered that they were tied up with
cord so that they could be moved about—and arranged on the
surface in the correct order and in approximately the correct
position. Next the stone-hand places around the group of pages
a chase—a steel frame with two crossbars. Metal or wooden
furniture, reglets, and leads are inserted between the pages to
give the margins required in the finished book, and also between
the outside pages and the edge of the chase, where about half
an inch of space is left, in which are inserted wedges called
quoins.

The diagrams show the arrangement plainly, and it will now
be clear why every line of type must be exactly the same length
and why each page must be the same depth. The pressure of the
wedges against the chase squeezes the type up against the
crossbars, so that every single piece of type receives its share of
pressure and is held in a vice-like grip. The type, furniture, and
the chase are converted by the pressure of the quoins alone into
a solid unit that can be lifted and transported with no danger, if
the work has been properly done, of any part falling out. The
type is, in the printer's phrase, locked up, and the whole
assembly is called a forme (Figure 29).

A proof of the forme is made on a proofing press, folded, and
sent for reading by the printer's reader, by the publisher, and
by the author, and the forme is stored away to await the return
of the proof. When the proof returns the forme is lifted back on
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to the surface, the quoins are loosened, and any corrections necessary are made in much the same way as the compositor made them on the galley at an earlier stage. After correction the forme is locked up again and sent to the machine room, ready for printing.
VI

THE PRINTER'S READER

The printer's reader is too often an undervalued employee the cost of whose services is liable to be thought of as an overhead. In many printing houses he is relegated to a small and stuffy closet or room that cannot be put to any good use, or he is incarcerated in a wooden box made by partitioning off one corner of the composing room. Ideally the conditions he requires are those of light and air, everything that conduces to mental alertness and the avoidance of eye-strain; and sometimes he gets the ideal, or something near it.

It is a mistake, and a serious and silly mistake, to undervalue the reader, for on him depends no small amount of the reputation of the printing house; and he may, too, be instrumental in preventing legal actions for libel and damages.

The readers work together in one room, and each has his own desk, and in some houses his own little compartment. Assisting the readers are a number of girls or boys, who are called copyholders. It is the reader's business to discover any errors that may have been made in the setting of the type and to give instructions for their correction; and also to look out for mistakes made by the author himself, and if necessary to call his attention to them.

First, as we saw earlier, the galley proofs come into the reading room together with the appropriate copy. Preferably any book should be read in its entirety by one reader. A copyholder is then called, to read aloud from the author's manuscript or typescript while the reader follows the wording of the proof, checking it with what the copyholder is reading, watch-
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ing out for errors both of compositor and copyholder, and also for those of the author, watching for wrong-fount letters that may have crept into the text, and keeping a weather eye open for libel and defamation, or anything that might bring the printing house into bad repute or actual legal complications.

Any errors that are found are indicated by special marks, of which a number are shown on pages 90 and 91. Every printer understands the meaning of these marks, and when the galley returns to the compositor the latter will carry out the corrections thus indicated.

When proofs are returned corrected from the author, it is the reader's job to incorporate the author's corrections with his own on one set of galleys, and if necessary to convert the author's markings (which may be very queer indeed) into something that can be more easily understood. If the corrections are numerous it may be necessary to have revised galley proofs before going into page, but otherwise instructions to go ahead with the pagination are passed on now.

In due course the page proofs come to the reader, and must be checked against the corrected galleys, to see that all the corrections have been carried out and that no new errors have been made. At this stage there will be new matter to be read and corrected, page headlines, for example, chapter heads, the legends of illustrations, etc., and care must be taken to see that any displayed matter is set in the types and sizes specified and properly spaced.

After this check the proofs are returned to the composing room for the correction of the forme.

Lastly, a new set of proofs comes to the reading room. This is the machine proof, which is pulled immediately before the forme goes on the press, or while it is actually on the press; and while the press is being prepared for printing the machine proof is read by a particularly experienced and capable reader, the press reader. This is the last opportunity there is for discovering any errors that have so far escaped detection, and for this reason a reliable man is chosen for this work.

If anything goes wrong with the text of a book after it is
THE PRINTER'S READER

printed—if errors are found in it, or something has been done that should not have been done, or not done that should have been done—it is the reader who is blamed. Poor man, he lives under the responsibility of proving his innocence. And he is in a sense the Cinderella of printing, constantly fighting for a higher wage and better conditions, and not greatly succeeding; his basic wage is the same as that of a compositor. The composing room envies him because he sits at a desk and does not have to dirty his fingers with type, or detests him because he seems to point out its shortcomings—which is his work, after all; the machine-minders perhaps see no reason why he should exist.

The qualifications required of him are extensive. He must have a sharp eye and an alert mind to recognize at once the subtlest of misspellings; and he should be able to recognize every type face presented to him, even to a single letter. He must be able to spell almost anything without referring to a dictionary—a team of readers would make hay of any opponents in a spelling bee. He must be able to read the most crabbed and illegible hand-writing, and read it correctly—and authors, like doctors, possess notoriously untidy and unreasonable fists. Ideally he should know every date in the history book, and have besides an intimate acquaintance with the meaning and shape of every word in or out of the Oxford English Dictionary. He should know every phrase in Shakespeare and the Bible and be able to pick out misquotations as they occur. He should know all about comparative religion and as much about economics, politics, and science as possible—and art too, of course. In fact he should have the widest possible general knowledge, and his value is enhanced if he can speak and write, say, a dozen languages.

If such a paragon as this exists he would be a fool if he did not at once find a job more lucrative than reading for a printing house. The reader does his best, and very often he does surprisingly well. He is not necessarily an old man, bowed with the weight of years, experience, and university degrees. He is more likely a compositor who has shown aptitude and been translated from the composing room; or he has served an
THE READER'S MARKS

The marks in the margins of this page are such as the reader makes in printing out the sins of the compositor. It is a sign language of ancient lineage, understood by all printers. The double twirl with a tail signifies delete, i.e. take out, the letter crossed, word or through in the text. The delete sign is no more than a simplified d (or possibly δ) combined with a stroke following it. Where a word has been left out it is inserted as shown here; or where it has been put in the wrong place, transposed.

Perhaps a space is missing, and if so the place is indicated and the grating marked in the margin; or a space may have been put in where there should be none, when two little curved lines serve to remove it. Where a lower-case letter is to be changed to a capital, it can be crossed through and the word 'cap' written in the margin, or it can be done by writing the capital letter there, together with three underlinings, which mean W/lead. Where the Reverse is required, l.c. is written.

The signs are really self-explanatory, as may be seen by comparing the facing page which is a corrected version of this with the reader's marks on this one. It is important that any corrections should be indicated in the margin, for the compositor does read through the proof, and cannot be expected to see an alteration in the middle of the text that is not signposted in the margin. Printers do not usually make as many errors as may be suggested by this page.

Note that the strokes used in the text and between the marks in the margin are not the same for a replacement and an insertion. The stroke to cross out a letter is a mere line; that used to insert a letter or a word is a line with a small branch, a 'caret', at the foot.
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34. The opposite page shows a selection of marks made by a proof-reader, and this page shows the type after correction by the compositor.
PRINTING AND BINDING

apprenticeship to reading, and learned by hard experience what he ought to do. He should, and usually does, know a great deal about printing, because such knowledge is useful, more, essential, in his work; and he possesses also a heterogeneous store of facts learned from books he has read, or picked up here and there, for every fact he can master is potentially useful.

It might be thought that the reader is superfluous and that what he does should be done by the author, who ought to know what he wants to say and how to say it. In practice the author is seldom a trustworthy person to pass his own proofs. He may have, probably has, gone through life with the fixed belief that he can spell, when in fact he has never been able to spell at all. He may be dimly aware that many words in English can be correctly spelled in two or more ways, and use every variety of spelling without realizing it. Nearly always he has no notion of the proper use of capital letters. The reader silently sets him right, and receives precious little credit for it.

Authors, who, as many of them do, hate the sight of their own manuscripts and never refer to them again after they are in type, are sometimes appalled by what they have written when they see it in print, and believe, perhaps, that the printer has been improvising on their work; the reader sometimes wishes that he could.

Nevertheless, many authors are greatly indebted to the printer’s reader, and some of them acknowledge the debt. The reader may not rewrite the author’s sentences, nor alter his ideas, but he can, when he considers a statement untrue, or ambiguous, or merely silly, call attention to the matter by inserting a query in the margin of the proof that is to be sent out to the author. He must do it tactfully, however, for authors are notoriously touchy, and the reader often has no idea what sort of man he is dealing with. If the author accepts the suggestion, he will amend or correct the sentence concerned, and, we hope, be duly grateful; if he does not accept it he should cross out the query, but sometimes he succumbs, lamentably, to the temptation to write a sarcastic reply.

Besides his other qualifications the reader should know
something of the law of libel and the laws relating to indecency. If anything libellous or indecent is printed the printer is liable to the same extent as the author and publisher, and he cannot legally shuffle off the responsibility on to them. Any successful action for damages reflects on him, and indeed there have been occasions when the printer was the only person able to pay, since he was the only one of the three parties to the publication of a book who had any capital—and that in the form of plant. The reader must, as well as he can, protect his employer against these risks by calling attention to any defamatory or indecent matter he finds, when the printer can refuse to print the book unless it is deleted. This is particularly difficult in the case of libel, because it is not always possible to know when words that would be defamatory if applied to real people can be applied to real people. It is not usually possible, for example, for the reader to know that the double-dyed villain has not been drawn from real life, and if there is any doubt about it the best course is safety first.
VII

PRINTING MACHINES AND THE WORK OF THE PRESSMAN

The word 'printing', it seems, means to the layman simply the impression of type on paper, and he understands very little, or nothing at all, of composing. The compositor, if he has heard of him, is an individual who does something shadowy and vague in a printing house, but is not, perhaps, the real printer. There is, however, no such thing as a 'printer' in modern printing, if by this term is meant someone who operates the process from beginning to end. Division of labour began very early in the history of the industry, and is to-day practically complete. The average compositor can no more do the work of the pressman than the pressman can do that of the compositor; and even if he could the regulations of one of the strongest trade unions in the country forbid him to do so. He must be one or the other and he cannot be both together.

Just as the compositor is a skilled man, the product of a careful apprenticeship and a long tradition, so too is the pressman; and his history may be even longer, for while there could be no compositors before the invention of movable type, pressmen were necessarily concerned in the printing of woodcuts and block books.

The first presses were heavy, cumbersome affairs, perhaps converted cheese presses, or, what may be thought more likely, bookbinders' or papermakers' screw presses adapted or modified, but some very good work was done on them despite their deficiencies. They were soon refined for their purpose, and by the later part of the fifteenth century a principle had been
PRINTING MACHINES

worked out that was to remain fundamentally the same for the next three hundred years, and which still survives to-day.

A printing press is essentially an appliance by means of which a sheet of paper is pressed against the inked surface of a forme of type, so that the ink is transferred from the type to the paper. This was all that the hand-press could do. A modern press is power-driven, and provides for the automatic inking of the type, for the feeding of the paper into the machine, and for its removal afterwards, as well as for the elementary business of impression, but all these complications are comparatively recent.

The hand-press evolved in the fifteenth century was made of wood, and made massively, not only because it was the custom of the time to make most things massive, but also to secure rigidity and to withstand the wear and tear of constant heavy use. For the sake of rigidity it was fixed not only to the floor, but to the ceiling also, as will be seen in Figure 12. The first iron press appeared in 1800, and thenceforward wood was superseded; the principle, however, remained the same (though the ceiling attachment had been abandoned long ago). Some iron hand-presses were highly ornamented (see Figure 35). Iron hand-presses were manufactured until late in the nineteenth century, and in many printing offices there survives a specimen, still valiantly at work, in use as a proofing press or for the printing of small quantities of posters, etc. Occasionally some enthusiastic amateur gets hold of one and, following in the revered footsteps of William Morris, sets up a private press to produce 'real hand-printed books'—with what advantage only he and the handicraft snob can tell.

The hand-press consists of a flat plate, the bed, on which the forme is laid. Hinged to the bed is a frame, the tympan, holding a stretched canvas or vellum sheet, on which the paper to be printed is fixed in a predetermined position. The forme used to be inked by dabbing it with an ink-covered ball made of leather and filled with sand; now it is done by rolling with a hand roller made of a rubber-like composition. After the type is inked, the tympan is lowered on to the forme. The bed is set on
runners, so that by turning a handle it can be made to slide under the upright part of the press, where it comes to rest immediately below a ponderous iron plate, the platen. Then a lever is pulled over to bring the platen down with considerable, but gradual, pressure on the tympan, the lever is released, the bed withdrawn, and the tympan raised. The sheet of paper, now printed, is removed and hung over a line like a piece of washing for the ink to dry. The cycle of operations is repeated for the next sheet, and so on until the edition is complete.
36. A compositor making up a 32-page forme on an imposing surface
37. A Miehle two-revolution press. At the far end the machine minder watches the operation of the automatic feeder; his assistant inspects the printed sheets as they are delivered.

38. A view under the feeding board of a two-revolution machine, showing the impression of the cylinder upon the forme.
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This kind of machine was slow by our standards and incapable of printing great quantities in a reasonable time, but it satisfied printers and the demand for books for nearly four centuries, until the discovery of steam power and the extension of literacy inaugurated an era both of inventive mechanical genius and the demand to stimulate it.

The first steam press was one built for The Times in 1814 by two Saxon engineers, Koenig and Bauer. Their invention, revolutionary in character, was a success. The principle on which they worked had been put forward by an Englishman, William Nicholson, at the end of the previous century, but not put into practice; it is the principle on which all book presses work to-day, and, indeed, that on which the great presses of modern newspaper offices are based, though these have developed out of all recognition.

In the Times machine the platen was no longer a flat plate, but a cylinder that rolled over a reciprocating bed on which the forme lay. As the bed travelled under the cylinder, the latter revolved, taking with it a sheet of paper and pressing it against the type, which had been inked by passing under inking rollers before engaging with the cylinder. The sheets were fed to the

39. Diagram of the Koenig and Bauer press
machine one by one by hand, several operatives being required in constant attendance. It worked much faster than a hand-press could do, and produced up to eleven hundred copies of the newspaper per hour—though it must be remembered that The Times was not then the enormous paper it later became. The machine provided automatic inking for the first time.

I need not go further into the development of printing machines than this. Newspaper presses went their own way and have become enormous contraptions into which paper is fed at one end from a reel, while at the other end are delivered completed newspapers ready folded and counted; and book presses became smaller and more compact, more efficient, and more automatic.

There are to-day two kinds of press in general use in the printing of books, the stop-cylinder press and the two-revolution press. Both kinds are capable of the best quality of work. The two-revolution machine is the later comer and it seems destined to oust the stop-cylinder, at least in the larger sizes.

THE STOP-CYLINDER PRESS

The type of this machine is the Wharfedale, so called because it was first made more than ninety years ago in that part of Yorkshire—Otley, to be exact—still a centre of printing machinery manufacture. The word 'Wharfedale' is in this connection a trade name, but for the printer it has become so familiar that it is used to denote, not merely a particular make of machine, but a particular kind, as who should say 'Wharfedale' says 'stop-cylinder', though to-day this kind of machine is made by several firms in different parts of the world.

The principle of the Wharfedale is the principle of the Koenig and Bauer press—an impression cylinder lying horizontally above a flat reciprocating bed. The bed is attached to an ink table, which reciprocates with the bed, and at each reciprocation passes under a duct to receive a supply of ink, which is evenly distributed over the table by rollers. The ink table then passes under another system of rollers, the inking rollers. These
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pick up an even layer of ink, and as the bed with the forme on it in turn reciprocates, impart the ink to the type in a thin film. All this happens during the forward and backward strokes of the bed. On the forward stroke the bed passes under the cylinder without affecting it, and while it does so a sheet of paper is fed to guides close to the cylinder. On the backward stroke the bed engages with the cylinder and causes it to revolve, grippers in the cylinder take hold of the edge of the sheet and draw it in, and it is pressed against the inked surface of the type. When the cylinder has completed about half the revolution the grippers release the sheet and it is taken up by a roller and then conveyed on endless bands to the rear of the machine, where it is dropped on a delivery board. With the completion of one revolution the cylinder stops and the bed reciprocates towards the front of the machine again, ready for the next printing stroke.

At the front of the machine is the feeding board, a large wooden surface sloping gently down towards the base of the cylinder. On this board the paper is placed in a pile, and the feeder takes it, one sheet at a time, and slides it down the incline to gauges that show the correct position in which the sheet must lie at the moment the cylinder grippers take hold of it. Feeding must be done in a definite, deliberate rhythm that does not tire the feeder and yet keeps pace with the machine. A new hand will scramble and fumble to get each sheet to the gauges in time, and then not succeed in getting them straight; but an expert will feed the same machine with an appearance of leisure in the regular, quite slow movements of hands and arms, and will be able to go on feeding all day. Feeders, where they are employed, are generally girls, but the machines are in charge of a man, who regulates the ink supply, sees that the machines are running properly, and oversees the operation generally.

The stop-cylinder press prints only one side of the sheet at once. The other side is printed later, either by turning the paper round and printing the same forme on it (half-sheet imposition), or printing a new forme on the second side (sheet imposition).
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These machines will produce, 1,000 to 1,500 impressions per hour. They are made in several sizes, to print paper from crown size (15 × 20 inches) to quad demy (35 × 45 inches) or even double quad demy (70 × 45 inches).

THE TWO-REVOLUTION MACHINE

This is fundamentally similar in many respects to the stop-cylinder press, and it prints in the same manner, by means of a cylinder revolving over a reciprocating bed on which is the forme; but there is an obvious difference in that the cylinder does not stop when the bed returns on the non-printing stroke, but continues to revolve, rising slightly so that it cannot come in contact with the type and descending again for the printing stroke. It is claimed for this principle that it does away with the jar resulting from the continual braking and stopping of the heavy cylinder found in the stop-cylinder press, and it is certainly true that the two-revolution press has less vibration. I have seen a machine-minder demonstrating the stability of his press by standing a pencil on end on the feeding board while the machine was running, a feat that would be impossible with a large stop-cylinder. The minimum of vibration makes for quieter running, too.

Because the cylinder does not stop the two-revolution press can work at a greater speed than the stop-cylinder, and commonly does so, producing 2,000 or more impressions per hour. It is in no way inferior in results, the extra speed being mainly possible because of the continual revolution of the cylinder.

We saw that the sheets fed to the stop-cylinder press are fed to the base of the cylinder, and the feeder stands at floor level, or only slightly above it. With the two-revolution press the sheets are fed over the top of the cylinder, and the feeder stands on a little platform half-way up the side of the machine.

I need make no special reference to other points of working of this machine, because the difference between it and the stop-cylinder are ones for experts to wrangle over. In both machines the bed is joined with the ink table, and the assembly shuttles
PRINTING MACHINES

or reciprocates under the cylinder, making a printing impression while travelling one way and not when travelling the other. Rollers pick up ink from the ink table and apply it to the face of the type, while the ink table itself receives constant supplies from a fount or duct.

The commonest type of the two-revolution machine is the Miehle, made by the Linotype & Machinery Company, or the American Miehle, made by the American Miehle Company; but there are several other makes on the market.

While the ordinary stop-cylinder and two-revolution presses print only one side of the sheet at a time, there are other presses made to print both sides of the sheet, not indeed in one operation, which would be impossible, but during the single travel of the sheet through the machine. These machines are in effect two presses combined in one, printing one side of the sheet first and the other side immediately afterwards. They are called perfecters, from the fact that the printing of the second side of the sheet is known as perfecting. A further variety of press is the two-colour machine, which prints two separate colours in two distinct impressions during the single travel of the sheet. It has obvious advantages in colour work. Both perfecters and two-colour machines bring the engineer and the pressman sharply up against the problem of set-off, which is all too likely to occur when a sheet receives ink on both sides or two lots of ink on one side. One solution actually in use is a spray, an apparatus that is attached to the machine and timed to bathe each sheet immediately after impression in a cloud of vapourized wax or powder, which forms a layer over the ink to separate the sheets. It also forms a layer over the adjacent parts of the machine and sometimes over the pressman as well! Extended delivery systems on some machines also assist drying by keeping the sheet exposed to the air a little longer before it is deposited on the pile.
AUTOMATIC FEEDING

Hand-fed machines (and all machines were hand-fed until the last thirty years or so) require each a workman or woman to take the sheets one by one and feed them to the gauges, so that the cylinder picks up one sheet on each printing stroke. Hand-feeding is, however, rapidly becoming obsolete, except for certain difficult kinds of paper, and machines are now available that can be attached to the press and will feed the paper reliably and as quickly as necessary.

With the newer printing machines the automatic feeder is built in as part of an integral whole, but it is nevertheless a sort of separate machine, accessory, but independent. When feeders are applied to older machines they are simply placed on or in place of the feeding board, from which, until that moment, the hand feeder has been working.

Automatic feeders are remarkable little machines, and perhaps deserve the name of robot, though they are anything but anthropomorphic in form. They separate each sheet from the pile and guide it carefully to the feed gauges, and see that the grippers take safe hold of it. If anything untoward happens— if, for instance, two sheets are stuck together and will not be separated, or if the sheet is torn or incomplete, or if it jams anywhere in the feeder because it has been crumpled or damaged, or if the cylinder fails to take hold of it—if any of these things happens the press must be prevented from printing and the automatic feeder provides for this. It also stops the press when the last sheet in the pile has been fed.

PRINTERS’ INK AND PRINTING ROLLERS

I feel I should say something here about printers’ ink because so few people know what it is. Many laymen seem to imagine that it is something like ordinary ink, though occasionally someone may wonder how it comes to be so very black; and I have at times been asked how blotting paper is printed, as it is, without blots ensuing.

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First, printer's ink is nothing whatever like ordinary ink of the kind used with pens: nor is it anything like the odorous preparation that is poured on stamp pads. Red or black or yellow, or whatever the colour, printer's ink is like nothing so much as paint. Black ink looks like black treacle. The base of the ink is usually linseed oil boiled until it attains a glue-like consistency, and freed from the fats it contains when raw. The colouring matter varies with the colour, that for black ink being usually lamp black. With any ink the particles must be excessively fine—even the soot of lamp black is too coarse—and the colouring matter is ground and reground until not the slightest knobble or lump remains to clog the counters of the smallest of letters.

The great rollers of printing machines are descendants of the leather dabbers or ink balls used for many centuries for inking type. No doubt the hand rollers that superseded the dabbers were also made of leather, and a great deal of trouble must have been experienced from the inevitable seam, which would leave a white or under-inked mark across the form.

The solution of this problem was the invention of a substance that could be melted and cast on the roller shafts, without any seam or irregularity, and that substance must be the very first of ersatz rubbers. It was made of nothing more recondite than treacle and glue. This composition got rid of the seam and made continuous rolling practicable, but it would only work satisfactorily under certain climatic conditions. The more torrid the weather the more the rollers tended to behave like treacle toffee in the process of being sucked, and printing with them must sometimes have been a sore trial.

The glue and treacle roller has given place now to rollers of a composition in which gelatine and glycerine are the principal ingredients. This compound is more stable and more rubber-like than the former one, is reasonably unaffected by ordinary climatic variations, and holds and transfers ink with complete efficiency.

Ordinary rubber itself is not used for inking rollers, though it may at first seem a likely material. Special rubbers and
rubber compounds, which must be adapted to resist oils, make excellent and durable rollers, but they are more expensive than composition rollers—which, in any case, many printers believe have qualities not to be found in rubber.

MAKE-READY

The conjunction of forme, printing press, and ink will not alone produce perfectly printed copies; this mere conjunction is not even likely to produce legible copies. It is not enough to dump the forme on the bed, see that there is ink in the fount, and start the machine.

Theoretically it might appear that if the bed were absolutely level and smooth, if every piece of type were absolutely of the same height, and if the cylinder gave absolutely even impression, there would be nothing else that need be done but start up. In practice, even if these perfections of engineering were attainable, the result would not be satisfactory: the printed sheet would be here too black, there too grey, and only in places approximately right. The reason for this is that the forme does not respond best to an even impression, but to a discriminately uneven one, and a deal of handwork must be done on the cylinder and on the type before the ideal is achieved. This preparation is make-ready, and is a skilled business, proficiency in it marking all the difference between a good pressman and a bad one.

Before commencing at all there is the question of the ink to be decided. Not any old ink will print well on any old paper. If the paper is loose in texture, too stiff an ink will pluck pieces from its surface, and these will be rolled into dirty little pellets that encumber the type; the ink must be thinned to just the consistency that will not pluck the paper and will not, on the other hand, be so liquid that it will not dry readily—if it does not oxidize quickly enough on the surface it will come off (or 'set off') on the back of the next sheet in the printed pile. If the paper has a hard surface, a stiffer ink can be used, and it must have an even better drying capacity, since little of it can soak

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into the paper and prevention of set-off depends mostly on the airing the paper gets as it goes over the tapes or flyers between impression and delivery to the pile at the back of the machine—a mere matter of seconds (complete drying is not, of course, possible in this time; all that is required is sufficient to form an impervious skin on the surface). When the ink is satisfactory in consistency and quality, the ink duct must be adjusted so that ink is supplied to the different parts of the forme in the quantity required.

The cylinder is wrapped in a blanket and layers of paper to increase the pressure, as it is set for the lightest impression likely to be required, and for a book-size forme it will need some reinforcement. A proof is pulled with this arrangement, and inspected. It will probably be a sorry example of printing, grey and uneven in colour, but it gives the pressman a guide to what is required. First there is the position of the type on the paper to be determined, and this can be adjusted very simply by shifting the forme on the bed or by altering the position of the feed gauges, whichever seems best. Then the make-ready proper can begin.

First, the proof will probably show that any large area or large size of type will be too grey; while, on the other hand, the small or isolated areas will be too black and heavy and may even be embossing the paper—this may happen in the case of a dedication or a half-title isolated in the middle of an otherwise blank page. These two kinds of page must be printed together, and the cylinder, giving an even impression, cannot itself be made to discriminate between them.

In order to make the large areas or large sizes of type print properly it is necessary to give them more pressure, and this is done by pasting pieces of thin paper over that part of the cylinder on which they fall during impression—the forme is allowed to print on the cylinder covering to show exactly where these areas are. In some cases several layers of paper may have to be pasted on before the correct weight is obtained.

In the places where the type is printing too strongly a fragment of the paper covering is cut away until the impression
has been so reduced in that part that the letters print properly. The forme itself receives some attention too. Heavy areas and large letters like initials or chapter heads may have a layer of paper, cut to the correct shape and size, pasted under them, or more layers as required.

The aim of the pressman is an impression that will be even all over the sheet and will bite just sufficiently into the paper to impress the type properly, but not enough to show the impression on the other side. As the paper to be printed may be no more than one two-hundredth of an inch thick, and may even be less, this is a delicate job calling for accuracy of judgement. It can take a great deal of time too, for it must be remembered that there may be up to sixty-four pages to be printed at once, and every single letter in every page must be made to print exactly as required. A good pressman is therefore a man to be prized and respected.

Once the make-ready is complete it will do for an indefinite number of impressions—indeed, it will probably outlast the type—in the prolongation of the life of which, by the by, make-ready is an important factor.

The modern tendency is to make the general impression as light as possible consistent with a satisfactory general colour. Many typographers deplore this very light impression—kiss-impression, it is called—and it is quite wrong for many type faces. Certainly it is entirely a modern development, for it is only with the greater accuracy of modern machines that it became possible. The result, it seems to me, is slightly effeminate. Such precise control of the impression is impossible on a hand-press, and books printed by hand therefore tend to show stronger impression than do those printed on a modern power press; hand-press books look masculine and vigorous compared with those printed in the modern manner. Certainly the impression should not be so heavy that the type embosses the paper, which it often does in hand-printed books, but it should be heavy enough, it seems to me, to make the type bite into, rather than merely deposit the ink on, the surface.

When the make-ready is completed and the machine is ready
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to start its run the hand-feeder takes her place at the feeding board and a ream of paper is placed upon it for her to feed; or else, as the case may be, the automatic feeder is charged and swung into position and adjusted as necessary. The run then commences, and while the sheets are going through, the pressman watches them as they come from the machine to make sure that they are being printed correctly, and adjusts the ink supply as required. He must also keep the machine running properly, and see, as well as he can, that it does not break down, but he hardly needs to watch it to do this. Like any other engineer, he is aware at once of an audible difference when some part is not joining properly in the concert.

The composition of the type and the make-ready on the machine are the two principal preliminary charges of printing. Both must be incurred before a single sheet can be printed, and if the edition is a small one the cost will seem disproportionate on each copy. This is one of the reasons why limited editions are expensive, and it may push up their price considerably (though it should be remembered that this does not necessarily apply to limited 'de luxe' editions printed at the same time as a large number of a cheaper edition). It is more laborious, more troublesome, and more expensive to print one copy of a book than it is to write the whole thing out by hand or on a typewriter; but if one can be printed, thousands of others can be printed too at great speed. The economy of printing lies entirely in its capacity to duplicate.
VIII

ILLUSTRATING THE BOOK

Process Engraving

Men have made pictures from the dawn of time, but it is only comparatively recently that they have discovered how to multiply copies of a picture. Some of the processes that have been developed, though successful in what they set out to achieve, are not, nevertheless, bibliographical, and do not come within the scope of this book. Examples of these are etching, mezzotinting, and steel-engraving—the first the oldest and still surviving as a medium for the artist. They have, indeed, been used in books, steel-engraving particularly, but they are essentially artist processes and severely restricted in output. A typographical process was in existence at the time Gutenberg was working out the principle of movable type and was very well adapted to become a partner in the making of books. This was wood-cutting.

Wood-cuts and wood-engravings are familiar to modern readers, for they have enjoyed a revival in our time. The methods by which they are produced differ, and the results are distinctive. Both are letterpress processes, which means that the print is taken from the surface; any part of the block that is not required to print must be cut away so that neither the ink nor the paper will come in contact with it in the press. In a wood-cut the cutting is done with a knife, and the effect is usually broad and akin to a line drawing, but it is eminently typographical and consorts well with type. Wood-engraving, on the other hand, is done with engraving tools on the end grain of
the wood, and more subtle and elaborate effects are obtainable. With a wood-cut only one tone is possible, that of the black line, and this is true also of the wood-engraving; but half-tones can be simulated by means of fine shading and cross-hatching.

Wood-engraving received its firsts honours at the hands of Thomas Bewick late in the eighteenth century. Although it was known before Bewick's time it was little practised, and he enlivened it by the introduction of a fresh technique and a consummate mastery of the medium. His pastorals and pictures of animals and birds were widely popular, and, since he was a prolific artist, his work appears in many of the books of the period. He was, perhaps, the first artist of note to become specifically a book illustrator.

After Bewick's day wood-engraving developed in technique, acquired virtuosity, in fact, but tended to lose in imagination. The great newspapers that came into existence in the nineteenth century demanded, not imaginative creations, but
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factual illustrations of real events and people. Wood-engravers tried to cope with this demand, and for a time flourished because there was no process that could compete with them; but in the end they vanished in the face of a new invention, process engraving. Wood-engraving was too slow, one block taking perhaps hours or even days to prepare, and the time was coming when news and topical illustrations were stale if they were more than a few hours old.

Wood-engraving has disappeared from the news columns of the daily paper, but during the last thirty or forty years it has undergone a revival in connection with book illustration. It has, too, attracted the attention of some fine artists, among whom perhaps the foremost was Eric Gill, who also revived the woodcut with effect.

Wood-engravings and wood-cuts are not nowadays printed direct from the wood blocks, in ordinary book printing at least. The wood is too fragile and too much time and effort have been expended on it to risk it on the bed of the modern power press. A facsimile block is made by electrotype, and used instead.

To make an electrotype an impression of the wood block is made upon a tray of wax, and this impression is dusted over with graphite powder. The tray is then immersed in a solution
of copper sulphate and a thin layer of copper is deposited upon the wax by electrolysis. When this is completed the copper is carefully separated from the wax and given a backing of metal somewhat similar to type metal. The backing is trimmed and planed flat, and finally the resulting plate is mounted on wood to bring it to type height (Figure 43). When properly made an electro will give a print indistinguishable from that obtainable from the wood block, and further will provide more copies than can be obtained from the softer wood.

The development of photography as a practical process after the middle of the nineteenth century provided a new way of making pictures, and, what is more, a completely different kind of picture. There was no other way of making pictures so quickly and there was no other way of obtaining them so factually correct. There was, too, at least later in the history of the process, the possibility of obtaining unlimited numbers of copies of each picture. Yet there was nothing in this to interest the printer of books. Photographs could not be printed together with the type, and if they were bound into books they had to be
mounted and were awkward and lumpy, and gave no guarantee of permanence.

A number of ingenious men interested themselves in the possibilities of devising a means whereby photographs could be printed on a letterpress machine. The problem was to make a black ink give grey tones, or the semblance of grey, in any shade in selected parts of the plate. The black ink of printing is black and only black, and it will not print grey; printed paper bears either black marks or no marks at all. How then could grey be obtained? Fox Talbot made a valuable contribution towards the achievement of this aim when in 1852 he suggested the use of a gauze or muslin screen to break up the image into dots. Following up this suggestion, many experimenters devised various screens, but without real success. It was not until the eighteen-eighties that a satisfactory method was achieved through the introduction of the cross-line screen, which is still in use to-day. This I shall describe shortly.

Experiments in photographic reproduction had led to a process by means of which line drawings could be reproduced on the printing machine without the intervention of the wood-engraver. The process is now in extensive use throughout the world, in all kinds of letterpress printing, and hardly any newspaper appears without somewhere in its columns an illustration or a diagram or a map printed from a line block.

THE LINE BLOCK

By this process any drawing in black and white can be reproduced in unlimited quantities on the printing press. Further, the reproduction may be smaller or larger than the original, and still, in everything but size, a faithful reproduction. The original itself, from which the line block is to be made, may be a drawing, a diagram, a map, a manuscript, a page of type—anything one can think of, provided it does not contain tones. For the convenience of this description, let us call the original a drawing.

It is set up on a copyboard and lighted brightly and evenly.
43. A wood-engraving by Reynolds Stone and an electrotype made from it

44. A line block and a half-tone block used in this book
45. A process camera; the copyboard is lighted by arc lamps, and a prism on the lens reverses the image
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Before the copyboard stands a camera, about which there is something odd. It is huge, and it stands on runners so that it can be moved back and forth, but it points at right angles to the subject, like no camera the ordinary man handles. The lens of a camera normally reverses the subject from left to right on the negative—a good many soldiers and sailors have discovered this when they have posed for the tintype man at the seaside, and found that the picture showed their badges and

46. The progress of a line block. On the left is the original; this gives a negative as in the second picture; from this is made a line block as in the third picture; from which is obtained a print as the fourth picture.

medals on the wrong side. That is because the tintype camera does not employ a negative. With the ordinary film or plate camera the reversed image on the negative is reversed again in printing, so giving a picture the right way round. The process camera is placed at right-angles to the copyboard because it has a prism in front of the lens; the prism is used in order to give a negative the right way round, for there is an extra reversal involved in the process, and the final print must be the right way round. This sounds a little complicated, perhaps, but Figure 46 helps to make it clear.

The wet collodion plate used in the process camera is very contrasty, and the exposed and developed negative shows the drawing as so many clear lines on a glass plate otherwise covered with opaque black. This negative is printed on to a zinc plate coated with sensitized albumen that has the property of hardening under the action of light, and of becoming insoluble
in water when thus hardened. The exposed plate is rolled up with transfer ink and developed in water, which removes the unexposed albumen and leaves the drawing reversed, as lines of inked albumen on a bare zinc surface. The plate is dried, powdered with bitumen to give additional strength to the work, and heated over a hot plate until the powder is burned in. The back and edges of the plate are varnished to resist acid. The next step is to immerse the plate in nitric acid, which erodes the zinc where it is not protected by bitumen or varnish, leaving the lines representing the drawing standing above the level of the rest of the plate. The etch is continued in stages until a sufficient depth of metal has been removed, a red powder (known as dragon’s blood) being applied to the plate at intervals to prevent undermining of the lines. Where extra depth over large areas is needed, it is obtained, after etching, by ‘routing’ with a mechanical cutter.

The line block is now finished except for the removal of the resist and mounting on wood or metal to bring the zinc plate up to type height. Printing in the ordinary way on a letterpress machine will produce from this block a replica of the original drawing, and thousands of copies of it can be run off.

The printed picture is not necessarily the same size as the original drawing. The image on the negative may be enlarged or reduced by moving the camera towards or away from the copyboard, and the camera is mounted on runners for this reason.

Drawings in colour can also be reproduced by line block, provided that they have been made with an understanding of the limitations of the process, and that, as before, no tone is expected in any part of the reproduction. A separate block is necessary for each colour, and the colours are printed one at a time. The colour blocks are made in precisely the same way as the monochrome block, and look and are exactly the same, except, of course, for the difference of the image. There is a difference in the handling of the process camera, however, and the separate blocks have to be very carefully made so that the colours fall into their proper places (or register) when they are printed.
47. A selection of mechanical tints
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Let us say that the colours of the original drawing are yellow and red. The camera will not normally discriminate between these and will reproduce them both on the plate. To prevent this a filter is used on the lens to eliminate one colour while the other is being dealt with, and when this has been done another filter is used to eliminate the latter colour and allow the former to affect a second negative. From these two negatives two line blocks are made in the ordinary way, and printed in their respective colours, one impression upon the other.

Colour separation by means of filters means that colour-sensitive plates have to be used, and even so the separation is not always all that is desired; when this happens the defects must be remedied by hand work; and in extreme cases separation by the camera may have to be abandoned and black tracings made of the colours.

I have said that tone cannot be obtained by means of the line block, but this is not altogether true. In certain cases a simulation—a rough one, certainly—of tone can be obtained by means of mechanical tints. These vary in pattern, but the most common one is made up of tiny dots in regular rows, and may be noticed in almost any newspaper cartoon. The tint is printed down on to the zinc plate, after the burning-in of the bitumen, by means of a special embossed tissue or 'tint skin'. These skins are made of a firm plastic embossed with a minute pattern, and are available in a wide variety of patterns, of which the most usual is a regular stipple. The skin is coated with specially prepared ink and laid down on the plate and pressed evenly into contact by a roller, leaving the pattern in ink upon the plate. Those parts of the plate that are not to receive the tint have been previously painted over with a solution of gum arabic, which is dissolved away when the plate is washed in water after the tint is laid, leaving the tint only where required. The plate is then etched in the ordinary way, the ink protecting the metal it covers in the same way as the bitumen. A selection of mechanical tints is shown in Figure 47.
48. Rolling up a line-block before etching

49. An engraver working on a half-tone plate to clear highlights, etc.

50. A routing machine in operation on a line-block
51. Half-tone blocks of various screens
THE HALF-TONE BLOCK

The effort to obtain from the letterpress printing machine a picture in true tone was doomed to failure from the first, and inventors realized this and set their minds to work to devise a successful conjuring trick to persuade the eye that there was tone where in fact there was no such thing. A photograph may be made up of a subtle and almost infinite range of tones from black through every shade of grey to white. Printer's ink is black and the paper is white, and the problem was how to mix these two to produce various tones of grey. The answer lay in the synthesizing quality of the human eye. The mechanical tints used with line blocks show that the eye can be persuaded to accept an arrangement of small dots on white paper as representing grey; in effect, the eye mixes the black of the dots and the white of the paper. Large dots closely spaced give dark grey, and small dots widely spaced a much lighter tone. With this understood, what was required was some way of breaking up the tones of the photograph into black dots of different size to simulate the range of tones in the photograph. This is done by the cross-line screen.

The screen is formed of two plates of glass, each ruled diagonally with a diamond, and fastened together at right angles to form a mesh. With its aid anything that can be photographed can be reproduced by means of a half-tone block. In most cases the block is taken from a photograph or painting or other kind of picture, but it can also, if necessary, be taken direct from any object that is not too big to be got into a studio. In the case of a picture or photograph, it is set up on a copyboard exactly as is the original for a line block, and the same kind of camera is used. The difference lies in the presence of the screen in the camera, just in front of the negative. The image formed by the lens is broken up by the mesh of the screen into thousands of small cones of light, which are strongest where the original is lightest. As the screen is placed a little distance from the negative, these cones of light spread slightly before they impact the sensitive surface, and cause the mesh of the
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screen to be itself broken up. This breaking-up occurs more in the parts representing the light portions of the original than in those representing the dark portions.

The negative is developed and printed down on to a zinc or copper plate (zinc for coarser screens) coated with bichromated fish glue. This is developed in the same manner as a line plate, but without rolling up with ink. The plate is then heated to convert the glue into an acid-resisting enamel.

Etching, in iron perchloride, is not a mechanical process; it requires skill and experience on the part of the operator. The process, if operated merely mechanically, will not produce a satisfactory reproduction of the original, and compensation must be made by retouching the plate before etching and by careful control of the etch itself. Light-toned areas are given a little extra etch which takes the corners off the dots and so

52. On the left is part of a half-tone screen, enlarged; on the right is an enlarged portion of a half-tone print showing the varying size of the dots; below is a diagram representing a half-tone block in section, also enlarged, with the dots ranging from the darkest areas on the left to the lightest on the right.
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reduces their size, until the correct tone is obtained. Small as the
dots caused by the screen are, every one of them must be present
on the etched plate, because the absence of any one will show
as a small white hole in the picture, quite apparent as a defect.
The finished plate is mounted on wood or metal to bring it
to the correct type height, and it is then ready to be sent off to
the printer.

A printer's rough proof of a half-tone block is apt to be dis-
appointing to the photographer who made the original photo-
graph and does not understand the treatment necessary to make
the block print properly. This treatment is laborious and costly,
and it is not worth while to do it for a proof when both publisher
and printer understand that better results will be obtained in
the final printing. The process is not carried out until instruc-
tions are given to go ahead with the printing of the edition.

It is no more than make-ready, but it is make-ready of a kind
and to a degree of delicacy beyond anything necessary for
type. Provided the paper supplied is suitable, and this is the
publisher's affair, the best results are got from half-tone blocks
only by the most skilful and conscientious of machine-minders.
If the pressman tends to skimp the drudgery of make-ready the
results will be less than the best: and they will be so, too, if he
does not take care that the inking and impression are exactly
right. Every single dot must print, and where the picture is
dark they must print just a little more strongly than where it is
light; and proportionately in the middle tones.

Neither complete white nor complete black are possible with
ordinary half-tones. The darkest areas still have minute dots of
white to reduce the depth of the colour; and the lightest areas
have a very fine screen of black dots; but the total impression
is that of a photograph with continuous tones.

If you take up a newspaper and examine the pictures through
a magnifying glass, the screen will be obvious in the dot for-
mation of the tones; indeed, it is visible without the aid of a
glass if your sight is normal. It will be clear that the dots are
arranged in diagonal rows in two directions, and these rows of
dots represent the ruling of the screen. Turn now to the half-
tones in this book: the dots are not apparent without a magnifying glass, though they are there, nevertheless. The reason for this is that half-tones are made in different degrees of coarseness, through different qualities of screen, to suit different kinds of paper. As I pointed out, every dot must print, and if the screen is fine and the paper coarse, some of the dots are bound to fall on irregularities in the paper and misfire; besides which some of the fluff from the paper will get mixed up with the ink and clog the block. So for a rough-surfaced paper a screen with lines comparatively widely spaced (fifty to sixty lines to the inch) is used, and the dots are in consequence hefty and able to overcome paper irregularities if they happen to hit them; while for a block intended to be printed on smooth paper a finer screen (100 to 175 lines to the inch) is used.

It is certainly better to use a smooth paper and a fine screen than a rough paper and a coarse screen, as you will see for yourself if you compare the plates in this book with the illustrations in the newspaper. Newspapers must be printed on cheap paper if you are to have them at the price you are accustomed to pay, and so they present pictures that are manifestly imperfect in every particular, but are no doubt better than no pictures at all. A book is produced in less haste, and at a price consonant with its cost of production, and the fact that its illustrations are more perfect is because you pay for them and enable the publisher to use a special paper and to have that paper inserted in its proper place in the book by the binder.

There is no doubt that for sheer brilliance of result a fine-screen half-tone properly printed on suitable paper is unsurpassed; yet half-tones have peculiar and special disadvantages. The screen itself is a disadvantage on occasion, when, for instance, it is desirable that the reproduction should bear examination through a glass. Where the subject is as interesting in detail as it is entire, as in the case of a micro-photograph of germs, it is essential that it should yield further detail on magnification. This the half-tone will not do, the glass revealing only a formless arrangement of dots. Again, the half-tone depends very much on the contrast between the black ink and the
53. A four-colour half-tone block sectioned to show the separate colours and the order in which they are printed
PROCESS ENGRAVING

paper, and is seldom wholly satisfactory if printed in any colour other than black—the result tends to be flat.

Another disadvantage, and to my mind a serious one, is that if the picture is to be well reproduced the screen must be fine, and consequently the paper must be smooth. No paper made is smooth enough in itself to do full justice to a fine-screen half-tone block, and in order to present a suitable surface the paper must be loaded (imitation art paper) or coated (real art) with China clay and ironed smooth. The result is a kind of paper that I consider unpleasant because of its objectionable shine and peculiar feel.

Many ideas and suggestions have been put forward to abolish the necessity for art paper, but none of them has come to anything. If ever a successful invention appears, publishers will welcome it, for every one of them would prefer to print illustrations on the same paper as the text—apart from any aesthetic considerations, it would be cheaper and easier to do so.

COLOUR ILLUSTRATIONS

THE TRICROMATIC HALF-TONE PROCESS

A good reproduction of a picture in full colour can be achieved in more ways than one, but most of such reproductions in books are printed by the trichromatic half-tone process. Like the ordinary half-tone process, it depends on the inability of the human eye to distinguish the truth, provided the truth is small enough. Just as the tones of the half-tone reproduction are an optical illusion, so too, except for the three primaries, are the colours of the trichromatic process. A coloured reproduction of a painting—I have before me at the moment one of Titian’s ‘Bacchus and Ariadne’—does not really contain all those subtle shades and tones of colour the eye of the beholder sees. There really are colours present, but there are only three of them, the primaries yellow, red and blue, or variations of them. With these three colours the engraver and the printer bamboozle the beholder into thinking that there are also present

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green, brown, purple, orange, black—almost anything in the colour circle.

Whether the colours the reader thinks he sees are the same as those of the original painting is another matter. Colour reproduction has improved immensely in recent years, but there are conditions that cannot be fulfilled, and are not likely to be fulfilled. Ideally the engraver and the printer should have beside them for reference as they work the original painting itself, if the print is to be true, and no one is going to trust a valuable picture to such circumstances. The next best thing is a colour transparency, and good as these are they are not entirely accurate. These statements can be tested by comparison of two different reproductions of the same picture—the variations will be found to be surprising. Even when the original is not of great value it is not customary to send it to the printer.

The trichromatic process is no more than a development of the monochrome half-tone, the only complication being the colour. Three blocks have to be made, one to print each of the primaries yellow, red, and blue, and the first requirement is to analyse the original into its relative values of each of these primaries. The analysis is expressed in the making of the negatives and is obtained by the use of filters on the lens of the camera. These are similar to the filters used in ordinary photography, that is, optical flats of coloured glass or gelatine, and their purpose is to restrain or prevent those colours that are not required from affecting the negative. Thus to obtain the block to print the yellow primary a dark blue or blue-violet filter is used that prevents the yellow in the picture from affecting the negative, and emphasizes the other two colours. The developed plate shows the pure yellow part of the picture as clear glass and the red and blue parts opaque. These are the extremes, and between them there are tones of light to dark grey representing the colours of the original in which yellow has a share—orange and green for example.

This negative, it will be remembered, having been taken through a screen, is broken up into dots like an ordinary half-tone negative. It is next printed down on to a sensitized copper
plate, the emulsion of which is hardened by the action of light. This plate is developed in the usual way, and finally etched and mounted.

For the red block a green filter is used to exclude red and emphasize yellow and blue, and, what is important, the screen is moved in a circular direction so that the dots on the negative fall in a slightly different position from those on the yellow block. For the blue block a red filter is used and the screen moved a little farther round, so that the dots fall in yet another position. The negatives of both these colours are printed down on to copper as before, and the plates etched and mounted, when, subject to approval of the proofs by the customer, they are ready to be sent to the printer.

The preparation of colour plates calls for much more skill and care than does the making of a monochrome half-tone block. The etching must be very carefully done, and at all stages compensation has to be made for certain imperfections of the process. Though it is in theory possible to split any colour up into its primaries, in practice no perfect analysis can be made, and any defects of analysis must be made good on the plate by delicate retouching; and some compensation must also be made because it appears to be impossible to manufacture inks that are satisfactory as primaries and also stable in colour. The next best that is stable is used and the process adjusted accordingly.

To the printer, with the blocks, is sent a set of proofs called the progressives. These are clipped together in a particular order, and consist of (i) a proof of the yellow block; (ii) a proof of the red block; (iii) a proof of the yellow with the red superimposed; (iv) a proof of the blue block; (v) a complete proof showing the yellow, red, and blue printed on the same sheet to form the finished picture (Figure 53). The progressives show the exact shades of colour necessary for the correct result, and also the order in which the printer should print the colours—which is nearly always the lightest colour first and the others in order of lightness—in our case, yellow, red, and blue.

In the printer's hands each block is treated exactly as an
ordinary half-tone, except that it is printed in its proper colour. Only one colour can be printed at a time on an ordinary machine, so that for a three-colour reproduction the paper must go through the machine three times—a detail that contributes to the cost of the process.

In printing the second and third colours care must be taken to obtain exact register on the colours preceding. It will be remembered that the process- engraver moved his screen so that the dots of each colour fell in a position different from that of the dots of the other colours: this was done so that the dots should print side by side, and not one on top of the other. It is this juxtaposition of the primary colours that produces the impression of complementary colours and neutral tints. This can be seen with a magnifying glass if an area of the reproduction is examined. If, for example, this area appears green, it will be found through the glass that it is composed of yellow and blue dots in a rose pattern, with, perhaps, a few red ones interspersed here and there. Other complementsaries are formed in the same way. The paper is a palette on which the printer mixes, not inks, but light rays; and the eye—an inveterate generalizer—is unable to distinguish, because of their minute size, one element from another, and cheerfully accepts them for the sum of their union.

I have already said that theoretically it should be possible to produce any colour from the three primary colours, but that in practice certain disadvantages prevent perfection. Some colours and neutral shades are difficult to obtain from the three primaries—mauve and pure grey being examples. Where these colours are present in the original a further block is made by the engraver, usually to print black. This block strengthens the shadows, provides the greys and some other colours, and generally helps towards a richer quality in the reproduction. All good colour half-tone printing, these days, is in four colours.
54. Above, a photogravure screen; centre, a diagram showing
the varying depth of cells on the plate or cylinder; and below, a
print showing the effect of the variation of depth of cell; all
greatly enlarged
55. A sheet-fed gravure machine; the sheets shown are being backed up, or perfected.

56. The printed web emerging from a rotary gravure machine; the cylinder is seen revolving in a bath of ink.
IX

ILLUSTRATING THE BOOK

Photogravure, Lithography, and Collotype

There are three important processes other than process-engraving by which books may be illustrated. Two of them, photogravure and lithography, may be used to print the text as well as the illustrations. Lithography and collotype are planographic processes—that is, they work from a plane surface, not a relief surface like letterpress; and photogravure is an intaglio process, the reverse of letterpress, working from the hollows of the plate rather than from the relief.

PHOTOGRAVURE

Photogravure began as a closely guarded secret known only to a few firms, but gradually experimenters working along the same lines arrived at similar results, and details of the process became known. It is an elaborate and intricate process, capable alike of cheap printing in enormous quantities and indifferent quality, and of fine work fit for the best kind of book. It is in common use to-day for the printing of magazines.

It should be kept in mind throughout this section that photogravure is an intaglio process, printing, like an etching, from the hollows of the plate. The printing surface is not flat like a half-tone block, but takes the form of a cylinder with a facing of copper. The matter to be printed is transferred photographically on to the surface of the cylinder, and a screen is superimposed. This screen is not to be confused with that used
in process engraving, for it serves a different purpose and takes no part in the illusion of tone; it is merely a mechanical convenience. The action of light on the emulsion coating the cylinder is to produce a film varying in thickness in relation to the tonal range of the positive, and the length of time this film of gelatine will withstand the etching fluid is important in the process. Where the original is white the gelatine representing it on the cylinder is sufficiently thick to protect the copper against the action of the acid. Where, on the other hand, the original is grey, the gelatine is thinner and protects the copper only for the limited period it withstands the acid, after which the copper too is attacked and eroded. Other areas of the subject are etched proportionately. Thus, when the etch first reaches the copper in the grey tones, the dark tones have been etching for some time, while the light tones are still protected. The result is a surface on different levels, the areas and depths of the levels corresponding to the tones of the picture to be reproduced.

The screen used in photogravure is the reverse of that used in process engraving. Instead of being a clear glass plate ruled with opaque lines, it is an opaque plate ruled with clear lines. The screen is printed down with the illustration, forming a mesh of thick gelatine through which the etching acid cannot penetrate; the finished cylinder shows the screen as lines of copper standing at the original level of the surface, breaking up the varying depths of the etched cylinder into myriads of tiny cells.

Although these cells vary in depth they are all of the same size and shape. The reproduction of tone is dependent not on the area of the cell, but on the thickness of the film of ink it can impart. A shallow cell imparts to the paper in printing only a thin film of ink and the white of the paper shines through it with small impairment of its brilliance; a deep cell imparts a thicker film that obscures the paper more or less completely. Between these two extremes there is a wide tonal range produced by a varying thickness of ink film corresponding to the varying levels of the cylinder surface.

This will be clearer when the method of printing is under-
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYPE

stood. The etched cylinder is mounted in the printing machine in contact with another cylinder, which is faced with rubber; between the two the paper travels in a continuing strip or 'web' from a reel—a washerwoman's nightmare of an eternal sheet going through an immense mangle. The etched cylinder is flooded with ink as it revolves, and the ink is immediately scraped off again by a flexible blade called the 'doctor'. This blade has a straight edge, and cannot penetrate into the cells, each one of which remains full to the brim after the passage of the doctor. It is in connection with the doctor that the screen achieves its full use, for it provides a surface for the blade to ride on, besides breaking up the hollow areas into cells from which the ink is not likely to be dragged out by the scraping action. Revolving from the doctor blade the cylinder next comes in contact with the paper, which is pressed tightly against it by the opposing rubber-faced cylinder. Continuing its revolution the etched cylinder is continuously being inked, scraped, and pressed against the travelling web of paper, the sequence proceeding without pause. As the two cylinders revolve one against the other, with the paper between them, the paper is pressed in close contact with the ink-bearing cells, and the ink adheres to the paper, here a mere film, there a comparatively thick layer, according to the depth of cell. At each revolution the cylinder prints one complete copy of the subject or subjects engraved upon it. As the paper is a length unwound from a reel, there are printed on it thousands of copies, which are later separated by cutting.

This kind of machine, working from the reel and at high speed, is known as a rotogravure machine. A much better quality of work, more suitable for books, is obtainable from slower-running sheet-fed photogravure machines, which print separate sheets like a Wharfedale or a Miehle press.

A magnifying glass showed a half-tone print to be made up of dots of varying size and shape, but all uniformly black; the same glass will show that the dots (i.e. the cells) of the photogravure print are all of the same size and uniformly square, but unequal in depth of colour. It may also show that the spaces
between the cells (the screen) are not white, as might be expected, but faintly toned. This tone is caused by ink spreading from the cells under pressure, and it is valuable because it assists in the illusion of continuous tone.

Photogravure is capable of a wide range of tone, from the richest of shadows to the most delicate of highlights, and very beautiful results can be obtained from it. There is, however, a large initial cost in the preparation of the cylinder, and for this reason photogravure is only occasionally used for printing the illustrations of books. The usual edition of two to six thousand copies is not large enough to be economic. On the other hand, the cylinder will print enormous quantities without deterioration, and if more than twenty or thirty thousand copies are required, photogravure may be the cheapest method of printing them. So we have the paradox of photogravure illustrations in a cheap Penguin while they are too expensive for the fifteen-shilling book.

The process is excellent for certain types of magazines, and in these cases the text also is printed by photogravure at the same time as the illustrations. It cannot be expected that a weekly magazine, printed in a limited time, and at as low a price as possible, should show the best results the process can give, but photogravure may be compared favourably with letterpress under similar conditions. *Picture Post* is an example of a weekly magazine with a large circulation printed by photogravure. Monthly magazines usually show greater care in production, and the supplements of *Ideal Homes and Gardens*, for instance, show a higher standard of work.

Type matter printed by photogravure is not as satisfactory as that printed direct from the type by letterpress. For gravure printing the type is set and proofed as usual, and the proof finally photographed and transferred to the copper cylinder; but unfortunately the screen must be used with it, and this gives to the printed letter a raggedness and woolliness altogether undesirable.
57. A Mann lithographic printing machine. This is a quad demy ‘perfector’, printing on both sides of the sheet, 128 demy 8vo pages at one operation.

58. A smaller offset-litho machine, showing the plate cylinder, with the offset cylinder below and the inking rollers above; the ink is a light colour.
59. Collootype plates drying in an oven

60. A retoucher at work on a negative, to prepare it for printing down photographically on to a collootype plate

61. A collootype machine in operation; the sheet is being fed for the printing of a further colour; the glass plate can be seen on the bed of the machine
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYPE

LITHOGRAPHY

Under the heading of lithography there are a number of related processes, but I need only notice two of them here. These two are artist or auto-lithography and photo-lithography. Lithography is a planographic process—which is to say that the printing surface is neither raised, as in letterpress, nor recessed, as in photogravure, but quite flat. The printing surface is divided into printing and non-printing parts by an ingenious application of the well-known phenomenon that grease and water do not mix.

AUTO-LITHOGRAPHY

The first lithographic printing surface was Bavarian limestone, and it is from the use of this material that the process receives its name. This kind of limestone has the same absorptive affinity to grease as it has to water. The stone is ground smooth and perfectly level, and may then be given any variety of fine or coarse grain to suit the taste of the artist who is to do the drawing. The artist may himself do this graining, and indeed will if he is particular—only his own labour will give him exactly what he wants. He has probablyroughed out the work on paper beforehand, and now he proceeds to do the finished drawing on the stone. It is done in greasy crayon, in greasy ink with a pen or brush, or by airbrush, or in any combination of these methods. The ink need not be used with a pen or brush; it can be applied with anything the artist cares to use—with a chewed matchstick, a piece of cloth or leather, or even the finger. It depends on what effect is wanted (Figure 62). The texture of the stone can be varied, within limits, from part to part, so that one drawing may have several different grain effects. The ink or crayon, by the way, is black, but this is only so that the artist can see what he is doing; the pigment has no influence on the printing—only the grease is important.

Some erasure and emendation is possible, but not a great deal, and the drawing must in the main be done surely at the
PRINTING AND BINDING

first effort; it must also be done in reverse from left to right, but this is no hardship to an artist used to the process—no more than it is to the etcher or the engraver. In any case, a mirror may be kept handy so that the work can be seen the right way round as it progresses.

It will be realized that this form of lithography differs from other processes so far described in that the artist is employed intimately in the manufacture of the printing surface. By no other process can the individuality and idiosyncrasy of the artist be as completely preserved through thousands of copies; and no other printing process allows so much scope for individual expression.

The finished stone shows the picture in black grease on a polished or grained surface (Figure 62). The surface must be absolutely free from grease apart from the drawing. Absolutely means exactly that, for grease that is quite invisible and unsuspected will, when the printing stage is reached, come up as black as any part of the drawing. An apparently clean finger may leave an invisible mark containing enough natural grease from the skin to show clearly on the printed sheet.

When the drawing is complete the stone is treated to ensure that it is chemically clean and free from unwanted grease, and afterwards to fix the grease of the drawing in the porous surface of the stone. As soon as this process is complete the stone is ready for printing.

The machine for printing lithography direct is in some ways similar to a letterpress machine, but it has an additional set of rollers, which distribute water, not ink. The stone is placed on the bed of the machine, and during the operation passes first beneath the damping rollers and afterwards under the inking rollers. The damping rollers charge the stone with water, which penetrates the surface wherever it is not covered with grease; where there is grease the water is rejected. Under the inking rollers the reverse happens—the ink is greasy, and is attracted to the grease on the stone, but repelled from the damp parts. The stone next passes under the impression cylinder, which presses the sheet of paper into contact with the
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYPE
damp stone and inked image and the paper comes forth bearing a faithful print of the drawing made on the stone.

Very fine colour work can be done by this form of lithography. There is no trichromatic principle, as in photo-reproduction, to reduce the number of printings to three or four, and a different working is necessary for every colour. There may be as many as sixteen or seventeen different stones to prepare, and as many separate printings, to produce the effect desired; though in practice it is more usual for the artist to accept the limitations of expense and time and to do his work within the compass of two to six colours. An impression of tone in each colour can be obtained to some extent by means of stippling and chalking, and no lack of variety is noticeable in a good lithograph of two or three colours.

For examples of colour lithography the reader should refer to the excellent book-jackets of Barnett Freedman: and, where they are available, nineteenth-century ballet prints will show what can be done in rather a different way.

While Bavarian limestone is the original material used in lithography, and by some artists is still thought to be the best material for their purpose, its use is declining. Zinc or aluminium plates have displaced stone widely, among their many advantages being lightness of weight, cheapness, and the small amount of space they occupy in storage. Further, they can be grained mechanically, though not with the same variety of grain as stone. They are grained in a box containing water, sand, and hundreds of glass marbles of the sort that used to be found in lemonade bottles. The box is agitated by a motor so that the marbles perform a wild and ear-splitting jig among the sand and water over the surface of the plate.

The kind of lithography described is known as direct lithography because the paper comes directly in contact with the stone or plate. There is another form of lithography, known as offset, in which there is no direct contact and which allows the artist to make his drawing the right way round. It is described in the next section.

Instead of zinc or stone, the artist may draw on a special kind
PRINTING AND BINDING

of paper called transfer paper. This has the advantage of ease and portability; but it also has some disadvantages, among which is a slight deterioration in the quality of the image. A much superior method was introduced in 1948 by W. S. Cowell Ltd., of Ipswich. Transparent plastic materials, in sheet form and grained on one side, have been used for some kinds of drawing for years, principally by the printer's own lithographic artists. The drawing can be printed straight down on to a zinc plate coated with a sensitive solution, and a lithographic image prepared from this. Cowell's have taken this method a good deal further. They have introduced a plastic that can be worked in many ways to produce countless textures and effects, and they have encouraged a number of artists to experiment with it, as a form of auto-lithography. The plastic can be engraved like a copper plate; it can be drawn upon with a pen or a pencil or a crayon; it can be painted; and it can be knifed or scratched with a needle. All these effects may be used together, if required, giving the artist enormous scope. The drawing must be the same size as the reproduction is intended to be. An illustration reproduced by this process faces page 396.

OFFSET PHOTO-LITHOGRAPHY

Artist or auto-lithography is a medium involving the direct participation of the artist. Photo-lithography, on the other hand, is to lithography what process engraving is to letterpress—except that the term includes the actual printing as well. The offset method of printing is a variant of the ordinary method and I shall come to it in detail in a moment.

The printing surface may be limestone, but is usually a zinc or aluminium plate. When metal plates are used the term 'lithography' is strictly inaccurate, but there is nothing to take its place.

Photography goes hand in hand with offset litho to make the printing process known as photo-lithography. By means of the camera anything that can be photographed can be printed lithographically. Line subjects are printed clearly and entire,

62. Effects possible in drawing on a litho stone, and (below) a litho stone with the drawing on it
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYPE

but for tone subjects a screen similar to that of process engraving, and serving the same purpose, must be used. Like letter-press, and unlike photogravure, photo-litho can print only an even film of ink, and in tone reproduction the dots of the finished picture vary in size exactly as do those of the half-tone block.

Except for the imposition of the screen, printing surfaces for line and tone are prepared in much the same way. A photographic negative of the subject is made, and this is printed down on to a plate of aluminium or zinc sensitized with bichromated albumen, which is hardened by exposure to light. The plate is next rolled with a greasy ink, and then washed to remove the unexposed albumen and its ink layer. The design is left standing in tanned or hardened albumen covered with ink on an otherwise clean metal surface. After further treatment to ensure the chemical cleanliness of the plate and to fix the albumen, the printing is proceeded with.

Printing is done essentially as in direct lithography, the plate being damped and inked at every revolution. There is a flat-bed machine, but machines made for faster running have a cylinder in place of a bed, and this allows a much greater output. The plate is wrapped round this cylinder, and fastened on with clamps. Next to this is another cylinder, covered with rubber, and next to this still a further one, the impression cylinder. Between the last two the paper passes to be printed. The operation of printing is as follows: the cylinder carrying the plate is damped and inked; it revolves in contact with the rubber, or offset, cylinder, transferring an impression of the subject to the rubber; the offset cylinder in turn revolves against the paper and the impression cylinder, and transfers the ink to the paper.

The advantages of offset printing are attributable to this use of an offset cylinder with a resilient covering. The rubber presses gently but firmly against the plate, contacting every dot, and in turn presses as gently and as firmly on the paper. Because the pressure is even and from a smooth surface, art papers are unnecessary for the printing of screen illustrations. They can
be printed even on a coarse paper, but a smooth paper nevertheless gives the best results.

Photo-lithography is satisfactory for the reproduction of line subjects, and it is used by publishers for reprinting books of which the type has been distributed; it saves the cost of resetting, and allows a reprint to be made which resetting would otherwise make uneconomic. Line drawings or diagrams, and maps, too, may be printed this way. It does not, however, seem to me that it is the best process for the printing of tone illustrations. Only a thin film of ink is placed on the paper by this process, and this is a disadvantage. The dots of a half-tone print are interspersed by white spaces and the eye combines the two, and a strong film of ink is necessary to obtain depth of tone. No strong film is forthcoming in photo-litho and the result is that tone illustrations made by this process may look greyish and flat. For the best work double printing and good workmanship are necessary, and when these are forthcoming the result can be very pleasant. It lacks the brilliance of half-tone and the tonal range of photogravure, but it has a character of its own that makes the process of value.

The fault of poverty in the blacks has been greatly overcome in a development of the process known as deep-etched photo-litho. The dots of the screen are etched into the plate to form hollows that hold the ink. Tones are still obtained by varying the size of the dots, not by varying their depth as in photogravure, but the dots print more strongly and the picture is more vigorous. Inks have also been improved.

More recently, new kinds of plates have been developed on which the image is of copper on a base of stainless steel, chromium, or lead. These plates are not grained, but polished and smooth. They can be made to produce excellent quality and very large quantities.

Photo-litho in colour in tone or line needs no further explanation here. A separate plate is made for each colour and printed separately in its appropriate colour on the machine. In essentials the principles of colour printing in photo-litho are similar to those of letterpress, but with screen subjects more printings are
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYP疯狂
usually needed. Art paper is not necessary, and this is an advan-
tage not to be belittled. Again, the peculiar character of litho-
graphy, its softness and delicacy, gives its own special pleasure.

Lithography was invented at the beginning of the nineteenth
century by Alois Senefelder, whose books on the process re-
mained applicable even until our own day. There are several
stories of the manner in which he stumbled on the idea. One,
perhaps apocryphal, is that on a rainy day, after sitting on a
rock while wearing greasy corduroy trousers, he noticed that the
rain-water running down the rock was confined in the channels
made by the ribbed impression of the cloth; and from this germ
the invention developed. Another story, given by Senefelder
himself, is that he was experimenting with the etching of lime-
stone when he was called upon to make out his mother’s
laundry list. To write it he used the materials nearest to his
hand, which happened to be a slab of limestone and a stick of
grease crayon. Afterwards it occurred to him to try to etch the
stone with the writing on it, but it was not a success; then he
tried printing from it as it was, and evolved the lithographic
process more or less complete.

Offset lithography, invented much later, was, strangely
enough, known for some time before its advantages for printing
on paper were realized. It was first used for printing tinware with
the choice designs we find on the lids of boot-polish containers
and such things, and it is still used for that purpose. In the early
years of this century it was used for the first time for printing
paper, and there began then what has developed into a con-
siderable industry.

COLLOTYP疯狂

This, like lithography, is a planographic process. As with
process engraving, photogravure, and lithography, anything
that can be photographed can be reproduced; but collotype is
more purely photographic than any other printing process. The
printing surface is not metal; it is a photographic positive on glass.

The manner in which this glass positive is made to print on
paper is as follows. A sheet of thick plate glass is coated evenly with an emulsion of bichromated gelatine—different from that used in other processes in that it is not soluble in water at ordinary temperatures. The plate is dried in a special sort of oven until the gelatine is firmly set. At this stage the emulsion is sensitive to light.

Reversed negatives of the pictures to be reproduced—which may be either line or tone, or contain both at once—are made, and these negatives are laid down in prearranged positions on the glass plate, now dry and sensitive after its spell in the oven. Any portions round the negatives that are intended to remain white on the final printed page—the margins, for instance—are covered with a layer of tinfoil.

The plate is now exposed to light through the negatives. It should be recalled here that any white area in the original is represented on the negative by black or dark gelatine, and black areas by clear glass; while middle tones are represented by intermediate transparencies. This effect is familiar to everyone who has used a camera. As a result of the exposure through the negatives the sensitized glass plate is affected by light in those areas representing the shadows of the original, and is not affected where the dark portions of the negative, representing the lightest parts of the original, prevent the actinic rays from reaching the bichromate: and between these two extremes the gelatine is affected according to the density of the negative. The effect is to harden the gelatine in proportion to the amount of illumination it receives; where most light is transmitted it is hardened most, where little is transmitted it remains proportionately soft.

The negatives are now lifted off and the plate is washed to remove the unexposed bichromate and render the emulsion insensitive to any further exposure. It must be understood that the softened gelatine is not washed off the plate with the bichromate, as in other processes; the gelatine remains a continuous layer over the whole plate. After washing, the plate is dried and allowed to 'mature' for several hours. Next it is soaked in a mixture of water and glycerine, which is absorbed by
PHOTOGRAVURE, LITHOGRAPHY, COLLOTYPE

the gelatine in proportion to its hardness, the softest parts absorbing most. The plate is then ready for printing.

The printing machine is similar to the direct lithography machine, except that it lacks the damping rollers, which are unnecessary because the gelatine retains enough water for the run. Otherwise the method of printing is similar to that of lithography. The inking rollers deposit an ink on the plate which, because of its greasy nature, is rejected in proportion as the plate is damp, and is deposited most thickly on the hard gelatine, which has absorbed little or no moisture and represents the shadows of the picture. Impression of the paper on the glass now transfers the ink in the form of a reproduction of the original picture.

Technically, collotype has a grain like any other process; it is not a screen grain, but the natural irregularity of the gelatine. It is so fine that it is not visible under an ordinary magnifying glass, and alone among tone reproductions, pictures printed by collotype will stand examination in this way. This quality makes the process invaluable for scientific reproductions of such things as microphotographs and geological specimens, but this is by no means its only use. No other process gives quite the same delicacy and yet also the same strength of tone as collotype, and many competent people consider that collotype reproduction is the best that can be obtained by any commercial process.

Almost any kind of paper can be used, provided it is of good quality, though one with a moderately smooth surface is best. Paper with a soft surface is unsuitable. The tonal range is wide, and consists of true tones, as there is no visible grain or screen to break them up.

Because of the delicate nature of the printing surface large editions are not possible from one plate. If more than about fifteen hundred or two thousand copies are required the process must be repeated from the coating and exposing of the plate, and this adds considerably to the cost. Then, because of the printing surface, the greatest care must be taken throughout the process. The printing house must be in a situation free from vibration, which would destroy the evenness of the emulsion
during drying in the oven, and it is probably for this reason that collotype printing houses are usually situated in country districts. The atmosphere of the workrooms is also an important factor; it must be neither too warm nor too cold, neither too humid nor too dry. A stable atmosphere was formerly difficult to achieve in this variable climate of ours, but air-conditioning has given the printer a scientific method of control.

Collotype in colour can be very beautiful indeed, but it is expensive because the trichromatic principle is not applicable and five to eight or more workings are necessary for a full-colour effect. It seldom appears in books on this account, and is more used for the printing of wall pictures reproduced from paintings. To possess a fine example of these prints is next only to possession of the painting itself.

Collotype, to be successful, depends considerably on the skill of the workman. In this method of printing he is still a real craftsman, carefully trained and taught. It is essential to the continuation of the industry that there should be suitable new recruits, who will maintain or improve the present standards, and modern conditions do not always help so small an industry to obtain the new personnel it requires.

A variant of collotype is collography. This is the same as collotype in every respect except that it utilizes a film base wrapped round a cylinder instead of a flat glass plate. The film assists in the retention of moisture, and longer runs can be printed at greater speed. The result, however, is not considered as good as that obtained by collotype.
X

PAPER

Its Manufacture and Varieties

The Egyptians seem to have been the first to make a material that might, though it stretches the meaning of the word, be called paper; and from the Greek name for their invention, papyrus, comes our own word, paper. There is, however, no real relation between the two substances, other than that they are both composed of vegetable material. Papyrus was made by laying split sections of reed side by side in layers at right angles, and cementing them together in some manner not perfectly understood. The resulting sheet was durable (it has endured four thousand years or more), if brittle. Paper, on the other hand, is composed of plant fibres broken down to microscopic proportions and then felted together.

History does not show, as might be expected, a continuous development from papyrus to paper. The Chinese are credited with the invention of paper as long ago as the second century A.D., but it can scarcely be claimed that they received any inspiration from ancient Egypt; as far as we know, the two countries might have been on different planets for all they knew of each other. A specimen of Chinese paper of the second century is in the British Museum. From China paper-making was carried in the seventh century to Korea and Japan, but it had started on its westward march long before that time. The Arabs, in their conquest of Tartary, came upon this new craft, new to them but already ancient to the Chinese, and brought examples of its product back to Mecca in A.D. 707; and in 793

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Caliph Haroun al Raschid brought Chinese paper-makers to Baghdad.

Europe was slow to discover and use paper; and perhaps it had little use for it. Vellum and parchment, and various other kinds of skin, were the writing surfaces in use. Not until the twelfth century do we hear of a European paper mill, and this was set up at Játiva by, or under the influence of, the Moors, who had held and continued to hold a monopoly of paper in the western world. The first paper mill in Christendom seems to have been that founded at Fabriano in Italy about 1270, where fine papers are still made. With the Renaissance the supply of parchment and vellum must have begun to prove inadequate and perhaps too costly for the increasing numbers of readers, and paper began to come more into use. The invention of printing and the consequent enormous increase in the production of books made it at last the common basis of literary exchange.

Early paper was made of linen, jute, or flax, and if we may judge by what has survived, some of it was very good paper indeed. The earliest English specimen known is in the Public Record Office, and is a letter from Raymond, son of the Duke of Navarre, to Henry III.

Paper was still being made of rags, in the seventeenth century, and the demand was outstripping the supply. The position was serious enough to attract the attention of Parliament, which, as an amelioration, prohibited the burial of the dead in shrouds made of linen or cotton, because the paper mills needed the material.

Paper-making continued with little development until the eighteenth century, when John Baskerville, wanting something smoother and more even than he had been able to obtain, in order to bring out the full quality of his fine new type, introduced wove paper, free of the watermarked rulings which had hitherto been characteristic. To-day by far the greater part of all paper is wove—but not for Baskerville's reason. It is simply easier to make wove paper by machine than it is to make laid.
The scarcity of rag inspired a search for alternative materials, and in 1800 Matthias Koops was granted a patent for making paper from straw. In 1801 he produced a book printed half on paper made from straw and half on paper made from wood. The straw paper is brownish in colour and is inferior to the wood paper, which appears to have been produced by what is now called the chemical wood process. Straw paper was unsuccessful and was forgotten, but in his use of wood Koops founded what is to-day one of the great industries of the world.

Forty years later a Saxon watchmaker, Keller, produced a wood paper made by mechanical means. It was an inferior paper, as mechanical wood paper is to-day, but it was cheap,
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and is so still; and of the sections of the industry, that for making paper mechanically from wood is by far the largest. Mechanical wood paper is used for newsprint all over the world, and huge forests have fallen, and are falling hourly, into the maw of the paper-making machine.

Experiments directed towards the use of esparto grass in the manufacture of paper were in progress in 1839, but this material achieved no commercial value until about 1857. The American Civil War restricted the supply of cotton and necessity made esparto more popular than otherwise it might have been. In other countries esparto is little used, but in Great Britain its popularity has increased consistently, and until the outbreak of war in 1939 huge quantities of the grass were imported yearly from the Mediterranean coasts; and it is being imported again.

The recent war once more made materials difficult to come by and encouraged, or rather compelled, research directed towards the utilization of substitutes. The involvement of the Mediterranean promptly settled any question of imports of esparto, if they had not already ceased before that. Paper-makers turned to straw again, and began to produce passable papers from it, though quality inevitably suffered.

Since the beginning of the nineteenth century considerable changes have occurred in the methods by which paper is manufactured. It would be strange if the far-reaching mechanization of the industrial revolution had not affected the manufacture of paper, and in fact it has changed it utterly. Until that time paper had been made by hand by methods that had not altered throughout the centuries, and the process, though it produced excellent paper, was slow and cumbersome. The world needed paper, and it was to need more and more paper, beyond all competence of the labouring hand. The introduction of machinery into various industries could only exaggerate the demand for paper, and paper at a low price. If the Renaissance was founded on paper, the industrial revolution needed it much more. The paper-making machine was invented in 1798 by Louis Robert of Essonnes, in France. It was introduced into England in 1803 by Henry Fourdrinier, who began a sort of dynasty of
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paper-makers and paper-making engineers, to such effect that the paper-making machine is known by his name. Improvements were made by several people subsequently, bringing the machine to its present high level of efficiency and economy. Paper is made by this machine in sheets quite impossible by hand, and very much more rapidly and cheaply. True, it may not be entirely as good as hand-made paper, but it can be very good paper indeed, and only by machine can the even quality and character required by the modern printing press be maintained. To-day huge, but not very complicated, structures, make paper in vast ribbons yards wide and miles in length for the ceaseless service of the press.

It is interesting to follow the materials through the mill from the moment when they enter, as bales of dried grass, wood, or rags, until they emerge in the form of finished paper ready for the printer.

Rags are first sorted and cleared of any buttons, clips, or zips, or other objects that might have been useful in clothing but can have no part in a book, and are then cut into small pieces and boiled and bleached in a solution of lime and caustic soda. Next they are washed, to remove the chemicals and any remaining dirt, and beaten in a machine designed to separate the fibres and to prepare them for felting. At this stage other kinds of pulp may be added, according to the kind of paper required, or a loading of kaolin or other substance may be mixed in, or size as a hardening agent.

Wood is pulped in either of two ways, mechanically or chemically. Mechanical wood pulp is produced by pressing the wood against a grindstone revolving in water, and so reducing it to shreds, with which, however, are mixed many impurities resulting from the grinding, and unwanted substances natural in the wood. The process is a cheap one, and is used for the manufacture of newsprint. Mechanical wood pulp is undesirable as an ingredient in any paper that is expected to endure; its presence makes the paper turn yellow and brittle sooner or later.

Chemical wood pulp is a very different product. The wood is
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first broken into chips and is then chemically treated to reduce it to pulp suitable for further working. Three different chemicals are in ordinary use, and each produces a distinct kind of fibre and paper. With caustic soda a soft, fluffy fibre is obtained, out of which are manufactured various kinds of cover and writing papers. Calcium bisulphite (or magnesium bisulphite) produces a stronger and harder fibre that is much used as an ingredient in various kinds of printing papers. Pulp made with sodium sulphate produces a paper of exceptional toughness, not suitable for books; it is used for good qualities of wrapping paper.

Esparto grass arrives in bales containing some dust and foreign matter, and is cleared of this in a special machine, out of which the grass passes to boilers containing caustic soda, where it is boiled under pressure. From this it goes to the breaking machine, where the grass is kept in continual movement past a revolving cylinder or paddle-wheel, which breaks it up into fine shreds, and beats the mass into a thick pulp, a constant stream of water flowing through to remove any dirt or impurities that remain. The pulp now goes into the potchers, where it is bleached and the last foreign matter removed, so that nothing remains but fibres and water, the fibres being so fine that they are invisible, singly, to the eye.

The final stage in the making of the pulp is the beating machine, in which the reducing process is continued still further, and quantities of other pulps are added to produce particular kinds of paper. There may also be added a small quantity of colouring matter, to ensure that the paper will be white, much as the laundrywoman adds dolly blue to the rinsing water to whiten the clothes. Or if coloured paper is required, suitable colouring is added at this stage.

The pulp now goes to the stuff chest, which is nothing more than a great vat, a reservoir, in which the pulp is kept constantly in motion, to prevent the fibres from settling, until it is required.

Before the days of machines all these operations were done by hand, or with simple engines of one kind or another, but nothing is gained by reverting to the old methods now. Hand-
64. Pulp in a beater

65. The wet end of a paper-making machine; bubbles on the surface of the pulp, which might cause flaws, are dispersed by steam jets.
66. General view of two paper-making machines from the wet end

67. A supercalendar machine, showing the web of paper travelling between the rollers, which give it a smooth surface
made paper is still manufactured, but as far as the stage we have reached the pulp is made in much the same way for both hand-made and machine-made papers. The hand work of modern hand-made paper follows from this stage.

Making paper by hand is laborious and slow, and entails considerable training and practice and a nice judgement of weight. A tank about five feet by six is filled with pulp, which is kept constantly agitated, and at this the vat man works. His tool is a tray of the same size as the sheet to be made. The bottom of the tray is formed of parallel wires, with others running at right angles, and it is these wires that form the laid marks in paper—more common in writing and ledger papers these days than in printings. If wove paper is being made, the bottom of the tray is formed of a fine brass mesh, closely woven. The sides of the tray are separate, and come apart, as a frame, from the bottom. A mould is made to produce one size of paper only, and a different mould is required for each size. Watermarks, first introduced at Fabriano in the thirteenth century, are made by a wire pattern woven into the mould.

The tray is dipped into the vat and exactly the right amount of pulp is taken up to make a sheet of paper of the thickness and weight required. It is here that fine judgement of weight is necessary, for the vat man has no other indication than his own experience of the amount of pulp required for the sheet. Lifting the mould with the pulp on it, he shakes it first forwards and backwards and then from side to side, while water escapes through the interstices of the wire. The purpose of this shaking is to make the fibres cross in all directions, and so give strength to the paper: and it is the distinguishing mark of hand-made paper that the fibres do cross like this—the machine cannot do it so well. As the water escapes from the mould it leaves a matted layer of fibre on the wire, and this is the sheet of paper. The mould is now taken apart and the paper transferred to a sheet of felt; on top of this another felt is placed, and on this the next sheet of paper to be made; and so on until a pile of felts interleaved with sheets of paper has accumulated. The pile is placed in a press and subjected to pressure for a while, after
PRINTING AND BINDING

which the paper is separated from the felts and pressed separately for some hours. If a smooth finish is required, further pressings are necessary. Drying of the paper is done in a loft, where it is hung like so much washing over lines of cowhair rope.

At this stage the paper has the absorbent qualities of blotting. To make it harder and less absorbent it is sized, that is, it is passed through a bath of gelatine or other solution, which permeates the surface of the paper as starch does a collar. The paper is then again dried, and glazed perhaps, and after counting and packing it is ready for the printer.

Because of the cost of making paper by hand it is not worth while to use any but the best materials for it, and practically all hand-made paper to-day is made of rags. From this fact has arisen a legend that hand-made paper is always the best paper obtainable. This is usually true in fact because the best materials are used for it; but it is not true in theory. Paper made by hand of esparto pulp should be better than the same kind of paper made by machine; but it would not be better than machine-made rag paper.

The manufacture of paper by machine is the hand process mechanized, though the resulting paper is different in texture and in other qualities. The machine is not capable of the same lateral shake of the mould, with the result that the fibres do not mingle to the extent they do in hand-made paper. Machine-made paper therefore has a grain, a direction in which the majority of the fibres run. Such paper is stiffer in the direction of the grain, but it will also tear more easily that way; and it may be liable to uneven shrinkage and expansion. This is of little moment except in colour printing, where expansion or contraction can make the registration of colours difficult.

The paper-making machine is a long affair, composed of many cylinders, an endless belt of woven wire, and another one of felt. At one end is a chest, to which the pulp, or stuff, is led from the stuff chest; and from which it enters the machine in a stream that can be controlled according to the thickness and weight of the paper to be made. The pulp first passes over sand tables that are intended as a final trap for any foreign matter
or hard particles that may have escaped so far, and then runs on to the belt of woven wire. This corresponds with the mould of the hand worker, and is agitated in two directions as the water falls through the mesh of the wire. Most of the water has fallen away, and some more has been removed by suction, when the pulp, now so much soggy fibre, but beginning to look like paper, passes under rollers, which remove more water by squeezing. Emerging from the rollers, the paper—for it can now be called

68. A paper-making machine in the nineteenth century

paper—is just strong enough to stand the strain of being transferred from the wire to the felt, on which it is carried through further sets of rollers, where more moisture is removed and the fibres are pressed into closer contact. It next passes over heated cylinders, to remove the last of the water, and finally between sets of cold iron rollers to give it the finished surface. It is then wound into reels whose length is only limited by the quantity of the pulp available or the ability of the mill to handle them. A reel of paper may be anything up to two miles long and 230 inches wide.

Paper made in this way goes through no separate sizing process. The size is mixed with the pulp in the beater, and permeates every fibre. This is cheaper than separate sizing, but the result is not quite as good. Certain superior kinds of machine-made paper are sized after manufacture, and are known as tub-sized papers.
PRINTING AND BINDING

Hand-made paper, as we saw, is made in sheets of definite dimensions—the various standard sizes, in fact; and all four edges of each sheet have the natural edge of manufacture—the gradual thinning and unevenness that forms the now much vaunted and certainly pleasant deckle. Our ancestors thought it a disfigurement, and were in the habit of cutting it off. Whatever one may think of it personally, our appreciation of it to-day is partly the result of snobbishness. Machine-made paper, being made in long strips, has to be cut to size, so that each edge is a cut edge, and a genuine deckle is impossible. The deckle therefore became a distinguishing mark of hand-made paper, and I think there is no doubt that it was first retained just to show that the paper really was 'ye olde' genuine hand-made. Nowadays it is regarded as almost a crime to cut off the deckle.

Newsprint is not cut into sheets, as the newspaper press prints direct from the reel and cuts the paper for itself. Newsprint is therefore rewound, and as it moves from one reel to another is slit into the widths required for the press. It is at the same time examined for blemishes, and when one is found the reeling is stopped, the defective portion cut out and the two ends joined, and the re-reeling and slitting continued.

Watermarks and laid marks are not necessary productions of the paper-making machine. They are illogical and extraneous. The wire mesh on which the pulp flows plays no part in marking the paper, and to obtain watermarks and laid marks the damp web passes under a roller—the dandy roller—which impresses the marks on the paper. This is a further difference between machine-made and hand-made paper, the markings of the latter resulting from the structure of the mould. Nevertheless, I doubt that the difference of method is discernible in the result.

VARIETIES OF PAPER

Paper is not, of course, all of one kind, and the following list gives some details of the more important varieties used in books, together with definitions of some relevant terms.
PAPER

Wove and Laid Papers. It may be said that all papers are either wove or laid. Wove paper, if held to the light, shows an even, characterless, structure. Laid paper shows a series of closely spaced parallel lines with bolder and more widely spaced lines running at right angles. These lines are more transparent because at these places the paper is slightly thinner; a water-mark is produced in a similar way. Laid papers are not as frequently used in the production of books as they were formerly, but are common in writing and wrapping papers.

Engine-sized Papers are those in which the size is mixed with the pulp to become an integral part of the paper.

Tub-sized Papers are sized, like hand-made papers, after being made. They are generally superior to parallel sorts of engine-sized paper; and certainly the size is where it is wanted, in the surface. They are, too, harder and tougher than engine-sized papers.

Antique Papers. This name means very little except that papers so designated have a comparatively rough, and not a smooth, surface—i.e. not machine-finished or supercalendered. The name is perhaps intended to convey that the paper has a surface similar to that of old hand-made papers, but the resemblance is remote. It covers a wide range of papers, some comparatively smooth, others very rough; and comprises qualities from the very worst to the best. Some antiques are remarkable in their relation of weight to thickness, being very thick and at the same time very light indeed. Such papers are loosely compacted, have very little strength, and in use rapidly become woolly and soiled. Their only recommendation—if it is one—is that they can be used to make a book with only a few pages as thick as one with a great many—and such a book may be as much as fifty per cent nothing but air. For a reason only they can tell, some publishers appear to consider feather-weight antiques the most suitable papers for children’s books, although nothing could be less calculated to withstand the rough usage a child’s book is liable to receive.

Many antiques are very good papers indeed, and to-day perhaps more books are printed on this kind of paper than on
any other. The best are strong, even, handle well, and are of
good substance; they take type and line blocks excellently.

Cartridge Paper is used occasionally for books. It is a
strong, tough paper, originally used in the manufacture of
cartridges, and still liable to disappear from the market in time
of war. The surface is rather like that of a good antique, but is
harder.

Supercalendered Papers are given a smooth finish by
repeated rolling between hot and cold rollers. They are some-
times used for books where fine line blocks or half-tones are
included in the text; and sometimes for no particular reason at
all other than that some misguided printer or publisher takes a
fancy to them. They give good results from type, and passable
ones even from half-tones; but they are unpleasant in any book
because their shine is uncomfortable to the eye.

Machine-finished Papers (or M.F.) have the normal
finish of the paper-making machine. The surface is moderately
smooth and shiny, but not glossy. It prints well. There is a
wide range of grades, the best being pleasant and useful, the
worst unpleasant.

Mould-made Papers are a paradox. They are in effect
hand-made papers made by machine. They have the feathery
deckle characteristic of hand-made papers, but rather different
in formation. They are not quite as strong as hand-made, but
none the less a good mould-made paper is a very good paper
indeed, and fit for the limited editions for which so often hand-
made paper is considered indispensable. It is expensive, but
cheaper than hand-made.

Offset Papers. Offset lithography works best with a
paper that has a smooth surface, free from fluff, and with a
particular kind of sizing. Good offset paper is very pleasant,
and is used at times in ordinary letterpress books.

Art Paper. This is paper given a special coating of glazed
china clay to present the smoothest possible surface on which to
print half-tone blocks of fine screen. It gives the best results
obtainable from these, but as a paper it has serious disadvan-
tages. The coating weakens the paper considerably, and makes

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it so brittle that a fold quickly becomes a crack, and eventually a fracture—which is one of the reasons why plates come out of books. Because of the coating the paper is very heavy, and a book printed on art paper throughout, as some books are, is apt to feel like so much lead. Glazed art paper has a high, and to me offensive, polish; if the glazing operation is omitted, the paper remains as matt art, smooth but not glossy, and I consider this preferable.

Imitation Art Papers. Real art paper is coated after the paper is made, so that the coating forms a layer on the surface. For imitation art the clay is mixed in with the pulp, a proceeding that saves an operation and reduces cost, but produces a paper inferior to real art. Imitation art is used for the printing of half-tone blocks, and gives very good results. A simple test serves to distinguish real from imitation art paper: if a silver coin is rubbed on real art, it will leave a distinct mark like a pencil; imitation art gives no response, or only a faint one.

Loaded Papers. This is not a separate class of paper; most kinds of paper are loaded in some way or other. Loading means the addition to the pulp of substances, for example kaolin or french chalk or titanium, designed to make the paper smoother or more opaque. The process is the same as that for imitation art, but much less of the loading substance is introduced. It was first practised in the nineteenth century, apparently surreptitiously, to save pulp and reduce the cost to the manufacturer, but it was found that restricted quantities of loadings improved the paper rather than otherwise.

India Paper. This paper has for long been connected with the Oxford University Press, who were the first to have it made. It is a very good paper, but its best-known quality is its amazing thinness and, for its weight, its opacity. It is useful when a book contains many pages and would bulk too much on ordinary paper. Gone with the Wind, if printed on featherweight antique, might be more than a foot thick; on India paper it might be no more than an inch.

Patterned Papers. Many papers used for jackets or bindings are patterned in relief with some design or other—a
favourite one simulating leather. It is done very simply by passing the paper as it comes from the machine through rollers engraved with the pattern. For linen or crash patterns the rollers may be wrapped with the material itself.

The terminology of paper is inexact and at times woolly. There are many more varieties than I have given here, and in addition there are special kinds of paper peculiar to particular manufacturers and possessing names unto themselves. Other papers, such as those called parchments and printings, differ among themselves to a degree that defeats any attempt to discover the common relationship. Some may be placed in one of the categories given above, others show differences of one sort or another. Some are good, some moderate, some bad. The only way of knowing what any paper is like is to see it.

**BOOK SIZES OF PAPER**

Paper sizes are standardized and have names such as demy, medium, crown, etc. Papers are divided into varieties, and those that interest the publisher are printings, writings, and covers. A few sizes of paper are made only in writings—that is, papers suitable for letter-heads, note-books, etc. Cover sizes are generally larger than printings by half an inch in each direction—royal in cover is $20\frac{1}{2} \times 25\frac{1}{2}$ inches. Most books are printed on printings, in the subdivisions of sizes shown opposite, but occasionally books are printed on writings, perhaps in order to obtain a special size of book, or simply because the writing paper is preferred for its own sake.

Large crown is not a standard size, but one that has been adopted by some publishers to bridge the gap between crown and demy. Other special sizes are occasionally encountered.

Paper is made in multiples of the different sizes for the convenience of the printer's machines. Thus double crown is $30 \times 20$, and quad crown is $30 \times 40$ inches.
<table>
<thead>
<tr>
<th>Broadside</th>
<th>Folio</th>
<th>Quarto</th>
<th>Octavo</th>
<th>Sixteenmo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imperial</td>
<td>22 × 30</td>
<td>11 × 15</td>
<td>11 × 7½</td>
<td>5½ × 7½</td>
</tr>
<tr>
<td>Royal</td>
<td>20 × 25</td>
<td>10 × 12½</td>
<td>10 × 6½</td>
<td>5 × 6½</td>
</tr>
<tr>
<td>Medium</td>
<td>18 × 23</td>
<td>9 × 11½</td>
<td>9 × 5½</td>
<td>4½ × 5½</td>
</tr>
<tr>
<td>Demy</td>
<td>17½ × 22½</td>
<td>8½ × 11½</td>
<td>8½ × 5½</td>
<td>4½ × 5½</td>
</tr>
<tr>
<td>Large Post</td>
<td>16½ × 21½</td>
<td>8¼ × 10½</td>
<td>8¼ × 5½</td>
<td>4½ × 5½</td>
</tr>
<tr>
<td>Large Crown</td>
<td>16¼ × 21¼</td>
<td>8½ × 10³/₈</td>
<td>8½ × 5½</td>
<td>4½ × 5½</td>
</tr>
<tr>
<td>Crown</td>
<td>15 × 20</td>
<td>7½ × 10</td>
<td>7½ × 5</td>
<td>3½ × 5</td>
</tr>
</tbody>
</table>

**BUYING PAPER**

Paper is sold in reams, which were originally of 480 sheets. Later an attempt was made to standardize on 500 sheets, as this is a more convenient number for calculation, but the attempt was a failure, and a third size of ream has arrived—that of 516 sheets. All three reams are in use at present, and some effort should be made to do away with two of them. The ream of 516 sheets is the best for the publisher, because it allows for spoilage in printing and binding and he can calculate on a basis of clear five hundreds and overs.

Paper is sold by weight in pounds per ream, and this is a convenient method of assessing the thickness of the paper. If the size and kind of paper are known, the weight gives sufficiently exact information of thickness, and paper can easily be matched for substance in different sizes. For example, crown 12 lb. is the same substance as royal 20 lb. and demy 16 lb.

On the Continent the weight of paper is expressed in grammes per square metre. Their figure therefore does not vary with size, as does ours. We ought to have adopted this sensible method years ago.
XI
BINDING
Hand-binding and Machine-binding

The kind of book with which we are familiar to-day, composed of a number of leaves fastened together down one side and known to scholars as a 'codex', is a development of the scroll of the ancients. Scrolls were from three to twelve inches deep or more and might be several feet long. At first the lines were written the full length of the material; the reader began at one end and, as he read, unrolled the scroll with one hand and rolled it up again with the other; when he reached the end of the line, he might, according to the language, be able to start on the next line at once, reading it in the reverse direction and rolling and unrolling accordingly, or he might have to go all the way back to the beginning to commence the second line. This meant a great deal of rolling and unrolling, and considerable wear of the scroll, not to speak of wear of the reader. Later the lines were broken into short lengths and arranged in columns, which were set in a row along the length of the scroll. This must have been an improvement, making reading easier, and saving much wear and tear; but it was still necessary to rewind the scroll when the last page was reached, or when any other page than that being read was referred to.

It occurred to some inventive intelligence that if the paged scroll were folded in concertina fashion, instead of being wound on a roller, it would be more accessible; and perhaps the same person thought of fastening the back folds together, to give the contraption better mechanical unity. This form of book was
BINDING

much used throughout the East, and was known as an orihon. There was some waste of material, since only one side could be written on, the other being hidden inside the folds; but once the spine was securely fastened, the foredge could be cut, and both sides of the leaf utilized.

A stitch through one layer of material is not as strong a fastening as one made through several layers, and experience

69. Theoretical evolution of the codex

must soon have made this clear. To provide extra strength several folded sections were placed one within the other and stitched together, the assembly being fastened to its neighbour by another stitch.

Books were precious things, made with great expenditure of labour and time, and a cover of some kind was required to protect and preserve them. At first it was perhaps only an envelope or some sort of separate wrapping; this would give adequate protection while the book was on the shelf, but not

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while it was being read, which was when it needed protection most. To give constant protection the cover was joined to the pages, and the book reached the form we know to-day.

Before I proceed further it will be useful, I think, to name the various parts of a book, as the terms will crop up again.

Figure 70 shows a bound book with the parts indicated and named. The spine is that portion, often called the back, that shows when the book is on the shelf. It bears the title and the author's name, and usually the publisher's name too, and often some decoration. Projecting from the spine of most hand-bound books are a number of transverse swellings, usually five—the bands or cords. The board covering the title-page is the front board, and that at the end is the back board. The edge of the book opposite the spine is the foredge, that at the top is the head, and that at the bottom the tail. At each end, inside the board, is an endpaper, sometimes decorated or printed with a map or an illustration; one half of the endpaper is pasted on to the board, and the other half is free, to form the first leaf, or flyleaf. In a machine-bound book the assembly of spine and
boards is known as a case, its manufacture being different from that of the hand-bound book.

**BINDING**

Books are still bound by hand, though now it is only limited editions or single copies that are bound in this way: the machine cannot compete with the hand-worker in the binding of single copies. It is usually the private press that is responsible for limited editions of hand-bound books. It chooses hand-binding for its own reasons—the snobbish appeal of 'craftsmanship' in these machine-ridden days, perhaps; or because there is a tradition that hand-bound books are stronger and more durable than those bound by machine. Whatever it may be that guides its choice, some of the hand-bound books that appear on the market are little, if at all, stronger or better than those produced commercially by machine, though they may contain more expensive materials.

Certainly, if the materials are equal and the work is properly done, hand-binding produces a better and more durable book than can be got from the machine; but machine quality is maintained throughout an edition, and I doubt if the same could be said of hand-binding. None the less, given a fine book and a craftsman interested in his business and devoted to it, willing to spend time and energy upon a single work (and with a customer willing to pay for it), nothing is more fine and satisfying than a book well bound by hand. Such books are rare these days; but they are made, and their manufacture provides a living for a small number of craftsmen. Their work is to be found in the libraries of bibliophiles and in the archives of great institutions and national states; in public libraries, where there are manuscript lists of those who have fallen in war; and even in some bookshops, where a few sumptuously bound books await in glass cases the customers who can afford them.

The hand-binder is no longer accustomed, as he was before the days of binding machines, to receiving flat sheets fresh from the press, to be folded and bound; more often he is given a
machine-bound book and asked to take it to pieces and to put it together again in a richer cover. But sometimes, as in the case of the limited editions of the private press, he does receive sheets and has to fold them.

Folding is done by girls, who achieve by continual practice great speed and accuracy. The sheet is printed with the pages in a particular arrangement (cf. the chapter on imposition), so that when it is correctly folded the pages will appear in sequence. For hand folding the pages are imposed in what is called a right-angle imposition, which means that the sheet must be folded so that each fold is at right angles to the previous one. The girl takes hold of one end of the sheet and folds it towards the other, taking care that the pages that are brought to face each other are in alinement, and then with a bone folding-stick the fold is made neat and sharp; subsequent folds are made in the same manner, to complete the section.

In some books the sections are of eight pages, in others of thirty-two, and in many old books they contain twelve; but in the majority of books they contain sixteen pages. If a book is examined at the head close to the spine, these sections can easily be distinguished. At the foot of the first page of each section there will be found a small letter and perhaps also a figure. These are the signatures placed there by the printer for the guidance of the binder. Each section has its own letter, and they follow in alphabetical order, except for J, V, and W, which are not used. Section A consists of pages 1 to 16, section B of pages 17 to 32, and so on. Section A, however, bears no signature letter, because it would have to be placed on the bastard title, where it would be obtrusive and unsightly, and unnecessary too, the bastard title itself being sufficient indication that here is the beginning of the book. When there are more than twenty-three sections in a book the alphabet is commenced again and doubled or used with a figure 2. Thus after section Z comes section AA or Aa or A2 or 2A.

When folding is finished, the sections are gathered together in correct sequence according to the signatures—the binder does not look at the page numbers to see that they follow on,
BINDING

because if the signature sequence is correct the pagination also should be correct.

After gathering, the sections are sewn together. Sewing is done on a frame of the kind shown in Figure 71. The vertical cords stretched on this frame are primarily intended to fasten the book to the boards, as will be seen shortly, and they are responsible for the projections on the spine of the hand-bound book. Formerly the cords were leather thongs, but now a kind of stout string is more usual. The binder has the set of sections before him, and he takes them one at a time and sews each to its neighbour on the frame, turning the thread round the cords as it emerges from the section, and using a series of stitches of kinds hallowed by tradition. The final result is that each section, sewn through the middle, is attached to its neighbour at head
and tail by special stitches called kettle stitches and also to the cords. When all the sections are sewn the cords are cut, leaving a short length projecting at each side; these ends are called slips and will be used later in attaching the book to its boards. But first the book must be consolidated. This is done by hammering the edges where the folds lie and is completed by putting the book between boards and screwing it down in a standing press for a while. Before consolidating, the book is a loose, floppy collection of sections; afterwards it has the firm, solid feeling familiar to everyone.

The spine is now given a coating of glue, which is applied with a brush and well worked in so that it penetrates between the sections and helps to hold them together. The glue is allowed to dry until it is elastic, when the rounding of the spine is done. Rounding is carried out with a hammer, the book being laid on a firm surface and tapped with the hammer until it assumes the correct shape, after which it is placed in a press between backing boards and the outer sections are tapped over to form the joint. Next the spine is covered with paste and left to soak until the glue is soft enough to be scraped off, leaving a surface clear and clean again except for hair lines of glue showing where the adhesive has been forced between the sections.

The boards in which the book is to be bound are cut to size so that they will project in the familiar way on the foredge, head, and tail when the edges of the book are trimmed later. They are lined with thin white paper, which as it dries causes the boards to be drawn inwards—this helps to counteract a contrary pull when the cover is drawn on later. Where they come against the spine the boards are pierced and through the holes the slips are threaded, and hammered flat on the board, and there glued in position. After this the book is ready for covering with cloth or leather.

The edges of the book are trimmed after the boards are on. In hand-bound books often only the head is trimmed, but for special purposes or tastes all three edges may be trimmed. Trimming is done with a special plane, or plough, first at the
72. Hand-binder working at a sewing frame

73. Gluing the spine of the book after sewing

74. Making the joint after rounding the spine
75. Lacing the boards on

76. Trimming the edges with a plough

77. Lettering the spine of the book with leaf gold
BINDING

head, then at the tail, and finally at the foredge. In order to trim the foredge the rounding must be temporarily cancelled out, so that a level surface is provided for the plough.

The materials used for covering are of many kinds, but leather principally, with vellum a poor second, appear to be the most popular in hand-binding. Cloth takes a lower place. Both cloth and leather are obtainable in wide variety of substance, finish, and colour, as well as quality. In half- and quarter-bound books the two may be used together.

When leather is chosen a rectangle is cut large enough to cover the book in one piece and to leave a clear margin all round for turning in. It must be pared thin on all turn-in edges, and for slim books down the spine as well. The leather is damped on the outside to prevent staining from the paste which is now applied on the inner surface (glue is used for cloth), and after soaking for a few minutes the cover is carefully drawn on over the spine and boards. The spine is attended to first, and here the leather is moulded round the cords and smoothed down neatly between them. The cords are considered as part of the fundamental shape of the book and made an integral part of any decoration the spine receives after binding; their size may be enhanced by strips of card or leather pasted over them under the cover. After the spine, the leather is smoothed over the boards, turned in over the edges, and pasted down on the inside, where the edges are later trimmed square. The book is then left to dry, with a length of string tied tightly round it close to the spine and in the joint. The string is supposed to help in the formation of the joints, but it is also responsible for those small dimples at the top and bottom of the hinges.

There is much finesse about the addition of endpapers to hand-bound books, but I need not deal with it here. The ordinary endpaper is simply a sheet of strong paper, twice the size of one leaf of the book; half of it is pasted down on the inner surface of the board and the other half is left free so that in effect it becomes the first leaf of the book. Technically it serves to conceal the mechanics of binding; for the reader it is like a theatre curtain, the lifting of which commences the show.
PRINTING AND BINDING

The book is now ready for lettering and tooling. There may be lettering only, perhaps nothing more than the title and the author's name; on the other hand, the whole effect may be altered and enhanced by the addition of tooling, either simple and restrained, or demonstrating any nuance of richness or exuberance through the scale to the sumptuous and magnificent. The amount and kind of decoration advisable is at the discretion of the bookbinder or his designer, and some books, very old ones, are gorgeous in their display of masterly tooling and inset jewels and metal studs. In this bankrupt age jewels are no longer used, but gold is. On all but the shoddiest examples gold lettering and tooling is done in real gold—and this is true of the better class of machine-bound books also. Nothing has been found that can take the place of the precious metal: substitutes have a way of tarnishing, while gold stays bright.

Binding tools are similar to pieces of type, but with longer shanks and made of brass instead of lead (Figure 78). Each is set in a wooden handle. A separate tool is required for each item of the design, and the bookbinder's collection usually includes (a) an assortment of conventionalized flowers and leaves; (b) gouges, with which curved lines are made; (c) fillets, which are wheels and are used for impressing continuous lines; and (d) several alphabets of different sizes and design. Other tools are used occasionally for special purposes. Binding design therefore consists of the ingenious combination and use of existing patterns.

Blind tooling consists simply of impressions in the leather, without gold. It is done by impressing the heated tool on the material, when an impression is made corresponding to the pattern on the tool. It is an effective method of design, either alone or in conjunction with gold tooling.

For gold tooling the design is first blinded in. If it is intricate it is worked out on paper and the tools are impressed through this. After blinding-in, the material is treated with glaire, a preparation of egg albumen, which is the adhesive that fastens the gold to the surface. A gold leaf is then laid on and the heated tool impressed again, through it, into the blind impres-
78. Book-binding tools. Left, a burnisher; right, a fillet, with a section of a decorated fillet. Above, a letter Z, a gouge, and an ornament. Below, a rule and an ornamental stamp.
sion, exact judgement being necessary to make the second impression register on the first. The metal adheres wherever it has received heat and pressure. The surplus leaf gold is cleaned away with soft rubber, which picks up the metal and can later be sent to the assayer for its extraction. In this way each part of the design, letter by letter and flower by flower, is gone over, until the whole is completed. With lettering, care and experience are necessary to obtain even alinement of the characters.

Inlaying of different colours of leather is another method of design, and it is sometimes used in conjunction with blind or gold tooling, or both.

Polishing or varnishing follows and the book is complete.

There are additional processes through which the book may have to go for particular effects. For instance, it may be thought desirable to gild or colour the edges. For edge gilding, the book, after trimming, is squeezed in a press and the edges washed over with a preparation of red chalk, which is said to enhance the colour of the gold that will be laid on top of it. The edges are now brushed briskly until they shine; size is then applied, and the gold is put on immediately. Finally the gold is burnished. Apart from aesthetic considerations, gilding is of practical value because it provides a non-absorptive metal surface that can easily be cleaned; and it is of particular value on the head, on which dust inevitably collects. Many people like gilt edges at the head, but I personally object to having them on the foredge and tail as well—it makes the book far too metallic in appearance and to the touch.

For coloured edges the book is pressed as I have described and washed over with liquid colour until the proper shade is obtained.

The treatment for silver tooling and silver edges is the same as I have outlined for gold, but while the gold is real gold, a base metal such as aluminium may be used instead of silver. Aluminium retains its brightness for many years, but silver turns black very quickly. Nevertheless, the monetary-minded need not worry: it makes little difference in value what metal is employed. Gold leaf is so extremely thin that not all the books
of the British Museum and the Bodleian could provide a paying gold mine.

A spine produced in the manner I have described is strong and lasting, but it has a serious disadvantage. The leather of the cover is fixed firmly to the spine and must bend inwards when the book is opened, and constant usage is likely to cause the gold to scale off—a disaster when the spine has had much labour expended on it. One way of avoiding this is to make the spine so stiff that it cannot bend, which will preserve the integrity of

79. Three kinds of spine—left, a flexible spine; centre, a fast spine; right, a hollow back

the toothing but has the effect of preventing the book from opening properly. A combination of the two methods produces the hollow back, which allows free opening and yet does not spoil the toothing. The three kinds of binding are shown end-on in Figure 79. In the hollow back the spine of the book is kept separate from the spine of the cover, so that while the first bends the second retains its shape. It is necessary to get the cords out of the way, and to do this saw-cuts are made across the spine just deep enough for the cords to lie in; as the sewing is drawn tight the cords are pulled down into the saw-cuts, leaving a level surface for the attachment of the paper tube that is an important part of a hollow back. Machine-bound books invariably have hollow backs, but made in rather a different way, without the paper tube and of course without any necessity for sawing, as there are no cords.

The strength of hand-bound books is not always as great as it may appear, and this is particularly so when inferior leather is used for the binding. If the materials are good and they are handled by a competent craftsman, the book will be good; but modern leather may be bad, and some of it is very bad indeed. It is no modern deterioration, for it seems to have begun about the middle of the eighteenth century, and to have continued
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unchecked until comparatively recently, when the question received attention and efforts were made to deal with it. There are leathers available now that are excellent and equal to the best of former periods, and which are, as far as we can tell, as durable: but there are also others. Defective preparation of leather destroys its durability, and on top of this a reprehensible habit arose in the eighteenth century, and has continued, of splitting the leather into skivers, or of shaving it so thin that there is practically no strength left in it. In this state it will tear more easily than paper, even paper of indifferent quality. It is not altogether the fault of the binders, many of whom would prefer to work only with the best materials. There are people who blindly believe that there is nothing like leather, but who are not prepared to pay a reasonable price for it, and cheap and inferior material is manufactured for their especial benefit. As a binder said to me, you get what you pay for, and deception only creeps in when gumption is away from home.

Half-binding and quarter-binding are the result of the idea, valid when the materials are good, that leather is stronger and will wear better, and should therefore be used at the points of greatest wear. In fact some books partly bound in leather in these styles would be more durable if they were wholly bound in the less pretentious of the two materials used.

MACHINE BINDING

Those who bind books by hand sometimes affect to despise machine binding. They say that machine-bound books cannot receive individual attention, which is true, and that they are not strong enough to endure as they should, which is only conditionally true. They think in terms of many years, perhaps centuries. But no one expects or hopes that an ephemeral novel will withstand the wear of generations, to show our descendants what fools we were, and machine binding is all very well for such as these. What of good books, of works of original genius? Surely they should be made to last? But wiser men than bookbinders have found it difficult to recognize genius when it appears, and no
one can really tell what our children will find precious among our accumulated goods.

Is there so very much in the contention that machine-binding cannot produce durable books? I do not think so. I have shown that the hand-binder may be misled and may mislead others into thinking that a book bound in trashy leather is well bound, and the machine-binder may also use inferior material and fall into the same error. He is more likely to use cloth than leather, and there are good cloths and bad ones.

The use of cloth, begun as an experiment in the nineteenth century, has extended across the world, until to-day an enormous quantity of books are bound in one variety or another of this material. It is to be had in a multitude of qualities and kinds and in as many colours, surfaces, and finishes, and to the book designer it offers wider scope than can be calculated. In strength and durability some cloths, good buckram, for example, may be as good as leather and certainly superior to some sorts of it. The test, however, is time itself, and cloth has not been used long enough to prove its worth conclusively. Admittedly, many cloth-bound books of the nineteenth century are falling asunder to-day—but others survive intact and as sound as the day they were made. A great deal depends on use, and it should be remembered that no book, in leather or in cloth, will survive treatment it was never designed to resist: it is not really good for a book to use it as a missile, or as a door-stop, or to prop up the leg of a chair from which the castor is missing.

Binding by machine involves several kinds of complex apparatus, and it includes also a great deal of handling of each individual book. Mechanization of the industry is far from complete, and perhaps it never will be complete. Much of the handwork is not skilled, and is done by girls after a short period of instruction and practice; on the other hand, some operations require apprenticeship and training.

The sheets reach the binder flat, in single, double, or quad size, as the case may be, with the pages arranged in an imposition suitable for one of the several types of folding machine, and the first business is to fold them. Perhaps the most common size
of sheet in use in book printing is the quad sheet, and if the book is to be folded in sixteen-page octavo sections, which is also usual, the sheet must be cut into four. In practice, this cutting is not done separately, but is part of the operation of the folding machine.

Occasionally sections of thirty-two or sixty-four pages are used in cheap books or in those printed on very thin paper; these larger sections save sewing and with thin paper give more grip to the stitch, but they are not as satisfactory for general use as sections of sixteen pages.

Each kind of folding machine is designed to fold sheets in a particular manner that proved mechanically convenient for its inventor, and they will not fold in any other way. Folding machines, therefore, do not all fold alike, and it is to suit their idiosyncrasies that different impositions have been arranged. A score or more of impositions are in use, and are distinguished by letters of the alphabet. Sheets imposed to imposition B and folded on the B folder will show the pages in correct sequence; the same sheet folded on a machine designed for imposition N would not have the pages in correct sequence.

Folding machines are not very large, but they are fairly complex, and appear larger than they really are because they have automatic feeders attached to them or built into the machine. The feeder, separating the sheets, presents each one accurately to the gauges of the folder, when it is taken up by revolving wheels, which draw the sheet into the machine and into position for the first fold. Here it lies on a metal 'table' across which runs a slot; a 'knife' (but it doesn't cut) descends on the paper at the point where the fold is to be and pushes it through the slot, where rollers make the fold good. The sheet then passes to a further table, knife, and rollers, where another fold is made, and so on until the sheet is completely folded. Slitting of double and quad sheets into singles is done during the travel of the sheet through the machine.

The next operation is insertion of the plates. Much of this is hand work. How the plates are inserted depends on the provision the publisher has made for them. If he has been willing
to sacrifice exact positioning of the plates opposite their refer-
ences in the text for the sake of convenience in binding and
durability in use, he will have arranged for the plates to be
printed in four-page sections to wrap round the sections of the
book. In this way, the plates are sewn in with the sections and
are firmly anchored; further, the work of inserting them is
simple and can be done rapidly. If, on the other hand, exact
positioning is important, many or all of the plates will have to
be inserted as single leaves. Such leaves are usually fixed in by a

80. Methods of inserting plates. Left, four-page sections for wrapping
round or inserting; centre, plates hooked in; right, plates tipped in.
The heavy outlines represent the pages of plates, and the light ones
the pages of text

line of paste along the inner edge, by means of which they
adhere to the text page next to them: or they can be printed on
paper slightly wider than the page and the surplus folded over
to form a fold that may be hooked over the fold of the text page
and sewn in. Folding maps and charts may be either hooked or
pasted in.

All sections of the same signature are folded at once, as the
sheets come from the printer in this way, so that when folding is
complete there are so many stacks of sections, here a stack of
signature A, next a stack of signature B, and so on. To obtain a
complete book it is necessary to take one section from each stack
and put the collection in the right order. In the bindery the
stacks are arranged in sequence on a bench and the gatherer
then walks the length of the bench, taking a section from each stack as she passes, so that at the end she has a complete set of sections in her hand. For each set this little jaunt must be taken, and no doubt a good many miles are covered in the course of a day's gathering.

This method of gathering by hand is in use in many large binderies even now, though the first attempts to mechanize the operation were made long ago. One of the earliest ideas was to make the bench move instead of the gatherer. A round table, on which the stacks of sections were arranged in sequence, was made to revolve, and several girls sat around the table, each taking a section from each stack as it reached her, until a set was complete, when she began again without pause. Thus as many books were gathered at once as there were girls working round the table.

The revolving table took up a good deal of room, and an idea tried out on the Continent was a kind of stair and bucket dredger combined, which projected upwards and so occupied less floor space. The sections were contained in buckets, which were presented in turn to each of several girls sitting at different levels on the stair.

Modern gathering machines are very different; they may be large and appear ungainly, but they work well. The sections are placed in sequence in boxes along a sort of counter or bench. Before each box is an arm with a pair of jaws on the end of it, and below the arms is a conveyor belt. The operation at each box is the same: the bottom section in the stack is separated from the rest by suction, and the arm with its jaws comes forward, grips the section, and carries it back about a foot to drop it face down on the conveyor belt, when the arm swings forward for the next section. While it is returning, the conveyor brings the section level with the next in the row of boxes, which contains, say, section B, and section B is dropped on top of section A. The conveyor, still moving, carries the two sections forward to receive section C, and so for as many sections as are required. There are about twenty boxes on one of these machines and as many books are being gathered at once. If
anything goes wrong—if, for example, the jaws fail to hold the section, or pick up two sections at once, the machine stops dead, and a signal springs up to show at which box the fault has occurred. It is put right in a moment and the machine is started again.

The book has begun to look vaguely like a book, though it is still only a pile of loose sections. The next step is to join the sections together on the sewing machine. This is nothing at all like the domestic sewing machine. It is operated by a girl, who takes up the section open at the middle and lays it astride a metal saddle, which then conveys it to a set of needles in the upper part of the machine, where the section is pierced and sewn through with thread, and pushed on to a tray behind the needles. The next section is laid on the saddle, brought up to the needles, and sewn to the previous one, the needles going right through the section as before to make the stitches that can be seen in any sewn book. During the operation lengths of tape are laced in with the stitches across the spine, and this tape will later be used to attach the book to its case. The sections are sewn in this way one after the other, until the delivery tray can hold no more, when they are taken off. There are now several copies of the book sewn together, and they have to be cut apart before the next stage is proceeded with.

There is an increasing tendency to omit tapes in sewn books. Books without tapes are described as French sewn.

The next stage is the machine appropriately called the smasher or the bumper, and also, inappropriately, the nipper. It is in effect an automatic clamp capable of some hundreds of pounds of pressure, and the books are fed in in stacks at one end and delivered at the other properly smashed, bumped, or nipped. This means that they have been consolidated and compacted.

If the edges of the book are to be cut, this is the next operation, and the machine used for the purpose bears the grim name of 'guillotine'. Such a guillotine would have delighted the hearts of the revolutionaries of France—they might have removed patrician heads a row at a time, and all at the touch of
a lever. Printers use a kind of guillotine for cutting paper, but theirs has only one knife, powerful though it is; the binder's guillotine has three knives, and is capable of making three cuts in rapid succession. The books are placed under a clamp and the first knife descends to cut the foredge, and as it withdraws two other knives come down at right angles to cut the head and the tail.

Now the books are ready for the first coat of glue on the spine. Each is placed spine down in a narrow channel and is conveyed over a roller running in a bath of hot glue; and immediately afterwards over a hard stubby brush, which removes the surplus glue and drives the rest well in between the sections, where it will help to hold them together.

After standing in stacks until the glue is partly dry the books are rounded and the joint formed. The machine that performs the operation is massively built, but is not intricate. The book is placed in a narrow channel, this time foredge down, and is drawn along until it arrives over a forming bar, where it is gripped between facing rollers revolving in opposite directions while the bar is pushed up against the foredge. The two sides of the book are dragged downwards while the middle is being pushed up, and the spine assumes the familiar curve. From this the book, gripped between jaws that perform the function of the backing boards used by the hand-binder, travels under a rocker that finishes off the rounding and makes the joints. The rocker is a heavy piece of metal with a concave edge, and is brought down until the concave is in contact with the spine, when the rocker moves quickly from side to side, giving shape to the curve and bending over the outer sections for the joint. The book is then delivered from the machine.

Our book looks now very much like the sort of book that sits on our shelves, except that it seems naked and incomplete; and so it is, for it lacks a cover yet. Before it can be supplied with one another machine must be traversed.

This, the lining machine, is perhaps the most complicated mechanism in the bindery; and it is certainly the most amusing to watch. Though it is possible to see clearly practically everything it does, there is an unexpectedness and oddity about its
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actions. The books are placed, one by one, in a channel or slide, and are picked up by conveyors, each of which carries one book, with the spine exposed. Along the machine are a number of stations, and at each of these the conveyors stop while the machine goes into action. The conveyors are spaced so that when one of them is stopped at any station there is another at each of the other stations. At each station a particular operation is performed, and while each book goes successively through all the stations, other stations are simultaneously performing the operation appropriate to them on the book stopped there.

At the first station a glue roller swoops along and gives the spine a coating of glue, after which the conveyor carries the book on to the following station, where a length of mull (the open-weave material that can be seen through the endpapers of most books) of the right length and width is cut off a roll and deposited on the carrier, which shoots into the machine, rises to press the mull into contact with the glued spine, and returns empty for another piece for the next book. The next station is like the first, with a roller carrying glue, but here two arms come into play to hold the surplus mull and the slips away from the glue. The following station is like the mull station, except that here a length of paper is cut off and carried to the spine. Finally there is another station with three damp rollers to press the paper into contact, and then the book is delivered, ready for casing.

The conveyors are on the endless belt system, and as many of them are in action at once as there are stations on the machine. If for any reason any one of the conveyors fails to pick up a book and travels along empty, the operation at each station it arrives at is cut out, so that nothing happens for that conveyor; but the other conveyors proceed as usual, and so do the stations they arrive at.

Some of the best binding machinery, and the most ingenious, comes from the U.S.A., and since the war a number of new machines have been brought over. One in particular is interesting. In form it is a large roundabout, and around it travel a number of clamps, each holding one book, spine down.
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The books are fed in as they come from the gluing machine, and are picked up by the clamps. These travel with an intermittent motion, stopping every foot or so at stations where the books undergo various operations. The first station, for example, is one designed to ensure that each book occupies the correct position in its clamp. Travelling in this way from station to station, at the completion of the journey the books have been nipped, glued, rounded and backed, lined, and so on, and are delivered ready for casing. The larger and more complicated a machine is, the more time it takes to prepare for work, and machines such as the one described really come into their own in the handling of large editions.

When the books reach the casing machine, the cases should be ready waiting for them if there is to be no delay, and while the work I have described is proceeding the cases are made by a case-making machine. I showed how, in a hand-bound book, the cover is built on the book to become an integral part of it; in machine binding there is no analogous process. The boards are not laced on to the book with thongs or cords, and this fact allows the case to be made separately and by machine, to be affixed to the book later.

The case starts with a roll of cloth, cardboard, and stiff paper of the width required on a reel. The cardboard is cut into boards of a size to suit the book, and these are loaded into the case-making machine on either side of the reel of paper. The roll of cloth, also cut to the width required, is loaded in also. As the cloth is unwound it is drawn over a roller running in a bath of hot glue, and receives from this a coating of adhesive; next it passes below the board and stiffener magazines, and two boards are dropped on to the sticky cloth with a length of the stiff paper for the spine between them, each in its correct relative position. After this knives make two v-shaped cuts in the edges of the cloth on opposite sides, and another knife slits the cloth across, between the apexes of the v's. The cloth is then automatically turned in over the edges of the boards and stiffener and pressed home, and the case emerges from the machine complete except for the lettering.

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Another type of machine makes cases in a similar manner, but from cloth previously cut to size and loaded into the machine as a pile of sheets.

The hand binder, we saw, impressed his tools one by one, laboriously and lovingly, but such a process would not do for commercial binding on the scale it has reached in our day. Editions are probably larger now than they used to be, and the saving of labour is more than enough to pay for a specially cut brass block by means of which all the lettering and tooling can be done at one impression (if it is in only one colour or metal). Blocking of a kind was done by the old binders for the coats of arms of their noble customers, but was seldom applied to lettering and decoration. For the coat of arms the device was cut in brass in relief, heated, and laid on top of the book in a press. At first probably the ordinary standing press was used and no doubt it was heartily cursed by the workman who had to apply it to a purpose for which it was never intended. Later a press on the lines of the printer's hand-press was specially made for the operation and was called the arming press; and by its name this type of press is still known. It has given way to-day to a more powerful and speedier machine for the blocking of the edition, but it has survived, as has the hand-press, for proofs and odd copies.

The brass from which the lettering and decoration is blocked on a modern book is made by a skilled engraver, who is capable of cutting in this hard metal practically any kind of letter that can be printed in ink on paper, or he can reproduce line drawings with exactitude, reducing or enlarging them as required. A good brass is clean cut with vertical walls, so that the impression will be sharp and clear. Brass is used because it is hard enough to withstand the pressure of blocking, but not too hard to engrave; and in addition, its surface can be given a high polish, which is imparted to the impression in the binding. At first, too, the fact that brass has the property of retaining heat was important, but this does not matter so very much to-day, when blocking machines are mostly heated by electricity controlled by a rheostat.
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The blocking press is a development of the platen machine used by printers for small work such as cards and leaflets; essentially it consists of two flat tables of metal which are arranged one facing the other and are made to open and close together mechanically. One surface is the bed on which the brass is fixed in position, and the other is the platen, on which the case is laid. When gold blocking is being done, a reel of gold tape is used in the machine. This reel is composed of cellophane bearing an opaque layer of fine gold dust and over the gold a layer of some resinous material corresponding to glaire. The reel is fixed above the bed and the tape joined to a take-up spool below it, the intervening strip covering the brass. Behind the bed is a heating element. In operation the platen bearing the case closes up to the bed and sandwiches the gold tape between the brass and the case. The heat from the element passes through the bed into the brass, and the raised portions of the brass fuse the gold and the glaire on to the case, so that when platen and bed part the case bears the design in gold. As the opening takes place the tape is drawn down one step to present a new surface for the next case, and the blocked case is taken off and another one fed in. The feeding and the taking off are done automatically by metal arms with suction cups at the end. With this kind of machine an output of something like fifteen hundred cases an hour is possible.

For silver blocking the process is the same, except that silver tape is used (aluminium); and tapes with foils of various colours can be used in the same way when coloured blocking is required. If ink is to be employed instead of foil, tapes are dispensed with and inking rollers fitted to the machine, the ink being supplied automatically from a duct like that of a printing machine.

The book is complete, only waiting for its case, and the case is ready for the book, and the two are brought together by the casing machine. A stack of cases is placed in a magazine on the machine and the books are fed in one by one. As each book is carried through, a case is carried as well, until the two arrive over a paste box and paste rollers. Here the endpapers, the
81. Four rows of octavo sections issuing from a quad folding machine

82. A gathering machine; the arms can be seen drawing out sections along the length of the machine, and below them is the moving belt on which the sections are gathered

83. A girl operating a book-sewing machine
84. A nipping machine

85. A Sheridan lining and backing machine

86. A blocking machine; a case is being placed on the platen by the automatic feeder. Note the two ribbons of foil for the title and imprint.
mull, and the slips are given a coating of paste, and the case is laid on and pressed into position, when the book is delivered into a trough.

The book is now finished and complete except for a final pressing, which is done in a tall press in which the books are stacked foredge to spine and left for some hours.

There are, of course, variations in blocking and casing according to the book and the wishes of the customer, and some of these can be done by machine and some by hand. Edge gilding is done by hand with gold leaf, and so is colouring; these are comparatively expensive processes, therefore, and their results are not usually found in cheap books. Blind tooling is done by the blocking machine exactly as any other tooling, except that no tape or ink is used. Blocking in two colours or more, or in colours and a metal, is also done by machine, the case being blocked separately for each colour or metal. Yapp edges and chamfered edges need special treatment, partly mechanical and partly hand.

Jackets are put on by the binder. This work is done by hand, by girls, who achieve great dexterity and speed in wrapping the books so that the spine and boards are accurately placed. Finally, other girls rapidly flick over the pages of each book to check that it has been correctly made, and after this the books are packed in bales of twenty to a hundred and delivered to the publisher, in time, let us hope, for the publication date he has already fixed.

Books sold so well during the war and afterwards that usually the whole edition was bound and delivered at once, but this is not the practice in normal times. Then sales are more uncertain and the binder is frequently instructed to bind only a portion of the edition, and to retain the remainder in sheets pending further instructions. If the book sells well enough the remainder is bound before the first binding is exhausted; if, on the other hand, the book proves a failure, the publisher has at least saved the cost of binding the rest. Binding is the most expensive item the publisher has to meet in book production, and
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it may easily cost more than all the other costs of the book together. If the first half of the edition fails to sell, something may be saved from the wreck by binding the second half in a cheaper form either for sale as a cheap edition or for the remainder market.
PART TWO

* * *

THE DESIGN OF BOOKS
PART TWO

THE DESIGN
OF BOOKS
THE DEVELOPMENT OF TYPE DESIGN

When Gutenberg began his experiments towards the mass-production of books he was not, perhaps, influenced by aesthetic considerations. He seems to have been rather an unworldly person, who spent a great deal of other people's money in pursuit of his end, the perfection of his process. His technical ability can scarcely be doubted, but he was not an original artist; rather he was an imitator who set out to produce mechanically the kind of books that had hitherto been made by hand in scriptoria. He aimed at no revolution in their appearance, and he achieved none. He was fortunate in that he appeared at a time when the art of the scribe was at a high level, and that he had before him models that were among the best of their kind. He copied them as faithfully as his process would allow, and if we admire the books he and his immediate successors produced, the credit for their excellence is not altogether the printer's, but belongs in part to the scribe. What the printer aimed at was, in fact, the production of 'manuscripts' in larger numbers and comparatively cheaply.

Since this was so, we have not far to look for the origin of the kind of letter Gutenberg, and Fust and Schoeffer after him, used in the indulgences and books they printed: it is to be found in the manuscripts of the period. The letter in use among scribes in Germany in the fifteenth century, as in most other countries, was one variety or another of what we have come to call gothic. It is a letter of magnificent decorative potentiality. This was seized upon in both manuscript and printed book, the best of which possess beauty and glory not equalled elsewhere in the history of books, except in Ireland, where monkish scribes of an
earlier day had spent much care and loving labour on the illumination of such manuscripts as the Book of Kells. Gothic had the drawback of not being easily legible, and least so in its most formal and decorative phase, but this was perhaps of little moment in an age when books were scarce and precious and were read slowly and repeatedly; or, on the other hand, not read at all, but bought to be looked at and admired, like a picture book, in the library of some rich but illiterate noble. Such a letter was not a suitable vehicle for the vast amount of information and ideas that was even now beginning to stream from the rising spirit of the Renaissance. It is probable that gothic would have passed out of use even without the assistance of the press, for men were turning away from or condemning all those things that savoured of the age that was closing and were seeking in the remote past for models and ideas through
Litur tres videns unum adoraret in
figura trium invenum unum de in tri
nitate adorandum intellexit. Herum quon
niam incomprehensibile est sancte trinita

Lettre de forme

O

Lettre de somme

Koeder wisse dat nu Iye vreis van dem slaisf vp
no stain want nu is naer viset hell van wyr gely
beden. Die nach ts vergangen met der dach neetk
Haer von solen wyr van vns werpen Iye werfen
der dyssternisse ind soellen an boen Iye waepen
des liecht. alsus dat wyr in dem dach eerlich wa

Lettre båtarde

Die Erfindung des Buchdrucks mit beweglichen Lettern war eines der
wichtigsten Ereignisse in der Geschichte der Zivilisation, denn die origi-
nalgetreue Vervielfältigung von Schriften war unmöglich, ehe Gutenberg
den Gelehrten seine einheitlichen Typen zur Verfügung gestellt hatte.
Voreingenommene Fachleute des fünfzehnten Jahrhunderts bedauerten

Modern Schwabacher (Monotype)

Die Erfindung des Buchdrucks mit beweglichen Lettern war eines der
wichtigsten Ereignisse in der Geschichte der Zivilisation, denn die origi-
nalgetreue Vervielfältigung von Schriften war unmöglich, ehe Gutenberg
den Gelehrten seine einheitlichen Typen zur Verfügung gestellt hatte.
Voreingenommene Fachleute des fünfzehnten Jahrhunderts bedauerten

Modern Fraktur (Monotype)

88. Five varieties of gothic
which they might express their new vision. True, a contest between the dispossessed and the dispossessing raged for some time to come, the advantage now going to this side, now to that. It was expressed in the making of books by the abandonment of the gothic character for the roman, by its readoption and reabandonment; until at last, in all countries other than the Germanic, gothic was discarded and the manner of reading it forgotten. The roman letter became the vehicle of the new civilization, inspired by the culture of ancient Greece and Rome.

The press did not merely follow the fashion, it to some extent directed it; because of its very capacity to multiply books it also

\[ \text{latitudo. Apricis. Sole gaudentibus torques. Apricis dicuntur \& locis \ solis \ calces \ q\ae \ est opaco \ & \ abdito contrari\textmu.} \]

\[ \text{Et apricis dicimus \& \} \] \[ \text{apricis gaudentes. Vergilius \ ducet apricis \ in \ collibus \ sua \ calor. Persius \ ut \ nostra \ foralhia \ possint \ aprici \ meminisse \ senes. Apricu autem} \]

89. The first roman type, used by Adolf Rusch at Strasbourg, c. 1464

multiplied readers, and brought to them the literature of which men talked, that literature that was at once as aesthetically impatient of gothic elaboration as it was psychologically of unreasoning faith. Then, too, as men read more, they desired to read more easily and without impediment, and they found the roman character a readier and smoother vehicle.

Typographically the movement away from gothic began when two German printers, who for reasons best known to themselves had migrated to Subiaco in Italy, found themselves in the midst not only of the Renaissance but of a revival by the scribes of a kind of letter that it was believed had been used in ancient Rome. This letter was in fact one that had been developed under Charlemagne by the monks of the scriptorium for the writing of new editions of the classics and the holy books, but it was certainly based on Roman originals. Scholars, seeking in the fresh enthusiasm of discovery for editions of ancient works,
haas et maacha. Capltm F. XIX.
Jixit autē sara centiu viginti septem annis.
et mox uia e in cuitu tre arbee, qe hebron
i terra chanaan. Venitq abrahă ut plăgeret
et sleret e. Cuiq surrexit sit ub officiō tuneis:
locutus est ad filios leh'orices. Aduenali.

90. A romanized gothic type, c. 1460

compata. Ergo item inge illa quē sepe diserte age\da\ sunt: &
quē ego paulo ante clq eloquentiam laudarem dixi oratoris
esse: nec habent suum locu ullum in divisione partium nec;
certi præcepto: genus: et agenda sunt nō minus diserte q

91. Type used by Sweynheim and Pannartz at Subiaco, 1465

agens: si plebeo nuperit ignobilis efficiatur. Et idem i
eo: qui propter delictum nobilitatem perdit. Quo fiet.
ut aliqua teporis parte infelix homo sit nobilis: & alta
ignobilis: & euestigio. Rursus nec omni loco nobilitas
inest. Sarracenus est nobilis a nobis captus: pector dio

92. Type used by Sweynheim and Pannartz at Rome, 1468

C rurae totius facient tibi Legua gentis.
H orrida uitanda est byspania: gallicus axis
I llicumq; latus, parce & melioribus illis
Q ui saturant urbem circo: sceñeq; vacanatem.
Q uanta autem in de feres tam dire prenia culp

93. The da Spira type, 1469
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found them in Carolingian manuscripts in the Carolingian script, and revived not only the old texts but the script as well. Sweynheim and Pannartz, the two exiles at Subiaco, entered into the spirit of the revival by cutting a new type in what they conceived to be the fashion. It was not successful. It was not a very good type, and neither was it a very bad one. It was neither gothic nor roman, but a hybrid of the two. This was in 1464 or 1465. They came, it seems, to realize something of its deficiencies, for two years later we find them working in Rome with a different type again, distinctly roman this time, but still tainted with the gothic flavour.

An easy, if merely theoretical, development from gothic to roman is shown on page 185. Unfortunately, history is seldom as neat as this. The first distinctly roman type appeared in Germany, of all places, at Strasburg, in 1464, before Sweynheim and Pannartz brought out their Subiaco type. The printer was for long known as the R-printer, because his type has a peculiar R, but he has now been identified as Adolf Rusch.

The first roman type that appears completely roman to us was used in a book printed at Venice in 1469 by Johann and Wendelin da Spira. It was the first of a kind now known as Italian or Venetian. It is a letter of good quality and proportion, and is legible and clear. Johann da Spira thought so much of it that he obtained a patent to exclude other printers from the use of any similar face; but he died in the following year and the patent expired with him, leaving the way clear for a greater type-cutter, Nicolas Jenson.

Jenson, like many printers an exile from his native land, had been sent by the French government to Germany to learn there the principles of the new craft, with the intention that he should return and introduce printing into France. He did return in due time, only to find that the old king was dead, and dead with him was the royal interest in printing. The new king, Louis XI, was apparently not interested, and may even have been hostile. Whatever the reason, Jenson appears to have decided that France was no longer fertile soil for his genius and he took himself off to Italy.

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absolutam conclusionem: tum uero uehementer
did quod opus est oratori: comprobat coteraria re: & ex
eio quod dubium non est expedit illud quod dubium
et aut autsi non possit: aut multo difficilie possit.

De Membro:

Embrum oronis appellatl res breuiter absoluta
fine totius oronis demonstratione: quae denuo
aliae membri oronis excipiit hoc modo. Et imo pde-
ras. idest unum quod appellat membrou: deinde hoc
exciptatur: oportet ab altero & amicum ladebas. Ex
duobus mibris suis hanc exornation potest constare.
Sed commodissima & absolutissia est: quae ex tribus
costat hoc pacto. & imo pderas: & amicu ladebas:
& tibi ipsi non consulebas. Itene reipons. consuliisti:
nec amicis profuisti: nec inimicis restuisti.

Articulus grauis.

Articulus dicitur cum singula uerba interuallis
distinguete casa orone hoc modo. Acrimonias:
uoce: uultu adversarios pteruisti. Iti inimicos inui-
dia: injuriis: potentia: phidia sustulisti. Inter hueis
generis & illius superiorius uehemontia hoc interest:
q illud tardius & rarius uenit: hoc crebrius & celeri-
us puenit. Itaq: in illo genere remotione brachii &
cotorting e dextrae gladius ad corpus asserri: in hoc
aut crebro et celeri corpus uulnere insaciari uider.

Continuatio Mediocris.

Continuatio est densa & continens frequetatio
uerbo: cum assolutione sententiae. ea utemur com-
modissime tripartito in sententia: in contrario: in co-
clusione. In fecteria hoc pacto. ei nol mult& pot obesse

94. Nicolas Jenson's roman, 1470. The initials are drawn
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It has been claimed that Jenson was responsible for the type the da Spira brothers used and which Johann patented. This may have been so, but for his own use Jenson cut a new and yet finer face. It appeared for the first time in the *De Praeparatione Evangelica* of Eusebius, which was issued in 1470. It is an open, dignified letter, clear and legible, of even colour and perfect harmony, subtly plain and simple. The contrast between thick stroke and thin is small; the serifs are blunt, with only slight brackets. The capitals are beautifully proportioned, and have no obtrusive or intrusive peculiarities of design to mar the harmony. This type has been acclaimed as the finest that has ever been made, and certainly many of Jenson’s contemporaries thought so too, for they lauded it and envied it, and some of them attempted to copy it. These attempts were not successful, and others made in our own time, even by means of the camera (as was Morris’s Golden type), have met with no better fortune. Bruce Roger’s Centaur is a version based on photography, but it is not like Jenson, as a moment’s comparison will show. Some of this difficulty in copying is due to Jenson’s defective press-work, but that is not the entire obstacle; the type possesses something beyond definition, an individuality and humanism that defy reproduction.

Jenson’s type face did not drop from the skies, as something new. Like earlier printers, he was attempting to copy manuscripts and his letters were based on those to be found in manuscripts, though they were informed by an excellence and character seldom present in the originals. Individually, his letters are not perfect, and this is as it should be. Perfection of form is something that might conceivably be fatal in a type design; the humanity of imperfection, of divergence from the ideal, appears essential. As we are more comfortable with a person who is imperfect as we ourselves are, and could not tolerate the perfect man if we found him, so we are more comfortable with a type that is human and warm; harmony is all.

Though Jenson’s roman and similar types came to typography later than gothic, because they were derived from a
comperissem; ita initium interpellandi eum feci. PETRVS BEMBVS FILVS. Diu quidem pater hic sedes:& certe ripa haec uirens; quam populi tuae istae densissima eumbrant;& fluuii usalit;ali quanto frigidior est fortasse,q sit satis.

95. Type used by Aldus in De Aetna, c. 1495

HOEBO IN QVELHORAMANANDO,che la fronte di Matuta Leucothea candida,as foragia dalle Oecane unde,le uolubile rote sospese non dimonstaua, Ma sedulo cum gli suoi uolucri caballi. Pyroo primo,& Eoo al quanto apparendo, ad dipingere le lycophe quadrigedella figliola di uermigliante rose,ue

96. Griffi's type from the Hypnerotomachia Poliphili, 1499

97. The Aldine italic. The initial is drawn. 1501

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tradition older than gothic they were known as antiqua; and in some type lists they are labelled 'antiqua barbaricus'. To-day it is the other way round: it is roman that is characteristic of our modern world, and gothic that is considered antique and barbarous.

Some type-cutters did not follow Jenson but struck out for themselves towards new conceptions of type design. Of these was Francesco Griffi, or Francesco da Bologna, who cut types for the great Venetian printer and publisher, Aldus Manutius. Griffi cut an irregular, highly individual character, but none the less based on a manuscript form, that was first used in the Hypnerotomachia Poliphili of Francesco Colonna. It was revived under the name Poliphilus by the Monotype Corporation some years ago, and has been used with effect in various kinds of modern books.

Griffi went on to cut a kind of letter altogether new in typography but well known in the scriptorium—chancery italic, a typographical version of the hand used in the papal chancery. Italics take up less room than do roman letters, chancery italics particularly so, and Aldus used them for small and compact editions of the classics published at a low price, the famous Aldine editions. They were issued in large numbers, and many of them have survived, so that copies may occasionally be obtained at no great cost in second-hand bookshops.

At first, only the lower-case of chancery was cut, the capitals used with it being those of a roman face of suitable size, the two going together very well. Otherwise the whole text of the book was set in this italic. This is a practice that has sunk out of knowledge, and italic faces have so declined in favour, and have become so emasculated, that to-day no typographer would consider them suitable for the text of a book. It is no modern degeneration, for few printers after Aldus's press ceased to function used italics in this way; and none do it in our day, though a number of revivals of chancery italics are available for use on composing machines. It seems that italics are for ever doomed to be no more than servants and handmaids to roman.

The influence of Jenson and of Griffi spread abroad with their
fame and the circulation of the books they printed or cut the types for, and most countries that turned to roman adopted first a letter after the Jenson model, and later, as Griffi did, began to experiment for themselves. As native designers and cutters arose, type faces began to alter in appearance. Letters were made sharper, the serifs were given fuller and more graceful brackets, the contrast between thin and thick strokes was accentuated. The Venetian flavour that had once distinguished the printed page diminished and at last disappeared. It is not altogether true to say that it was replaced by national influences; certainly the style of script that had been in vogue in any country to which printing came tended to affect the types used by the printer, as the manner of their display affected the printer's manner. To this extent French printing, let us say, became recognizably French. As once the printer had depended on Germany for his methods and technique, so he came to depend upon Italy for his type faces, or the inspiration that informed those he cut for himself; and so later he came to depend upon whatever country produced brilliant or capable type designers and cutters, either out of its native stock or by providing a haven for the talented exile. Indeed, type-cutters and printers were likely to be of any nationality other than that of the country they worked in. Sweynheim and Pannartz were Germans, Nicolas Jenson was a Frenchman, the first printers in France (who, incidentally, began with a roman type) were Germans, and the leading light of Dutch typography, Christopher Plantin, was a Frenchman. Wherever he may have worked, the influence of a great type-cutter or a great printer was carried abroad and affected the style of other countries, bringing the exile, in a manner of the spirit, back to his own land. Seen in this way, typography became not so much national as international. French printers bought type in Italy, Dutch printers bought type in France, and English printers bought type in the Netherlands. What is distinctive of different countries is not so much the type faces they used, as the manner in which they used them.

Even before the appearance of the Hypnerotomachia, Aldus had
used in the *De Aetna* of Cardinal Bembo a type nearer to the kind we are familiar with to-day. Johann Schoeffer in 1520 was using a roman type that prefigured Garamond’s of twenty years later and showed the tendency to enhanced sharpness, contrast, and grace; and Fröben was using a similar type at Basle in 1526. The tendency was brought to maturity in France about the year 1540 by Garamond in a type that has perhaps no equal of its kind. Conventionally it is based on the pen-written character, as are all old face types, but it does not imitate or emulate

Vn Roy, tant soit il grand en terre ou en proiessë,
Meurt comme vn laboureur sans gloire, s'il ne laisse
Quelque renom de luy, & ce renom ne peut
Venir apres la mort, si la Muse ne veut
Le donner à celluy qui doucement l'invite,
Et d'honneste faueur compense son merite.

98. Garamond’s roman, 1540

anything produced by the scribe. Here is a letter specifically designed for the press and the printed page, and not intended to be used in the manufacture of counterfeit manuscripts. Claude Garamond learned his craft under Geoffroy Tory, a famous printer who was, in fact, more of an illuminator than a printer. Garamond was familiar with the Italian kind of letter from Tory’s use of it, but he did not follow it in his own type. Nor, as I have shown, did he create something entirely new. He expressed something that was in the air, and he did it with such excellence that gothic, venetian, and chancery were finally thrust out of favour and never again recovered their former position. From this time on the course of type design flowed from Garamond.

Garamond finally freed type design from the influence of the manuscript, and indeed in his day printed books had lost the impetus that the inspiration of the manuscript had once
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provided. The press no longer produced magnificent and ambitious masterpieces such as those that had been brought out by Gutenberg and Fust and Schoeffer in emulation or imitation of the scriptoria. Printing houses had become more numerous and were no longer supported by wealthy patrons as once they had been. They were now commercial ventures, expected not only to support the workmen who laboured in them, but also to provide a livelihood and the prospect of fortune for their owners. Printed books, once rarities among manuscripts, were now common, and it was the manuscript that was rare. The press had destroyed its mentor, and henceforward it must depend upon itself and create its own traditions.

In France, Garamond's influence was strong for many years, but the high level of his achievement was never reached again; and as the sixteenth and seventeenth centuries wore on, his influence waned and at last ceased. French types entered a period of emasculation and degeneration from which they have never recovered, and the decline can be traced through Jannon, whose type long passed and still passes as Garamond's, and through Grandjean and the Didots. First it was towards a lighter or more delicate letter, and this was exaggerated until in the eighteenth century types were produced that were so weak they scarcely coloured the paper and were anything but readable. Fournier attempted to redress the balance with types that were firmer and more vigorous, though not possessing the excellence of the earlier time, but he did not stem the flow. Nor, as we see it now, could he hope to do so, for there seems to be something in the French character inimical to good book faces, and it was later to treat modern faces as it had treated old faces, to emasculate and condense until nothing in the world is as wretched as the ordinary run of French books in the twentieth century.

Christopher Plantin began to print at Antwerp in 1555, and later set up a foundry in connection with his press. Assault, official obstruction, religious intolerance, and the depredations of mutinous soldiery repeatedly retarded him, but he persevered and at the zenith of his career his printing house was the greatest
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in Europe, which is also to say the greatest in the world. He was not a type designer or type cutter, but a printer who knew a good type when he saw one, and more, how to use it. He was a Frenchman and procured much of his material in Paris, so that his work is more typical of France, or was so at first, than of the Netherlands or of Spain, under whose domination the Low Countries then were. He owned the rights of printing a number

CAPVT PRIMUM.


99. Type used by Christopher Plantin, 1572

of liturgical works for the Spanish Church, for the Netherlands and for Hungary and Germany, as the right of printing Bibles is now held by a group of privileged printers, and these monopolies kept him and his successors in affluence for many years. He brought out a famous polyglot Bible, but he is better known or the pocket editions that are typical of his press. He employed first François Guyot, then Robert Granjon, and later Henric van der Keere to cut types for him, and also bought founts from other foundries or other printers as occasion offered. Few printers were as enterprising and at the same time as excellent as Plantin, and at his death in 1589 he had, in spite of adversity, established a reputation and a business for his press that were to stand his successors in good stead for a hundred years or more; and he had placed the Netherlands in a position of supremacy in the world of printing.

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In England little of typographical importance had happened during these years, little of importance, that is, when seen against the background of Europe. True, the craft of printing had been introduced and had flourished, and had once suffered curtailment so that it could be strictly controlled by the Star Chamber. English printers had plodded on, following the style in vogue on the Continent, obtaining their materials there, and even importing their workmen from Holland or France. This dependence upon the Continent continued through the sixteenth century and through the seventeenth century also. Printing came to England through the Netherlands, and it was the Netherlands that for long influenced this country most; an influence that was confirmed by the rise of Dutch printing under the genius of Christopher Plantin. There were, it seems, some founders in this country in the seventeenth century, but they were of little account and were held in scorn by the better printers of the day; they could not produce types that technically or aesthetically equalled those brought from abroad.

At the beginning of the eighteenth century this state of affairs attracted the attention of William Caslon, an engraver of gun stocks and barrels. Encouraged by certain influential printers, he began to cut types himself, and by 1720 had started a foundry to cast them commercially.

Caslon's type was an immediate success in England, and one of the first effects of his new foundry was to make English printers independent of the Continent for their types and type ornaments. Yet Caslon's was not an original design. It showed a distinct Continental influence, and that influence was, as might be expected, particularly attributable to the Netherlands. It does not possess the superlative qualities of Garamond and Jenson, but it was a better type than any that had been made in England up to that time. Caslon was a superb craftsman, and his type was of excellent technical quality, well cut and aligned and balanced. In design it is a graceful, delicate, and subtle old face, with the serifs fully bracketed, and the now familiar variation between thick and thin strokes. The letters vary in different sizes, showing the divergences inevitable in any
repetition of work by hand, as well as nice adjustments made to preserve the character of the face. Taken individually, the letters show imperfections, as do those of any good type, but they marry without disharmony to make a page easy and comfortable to read, as well as pleasing in appearance.

Caslon enjoyed little influence abroad, where what he had achieved was nothing new and offered no fresh excitement or inspiration. Continental type-cutters were looking ahead of the style Caslon represented, and were awaiting a very different kind of type. The first English type-cutter to have any influence

IT is with a great Deal of Pleasure, that I lay hold on this first Occasion, which the Accidents of my Life have given me, of writing to your Lordship: For since at the same Time, I write to all the World, it will be a Means of publishing (what I would have every Body know) the Respect and

100. Baskerville's type

on European printing was John Baskerville, a writing master, who, having made a fortune in japanning, proceeded to spend some of it on the improvement of printing. He declared admiration for Caslon's work, but the type of the book in which he made this statement was very different from anything imagined by Caslon. It expressed admirably the eighteenth-century passion—or should we use so strong a word as that? rather, the eighteenth-century inclination—towards grace and gentility. It was conscious of its own virtues, as was the dandy or the fop, or the fine ladies who spent their days in the salon or at fashionable resorts, but it was not artificial. Baskerville was well aware of what he attempted, and he expended unexampled care in the printing of his books, such care and judgement as have made them things to be prized and loved. His first great book, a Virgil issued in 1757, astonished by its general excellence of type, paper, printing, and design. Alas for the nobly born and

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the delicately nurtured! Baskerville's type is to-day used very widely in the ordinary run of book production; not for fine editions only, but also for the common cheap novel printed with no care or forethought. For the excellent typographic qualities of Baskerville have made it a stock face, now too commonplace for self-consciousness, and few printers dare be without some version of it.

None the less, there is no doubt that it is a good type, indeed a very good one. English printers were impressed, but not stimulated, but those of the Continent saw in it an advance

Eccovi i saggi dell'industria e delle fatiche mie di molti anni consecrati con veramente geniale impiego ad un'arte che è compimento della più bella, ingegnosa, e giovevole inven-

101. Bodoni's type

guard of a new style and welcomed it. The books in which it appeared were also something new and different: Baskerville invented blacker ink and a smoother paper to give full value to his type, and further he glazed his paper between sheets of hot metal after printing, to increase the contrast and enhance the surface. The type itself is legible, firm, and of remarkable printing quality; it possesses dignity and restraint, and when suitably printed that delicacy I have already mentioned, which was achieved by fining away the thin strokes of the letters and by an alteration of the stress nearer the vertical. The result is certainly impressive and attractive, but it pointed the way towards snares that were to entrap lesser men in a later age.

Baskerville's type and his books were regarded with particular interest by Giambattista Bodoni of Parma, who was a type designer, as was Baskerville, but was more of a printer than his English contemporary ever became. Baskerville would have

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liked to make money from his press, but he complained that he
did not; he was an amateur, desiring, as he said himself, to print
only a few books, and those the classics. Bodoni, on the other
hand, was head of a large printing house possessed of govern-
ment monopolies and producing great quantities of printed
matter every year. By means of this press Bodoni could dis-
seminate his ideas of letter form far and wide.

He aimed at blocks of rich black type on dazzling white
paper, but he carried the theory to an extreme quite foreign to
Baskerville, and indeed showed everywhere the exaggerated
contrast of a more brilliant climate. Bodoni’s books are beauti-
ful, but they are not among those that are most comfortable for
the eye. The typographer has become fully self-conscious at last,
aware of his own excellence, and not a little intolerant. The
characteristics of Bodoni’s types are a vertical stress, a further
whittling away of the thin strokes, coupled with an exaggeration
of the thick ones, and an upright emphasis generally that is at
once the source of its charm and of its weakness. It is a type
based ultimately on the use of the engraving tool rather than
on that of the pen.

Bodoni brought this style of letter to its greatest excellence,
but it was not, in fact, indigenous to Italy. Printers and type-
cutters of other countries were travelling the same road, and
arrived sooner or later at a similar stage. Notably, the Didots in
France and William Martin, Alexander Wilson, and John Bell
in England showed the influence and progress of the movement;
and by the turn of the century what was to be called modern face
was firmly established, indeed, had begun to oust the old faces.

From this time onwards text faces can be divided into two
clear categories, known to the printer as ‘old faces’ and ‘modern
faces’; such types as had appeared up to and including Caslon,
and Baskerville too, for that matter, are grouped under the
term ‘old face’, of which Italians such as Jenson, though really a
class of their own, may be regarded as members. The chief
characteristic of old-face types is the fundamental relation of
the line to that made by the pen. The stress is tilted in more or
less degree, and the accent diminishes gradually into the thin
stroke without obvious junction; exaggeration and artificial emphasis are generally avoided. Modern faces, on the other hand, are typical of the practice of the engraver rather than of the scribe, and their relationship to the engraved form remains close. The stress is vertical and the change of accent is apt to be abrupt, a heavy thick line suddenly and precipitately becoming the thinnest of hair lines. The general effect is sharper and more rigorous than is that of old face.

A few transitional types appeared and have survived—or, rather, have been revived, for if they were not dead they were very much like it. Bell and Walbaum are examples. Transitional faces may be very pleasant types, possessing characteristics that old faces do not possess, without the attendant disadvantages of out and out moderns.

The heyday of modern faces was reached within the years 1780 to 1820—rather in the earlier part of the period than in the later; and after this they began to decline rapidly, bringing with them in their fall the whole practice of printing. Excellent as were the types of Bodoni and the Didots, they held within them the seed of such degeneration as the history of printing had not yet known. The development of modern was typical of the eighteenth century, but the tendency that suddenly sprang up and flowered as the century closed was not a new one. A type prefiguring modern had appeared in a book printed at Florence as early as 1691, and others more pronounced in character had come out between that date and the appearance of Baskerville’s new letter; but no such great designer or cutter had set his hand to modern faces before Baskerville brought out his transitional face and, unwittingly, helped to impel Bodoni to what he considered was the logical conclusion.

There is nothing objectionable in a good modern face properly used; it can be a very good letter indeed, readable, sensible, and practical; but there is a good deal that is objectionable in the spawn of mean and anaemic offspring that issued from this source. The earlier half of the nineteenth century was a low ebb of typography, though technically it was a period of great advance. New type faces appeared in greater
numbers than ever, issuing from the foundries without distinction to recommend them or promise of useful service; and like a horde of locusts they overwhelmed the good things that had been in the land before them. The old faces had vanished before the novelty and conscious excellence of the early moderns; and now Baskerville, Bodoni, Didot, Bell, and the rest of them were cast into limbo by the crowd of nonentities they had fathered.

Not everything was bad, not all the world was black; here and there a printer or a publisher kept the flag of good craftsmanship aloft and flying. The fine editions (in modern faces) of Bulmer and Bensley continued until 1830, and Charles Whittingham of the Chiswick Press and the publisher William Pickering carried on the tradition of good work, producing editions that can often be bought very cheaply wherever second-hand books are sold, though they are treasured by those who collect books for their own sake, and not because they are rarities.

It was Whittingham and Pickering who set alight the gleam that was to result in the revival of old-face types and bring back again something of their pristine glory. Printer and publisher co-operated in a proposed edition of Juvenal, and for some reason of their own persuaded the Caslon Foundry to cast type for it from William Caslon’s hundred-year-old matrices, then stored away among the dirt and debris that seem always to accumulate about anything to do with type. For one reason or another the edition of Juvenal hung fire, and in the meantime it occurred to Whittingham and Pickering that Caslon’s type was the very thing for a new book Pickering was going to publish, the diary of a fictive lady of the seventeenth century, which they thought might be suitably printed in a contemporary style. *The Diary of Lady Willoughby* was thus the first book of the Caslon revival; it appeared in 1844, and the Juvenal the year after.

*Lady Willoughby* was a success not only as fiction but as a piece of printing as well. It seems nothing wonderful to us now, but it was novel to the printers of the time because they had forgotten such things; much as Morris’s types were to appear novel and
strange in a later generation to those who did not know from what they were derived. Everyone was tired of lack-lustre moderns, and a flash of enthusiasm for Caslon followed the publication of the diary. It was not necessarily accompanied by any spurt of imagination, and though printers set out to follow the new fashion and bought Caslon, many of them used the good type very badly, as before they had used bad types atrociously. Nor does it seem to have occurred to anyone to revive other old-face types, though there were enough of them to choose from had they only looked for them. But it was unlikely, it must in fairness be pointed out, that in other instances the punches or matrices should have survived so conveniently as those of Caslon.

Towards the end of the seventeenth century Dr. John Fell, Dean of Christ Church at Oxford, had imported some interesting types and matrices from Holland and presented them to the Oxford University Press, where they were used for a time until Caslon swept everything before him. When Whittingham and Pickering brought out Lady Willoughby these types had long lain unused and almost forgotten, and they continued so for some thirty years more, until they attracted the attention of the Reverend C. H. O. Daniel, who had been Provost of Worcester College, and who had for a number of years supervised a small private press that he had founded at Frome. He revived the Fell types, and after 1877 used them with fine judgement in small editions of small books; setting an example that the University Press itself was to find of value later.

It seemed that typography, the designing of type faces and of books, was in the air, that more and more it was beginning to be understood that printed matter should be designed to the best effect, and development might have gone on smoothly, if slowly, had not a disturbing influence taken a hand in the revival of printing; and not merely taken a hand, but seized the reins and driven it into a blind alley. William Morris had begun to take a practical interest in printing towards the end of the eighties, as he took a practical interest in so many things—always with the best of intentions. In 1889 he had one of his books printed for him by the Chiswick Press—and no doubt he
made himself a nuisance to the worthy successors of Charles Whittingham; no craftsman can object more strongly to interference from outside than the printer—is not his craft a mystery still, and the layman meddling with it the equivalent of a bull in a china shop? I can imagine something of the pungent

SO am I as the rich, whose blessed key
Can bring him to his sweet up-locked treasure,
The which he will not ev'ry hower survay,
For blunting the fine point of seldome pleasure.
Therefore are feasts so sollemne and so rare,
Since, seldom comming, in the long yeare set,
Like stones of worth they thinly placed are,

103. William Morris's roman, the Golden type

And the ryver that then I sat upon,
Hit made suche a noyse as hit ther ron,
Acordaunt to the foules ermonye,
Methoght hit was the beste melodye
That myghte be herd of eny lyvyng man.

104. William Morris's Chaucer type

dialogue that must have passed between the compositors and the clickers, between the stone-hands and the machine-minders, as they considered Morris's unprecedented demands. But they printed his book for him, as near to his ideals as he could bring them. Perhaps it did not altogether satisfy him, for in 1891 he founded the Kelmscott Press in a house by the river at Hammer-smith, and began to print his books for himself, issuing The Story of the Glittering Plain as the first fruits of the new printing house. The typography of this book, like the story, was sham medieval, but it was magnificent, none the less; what did it matter if to read it was almost beyond the bounds of human endurance? It was thrown upon a peaceful world like an anarchist's bomb, and among those who were fortunate enough

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to see it, it demolished the ideals and preconceptions of many. D. B. Updike says of Morris's work: 'The effect on printing in general that Morris was to have through his types and typesetting entirely escaped most printers, as did the source from which he derived his methods. Because they knew very little about early manuscripts or early books, about the characters of one or the types of the other, the Kelmscott books appeared to them to have fallen from the sky—either very new and very wonderful or else very freakish and senseless—just as they would to anybody who knew nothing whatever about it.'

Morris, when he set out to provide a roman for his press, hit upon Jenson as a model, and aspired to design a type face that would be an improvement on Jenson's. It was good to introduce Jenson to a public that had never heard of him, but Morris's conception of what Jenson's types should be was far from what Jenson himself seems to have thought, and in his Golden type Morris reintroduced what Jenson had sought to escape—the influence of gothic. The relationship and the difference between the two faces are perceptible at once. For Morris was travelling in a direction antithetically opposite to that taken by Jenson. Jenson had succeeded in freeing himself from the influence of gothic, while Morris was rapidly returning to it; and indeed Morris shortly designed a gothic face for himself, and used it concurrently with his Jenson pastiche—an offence he must have found difficult to explain in those elysian fields to which typographers and printers are at last inevitably wafted.

Morris, labouring in his private press, had really little effect on the commercial printing and book production of his time; but if he did not make printers print as he did, what he did achieve was of immense value. Fine as it is, his own printing was a sport, a freak in history, an example of decorative art rather than of typography; his press vanished, and of his precepts and practice hardly anything remains; but he set afoot a new interest in the making of books, he aroused a controversy that made men pause to examine what they were doing and to ask if it could not be done better, if there was any reason why the result
of their labour should not avoid ugliness and carelessness, and attain beauty.

A number of amateurs, such as Morris himself was, were inspired by his example to set up private presses of their own; and if these presses, like Morris’s, generally led taste in the wrong direction, or took it up the garden path, they did serve to enhance the increasing interest in book production. People at last began to ask whether the books they read were well made and well designed, and they discovered more often than not that they were not well made and were not designed at all. Among the presses that succeeded the Kelmscott were the Vale Press, with three bad founts of type; the Doves Press, with another type based on Jenson, and the best up to this time; the Ashendene Press, with a version of the romano-gothic type used by Sweynheim and Pannartz at Subiaco: the Eragny Press, with yet another Italian type, debased and effeminate and fussy; the Riccardi Press, which was the name under which the Medici Society published various books set in a peculiar but not ineffective type called Riccardi designed by Herbert Horne; and the Golden Cockerel Press, which is still with us, producing limited editions of which the typography is sometimes very fine. The Golden Cockerel confines itself to no special type, but is wisely content with those that can be obtained from the commercial founder or the composing machine, suitably selected. All these presses, excluding the Golden Cockerel, flourished for a while, publishing their little quota of books, and then, either because money had run out, or their sponsors were tired of them, or for any other reason that came into their capricious heads, they one by one closed their doors and put up the shutters. Their day faded, and the need for them waned, with the approach to a new period of typographical awareness which they had themselves helped to inaugurate. They worked in the wrong way towards the right end, but they made their mark.

Too much attention, I believe, has been focused on the peculiar types used by the private presses; it seems to me that what is important is the manner in which those types were used
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rather than the types themselves. They were generally used
with skill and taste, and to good advantage, and the result was
an object lesson for printers, publishers, and readers alike. If the
private presses could use their odd types to such purpose, then
the commercial printer should be able to use what types were
available to him at least equally well; and in the latter days of
the private press type faces were available commercially that

CHORUS
When the hounds of spring are on winter's traces,
The mother of months in meadow or plain
Fills the shadows and windy places
With lisp of leaves and ripple of rain;
And the brown bright nightingale amorous
Is half assuaged for Itylus,
For the Thracian ships and the foreign faces,
The tongueless vigil, and all the pain.

105. The Riccardi type

were far and away better than anything that had ever issued
from the private press. The lead was not ignored, but it was
some time in being followed.

It was not until well into the twentieth century, when the
influence of Morris and his disciples had faded and begun to
look a little tawdry, that type and typography came into their
own, type in a revival of faces from the dusty lumber-room of
history, and typography in a new manner of their use. The
revival received its greatest impetus from the manufacturers of
the Linotype and the Monotype, but particularly from the
Monotype Corporation, who initiated a deliberate policy of
revival of old types and coupled it with the issue of newly
designed faces of a great many varieties. The taste of both
companies has proved erratic, and both include in their lists not
only grotesque and often repulsive display faces, but doubtful
and inharmonious book faces as well; though it must perhaps
be admitted for their defence that they were doing no more than
serve the demand of the public. On the other hand, they
combed the centuries for fine old types, and either copied them

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in templum, et votum recit, si ad eloquentiam pervenisset / quis, si philosophiae fontem articisset / Ac ne bonam quidem valetudinem petunt: sed statim, antequam limen Capitolii tançant, alius donum promittit, sii propinquum divitem extulerit: alius, si thesaurum effo-

106. The King's Fount, Vale Press

Apollo pueri umbram revocavit in florem, et omnes fabulae quoque habuerunt sine aemulo complexus. At ego in societatem recepi hospitem, Lycurgo crudeliorem. Ecce autem, ego dum cum ventis litigo, intravit pinacothecam senex canus, exercitati vultus, et qui videtur unonescio

107. The Vale Fount, Vale Press

[These Books printed, as a first essay, the whole field of literature remains open to select from. To-day there is an immense reproduction in an admirable cheap form, of all Books which in any language have stood the test of time. But such reproduction is not

108. The Doves Press type

nono apparve a me, ed io la vidi quasi alla fine del mio nono. Apparvemi vestita d'un nobilissimo colore umile ed onesto, sanguigno, cinta ed ornata alla guisa che alla sua giovanissima etade si convenia. In quel punto dico veracemente che lo spirito

109. The Ashendene type (cf. Figure 91)
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facsimile or used them as models for the cutting of new faces related to the originals. The Linotype Company brought out among others Granjon, Estienne, Janson, Electra, and Venezia, and the Monotype Corporation a host of types, both of the modern and old face varieties, including Walbaum, Bell, Bodoni, Fournier, Plantin, Poliphilus, Centaur, Garamond (Jannon), Bembo, Van Dijck, and of course Caslon and Baskerville; and also some excellent new types such as Romulus, Lutetia, Solus, Perpetua, and Times New Roman. Unfortunately true Garamond has never been cut for any composing machine, and this is an omission that should be remedied.

The change that came upon printing as a result of the appearance and use of these types extended at last even to the newspapers, which until the early nineteen-thirties had held on to their nineteenth-century moderns. Of these moderns The Times had undoubtedly the best, but most of them, those used by the large London daily and evening papers and by provincial journals also, were a wretched set, the product of the worst period of type design. The Times led the way to reform by coming out in a type specially designed for it, with harmonious titlings for use in the column headings. Times New Roman is a type designed for a special and very limited purpose, the printing of a newspaper, and it achieved an immediate success. In character Times is a heavy old-face, inclining towards modern, with fully bracketed serifs and a general sturdiness of construction that makes it efficient for its purpose. But it is more than this. It attracted the attention of book printers and of publishers and soon began to appear in all kinds of books, in which—particularly when leaded—it performs very well. A certain stubby quality due to the short descenders was evident in the longer line of the book; but when alternative long descenders were made available this disability vanished.

There have never before been so many and such a variety of good type faces at the service of the printer as there are to-day, though they are set among a horde of bad, illegible, cramped, tortured, and ill-designed types that make good choice a trial for the printer and the typographer. The composing machine

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companies have brought out failures as well as successes, and both have remained on the market, the successes, we hope, because they are good, the failures because once a type is broadcast among printers it is difficult or impossible to kill it even if you want to—Cheltenham is the persistent example.

DISPLAY FACES

Alongside the development of book faces there has gone, since the beginning of the nineteenth century, a development of types intended for display, and some of these are used in books for chapter headings or title-pages, or for book jackets. Display types were, to begin with, nothing more than large sizes of book faces; but after the year 1700, or thereabouts, there began to be a difference. Types began to assume the form of things alien to them, the shapes of twigs or branches, for example. It was not done to any great extent in the eighteenth century, and when it was it was only for a word or two on a title-page or in a chapter heading. It is possible, indeed probable, that these words were not printed from type at all, but from wood blocks cut for the particular purpose, like the decorated lettres de forme of the fifteenth and sixteenth centuries. Used discreetly in this manner, and not often, ornamental lettering does possess a charm and a novelty not open to more normal types; but used frequently and without discretion it becomes boring and irritating and defeats its end. This was what happened in the nineteenth century.

Bewick’s success as a book illustrator caused type designers to contrive type faces that would match with wood-engravings, and consequently an invasion of fat faces laid waste the typographical landscape of this country; and through this country that of other countries also, when England, as a result of the Napoleonic Wars, became Lord High Panjandrum and arbiter of taste and everything else throughout Europe. And shortly occupying forces of fanciful and fantastic designs took over the land. Type faces sprouted every kind of excrescence imaginable, or attempted to imitate or simulate anything and everything that inspired the misguided ingenuity of the designer. Never was
there such a wilderness of leaves and flowers and trees, of streams and ice and snow, of railway trains and horse carriages. Letters were made so that they looked like twigs, like pieces of string, or like contorted animals or insects; they bore burdens of snow or frost, or trailing blossoms, or birds' nests with eggs or chicks. They were designed so that they could be joined together to look as though they were strung on telegraph wires, or on the

DE
GERMANIÆ MIRACVLO
OPTIMO, MAXIMO,

TYPI

litcrarum.

110. Decorative letters, probably cut on wood, from the title-page of Pater's Typis literarum, Leipsig, 1710 bars of a fence, or borne on the wagons of a railway train. They melted like wax in heat, or they were extended like soft toffee until they were four or five times their normal width, or compressed until they were only a fourth or fifth of it. They were knock-kneed, bow-legged, and pot-bellied. Nothing was too strange or too far-fetched to be made into the letters of the alphabet. All that came was grist, however gristly.

Most of these queer types were mania types; they were produced to satisfy a demand for novelty, and when the taste aloyed they wore away in disgrace and a later novelty took their place. What appetites our grandfathers and our great-grandfathers had! For they were so long in reaching satiety.

Some of these fancy types, the less monstrous and strange, remained, or were revived again in our own day. Amid the welter of worthless preciosities a few types achieved genuine
FADING SUN
Another Disaster
THE HEBRIDES.
NEATEST
FANCIFUL
FANCY A TYPE.
CHIME.
AMERICAN
RURAL ARCHITECTURE
MAGNIFICENT
A FANCY LETTER
BRITISH BALLADS.

111. Nineteenth-century frivolities
extension of type design, as if they had stumbled on it by accident. If most sanserifs that appeared were poor and ill formed, the idea of dispensing with the serifs was of value; on the other hand, putting emphasis on the serifs, as in the Egyptians, was also useful. Thorne's shadowed bold fat face is a good letter when properly used, and even lateral compression and expansion, within reason, are of service.

Printers and typographers to-day sometimes laugh at their predecessors who doted on these things, but they are often no better themselves. They have the same thirst for novelty, and the same facility for tiring of their pets. Typefounders' catalogues are packed with the dead corpses of types that flourished exotically for a day and then drooped and were forgotten. Kino, Modernistic, Gallia, Vesta, Chic, Braggadocio, and Ashley

ABCD

112. A fine example of a nineteenth-century decorated letter

Crawford are examples. They do not show the unrestricted imagination of the nineteenth century, but they do demonstrate the same disregard for the fundamentals of good letter form and the long tradition of printing.

None the less, the passion for novelty and the enthusiasm of the type designer combine to-day, as they did so long ago, to throw up occasional type faces that are excellent in themselves and of permanent value; and variations are played upon a basic design to produce a family of type faces the members of which are all different, but all bear the family resemblance. The first notable type family was Cheltenham, but for our time the most useful example is Gill Sans, of which twelve varieties are shown in Figure 113. Not all types exhibit the same range as Gill Sans, but there are few display faces that have not offspring of some kind, even though they may masquerade under another
Gill Sans Light and Italic

Gill Sans Medium and Italic

Gill Sans Medium Condensed

Gill Sans Bold

Gill Sans Bold Italic

Gill Sans Extra Bold

GILL SANS BOLD CONDENSED TITLING

GILL SANS SHADOW NO 1

GILL SANS SHADOW LINE

GILL CAMEO

113. Some of the Gill Sans family of related type faces
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name. Nor is Gill the only sanserif that can be had; it is the best-known but it is a question of opinion whether it is the best. Others are Bernhard, Cable, Futura, Erbar, Nobel, Tempo, Vogue, and Metro.

There are also many egyptians, the best of which seems to me to be Beton—but there is plenty of room for disagreement, with Cairo, Karnak, Memphis, Luxor, and Rockwell to be considered.

Among 'fancy' faces the inlined or tooled must be mentioned, and the list may commence with the graceful Old Face Open, one of the most successful and beautiful (as well as the most conservative) of display faces, and continue through Dominus and Goudy Hand-tooled to the more novel Pharos, Adastra, Prisma, and Colonna.

Decorated faces also returned, though few in number. One of Fournier's graceful ornamental letters was revived under the name June; Fry's tooled and jewelled capitals were reissued by Stephenson, Blake as Fry's Ornamental; and the same founder reissued the first of ornamental types, the seventeenth-century Union Pearl.

French antiques, thickened top and bottom and compressed laterally, were popular during the last century, but fell into disuse until they were revived through new designs in this. Plinth and Playbill are examples.

Condensed and elongated modern faces also came back in Bessemer, Slimback, Onyx, and Elongated Roman; but they came to be used in a manner very different from that in which they had been of service before. Once they were resorted to when it was difficult to get the matter into one line; now they are used for their own sake, and so far from reasons of space economy that they are more often than not set with wide letter-spacing.

At the other extreme fat faces are enjoying a vogue again, and each founder has brought out his own particular kind. Elephant, Ultra Bodoni, and Falstaff are examples.

There is a range of script faces of every conceivable variety, some of them decidedly repulsive, but others possessing grace
THE DEVELOPMENT OF TYPE DESIGN

and delicacy; or others still originality or humour. Among the
more beautiful are Bernhard Cursive (or Madonna Ronde, as
it is called in this country), Bernhard Tango, Trafston, and Klang;
among the queer are Holla, Fanal, Penflow, and Pentape,
Allegro, Lilith, and Legend. Holla, which looks, perhaps,
as though it comes from the fist of a paralytic calligrapher,
is peculiarly effective, but must be used with discretion; and
this is true also of Legend, which is among the oddest of the
odd—and yet not so odd when its descent from the French
civilité types and manuscript hands is understood.

We have still, of course, the larger sizes of text types to work
with as display faces, and since the war of 1914–18 they have
been reinforced by other types designed in the same tradition.
Of these undoubtedly the most successful is Perpetua, designed
by Eric Gill; but others that deserve mention are Forum
Titling, Marathon, Elizabeth Roman, and Weiss Roman; and,
transitional between the traditional face and the modern
display, Albertus, Steel, and Offenbach.

As there is no end to the making of books, so there is no end
to the making of types with which to print them. Each period
develops its own tastes, and the next winnows from the result
those faces that most accord with its own particular preferences.
Good faces that endure through the centuries are rare, and they
arise like things of genius first in this country and then in that.
At no time, I believe, have there been as many good type faces
in current use as there are to-day, but whether among our new
designs there is one that will outlast our own fickleness and fancy
it is hard to say.
ABCDEF
June—Stephenson, Blake

ABCDEF
Old Face Open—Stephenson, Blake

ABCDEF
Fry’s Ornamented No. 2—Stephenson, Blake

ABCDEF
Thorne Shaded—Stephenson, Blake

ABCDEF
Beton Open—Bauer

ABCDEF
Chisel—Stephenson, Blake

ABCDEF
Lilith—Bauer

ABCDEF
Delphian—Ludlow

ABCDEF
Adastra—Stempel

114. Display types in use today
14. Display types in use today
Display types in use today
114. Display types in use today
Monotype display faces
THE TYPOGRAPHER AND HIS WORK

The typographer is a phenomenon principally of this century, but in effect typographers have existed since the first days of printing; though they have not always been persons distinct from the printer and the printing house. Independence of the printer is the attribute of the typographer of our time, independence, that is, not only of control by the printer, but independence as a separate person. There was a time when printer and typographer were aspects of the individual craftsman. The man who designed the great Bible that came belatedly from Gutenberg's press was a typographer, and a good one, though derivative; and the compositor of any period who set type to a pattern of his own conception was also a typographer.

Is there here some confusion of sense? The word means, in essence, no more than a man who manipulates types, and any compositor does that; but it has lost that essential meaning in acquiring another, and now means a man who uses type as a material of design, handling the physical matter only, so to speak, at second hand, through the directed fingers of the printer. It is a usurptive sense and it denotes a usurpation; but life is always a usurper and history is nothing but his story.

The time when any man, or group of men, working in concert, performed all the operations of a process, from the initial conception to the finished product, has passed away, and with it, usually, has gone the individuality of the worker as a craftsman. The curdling influence of specialization did not leave the printing and kindred trades unaffected. Technique increased in complexity and extent, and absorbed more and more of the
printer's time and thought, and in the welter of new machines and new technical ideas that burst upon him with the advance of the nineteenth century, continuing in spate into our own day, he forgot the art of choosing and of using type. But if the artist in him was overwhelmed by the mechanic, he did not necessarily cease to think of himself as capable of design; he did think so. His taste became crude and the subtlety of good design escaped him; he saw nothing in design that did not blatantly proclaim itself as design. It was a progressive disease. The more his taste declined, the more degenerate became the type faces offered to him by the founders, and the more inept his use of them; until at last he played like a delighted child with the crowds of gimcrack faces and fantastic ornaments that descended like gaudy balloons upon him.

The type designer and the typesounder were not led into the dance unwillingly. They had to make their living by giving the printer what he wanted, but there seems to be no doubt that they helped to confuse the printer's taste. And the printer's customers, the publishing houses, must share the responsibility. The printer had to give them what they wanted, or what he conceived they would like, for often what they wanted was indicated in the haziest of terms. The outline was filled in, and filled in to some purpose, by the printer's foreman or the clicker at the frame.

When through the influence of artists and calligraphers a new renaissance was begun and a demand arose for a new kind of typography, a demand that was later to be intensified out of all proportion by the realization that well designed printed matter succeeds better than that which is badly designed, the printer, still in his doldrums, was unable to respond. If he tried, he could not successfully compete with men who had spent their lives in the study of fine lettering and its use and brought to it taste and mental equipment superior to his own. Typography, the use of type in design to a definite end, became the attribute of a new kind of artist, the typographer; new because he was a specialist. He does not set type, nor does he operate the press; very likely he is incapable of doing either of these things. But he
studies his materials and technical requirements, and selects with care and purpose the elements that are to go towards an ordered whole. His knowledge and experience should not be limited to letterpress printing, but should extend over the whole field of book production to include other printing processes, process engraving, and binding, and the subtleties of type design and of paper quality and kind. He chooses and directs artists to illustrate or decorate particular books, or to design jackets for them, keeping, in the case of the jacket, an eye on the psychology of sales appeal. In short, the typographer’s work is, in part—and in good part—a collation, with all the elements of that collation flowing in an ordered stream in space and time towards the completion of the book.

Some of the fun was taken out of printing when the right of design was taken away; but where that right had not been much exercised, or was enjoyed in the practice of ingenuity, the subtraction was perhaps not felt, might indeed be some relief because with it went responsibility. Not all printers accepted it as inevitable, however, though they were compelled to recognize that the compositor’s taste could no longer be relied on. Seeking to be in advance of others and to attract to their offices the kind of work they preferred to do, they employed typographers, finding them sometimes in unlikely places. A few such printing houses, like the Curwen, Baynard, and Shenval presses, became well known and brought out work of which they had every reason to be proud. Others found that it did not pay, or that the typographer they had employed at such expense was rejected by their customers, some of whom preferred doggedly to stick to the style that was good enough for their fathers; while others preferred their own designers.

The result is that the position is little relieved. A few printers have created individual styles that distinguish their work to their advantage, but the majority prefer either to depend upon the customer for instructions or, where there are no such instructions, to follow whatever style or lack of style may prove most convenient. This, at least, may be said, that however bad a printed book may be to-day, typographically, it is seldom bad
for reasons that applied in the nadir of production in the last century: facile ingenuity and over-elaboration are largely gone.

Though the parallel is not exact, it may be said that a typographer is to a book what an architect is to a building. The typographer's conception is the unifying force that directs towards a common end the diverse trades andmultitudinous operations concerned in the making of a book; so the architect's ideas, embodied in plans and specifications, control the materials and operations of building. Several printers may be involved in the printing of a book, and they may be far apart and unknown to each other; with binders, process engravers, brass-cutters, and others in still other parts of the country. None of these is aware what the others are doing, nor would it be likely to interest them if they were told; each is intent upon his own particular business. Their diverse contributions to the projected whole are made under the direction of the typographer, who in instructing each trade or craft works within his conception of the complete book.

In a publishing house he starts with a manuscript placed in his hands by the editorial department. The fact that it has passed through the editorial and reached him usually means that the book has been accepted for publication by that department, but not invariably: acceptance may be conditional upon the cost of production. A script by the time it has reached this stage is not always the tidy, fresh stack of sheets that books on authorship suggest are the only things likely to appeal to the publisher. A new author, under the influence of the textbook or correspondence colleges, may produce such a script, neatly and professionally typed, without correction, and possibly bound in cloth; but the old hand is more apt to send in a slightly dog-eared collection of variegated folios held together by a piece of string, more or less emended, erased, and re-emended, and showing many signs of second thoughts and new ideas. There is no virtue or sovereign specific in such untidiness, however. It does not impress anybody; and everyone who has to read a script would prefer it clean and legible.
THE DESIGN OF BOOKS

In the publisher's office a manuscript or typescript receives some wear and tear as it passes through the hands of perhaps half a dozen readers, and this is inevitable; any of these readers may suggest alterations or improvements, which, if the author accepts them, will be incorporated in the script. The result that finally reaches the typographer's desk is often the reverse of inspiring.

In a busy publishing house it is unlikely that the script will arrive at that desk alone; it will have companions, probably, the products of the editorial's merciless mill, and it may be accompanied by various odds and ends of illustrations, diagrams, charts, etc.; or some indication that such things are to come. The components of a book are apt to be flung at the unfortunate typographer at various times, with or without explanation, and he is expected to put them together, and to have everything printed and the books bound by the time they are wanted.

The question of the size of the book our manuscript or typescript will make is the first thing to decide. There is no rule about it unless the typographer has created one for himself, or the accumulated precedents of his firm weigh upon him. The presence or absence of illustrations may have some bearing upon the decision, and the quality or kind of book may also affect it. Generally—and it must be emphasized that it is no more than a generalization—frivolous or ephemeral books tend to be smaller, while those that are grave or serious or are expected to be of permanent interest are mostly larger.

Choice of type and the design of the book as a whole are inter-dependent; one influences the other. The layout may be completed in major detail at a sitting, but it is usually more convenient to do it piecemeal. The title-page and any other displayed element must be designed in relation to the text, and there is little point in designing them at this stage, when they may have to be changed to suit any change made in the setting of the text as a result of dissatisfaction with the specimen page.

A specimen page is the first thing that is required from the printer. Set in the type face and size selected by the typographer,
and showing details of page area, headlines, and chapter opening according to his instructions, it is in effect an advance sample showing what the opened book will look like. If it does not please in any way it can be altered until it is satisfactory, a new, revised specimen being obtained to show the alterations in practice. When it is finally approved it is returned to the printer, who takes it as his guide in setting the text of the book, which is now proceeded with.

The specimen is usually accompanied by an estimate of twofold character showing (a) the number of pages the book will make set in the style of the accompanying specimen; and (b) the cost of the composition of the type, either stated for the book or per sixteen or thirty-two pages. With these details a publisher's estimate can be made, to show what will be the profit on the sale of the edition. Machining and binding costs, which are included in this estimate, may be obtained from printer and binder at the same time, but can equally well be worked out from schedules of fixed charges. Any other charges, for block-making and printing of illustrations, for example, are included in it also.

In giving the printer instructions for the specimen page the typographer will also have given him instructions or layouts for the setting of chapter titles and part titles, and these are settled with the approval of the specimen. This approval is a signal in advance showing that the printer will shortly need a layout for the preliminary pages, which he must have before he commences paging, unless he can be informed of the exact number of pages the prelims will occupy. Prelims, or preliminary pages, are all those pages that precede the commencement of the text proper of a book—half or bastard title, title-page, preface, list of contents, and list of illustrations, etc. A set of page proofs commencing with a section of blank pages representing the prelims is a nuisance from everybody's point of view, and so it is better to do the layout in time for the prelims to be included in the proofs.

At some stage the margins of the page must be settled. They require some thought, though there are systems that may be
THE DESIGN OF BOOKS

followed, and which, if they are followed blindly, require no thought whatever. No system is entirely satisfactory: the placing of two rectangles of text upon the pages is a matter of aesthetics, and not amenable to rule. A process of trial and error is better, aimed at an arrangement that 'looks right'. Much the best time to fix the margins is when the specimen page is approved; from the printer's point of view a belated settlement of margins is likely to be a confounded nuisance, and from the publisher's a waste of money, for the printer naturally charges for details that absorb time and cause trouble in his composing-room.

It is the business of a production department, of which a typographer forms part, to send out proofs to the author as they come from the printer; and though the typographer himself may not be concerned in this, he is concerned in their return from the author. He is responsible for the transmission of the author's corrections to the printer, together with any corrections of his own or the publisher's proof-reader, all of which are included in the set of proofs returned for press.

Illustrations make no small demands on the typographer's time and patience. It is not often that they can be dealt with en masse, a general instruction covering them all; it is much more usual to find that each illustration, no matter of what kind, needs individual consideration, not only in selection, but also at each stage of production. Selecting illustrations is a matter not only for the publisher and the artist or photographer, but for the author too, and often the author is made responsible for supplying the material to illustrate his book. When the selection is complete it may be found that a number of the photographs are not the author's copyright and that no steps have been taken to obtain permission to use them. Some authors, though they may be capable of writing excellent books, appear to have the mentality of an imbecile in matters of simple business, and it is useless to insist that they should fulfil their responsibilities. Then the typographer must obtain permissions and arrange the fees to be paid for them. It is no real part of his job, but it must be done if indignant protests, and even legal actions, are to be avoided after publication.
THE TYPOGRAPHER AND HIS WORK

Where a book is to have drawings especially made for it an artist must be selected who can be depended on to produce drawings showing not only sympathy but understanding of the author’s style and subject—and, of course, artistic merit. It may be necessary to tell this artist how many illustrations, and of what size, will be needed, rather than leave it to him to send in whatever he feels is the right number. Artists who might benefit by such limitations are, however, often those who most ignore them, and sometimes there descends upon the bewildered publisher, not the twenty drawings asked for, but sixty or seventy, coming in one bunch or in a trickle spread over weeks. Such fecundity is the result of enthusiasm and lack of discrimination rather than of misplaced generosity; and for the typographer it means unnecessary work involved in detecting and discarding surplus drawings, which may make a reading of the text unavoidable, because the position of each drawing must bear some relation to its context. On the other hand, there are artists who appear reluctant to supply the full tally and have to be urged again and again. In fact, some of the artistic community is always a little bit rum, as the ordinary man has for a long time suspected.

Line drawings usually admit of only one means of reproduction, by line block, unless they are in pencil, when some form of tone reproduction is preferable; but pictures in tone may be reproduced by any of several processes, one of which will have to be decided on. Usually it is half-tone, but the fact that it is usual does not make consideration superfluous. One of the factors is cost, and in many cases this rules out the use of colotype or photogravure; expensive processes are confined to books on which the publisher is prepared to risk more money.

It is very unlikely that all, or indeed any, of the pictures used in any book are of the right size for that book, or the right shape either. Where they can be trimmed to a better proportion the task is made easier, but it is inadvisable, for obvious reasons, to take a slice off an old master, or a young one, for that matter. By means of photographic reduction or enlargement originals of the wrong size can be brought down or up to the size dictated
by the size of the page, but this does not, of course, alter their proportions. Each picture must be dealt with separately, and perhaps each shows the result of a compromise.

Line illustrations may be printed in their appropriate places in the text, or as near as the exigencies of paging will allow. The positions of tone illustrations are restricted by the mechanics of binding, as I have already described, and some sort of compromise may be necessary. Whatever method is used, their positions have to be determined and the correct facing-page numbers inserted in the prelims.

The printer's cast-off shows the number of pages the book will make, and a dummy of the correct size and number of pages is made up of the kind of paper that will be used. This is bound in the proposed style, and the resulting bound dummy gives the precise dimensions of the finished book. With this information, the brass and jacket can be put in hand. When the brass has been cut, the binder uses it to block a case of the proper size and the selected cloth, in gold, silver, foil, or ink, as instructed by the typographer. When this specimen case has been approved or corrected, as may be, the binder will make up a number of complete books—probably a couple of dozen. These are the advance copies. They are used by the publisher as sales material; but they are also equivalent to proofs, showing how the binder has interpreted his instructions throughout. On approval of these advance copies, binding of the bulk is proceeded with.

The dummy is also used for fitting the jacket, which is 'made to measure'. Jacket designs may be divided into two main classes, those done by the typographer using type and those done by an artist with or without type. There is no distinct dividing line, and the two classes merge and overlap. If the typographer feels that an artist's jacket is preferable he must choose an artist capable of producing the effect he wants and inform him how many colours he can afford to use, and what process he means to apply. On either flap there may be details of other publications, and there will almost certainly be a blurb. Custom has made the front flap the position for the blurb,
though occasionally it is to be found on the back board, or running over from the front flap either on to the back flap or the back board. Advertisements must be laid out in a suitable style and the blurb arranged so that it will look attractive and readable.

Finally, and it will have been done before this, the question of paper for the text must be settled. There are hundreds of different kinds of paper, varying from mill to mill and according to weight—a sixty-pound quad-crown antique looks and feels very different from a hundred-pound paper of the same kind. And kinds are complicated by colours: dazzling white, dead white, and off white; blue-white, green-white, toned, and deep toned. All these can be obtained in standard papers from one mill or another, though they do not necessarily go by these names; and in addition the typographer can have any kind or colour of paper specially made for him if his orders are large enough to warrant it.

The various details of production do not necessarily follow the order I have outlined here. No continuous period is spent in the design and production of any one book, and cannot be because of the time over which it is spread. Other books are in hand simultaneously, in diverse stages, and one is attended to in the intervals between the others or as publication dates dictate. A score or more of books may easily be in progress together, and if the typographer is fortunate enough to possess a good memory his work will be made easier; but the details of book production are apt to be so numerous that it is not a simple matter to keep abreast of them without some competent system of filing and reference.

No easy or joyous part of his work lies in dealing with authors, who can prove the most incompetent and exasperating of persons. Some are business-like and know what they are doing, and some are very much the reverse. It is an extraordinary thing that many of those people whom one would expect to know their own minds—planning authorities, architects, and soldiers, for example—are exactly those who present manuscripts incomplete and illogical, and illustrations that do not fit
and cannot be made to, and are generally irritating, exasperating, and exhausting in their correspondence. On the other hand, farmers and doctors appear to fall into authorship with very little trouble and with their minds made up.

A curse is the author who swamps his unfortunate publisher in repeated second thoughts, sending in perhaps half a dozen distinct prefaces each intended to supersede its predecessor; or additional copy with uncertain indication where it should go in the text of the book. Every author is anxious that his book should be published soon and most of them are anxious to know the publication date; that is understandable. But the man is a pest who writes daily to his publisher to urge him to press on with the work, because, he may say, topical affairs make it absolutely essential that the book should come out at once; these things are always 'absolutely essential'; indeed, if the book doesn't come out to-morrow then it may as well never come out at all, because it will be too late and will then inevitably be a flop!

In this welter of humour, exasperation, detail, and mundane labour the typographer must see that printer, author, blockmaker, bookbinder, and anyone else concerned all work in concert, each delivering his quota in time to allow printed and bound copies to be ready for the sales manager when he wants them.

Receiving a worn and sometimes almost indecipherable manuscript, the typographer at length puts into the sales manager's hands a book sparkling with newness, attractive in appearance and to handle, and inviting to the eye. It is a first edition. It may be the book that will make its author famous; or the first effort of a new genius; or it may be forgotten shortly and never be heard of again. The typographer, even if he is a judge of literature, cannot tell, because he has neither the time nor the opportunity to read everything that passes through his hands, though he may gather some idea of the substance of a book by glancing through it. Certainly he should know something of it before he begins to work on it; and if there is something special about the book or it is on a subject that interests
him, he may spend some time browsing through the pages, finding as he does so that a pattern grows in his mind ready for his pencil and the printer. If it doesn’t, he may have to fall back on that debatable quality of guesswork that some men like to call instinct.
TEXT TYPES OF TO-DAY

No foundry type is comprised within the subject of this chapter, for text sizes of foundry types are no longer of importance to the book printer. The printer has emancipated himself from the founder, and has delivered himself into the hands of the manufacturers of composing machines, each of whom is the sole source of supply of matrices for his particular machine. Today the text of a book must be set by machine if the cost of the setting is to be a commercial proposition; hand-setting cannot compete on anything like equal terms. So if a printer wishes to use a particular type face, he must possess the composing machine and the appropriate accessories that provide it, or persuade another printer or a typesetter who has the equipment to set it for him.

It is no real hardship, however, if the printer finds himself confined within the covers of the type list of the manufacturers of his composing machine. All of them contain faces of good quality, and there is ample variety; for the matter of that, it is altogether too ample. The manufacturers of composing machines sometimes seem to be setting out to satisfy every possible sort of taste. Every one of their lists contains monstrosities that should never have been brought into the open in this self-styled enlightened twentieth century. But they do also contain fine types, both new and old.

The accent lies chiefly upon the word ‘old’. The book faces of to-day are nearly all derived from the past; though they may suffer some adaptation to suit the exigencies of modern machines, it is no sea-change, and the faces remain the same as
or closely related to those our ancestors used in a more laborious time. Is it that we have lost the faculty of type design, that we should have to depend so much upon the dead? I do not think so. Though in the past many types were cut and used, it does not require many fingers to count the number of great types in the history of printing; few types have proved of sufficient value to survive the wrack of time, and those that have survived did so in a state of suspended animation, waiting, like the Sleeping Beauty, for the percipient Prince to awaken them. We cannot expect, then, a plethora of superlative new type faces when former centuries have produced only a handful between them. We may, if we wish, advance our own period as the peer of other ages, believing that this face or that is as good as its predecessors, that Shaw is the equal of Shakespeare or John or Moore of Holbein or Hogarth. While we live we are entitled to our opinion, but even as we breathe time is at work upon our candidate, and we may find before we die that it or he has preceded us to the grave.

It has been argued that because we depend on the past for our type faces our typography must be anachronistic: modern books should be set in types of contemporary design, and if they do not exist, and few do, why, then, encourage the budding genius to produce them. No doubt typography would benefit if we were less satisfied with what is available and if the letter designer had more scope and outlet for his work than he has at present. Nevertheless, the suggestion that all fine types that are also old types should be relegated to museums seems to me just as sensible as to contend that we should make no use of Shakespeare’s plays or Wagner’s music because their authors are dead and done with. We are never like to be so rich that we can bury our inheritance with those who bequeathed it. It is not the inheritance that matters, but the use we make of it, and even here pastiche and imitation have their occasions of value; after all is said, modern man must make use of the past in his own way for the benefit of the future, and by this let him be judged.

There is a vast variety of book faces available to the printer to-day, not only the spoil of dead centuries, but the undis-
criminated issue of this century also. Too many printers show
an extraordinary aptitude, if left to themselves, for choosing the
worst of them. The majority are of little value and might
without any sense of loss be annihilated in the melting-pot. Of
those that remain some are inconvenient for the publisher be-
cause very few printers possess the apparatus for setting them.
Only a score of good faces are readily available and a printer
who has a complete range of half a dozen of them is distinctly
well equipped. The range of faces of which I am going to show
specimens is therefore not to be brought up against a printer as
an indication of what he ought to possess; it is a synthesis com-
piled from the type lists of composing machine manufacturers.

To the lay reader it may seem that I place too much emphasis
on the varieties of type design. The difference between one type
face and another is not apparent to someone who has not
stopped to consider it before, and he may indeed be surprised to
learn that any difference exists—he has been 'type blind'; if he
does see that there is a difference, it is unlikely that he will be
able to say exactly where the difference lies, and may consider
it of no real importance. And yet the difference is as plain as day
to the printer and typographer, who can tell at a glance, with-
out pausing to consider the peculiarities of individual letters,
but merely by the effect in the mass, what a particular type is.
For the ordinary man type is apt to be so many letters that may
be combined to form words, and the letters of any type are very
much like those of another. Why, then, all this fuss? In this
belief the ordinary man is the equivalent of Lewis Carrol's
Humpty-Dumpty: 'That's just what I complain of,' said
Humpty-Dumpty: 'Your face is the same as everybody has—the
two eyes, so—' (marking their places in the air with his
thumb) 'nose in the middle, mouth under. It's always the same.
Now if you had two eyes on the same side of your nose, for
instance—or the mouth at the top—that would be some help.'

Type faces are, like human faces, the same in essentials, but
vastly different in detail; and the difference in detail is an ex-
pression of that indefinable quality called character. They may
be ugly or beautiful, commonplace or memorable; and may
TEXT TYPES OF TO-DAY

possess attributes that make them typical of particular countries (though types nearly always become cosmopolitan, and cosmopolitanism blurs nationality). Many are ordinary types, whose characters are characterless; others have characters that mark them out as individuals; some are 'characters', with all the eccentricity the quotation marks suggest. To appreciate the qualities of type it is necessary to be sensitive to atmosphere; and atmosphere is something of which, if you are insensitive or untrained, you become aware only by accident.

It has been suggested more than once that books of a particular period, or written about a period, should be set in contemporary types. It is a charming idea, and sometimes it can be put into practice with success, but it imposes too many limitations on the typographer. Logically, according to this argument, no type other than one designed in this century should be used for books written to-day, and if we were to accept that theory we should be poverty-stricken indeed. Nor, if a period effect is wanted, is the best way always to use a type of the period: much more recent faces might conceivably be of more assistance.

None the less, I have thought it desirable to arrange the types of the specimen list that follows in a kind of chronological order, because to do so helps to show the development of type design and reinforces chapter 12. I say a 'kind of chronological order', because in fact it is a chronology that has been subjected to artificial respiration. Some of the types I show represent older types that should occupy that position in the list, but the representative is not in every case an exact copy of its master; the master is not there because it no longer exists as type. Thus I have ignored dates of redesigning or revival, which would make Poliphilus and Centaur subsequent to Bodoni and Walbaum, which is chronologically absurd. Centaur is first in the list because it is claimed to be a recutting of Jenson's fifteenth-century roman.

The list shows the progression from Jenson to Bodoni very well, and shows what did happen in typographical history; but only up to the end of the eighteenth century. The wilderness of
the nineteenth century is represented by a single modern face. Afterwards there was a revival of old face, and this can only be represented by turning at the end of the list and coming back to the beginning again, remembering that each type passed on the return journey is gathered up and remains currently in use.

A glance through the lists of the manufacturers of the three principle composing machines shows a remarkable unanimity in the nomenclature of revived type faces. The Monotype, Linotype, and Intertype companies each provide Baskerville, Caslon, Garamond, Bodoni, Plantin, etc. This nomenclature is misleading; the same name does not always indicate exactly the same face. Linotype Baskerville is very different from Monotype Baskerville, and Intertype Baskerville is different again; but all three are descendants of Baskerville's type, and their common parentage is plainly seen. With varying success, each of the children tries to be exactly like its father, and the only way to distinguish them is to give them Christian names, and to call them Monotype Baskerville, Linotype Baskerville, or Intertype Baskerville, and so forth. It is cumbersome, and the more one has to do with them, the farther one is from 'Tom, Dick, or Harry' or other terms of familiarity.
DESIGNED by Bruce Rogers, the American typographer, Centaur is a redrawing of Jenson's famous roman of 1470, but has, unfortunately, turned out weaker than the original, having lost much of the quality and sturdy common sense of Jenson. It is lighter and more feminine, and inclined to be self-conscious where Jenson was self-sufficient. Nevertheless, Centaur is an excellent type, well fitted for certain kinds of bookwork. It should be set with close and even spacing and preferably in sizes larger than 12 point, if it is to show at its best. It does show at its best in a large lectern Bible designed by Rogers for the Oxford University Press.

Italic types did not exist in 1470 and some other source had to be found for a companion letter. Frederic Warde resorted for it to a script developed by the sixteenth-century calligrapher Ludovico degli Arrighi, and he has made from it an italic type that consorts excellently with Centaur.
The original of this type appeared a few years before Poliphilus, but it seems to our eyes to be in a style nearer to our own time. It is claimed that Poliphilus was based on Bembo and that both were designed by Francesco Griffi for Aldus. This may be so, but it seems to me that Poliphilus is nearer in spirit to Jenson and that Bembo is akin to the fine French types that came later. It was first used in a book called De Aetna written by the poet and scholar, Pietro Bembo. The first type to which the term 'old face' may properly be applied, it shows, compared with Centaur and Poliphilus, greater variation of stroke and a different kind of serif formation. In general the effect is rounder and sharper.

The italic is another version of the chancery types, but rather more orderly and finished than Arrighi and Blado. An alternative italic, Narrow Bembo, is very beautiful.
This is a copy, that is, a close facsimile, of a type cut for Aldus Manutius by Francesco Griffi of Bologna, which was first used in an edition of the *Hypnerotomachia Poliphili* published in 1499. The fine quality of the presswork of the *Hypnerotomachia*, which allowed the facsimile to be made, is particularly fortunate, because Poliphilus depends for much of its charm on its eccentricities of design. Notice, for example, the M.

An italic was provided for Poliphilus by recutting that used by Antonio Blado, printer to the Holy See from 1549 to 1567. It is probable that this letter was designed by Arrighi, to whom Frederic Warde went for an italic for Centaur.

The originals of Arrighi and Blado were not intended as assistants to roman, but as book faces in their own right, and they possess individuality and strength instead of the weakness and lack of character that later convention imposed on italic letters.
GRANJON

Linotype

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

abcdefghijklmnopqrstuvwxyzÆŒ

12345) abcdefghijklmnopqrstuvwxyzÆŒ (67890
cd ef gh ik lmnopqrstuvwxyzÆŒ

 fiss fis fl & ? ! , ;

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

12345) abcdefghijklmnopqrstuvwxyzÆŒ (67890
cd ef gh ik lmnopqrstuvwxyzÆŒ

 fiss fis fl & ? ! , ;

Granjon was produced in 1924 by George W. Jones for the Linotype. This face has been described as 'a true Garamond design', and it is probably the nearest we have to the elusive letter of that acknowledged master. It is a magnificent letter, clear, clean, and dignified, with an enviable timeless quality. Granjon has proved popular. At its best in sizes over 12-point, like most fine types, Granjon should be printed on a rougher paper than this, as should all old faces.

The italic is a mere auxiliary, like all later italics, with little of the richness of the roman. It does for the occasional word or line, but it will not serve well for whole paragraphs.
GARAMOND

Monotype

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ

12345) abcdefghijklmnopqrstuvwxyz (67890 &.:.;:;:

ABCDEFGHIJKLMNOPQRSTUVWXYZ

12345] abcdefghijklmnopqrstuvwxyz [67890 &.:.;:;:

For long this type was thought to have been designed by Claude Garamond at Paris in the sixteenth century; but in fact it was cut by Jean Jannon a century later. None the less, I am placing it here, because the mistake is not as egregious as it might appear; Jannon's letter is certainly derived from Garamond's, though it is inferior to it. Jannon Garamond is a type of immense popularity, and nearly every printer has one version or another of it.

The italic is unusual in its independent variation of angle and the free sweep of the kerned letters. The capitals show two or three distinct slopes and will not combine satisfactorily; but the conjunction of the erratic capitals with the erratic lower-case is charming. However, a regularised italic has also been cut.
This is a modern design, based on a type originally cut, so it is said, either by Garamond or Granjon for the great Dutch printer. It certainly possesses a typically Dutch stolidness and plainness and business-like ability, none of which were characteristic either of Garamond or Granjon. In a book it is apt to be a little heavy and it needs generous leading to make it pleasant; that is partly because the lower-case letters are large in relation to the capitals. These very qualities make it an excellent type for periodicals, printed on poor paper, and the Listener is set in Plantin. Had they possessed a little more discernment it might have attracted the attention of the newspapers, in which it would be an immense improvement on the present impoverished moderns and ionics.

Plantin is a bread and butter type for the printer; that is to say, he considers it a type with no fag-lals about it, that can be used for any ordinary purpose. There is, on the Monotype, a lighter version with longer descenders which is an excellent book face, but is rare and is possessed by few printers.
This type was one of the first-fruits of the foundry set up by William Caslon at the beginning of the eighteenth century. It is closely related to the Dutch types contemporary with it, but exhibits differences that English printers found much to their liking, and it at once achieved popularity in this country: so much so that the type has been claimed to be typically English, which it certainly is not. It became the old face; and even to-day 'old face' is as likely to mean Caslon as any other type on which that label may be fastened. Since its revival in the middle of the nineteenth century Caslon has increased in popularity everywhere, and few printers are without it.

Caslon italic is a meet helpmate for the roman, but it is nothing more. By the eighteenth century the degradation of italic was complete, and no subsequent italic possesses value as a text type.
Caslon appears to have fallen into typefounding almost by accident, but Baskerville set out consciously to make his mark upon the craft of printing, to reshape it nearer to his own conception of what it should be. His type is sharper, more graceful, more disciplined than its predecessors, and was intended by Baskerville to be used without the aid of ornament or decoration. In his hands it produced very fine results, and is still capable of doing so when printed, as it should be, on paper with a smooth surface. It is a popular type, to be found in most printing houses, and is more often used without discrimination than otherwise, for any and every kind of purpose on any and every kind of paper.

The vagrancies and the eccentricities of earlier italics are avoided in Baskerville italic, which follows the roman in the matter of discipline. It is, perhaps, a little cold, but it has dignity.
Baskerville foreshadowed Bodoni, but between the two there are a number of types that are clearly transitional in design, though in fact some of them appeared after the transition was complete. Bell is a transitional face that appeared at its proper time. It was brought out in 1788 by John Bell, and was cut for him by Richard Austin. In Bell’s type the revolution initiated by Baskerville may be seen advancing: the fine lines are finer still and the contrast is enhanced; the serifs are more lightly bracketed. Like a great many compromises, it has achieved success, and its appearance is one of brilliance and power, eminently readable.

Its revival is due to Bruce Rogers. Appreciating the quality of an old found of type, he rescued it from the melting pot and printed some books in it without knowing its origin. Its history was discovered by Stanley Morison shortly afterwards, and he found the original punches still in the possession of Stephenson, Blake, the English firm of letter founders, by arrangement with whom the type was cut for machine composition on the Monotype.
This is a German transitional type that appeared in 1810, a little late in the day. It was revived first in England by the Curwen Press, and then by the Monotype Corporation. It is an exceptionally wide letter, and this contributes to its excellent legibility. So far it has been preserved from too common use, but it is capable of being used for almost any kind of book without incongruity, and that is a property that may increase its popularity and may one day make us tired of it. But for the present Walbaum has all the adaptability of the bread and butter type, with the added charm of novelty.

Although placed in the transitional class, it is rather out of the main stream of design, as of time. The variation of stroke is not carried so far, and the width of the letter is counter to every influence proceeding from Baskerville.
GIAMBATTISTA BODONI watched with interest the work of his English contemporary, Baskerville, who appeared to be proceeding the way Bodoni himself wished to go. But Bodoni went further, to extremes, and all at a bound, for though transitional types exist, they were not necessarily part of Bodoni's evolution. Bodoni's type reflects the brilliance, the contrast between white light and black shadow, of the Italian day. It is wonderful in appearance, but one is apt to suspect, a little too wonderful. The Italian has brought us definitely into the age of reason, and not only that, he has landed us on the edge of the machine age. For there is something rather machine-made about Bodoni; it is inhuman and cold and perfect. To the eye it is ultimately unsympathetic and exhausting.
IN THE early nineteenth century Scotland occupied an important position in the history of typography in this country, and about this time there was in use there a kind of modern face peculiar to Scotland. Bodoni is an excellent letter, but capable of great degeneration, and in Scotch Roman we see the degeneration commencing. The contrast and the sharp serifs may appear fine at first, but here they are a mannerism that gets in the way of the reader. The page has a tendency to resolve itself into a series of dazzling, unrelated strokes in various directions, made less, rather than more, lucid by the knife-edged fine lines. Scotch Roman pointed forward into the slough of the nineteenth century.
ELECTRA

Linotype

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

12345) abcdefghijklmnopqrstuvwxyzæœ (67890

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

12345) abcdefghijklmnopqrstuvwxyzæœ (67890

&fffffff?!,:;£

This type was designed for the Linotype by W. A. Dwiggins in 1935. A first glance might suggest that it is another traditional face; but there are many untraditional things about it. With a fine, even colour, it performs excellently in books, and its unusual x-height, almost as great as that of Times New Roman, is a distinct advantage in certain circumstances. So far, this face is not cut in sizes larger than 11-point, which is a pity; and unfortunate too is the fact that it is practically unknown in this country.

The italic is not really an italic at all, but a sloped roman. Practically indistinguishable in colour from the roman face, it is itself so near to roman in design that it will stand setting as a text type, particularly for poetry.
Perpetua is evidence of the sincerity of our revival of old face types: for it is an old face of our own time, designed by Eric Gill and cut by the Monotype Corporation in 1932. It has no typographical predecessor, as have all the other types we have so far examined. The capitals are derived from the lettering of the Trajan column and other Roman monuments, and the lower-case has been designed to work in sympathy with the capitals; and very brilliantly it does so. The type, especially in the capitals, possesses the dignity and clarity of the stone-cut letter.

Perpetua italic is unusual among later italics in that it has a strength and charm of its own. I do not know whether it could sustain a whole book, for I have never seen it tried; but I do not believe that it is quite good enough for that.
THE TIMES ROMAN

Linotype

ABCDEFGHIJKLMNOPQRSTUVWXYZÆŒ

12345) abcdefghijklmnopqrstuvwxyzæœ (67890

Times Roman
11-pt. on 13-pt short
descenders

The times, starting with old face, turned in 1799 to a
modern face, but a good modern face. In 1932 The Times
decided to change again, and this type was
designed by Mr. Stanley Morison especially for the newspap-
er and cut for the Monotype, the Linotype, and later,
the Intertype. This page is printed from Linotype. It is a
departure from modern face, and it is, perhaps, difficult to
imagine that anything could have been produced more suit-
able for its purpose. It is an ideal printing type, from a
technical point of view, bold enough to withstand a good deal
of wear, yet not too bold; with no finicky serifs or unnecessary
kerns to break off under the weight of the press. The unusually
large size of the lower-case in relation to the capitals is notice-
able. Special long descenders can be had for use where the
type can be leaded, and are a great improvement.

Probably no type has achieved such extraordinary success
as Times. Within a few years it made its way into printing
houses all over the country; to-day no book house could be
considered adequately equipped without it. It would not be
absurd to claim that, in England at least, more books are
printed in this type than in any other single face.
THE DESIGN OF BOOKS

On page 253 is a diagrammatic arrangement of the types shown in these specimen pages the intention of which is to demonstrate three modes of difference: x-height, set, and weight. It may be remarked, on looking through the following tables, that the types appear to be of different sizes, Times, for example, appearing several sizes larger than the Perpetua shown. Actually, all of the specimens, unlike those in the preceding pages, are set in the same point size. The eye measures type size, not by the point size, but by the x-height, and x-height, demonstrably, varies greatly from type to type. Extreme x-height is a disadvantage if the type is set solid, because then the lines appear too close together and legibility is impaired; leading makes a considerable improvement. On the other hand, small x-height, such as that of Perpetua, is also a disadvantage, because it prevents the use of point sizes that are reasonable in types of medium x-height.

Types also vary in width, or set, as I have already explained, the set controlling the number of letters that may be got into a given line. It is shown comparatively in the table.

The weight of a type face is its lightness or blackness when set in the mass. There is no means of measuring it other than by comparison—which is not a means of measurement at all without a standard of reference. Some standard is desirable, and might be based, I believe, on the response of a standardized selenium cell to a page of predetermined proportion and type size.

Types are made in different point sizes, as I have shown, and there are few text types that are not cast in sizes large enough to be used as display faces. Most Monotype faces go up to 72 point. The large initial in most of the specimens in the list is an example of a larger size of the same face. Thus a book may be, and often is, set in one kind of type throughout, different sizes being used as required for chapter headings, part titles, and the title-pages, and for the jacket.
### TABLE OF VARIATIONS OF WEIGHT

<table>
<thead>
<tr>
<th>Abcd Efgh Ijklm</th>
<th>GRANJON</th>
<th>Nopq Rstuv Wxyz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>WALBAUM</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>CENTAUR</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>PERPETUA</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>ELECTRA</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>BEMBO</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>CASLON</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>GARAMOND</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>BELL</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>BASKERVILLE</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>POLIPHILUS</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>PLANTIN</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>SCOTCH</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>TIMES</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm</td>
<td>BODONI</td>
<td>Nopq Rstuv Wxyz</td>
</tr>
</tbody>
</table>

### TABLE OF VARIATIONS OF SET

<table>
<thead>
<tr>
<th>Abcd Efgh Ijklm Nopq</th>
<th>PERPETUA</th>
<th>Abcd Efgh Ijkl Mnopq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>GRANJON</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>CENTAUR</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>POLIPHILUS</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>BEMBO</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>CASLON</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>ELECTRA</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>WALBAUM</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>PLANTIN</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>BODONI</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>BELL</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>GARAMOND</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>TIMES</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>BASKERVILLE</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
<tr>
<td>Abcd Efgh Ijklm Nopq</td>
<td>SCOTCH</td>
<td>Abcd Efgh Ijkl Mnopq</td>
</tr>
</tbody>
</table>

### TABLE OF VARIATIONS OF X-HEIGHT

<table>
<thead>
<tr>
<th>Granjon</th>
<th>Centaur</th>
<th>Perpetua</th>
<th>Poliphilus</th>
<th>Bembo</th>
<th>Caslon</th>
<th>Walbaum</th>
</tr>
</thead>
<tbody>
<tr>
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<td>abcdmx</td>
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<td>abcdmx</td>
<td>abcdmx</td>
</tr>
<tr>
<td>Bodoni</td>
<td>Garamond</td>
<td>Baskerville</td>
<td>Bell</td>
<td>Electra</td>
<td>Scotch</td>
<td>Plantin</td>
</tr>
<tr>
<td>abcdmx</td>
<td>abcdmx</td>
<td>abcdmx</td>
<td>abcdmx</td>
<td>abcdmx</td>
<td>abcdmx</td>
<td>abcdmx</td>
</tr>
</tbody>
</table>
At an early date in the history of books certain rules concerning the treatment of the page were formulated by the scribes and calligraphers. They did not overlook minutiae, and they gave to those details that in sum are important in effect the care and thought they lavished on the whole. Some of their practices have descended to us as fixed conventions and affect the printed book of to-day exactly as they did the manuscript of the dark ages. To the scribe, for example, we owe our ideas concerning the apportionment of margins. Other of our conventions have arisen from the printing house, to become equally strongly part of the design of books. Thus we are indebted to the printer for page headlines and the regular use of page numbers.

Manuscripts and early printed books show that their designers were concerned with the problems of 'colour' and atmosphere, and their solutions of these problems remain valid. Though indifferent printers have been ignorant of any problem or its solution, the good printer and the typographer are aware, and cultivate their awareness, of the value of their inheritance.

The kind, or design, of letter is important to the appearance of the page, for it contributes its own individual colour and atmosphere. Atmosphere is something difficult of explanation, the cumulative effect of type design and typography; it must accord with the atmosphere of the book of which it is part. To give a limited and extreme example, it would be out of keeping to set the *Canterbury Tales* in Bodoni (though they have more than once been set in a degraded modern); Chaucer may be set without offence in Caslon, and there is no reason for any attempt
to confine his work to faces that may be supposed to have a contemporary flavour, which could only be gothics. But Chaucer should not be set in types that are contrary in inspiration and alien in sympathy. Choice of face, the treatment it receives at the hands both of the typographer and the printer, and the kind of paper it is printed on, all contribute to the effect of atmosphere. It even has national characteristics, for it is possible to take a page set in a type available on both sides of the Atlantic and to say that that page must have been set in America. Even the period is indicated more or less clearly to an experienced eye. Atmosphere is therefore something definite and recognizable, if difficult of description.

Colour is more easily definable. It has nothing to do with the colours of the palette, but means simply the shade of grey represented by the mass of type on the printed page. The colour of type is of importance both aesthetically and practically; but it is not absolute. It is not possible to state that such and such a type of such and such a size will produce colour of such and such a sort. It will do so only under certain conditions of leading and spacing and machining.

I have already dwelt upon the modern practice of light impression. For certain kinds of faces, such as Bodoni and Walbaum, a light impression on smooth paper is correct—they depend for their brilliance and contrast on a true rendering of the hair-lines. Too heavy an impression thickens the hair-lines, without proportionately increasing the stresses, and a rough-surfaced paper has the same effect, so that the design of the face is seriously affected and the colour of the page is altered. On the other hand, Venetians and old faces were primarily intended for printing with a more vigorous impression on rougher paper, and if they are printed lightly on smooth paper they appear thin and poverty-stricken and the colour is false.

Spacing between words should be close and approximately equal throughout the book; if it is allowed to vary, an unpleasant unevenness of colour is the result. This effect is enhanced by some undiscriminating printers who believe that a full stop does not live up to its name and choose to emphasize the end of each
sentence by inserting a larger space, usually totalling an em, after the stop. It is this sort of printer who also likes to emphasize every punctuation mark other than the comma by inserting a thin space before it and a double space after it. Occasionally one comes across a printer who to these sins adds a disinclination to break words, with results that shout for themselves to anyone but those of the same persuasion. The total effect is unlovely and undesirable, but that does not perturb him or disturb his conviction that it is what his customer wants.

It is not difficult to define good spacing, and it is not difficult to achieve it. In my opinion there should be no extra space anywhere; as far as possible the spaces between words should be of approximately the same width throughout, and that is the width of the letter i.

Two other kinds of space occur in printed matter, the paragraph indentation and the space in the short line at the end of the paragraph. Paragraph indentation is, or should be, invariable throughout the book, and usually it will be found to equal one em of the type size in use. An em of a large size is, however, a good deal, and in a book in which the text type is large it is often better to indent rather less. It is rarely advisable to indent more than an em, but there are times when a larger indentation is more successful—in conjunction with very wide leading, for example. The space at the end of the paragraph is largely uncontrollable, and little attempt need be made to control it; it is part of our convention of writing and gives relief to the eye, which tends to find solid pages heavy and exhausting. This last line of the paragraph should be spaced in the same degree as the other lines; and care should be taken that it is not too short—the word 'it' on a line all by itself looks a little silly.

Some manuscripts and some of the early printed books avoided paragraph divisions and ran all paragraphs on, indicating the commencement of each by means of a paragraph mark, which was sometimes printed in colour. Gothic types will stand up to this manner very well, and in an age in which people probably read more slowly and certainly read less it perhaps did not matter that this fashion imposed some difficulty. The colour

115. Opening page (Incipit) of Euclid's *Elementa*, Ratdolt, Venice, 1482
Praecipue illud liber elementorum Euclidis perspicacissimum in arte Geometrica incipit quae foliis folium:

Tuncus est cuius est igitur: L. Linea est logismum sine latitudine cuique extremitate sit suo puncto. L. Recta est ab uno puncto ad alium hinc et hinc et extremitates suas virtutum esse recta. L. Suphisica est logismum sine latitudine tria Ad quem quidem sit linea.

L. Suphisica plana est ab uno linea ad alia recta et extremitates suas receptas. L. Angulus planus est circulus lineae al. terminus praestans quaeque extemplo est lup superficiei applicatoque non sit directa. L. Quadrato angulum sitque due lineae rectae recta lineae rectae. L. Angularis est quem angulum minor est quod sit directa.

Figura plana est circulus plane. L. Circulus est figura plana quae sit recta lineae rectae. L. Quadrato angulum sitque due lineae rectae recta lineae rectae. L. Angularis est quem angulum minor est quod sit directa.

Figura plana est circulus plane. L. Circulus est figura plana quae sit recta lineae rectae. L. Quadrato angulum sitque due lineae rectae recta lineae rectae. L. Angularis est quem angulum minor est quod sit directa.

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Figura plana est circulus plane. L. Circulus est figura plana quae sit recta lineae rectae. L. Quadrato angulum sitque due lineae rectae recta lineae rectae. L. Angularis est quem angulum minor est quod sit directa.
of the page was not affected, as gothic is a heavy face and the paragraph mark merges with it; or the page was diversified by marks in red or some other hue. William Morris revived the fashion and was followed in it by some others of the private presses, but they did not achieve the same success as the older printers. They were working, not with gothic, but with roman or romanized faces, the paragraph marks for which are invariably too heavy.

It is a custom, amounting almost to a rule, with many printers that quotations in a book should not be set in the text size, but in a smaller size of type; and the practice is so common that often an author will ask specifically that it should be followed. It seems to me a custom without reason. It certainly destroys the unity of the page by imposing upon it a colour of a different kind from that of the text; but that is by no means the only objection to it, nor the most serious. Presumably the writer does not mean to belittle the author from whom he quotes, but that is what he is doing; usually he quotes from him in order to enhance his own point, and if that is the case it is surely better that the authority should speak in a normal voice rather than in a repressed whisper. We do not want the reader to miss the quotation, but if it is subdued it surely suggests that he need not bother with it.

There is another way of setting quotations that is also unsatisfactory. It is to set them in the text type, but to indent each line one em or more. The result is a ragged page that cannot but look uncomfortable.

A variant of indentation is the use of quotation marks at the beginning of each line of the quotation. This method gives the lines the appearance of indentation and at the same time so thoroughly emphasizes the alien quality of the matter that the reader can have no excuse for confusing it with the author's own work. The effect on the page is disastrous, and the longer the quotation is, the worse the effect. The printers of Dr. Johnson's day did not boggle at several consecutive pages all eroded down the left side by orderly but subversive phalanxes of meases. Such folly invited the denunciation of the forthright Samuel,

116. Page from Hypnerotomachia Poliphili, Aldus, Venice, 1499
POLIPHILO INCOMINCI IL SECONDO LIBRO DI
LA SVA HYPNEROTOMACHIA. NEL QVALE PO-
LIA ET LVI DESERTABONDI, IN QVALE MODO ET
VARIO CASO NARRANO INTERVALIARIME-
TE IL SVO INAMORAMENTO.

NARRA QVIVI LA DIVA POLIA LA NOBILE ET
ANTIQUA ORIGINE SVA, ET COMO PER LI PREDE
CESSORI SVITRIVISIOVE EDIFICATOE, ET DI QVEL
LA GENTE LEILIA ORIVNDAL, ET PER QVALE MO-
DO DISAVEDVTA ET INSCHIA DISCONCIAMENTE
SE INAMOROE DI LEI IL SVO DILECTO POLIPHILO.

EMIE DEBILE VOCE TALE OGRA
chio & diue Nymphe absone peruenerano &
inconcine alla nostra benigna audiétia, quale
laterrifica raucitate del urinante Esacho al sua-
ue canto dela piangeuole Philomela. Nondi
meno uolendo io cum tutti gli mei exili cona-
tti del intellecito, &c cum la mia paucula sufficie
ntia di satissare alle nostrer piaceuole petitione,
non risaro al potere. Lequelle semota qualique hesitatione epe piu che
si congreurebbe altronde, dignamente meritano piu uberrimo flusio di
eloquentia, cum troppo piu rotunda elegantia & cum piu exornata poli-
tura di pronuítio, che in me per alcuno pacto non si troua, di coeguere
il suo gratioso affetto. Ma a uui Celibe Nymphe & adme alquato, quan-
tiche & confusa & incompamite frinultiete haro in qualche portiun-
cula gratificato afluai. Quando voluntarofa & diuota a gli desu uostri &
postulato me prestaro piu presto cum larnimo nò mediocre prompto hu-
mile parendo, che cum enucleata tersa, & uenusta eloquentia, placédo. La
prifica dunque & ueterrima geneologia, & prosapia, & il fatale mio amore
garrullo ordire. Onde gia essendo nel uostro uenendo convenuale
conspecto, & uedere sterile & icuina diloquio & ad tanto presta & di
uno ceto di uui O Nymphe sedule famularie dil accesso cupidine. Et iran-
to benigno & delectuole & sacro sito, di sincere aure & florigeri spirami-
ni afflato. Io accossiamente compulsa di assumere uno uenabilae aofo,
& tranquillo timores de dire. Dunque auante il tutto uenia date, o bellissi-
me & beatissime Nymphe a questo mio blacterare & agli femelli terri-
geni, & pusilluli Conati, fiauene che in alchuna parte io incautamente
but unfortunately that very bookish man saw nothing in typography, and seems to have been able to distinguish merely the difference between big print and little print.

I prefer to set quotations in the text type, exactly like an ordinary paragraph of the text, but quoted at the beginning and end, as they should be, to show that they are quotations. Set in this way they do not stand out from the page or disturb its even tone, and there is no doubt for the reader that what he is reading is a quotation. If this is not considered sufficient distinction a half-line of space may be left before and after the quotation.

Quotation marks (or ‘inverted commas’, as they are mistakenly called) can be a nuisance, principally because of our inexplicable habit of using double quotation marks on every occasion. The ordinary use is to commence a quotation with double quotes and to single-quote any quotation within the main quotation. That does not seem to be logical, and to-day many printers, the Oxford University Press among them, reverse the practice. The O.U.P. style is certainly better for the appearance of the page, for quotation marks occupy only a fraction of the body of the type, and double quotes leave an unpleasant gap below them that should be avoided wherever possible.

Capitals are destructive of even colour, and where an author calls for a word in capitals it is usually better to set it in small capitals, or in capitals a couple of points smaller than the text type. This is particularly so when founts are in use in which the capitals are the full height of the ascenders. Some faces (Bembo is an example) have capitals that are shorter than the lowercase ascenders and the improvement in appearance this brings about is noticeable.

The amount of leading to be used is fixed not only in relation to appearance but also in relation to the extent of the book. There are several reasons why it should be desirable to increase or decrease the number of pages a book occupies—the difficulty of binding a very thin book, for example, or the convenience of making the extent a multiple of sixteen pages. Whatever the reason for leading may be, if it is not done for its own sake it has to be remembered that it alters the colour and
aut filius hominis, quoniam visitas eum?
Minuisti eum paulo minus ab angelis, gloria, & honore coronasti eum,
& constituiisti eum super opera manuum tuarum.
Omnia subiecisti sub pedibus eius, oves, & boues universas, insuper & pecora campi.
Volucres cell, & pisces maris, qui perambulant semitas maris.
Dominus noster, qui admirabilis est, nomen tuum in universa terra.
Gloria patri, & filio, & spiritui sancto
Sicut erat in principio & nunc, & semper. An. Benedicta tu in mulieribus,
Caelestium gloriam dei, & opera manuum eius annuntiat firmamentum.
THE DESIGN OF BOOKS

the atmosphere of the page; apart from considerations of convenience, and no less important, leading is of value to the typographer because it puts into his hands a means of controlling the effect of the page. Further, types like Times and Plantin, which are so large on the body that they are unpleasant when set solid, become useful and legible when they are suitably leaded. Leading should be equal throughout the book. Extra leads between paragraphs are unnecessary and undesirable.

Authors often mark a pause in their argument by means of a line of space. The typographical equivalent need not be the same. It may be any number of lines of space that best accords with the design of the book, though usually it is best to keep the white to a minimum of one line. On the other hand it need not be a blank at all, but may be a line of three or four stars or some other non-committal ornament chosen to accord with the spirit of the type face.

The colour of the page is, of course, affected by the quality and the quantity of the ink used, and to some extent by the shade of the paper it is printed on. No amount of poor ink will give a satisfactory result. The ink should be capable of giving a sharp and clean impression, and should be truly black and matt. Glossy inks are best avoided in the printing of books.

The last factor we need consider bearing on the colour of the page may appear at first sight not to have any importance at all. It is the area of the margins. The human eye is inveterate in synthesis and will practise it upon every occasion, presenting to the brain, sometimes a useful generalization, sometimes a mere illusion. It is an illusion that a page of type in the middle of a large white space is lighter in colour than the same page in a smaller space, but it is an illusion of which we cannot dis-embarrass ourselves. The page must be designed in relation to the margins it is known that it will have, and in the end the result is empiric.

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118. Page from Basinius, Opera, Albertiniana, 1793
Prodeunt tandem in lucem, Lector benevole, praestantiora Basinii Parmensis Opera, publico Programmate dudum promissa, diu expectata, ac conviciis prope dixerim eflagitata. E quidem nostra fuisset maturius, ut animo conceperamus, ea in lucem emittere: plurima vero interciderunt, quae non evitabileminterpone- rent moram; quaeque ut te rescire supervacaneum, sic de operis totius oeconomia tibi rationem reddere ducimus pernecessarium: pauci- rioribus tamen, quam fieri poterit, verbis, ne operis ipsius legendi voluptatem diutius differe- ramus.
THE DESIGN OF BOOKS

SUB-HEADS

In many books there are chapters divided into sections by means of sub heads, and in some this division is elaborated into a scheme calling for many sub heads of different values or grades of importance—an arrangement more frequently found in textbooks or technical books than elsewhere. Sub heads may be set in a number of different ways and in different types, but they should be assimilated to the general style of the book. Where there are many kinds of sub heads it is useful on occasion to be able to use a bold-face version of the text type; unfortunately many perfectly good text types possess only mediocre or downright bad bold faces, and this is particularly true of revived faces for which companion bolds have had to be designed. Garamond is an example, and so is Baskerville. Times New Roman, on the other hand, has a bold face that goes excellently with it. There is, however, no reason why the typographer should restrict himself to types of one family when he may better achieve his end by using a different face.

Grades of importance of sub heads are expressed by position as well as by use of type, and position may be assisted by discriminatory leading. It is an accepted convention that a centred sub head is superior to one set to the side, for example.

There are five main varieties of sub heads.

CROSS HEADS

are centred across the measure, and may have one or more lines of space above them and perhaps half a line below. They form a definite division in the page, partitioning the chapter into its major parts. There may in one book be cross heads of more than one value, one subsidiary to the other. Variations of emphasis can be obtained by variations of type and of leading.

SIDE HEADS

are subsidiary to cross heads and almost as flexible in variety of emphasis. They may have leads above and below, as a cross head, or only above.

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119. Page from Davison's Poetical Rhapsody, Lee Priory Press, 1814
ADVERTISEMENT

to

THE FIRST PORTION OF THIS EDITION.

The Collection of Elizabethan Poetry, which is now again introduced to the curious through the Lee Priory Press, has long been a desideratum among the lovers of our old English literature: for, though it passed through four editions in the reign of King James I. (1602, 1608, 1611, 1621,) it has for at least a century been so rare, that very few have had an opportunity of being gratified with the perusal of it.

The intrinsic merit of the pieces, which it contains, is intended to form the subject of an Introduction, which is kept back till the printers have had time to complete the impression of the original work.

Francis Davison, the collector, and in part author, of these poems, was the son of
CHAPTER XXIV. UP THE THAMES: THE SECOND DAY.

They were not slow to take my hint; & indeed, as to the mere time of day, it was best for us to be off, as it was past seven o’clock, & the day promised to be very hot. So we got up and went down to our boat; Ellen thoughtful and abstracted; the old man very kind and courteous, as if to make up for his crabbedness of opinion. Clara was cheerful & natural, but a little subdued, I thought; and she at least was not sorry to be gone, and often looked shyly and timidly at Ellen and her strange wild beauty. So we got into the boat, Dick saying as he took his place, “Well, it is a fine day!” and the old man answering “What! you like that, do you?” once more; and presently Dick was sending the bows swiftly through the slow weed-checked stream. I turned round as we got into mid-stream, and waving my hand to our hosts, saw Ellen leaning on the old man’s shoulder, and caressing his healthy apple-red cheek, and quite a keen pang smote me as I thought how I should never see the beautiful girl again. Presently I insisted on taking the sculls, and I rowed a good deal that day; which no doubt accounts for the fact that we got very late.
SHOULDER HEADS are subsidiary to side heads. Variety of emphasis is limited, because whatever type is used should aline and work with the text type without discomfort or trouble. This generally means that the type used for the shoulder head must be of the same size as the text; more, it must aline with the text, a condition that does not apply to cross heads or side heads. Shoulder heads are not usually expected to give great emphasis and are often set in some variation of the text type—e.g. caps and small caps, even small caps, or upper and lower case italic. If they are expected to stand out more than this, upper and lower case of bold face may be used.

Cut-in heads are not frequently met with, but they may be effective if they are properly used. They are especially useful when it is desired to have sub-heads and yet not obstruct the flow of reading. They must be well done and the types carefully chosen if they are to be successful and maintain the harmony of the page. An argument against them is that they give more trouble to the printer and are correspondingly more expensive to set.

The marginal head should be set in a style that prevents its being confused with the text type. It is placed in the foredge margin at the level required. If it has more than one line, the lines are alined on the side next to the text. There is no interruption of the text or of the colour of the page; but marginal heads do give a distinctive air, or atmosphere, if you like.

Any kind of sub-head may be ignored by the reader if he wants to ignore it, but none so easily as the cut-in head and the marginal head. I think that is of some value.

FOOTNOTES

Some authors are given to footnotes and some despise them. Certainly they are an excellent depository for second thoughts, and when used for that purpose they may be taken as evidence of untidy writing or of dyspeptic digestion of the subject matter. When they are used as a means of reference or to give authorities, there can be no doubt of their value for those readers who

120. Page from William Morris's *News from Nowhere*, Kelmscott Press, 1892
ODYSSEY II

1 Now red'ning from the dawn, the Morning ray
Glow'd in the front of Heav'n, and gave the Day.
The youthful Hero, with returning light,
Rose anxious from th'inquietudes of Night.
A royal robe he wore with graceful pride,
A two-edg'd faulchion threaten'd by his side,
Embroider'd sandals glitter'd as he trod,
And forth he mov'd, majestic as a God.
Then by his Heralds, restless of delay,
To council calls the Peers: the Peers obey.
Soon as in solemn form th'assembly sate,
From his high dome himself descends in state.
Bright in his hand a pond'rous javelin shin'd;
Two Dogs, a faithful guard, attend behind;
Pallas with grace divine his form improves,
And gazing crowds admire him as he moves.

His Father's throne he fill'd: while distant stood
The hoary Peers, and Aged Wisdom bow'd.
'Twas silence all: at last Ægyptius spoke;
Ægyptius, by his age and sorrows broke:
A length of days his soul with prudence crown'd,
A length of days had bent him to the ground.
His eldest hope in arms to Ilion came,
By great Ulysses taught the path to fame;
But (hapless youth) the hideous Cyclops tore
His quiv'ring limbs, and quaff'd his spouting gore.
wish for these things. That few people want to read footnotes may be deduced from the fact that convention dictates that they should be set in type a couple of sizes smaller than the text; and they are sometimes set smaller than that. None the less, some authors believe in them, and write footnotes so long that the compositor's struggle to get some text type, even if it is only one line, on to the page is painfully evident. The compositor is right in attempting to avoid pages all footnote, but if he and the text are swamped he cannot help displaying the torments of a drowning man. There is little the typographer can do in such a case, unless he can persuade the author to have more sense.

Long footnotes are usually set like ordinary paragraphs, but in the smaller size of type; short notes are centred, unless they are accompanied at the foot of the page by notes of more than one line, when all have the ordinary paragraph indentation. If a number of very short notes occur together they may be set two or more to a line, providing that no confusion results. Sometimes the whole of the notes at the foot of the page are run on in one solid block; set thus, it is not easy to see where each note begins, and no system, it seems, could be devised to try the reader's patience more severely or more ingeniously to interrupt his concentration on the text.

For references in the text and at the beginning of each note it is customary to use either superior figures or the range of signs supplied with the fount (asterisk *, dagger †, double dagger ‡, section §, parallel ¶, and the paragraph mark §, in that order). Few types have entirely satisfactory reference marks, and no roman face possesses a paragraph mark that is not, in my opinion, too bold. A further disadvantage of using them is that there are only six, and the fecundity of the notifiers often exhausts their variety: when that happens the seventh reference begins the series again, but doubled (**, ††, ‡‡, etc.). The effect is a blodge. On the other hand, in a suitable book in which the author has restrained himself, reference marks may impart a pleasant flavour of antiquity.

In most books I prefer to use superior figures as note refer-
ences, because they are less blatant and do not interfere with the colour of the page. A small matter, but one that is worth stating, is that it would be more in harmony to use old-face (hanging) figures with old-face types and lining figures only with modern faces; but printers and typefounders appear to prefer lining figures, and old-face figures are seldom forthcoming even when asked for.

Some authors are aware of the interruption caused by footnotes, but yet desire to have notes somewhere, and consider they have solved the problem if they set their notes in a body either at the end of each chapter or all together at the end of the book. The walling off of each chapter by a structure of notes seems to me undesirable; and undesirable also is the undigested and indigestible mass at the end of the book. There is a disadvantage in the setting of the references in the text also. Signs cannot be used, as there are not enough of them, and superior figures are resorted to. Superior figures up to 9 cause no trouble; double figures show something of the gap beneath them; triple figures make the page look as though it has a hole in it—but triple figures are reached by people who put their notes at the end of the book. This may be avoided by abandoning superior figures altogether, and setting in the text in the appropriate place the phrase '(see note 234)', or words to that effect. The notes may run into thousands with this scheme and the unity of the page is still preserved; but at what cost to the morale of the reader the reader himself must judge.

In some books notes are set in the margin. Ample margins must be allowed if this is to be done, and it is preferable that the notes should not be very long. When it is well done, in the few kinds of books this method suits, the result may be pleasantly decorative.

In some old books the problem of copious notes has been solved in a striking manner. Instead of relegating them to an inferior position at the foot of the page the printer has made them into a border running round all four sides of the double spread, set in a smaller size of type to give a different and slightly darker colour that acts as a frame for the text. This

122. Page from The Four Gospels, with wood-engravings by Eric Gill, Golden Cockerel Press, 1931
that when Jesus had finished these parables, he departed thence. And when he was come into his own country, he taught them in their synagogue, insomuch that they were astonished, and said, Whence hath this man this wisdom, and these mighty works? Is not this the carpenter's son? is not his mother called Mary? and his brethren, James, and Joses, and Simon, and Judas? And his sisters, are they not all with us? Whence then hath this man all these things? And they were offended in him. But Jesus said unto them, A prophet is not without honour, save in his own country, and in his own house. And he did not many mighty works there because of their unbelief.

At that time Herod the Tetrarch heard of the fame of Jesus, and said unto his servants, This is John the Baptist; he is risen from the dead; & therefore mighty works do shew forth themselves in him. For Herod had laid hold on John, and bound him, and put him in prison for Herodias' sake, his brother Philip's wife. For John said unto him, It is not lawful for thee to have her. And when he would have put him to death, he feared the multitude, because they counted him as a prophet. But when Herod's
method requires some expenditure of time and accurate calculation (and possibly the co-operation of an obliging author or editor). References are as usual, by figures or signs.

HEADLINES

The salient parts of a page may be said to be three: the text, including notes; the headline; and the folio, or page number.

The first thing to be said about the headline is that we are much too fond of it. Too often it serves no practical or aesthetic use, and does not earn in service the value of the labour it consumes. It is there because the printer or the publisher or the typographer considers that the public might be concerned by its absence; or because they believe that a page without a headline is too spartan and out of the ordinary; or simply because they are in the habit of having headlines.

There are times when a headline is of no practical use, but does act as a decoration, subserving the design, and there is then an argument for its presence that may, I think, be sustained.

On the other hand, the headline may be an invaluable part of a system of reference, a signpost on an involved network of roads and bypaths, directing the reader quickly and efficiently towards the place he is looking for. In any book in which it can be of such use there is no doubt of its value, and there should be no question of omitting it; there should equally be no question of including it where it can have no possible value.

Headlines are mainly of three different kinds: running headlines, or title headlines; section headlines; and page headlines. The term ‘running head’ is in common use; the others I have had to invent because there is no satisfactory nomenclature. ‘Page headline’ or ‘page heading’ too often mean simply headline.

(a) Running Headlines consist of the title of the book, appearing either on both left- and right-hand pages, or else on left-hand pages only, the right-hand page having a section headline. I can see no sense in the running headline, and in my opinion not even the plea of decoration can justify its use. If the
Hoc quod loquar de se re hominibus qui aplus paulus vasa eternit.

MAGISSTRE gnauqui de consuetudini re nsi et hospina loquendu dicunt. An epistulam quem sus qui in se loquunt scrib. Post tantum habebit 

lucubrat in consuetudinum ut uitas

petunt a male abu de dicto quin

i e uitas domade est ogdo aedis scrib. genui poetoic instructus est. Rectius post audo hanc de semplice habebat et oratione

sunt a uatis aquin uere in se uatum ausum auctum aut uecessit. Habet

objecto sapientis magis strenue non athes or in absent transmessa se rurum. Ecce a

estinae si rodi colat ætate legumur
reader needs to be reminded, at each opening, of the title of the book he is reading, he cannot be much interested in the book; if the publisher believes that it is necessary, either he has little faith in the intelligence of his readers, or believes that his book can make little mark upon the reader's mind. The truth, of course, is that it is a habit; many people, publishers and printers included, never see headlines, and the running head is there because no one thought of omitting it. The only recommendation I have heard for it is that it serves as an advertisement, enabling your neighbour in train or bus to see what you are reading.

(b) Section Headlines (including part headlines and chapter headlines). These consist of the titles of whatever subdivisions (chapters, books, parts, etc.) the book may have. If there are chapters only, and running headlines are not used, I set the chapter title on both left- and right-hand pages; if the chapters are divided into sub-sections, the chapter title appears on the left-hand page and the wording of the sub-head on the right. When sub-heads are used as headlines there is the danger that a sub-section may commence on a new page, when the headline, repeating the wording above the sub-head, looks a little silly; the only thing to do is to readjust the pagination or abandon consistency and omit the headline. Books that are divided into parts or 'books' which are again divided into chapters have the part title as the left headline and the chapter title as the right headline, so that wherever he opens the book the reader knows in what part and in what chapter he is and may direct himself from that information. In an anthology the author's name may go on one side and the title of his contribution on the other. The variations of the section headline are limited only by the number of ways of dividing a book into parts, cantos, books, sections, fits, and so on; and it is because they signpost this diversity that they are valuable.

(c) The Page Headline. This may appear on both left and right-hand pages, or on one side only, in conjunction with a section headline on the other side. Its wording summarizes the contents of the page over which it appears; or indicates the

124. Opening page from the 42-line Bible, Mainz, 1456
main topic of the page; or, and this is bad, pretends to be a witty or profound remark concerning it. The page headline is therefore different for every page. Its value is doubtful. It may provide an amusing diversion for a bored reader—he may even, by skimming through them, consider that he has got as much as he wants from the book without bothering to read the text; but the page headline cannot act as a guide, because it does not point the way in any direction. Some authors are addicted to page headlines as a mannerism, and it is a mannerism that costs them some time and trouble; indeed, no headline is as troublesome as this one. It cannot be provided by a mere instruction to the printer, as can others; each one must be written individually by the author. They cannot be written until the book is in page proof, and then their addition may make a revised proof necessary where otherwise it might not have been needed.

The style of setting headlines varies from book to book and from publisher to publisher. There is no ‘right’ way, and the only wrong way is that which fails to cohere in the general design. That they should cohere is a detail that is too often lost sight of. The style of headlines is subject to infinite nuances that affect the atmosphere and colour of the page very strongly, and may give to it either the right effect or the wrong one. The type used may be the same face as the text type, and even the same size, or something quite different. It should be remembered that the headline is a unit of a larger design, that it should therefore accord with such other units of that design as chapter heads and part titles, and of course, with the text above which it appears. A headline set in a comparatively large size of swashbuckling italic such as Garamond can give to a page an air of gaiety and freedom, while one set in, say, text capitals, is more serious and business-like.

The position of the headline is also subject to variations. It is not always centred across the measure. Often it is set to one side, opposite pages being set to opposite sides. The amount of space between the headline and the text is a matter of judgement, but it should not be enough to isolate the headline.
The End of MAN

White Roads and Green Lanes

Former Times and Former Ways

The Mute Image

[Fancy Thoughts]

Along the Stream

and Other Things and Places

125. A selection of headline styles
THE DESIGN OF BOOKS

Decorations of various kinds are often used with the type, and may take the form of small ornaments incorporated in the headline itself or of bands or ornament or lengths of rule or border between the headline and the text. Decoration is better if it is discreet; the ornament should not overcome the type.

FOLIOS

Folios, or page numbers, have not always been an indispensable part of a book, though nowadays we seem to be fixed in the habit of using them. There is no point in attempting to overcome the habit. In even the most ephemeral and slight of novels folios have their uses, and they are very necessary in any kind of serious book.

The position of the folio varies, but in most books it is placed either in the headline or at the foot of the page; in some modern (or modernistic) books, the designers of which appear to have thought it necessary to be different at all costs, the folios appear in the outer margin, perhaps in ultra-heavy type. If the purpose of reference were the only consideration the folio in the margin would be commendable, but it is no better, and perhaps rather worse, for reference, than the folio at the outer end of the headline. Both can easily be seen as the pages are flicked over. Bare utility is not, however, the only thing that matters; there is also the question of appearance.

When the folio is set in the headline it is usually set in the figures of the same type; but this should not be done where that type is much larger than the text. Eighteen-point figures are not likely to look well over an eleven-point text. In these cases it is better to set the folios in figures of the text type and aline them with the headline. The usual place for the folio is at the extreme outer end of the headline, but there is no reason why it should not be indented a little for a change.

The folio in the margin is an experiment that appears to have failed, for it is seldom done now. It was an experiment ten or twenty years ago. Although it is a good place from the point of view of reference, it is a bad place on almost every other count.
In that position the folio is unusual and apt to look queer, and so to draw an unreasonable amount of attention to itself; and it forms a distracting spot in the corner of the eye that is destructive of concentration, particularly when heavy figures are used.

At the foot of the page the folio is subject to more variation than elsewhere. It occupies a line to itself, and in most books it is centred on that line; but it may be set to one side, level with the edge of the type measure, beyond it, or indented within it. It may be separated from the text only by the normal leading of the page, or by any amount of leading that may be thought necessary. The figures used are usually of the text type, but they may be smaller or larger or in a different type. Sometimes the figure is flanked by ornaments or by square brackets or parentheses acting as ornaments.

Occasionally in books without headlines the folio is set at the head of the page in a style more commonly found at the foot.

In some books the preliminary pages are numbered in lower-case roman figures, otherwise treated in the same way as the arabic figures in the body of the book. Some printers and publishers do this regularly, others only when, for one reason or another, the number of pages the prelims will occupy is uncertain.

PROPORTION AND MARGINS

It is a convention, from which we depart only on occasion, that books should be upright oblongs; when we do depart from the upright it is to make a horizontal oblong. Always an oblong. The square book, it may be said, is a cranky book, and therefore very likely a bad book, and this is true enough to make it unnecessary to deal with it here. Nor need I deal separately with the horizontal oblong, because the problems set by it are much the same as those set by the upright.

Paper from time immemorial has been manufactured in sheets of oblong shape; and though to-day paper sizes differ in different countries, the rule remains. These sheets when folded, as they are folded after printing, into folio, quarto, octavo, etc.,
give oblongs whose sides are in the proportion of 1 to 1$\frac{1}{2}$ or 1$.\frac{3}{4}$. The type area follows approximately the shape of the page. In America paper is made in sizes different from ours that produce squarer books, wider in proportion to their height.

The difference between the area of the type and the area of the page on which it is to be printed is a quantity of white space that must be apportioned between four margins. Proportion and

![Diagram](image)

126. Diagram to show (left) 55 per cent type area and (right) 58 per cent type area

margins are interdependent, and the one governs the other in some respects. How large the type area should be, and therefore how much white space should be left has been a matter of opinion at all times, but there is a theory that the type area should be about 50 per cent of the page area. That any page should consist of 50 per cent of white is apt to appear somewhat striking, suggesting an unnecessary waste of paper. Actually such a page is quite an ordinary one, as may be discovered by taking any book from the shelf and measuring it. During the war the economy regulations, designed to save paper, stipulated
a type area not less than 58 per cent, and the margins this left were considered somewhat skimpy. So-called large-paper editions may be as much as 80 per cent blank paper. A page with no more than 35 per cent blank looks decidedly crowded, and may be seen in many Everyman books. The fifty-fifty basis may be taken as the norm, from which the exception departs. The exceptions, because they are abnormal, are not therefore bad;

127. Diagram to show proportions and margins of pages calculated on the diagonal

everybody likes ample margins and hates meagre ones. There is a vast amount of good on either side of the norm; what should be avoided are extremely narrow margins that give the impression that the book has been clumsily cut down in size; or over-large margins, in which the panels of type are two lost rafts in the middle of a desolate ocean.

Whatever the proportion of space may be, it is not simply space. From the first it can only be thought of as a frame or setting for the type panel; it must be divided into four strips called margins. The problem may be looked at in another way,
not as the apportionment of margins, but as the setting of the type panel in a given space. It does not matter what point of view is taken if the result is successful.

There are rules for the apportionment of margins and various methods of achieving a satisfactory result. In one method advocated in textbooks the panel and the page must be of the same proportion. If this is agreed, the size of the panel and the dimensions of the margins can be obtained at once by making the diagonals of the two coincide, as in Figure 127.

Frequently, however, this method is unsatisfactory because the type area is not of the same proportion as the page, and it is not ideal that it should be. When this happens the type may be placed to give margins in the following proportions: inner, 1 1/4; top, 2; outer, 3; and foot, 4. It is an old rule, and good one, but it should not be too rigidly applied; there are times when for optical reasons, depending upon the kind of headline in use, it may be advisable to make the top margin larger or smaller, and
there may be similar reasons for other variations. Personally I have little faith in formulae, and I prefer to decide margins empirically, a process that appears to me, with some practice, to produce the best results.

It may have been remarked that the inner margin is, approximately, only half the width of the outer one, and the reason for this is that the unit of design is not the single page I have so far dealt with, but the two facing pages seen together at any opening of a book. If the unit were one page we should be right in making the margins on each side equal, like those of a mounted picture, and this is what some printers do if they are left to their own devices; it is a strange error, and one that originated, I think, in the nineteenth century—at least, I have never noticed it in any earlier book. But the unit is not one page, because we do not see the pages separately; therefore the two narrow inner margins combine to make a channel between the two pages of the same width, or a little less, as each of the margins on the foredges. The top margin is less than the bottom one fundamentally, perhaps, because the eye always sees the centre of a page rather higher than the actual centre; certainly a page with too small a margin at the foot looks as though it has slipped down.

Good margins (not necessarily wide margins) are of importance in the design of a book and should be arranged with care, and as soon as possible in the course of book production. They contribute largely to the comfort and pleasure of reading, giving ease to the eye and dignity to the book. In production they form a basic frame on which everything else is built up. Chapter heads, half titles, and the title-page are, it will be noticed, placed, not in direct relation to the page area, but in relation to the position of the type area on the paper. Illustrations are placed in the same relation, whether line or tone. The proportions of the margins may even be echoed in the binding and the jacket, where lettering or ornament on the front board often looks better if it is placed a little nearer the inner edge than the foredge, and it may look wrong if it is centred on the board.
PART TITLES AND CHAPTER HEADS

The divisions of a literary work are more complex than at first they may appear to be. Within the text there are divisions between words, between clauses and phrases, between sentences, and between paragraphs, and those more emphatic paragraph divisions marked by a line of white or by a row of stars or asterisks, and further the divisions marked by sub-heads. We take these things for granted nowadays, but they were not always a matter of custom: some early manuscripts show such a passion for continuity that they dispense even with spaces between the words, the reader apparently being expected to make out the sense by context and patience. Little wonder, then, that major divisions were ignored or submerged.

It is difficult to say exactly how these major divisions developed. An early means of indication was a mark or tick that developed later into a paragraph mark; or the first line of the new section projected into the left-hand margin of the page. These devices appear to have been used inconsistently and became reduced in importance until they indicated only paragraphs.

Not until the numbering and entitling of chapters was practised may we say with certainty that a definite system of division had arrived, that, in fact, chapters existed. It is difficult to fix even that date. Chapter divisions had been developed by the end of the sixteenth century, yet as late as the eighteenth a writer like Defoe was capable of writing books without any chapter divisions of any kind.

We have come to expect chapter divisions in our books and
PART TITLES AND CHAPTER HEADS

to take them for granted because as readers we have been brought up on them. Our childhood fairy tales showed that they were part of the accepted order of things, and later our school books unanimously confirmed the fact. Between the close of one chapter and the opening of the next we have learned to rest with the author; or to gather our energies in suspense for the leap into the next chapter and the release of tension. So a book is parcelled out into sections, as our lives are into days, convenient periods capable of being remembered and understood, and showing in the accumulation of what has passed a pattern of events and ideas.

We are so used to chapter divisions that the chapter head has become synonymous with that division, inseparable from it, exerting at times a tyranny that few writers have ventured to overthrow. James Joyce rebelled against it in *Ulysses*; but then James Joyce was ‘odd’; and even he could not defy convention without losing something of value to the enemy. And yet the truth is that in a great many books—particularly novels—neither chapter number nor chapter title has any purpose of importance, and the paragraph mark or large initial of our ancestors, or commencing a new page, would serve just as well. How many readers of the popular novel ever notice the chapter numbers or have any use for them? How many ever read or remember the chapter titles?

Grouping of chapters into parts does not occur in every book and in those in which it does there is generally reason for it. I do not want it to appear that, because of what I have said above, I am attacking the institution of part titles and chapter heads indiscriminately. Chapter and part divisions often form a strong system of articulation with a definite and serious function; they may indeed be the frame on which the structure of the book rests, and where part titles and chapter heads help to elucidate that structure their value is obvious.

Sometimes a book is found with three kinds of divisions: chapters grouped into parts, parts grouped into ‘books’ or sections. Such a scheme is too often unwieldy. It may arise from a passion for orderliness, but too frequently it only leads the
THE DESIGN OF BOOKS

author into disorder and disjunction, and the reader into bewilderment. Such triple division should only be practised where there is very good reason for it.

THE PART TITLE

The part title marks the major division, and consequently it is treated in a special way. To accord with its importance, and to impress upon the reader the fact that here is a serious pause in the argument, that, in fact, a new train of ideas or a new approach to the theme commences, it is usually given the dignity of a right-hand page to itself. Whether the last chapter of the preceding part ends on a right-hand page also is no matter; if it does, it merely means that the part title will face a blank.

There is here something of the function and of the opportunity of the title-page—a clear field with a simple purpose of announcement and a more subtle one of anticipation. While it should not pretend to compete with the title-page itself, the part title should be in harmony with it, and the typographer may do much with it. By its nature and circumstance, it should dominate the chapter head, and to this end the page can be set more monumentally, and if necessary decorated with flowers, borders, or rules. Generally the wording is extremely simple, consisting of nothing more than the number and the title of the part; or of the title only in some instances. In some books there is no title, the author considering that his purpose in division is sufficiently achieved by numbering the parts.

White space, properly used, cannot but add to the dignity and power of lettering, if that lettering is itself good. This property of space is utilized on many part titles, first by restricting the setting to the words only, eschewing all additions of ornament, and then choice of type and placing of the lines. Whatever kind of face is selected, it should be one that is good of its kind. Some faces scarcely allow one to go wrong, and an example is Perpetua Titling. The setting should be carefully done, and where lines of capitals are used, they should be letter-spaced to improve their appearance and, what is important, to

129. Chapter head, from La Mer des histoires, Paris, 1488. Border and initial cut on wood
Eloign les escriptures anciennes
au septième comté en sa destruction
D'où le salut de l'Église.

S'agit de la fin du 
septième siècle 
sous le règne 
de 
Saul, le 
roi de 
Israël.
obtain optically equal spacing. The lines will almost certainly require leading, but how much must depend on the effect aimed at. As for the position of the lines on the page, there is little one can say about it. Certainly no rules can be laid down. Generally, conventionally one may say, the lines are set in the upper half of the page, but at what height particularly depends on the circumstances. The only thing to do with these pages is to sit back and look at them and to alter them until they are right. That is good advice concerning any page of a book.

Part titles in which decoration is used are in a different category, not in the sense that they require any less stringent care in design, but because they impose on the typographer a different approach. The decoration may be slight, or it may be elaborate; in either case it must be in harmony with the general atmosphere and design of the book. Where it is used it is most often printed from fleurons, but new designs by artists are used sometimes. The decoration is in a sense added, but it should not appear so; indeed, it should never look as though it were superadded, as though it were something that might be imposed or subtracted at will. It must do something necessary, even if that thing is only to give pleasure; it must enhance the spirit of the book; it must join with the lettering in a unified and cognate whole.

Another kind of part title is that designed entirely by the artist. Wood-engravings notably, and also scraper-board drawings, have been used in this way, and auto-lithography has also been employed. The artist's part title, where it is suitably used, gives an added richness to a book, and experiments in this direction are worth while. Books in which they appear may demand a special form of title-page, and artist and typographer can here collaborate.

Part titles are usually blank on the reverse, the chapter commencing on the next right-hand page. Sometimes the blank is used for an introductory quotation or some such matter, and where this is short it is well to put it there; the alternative position on the part title itself is seldom satisfactory unless special arrangements are made for it.
THE OLD BATCHelor.

ACT I. SCENE I.

SCENE, The Street.

Bellmour and Vainlove meeting.

Bellmour.

Vainlove, and abroad so early! good Morrow; I thought a Contemplative Lover could no more have parted with his Bed in a Morning, than he could have slept in't.

Vainlove.

Bellmour, good Morrow—Why Truth on't is, these early Sallies are not usual to me; but Business, as you see, Sir—[Shewing Letters.] And Business must be follow'd, or be lost.
THE DESIGN OF BOOKS

THE CHAPTER HEAD

A chapter head is that collocation of chapter number, chapter title, and large initial with which, in most books, each chapter begins. To these three elements are added, in certain books, quotations, synopses, sub-titles, decorations, or illustrations, or whatever fancy may occur to author, typographer, or artist.

None of these elements is obligatory. As I have shown, there is no reason sometimes why any of them should be used. Some writers prefer to have only a chapter number and no title, a few a chapter title and no number. Large initials are a convention or a habit to which we are addicted, but there are times when they are unnecessary or undesirable and are omitted. Any possible arrangement of the elements of a chapter head may be found in one book or another, with or without reason, but it does not need elaborate statistical machinery to discover that in the majority of books only the three elements of chapter number, chapter title, and initial occur, and on this arrangement I have based this section.

The simplest thing to do with both the chapter number and the chapter title is to set each in some variation of the text type and to centre it across the text measure, and this is what is commonly done. The use of the same series as the text ensures homogeneity, and if the sizes are chosen with discretion the result is pleasant. The chapter number can be set in several ways, with or without the word 'chapter' and with the figure in arabic or roman numerals or spelled out. Below it, the chapter title may be set in capitals or in capitals and lower-case, or even in caps and small caps, of a size larger than the text type, usually; rarely, the type used for the chapter title is smaller than the text type. Below the chapter title the text commences with its large initial.

Chapter heads seldom commence at the top of a page. They are started lower down than the first line of a full page, each chapter so many lines consistently throughout the book. They are, in printer's parlance, dropped, and the distance from the top of the page to the first part of the chapter head is called a
ÉLIZÈNE,
ANECDOTE OTTOMANE.

Le mois le plus riant de l'année pour le peuple de Constantinople, c'est-à-dire, le mois d'avril venoit de renaître, & le ferrail du Grand-Seigneur s'apprétoit à célébrer, avec tout le faste ordinaire aux orientaux, cette fête annuelle.

Tome I.

S
132. Engraved chapter-head ornaments, eighteenth century
chapter drop. It is not unimportant, this space at the head of the chapter, for it has some psychological value not easy to explain. It is not a case of the more the better; a deep chapter drop looks like a mannerism, but it may be right in relation to the book and its design—the word ‘mannerism’ is used too often in a derogatory sense excluding pleasure or utility. On the other hand, no chapter drop at all can be equally right. Between the two extremes variations of the chapter drop convey, together with the chapter head, many shades of expression.

There is no reason why the type of the chapter head should be confined to the series in which the text is set if a more suitable effect is obtained by using a different type. The mixing of types is only bad when it is done without reason or taste, as it was too often in the nineteenth century; that it can be done with equal success as failure is shown in the advertising columns of our newspapers; in the news columns of the popular dailies it is apt to appear at its worst.

Restriction to a single face throughout a book imposes limits on the variety and range of character that may be expressed by the typographer through the medium of type, and there are times and books and display faces, apart from his own roving imagination, that will suggest to him the use of a type different from that of the text. Immediately this principle of type mixing is allowed the horizon expands, until the only limits to an unending variety of design become the typographer’s taste or ingenuity or the harassed printer’s refusal to co-operate any further.

There is nothing good in searching far for strange type faces or extraordinary ornaments or borders; these of themselves cannot make typography good, or endow it with that freshness or charm we always hope for. The best or the strangest of types is nothing until it is used, and it is in its use that the quality of design lies. There are harmonies and discords, subtle or apparent, in the relations between types, and these should be realized and exploited in the layout. Unfortunately, the ordinary reader, from lack of knowledge or perception, is tone-deaf as far as these harmonies and discords are concerned, and only the
professional or the connoisseur seems to hear them consciously. They penetrate to the layman, perhaps, but certainly no more than the nuances of music; rather less. In this post-war world we babble of our dreams of new design and hope for great things in a future of perpetual sunshine; but then, as now, it will remain true that ninety-nine people out of a hundred are unaware of design, though it has existed about them in diverse forms all their lives. It is only recognized when it is labelled in large letters. We are getting that habit of labelling now, and no doubt there will come a time, and soon, when we shall set out, like architects and town-planners in their subject, to tell the public what in typography is designed, in the hope that they will learn from each book enough to allow them to understand more of the typography of the next.

I said a few pages back that the usage was to centre the elements of the chapter head across the measure. That arrangement can be varied or abandoned, when necessary, and a new or different arrangement made. The chapter head may be set to one side; may be run on in a block, usually of capitals (a Morris idea); or, following the example of our respected grandfathers, it may be drawn in a delicate arch and festooned with roses and trailing vines. On occasion, if the chapters are sufficiently distinct and complete in themselves to warrant it, the chapter head may be set on a separate right-hand page, like a half-title, the chapter itself commencing with or without a heading on the following right-hand page.

There is no point in listing further possibilities of variation; description is apt to be wordy and after all bare of meaning when compared with the object itself; the few chapter heads reproduced here will serve to show something of what may be achieved; and any bookshelf will be found to hold both good and bad examples.

A chapter head may depend for its effect entirely upon the use of type, but on the other hand some kind of ornament or rule, plain or fancy, may be included as part of the design. Whether it is good or bad to do this is a matter of some controversy, in which I do not propose to take sides; neither side

133. Chapter-head with printer's flowers, from P. S. Fournier, *Dissertation sur l'origine et les progrès de gravure*, etc., c. 1758-60
Dissertation

Sur

L'Origine et les Progrès

De l'Art

De Graver en Bois.

Pour éclaircir quelques traits de l'Histoire de l'Imprimerie, & prouver que Guttemberg n'en est pas l'Inventeur.

Des erreurs soutenues par des Auteurs célèbres, & long-temps accréditées, sont de nature à en imposer : elles ont tenu & ne tiennent encore que trop souvent la vérité captive. C'est une erreur de cette espèce qui me paroit avoir fait donner à Gut-
is entirely right. Many excellent typographers, among them Baskerville and Bodoni, have on occasion thought it better to avoid ornament, and the quality of their work is beyond question. None the less, it does not prove that all ornaments and printer's flowers should be consigned to the melting-pot forthwith and no new ones designed; it proves only that in some circumstances and by some people a successful result may be achieved without them. It must, indeed, be a frigid world in which we cannot be allowed the smallest frill, as even the work of Baskerville and Bodoni will indicate; we may, on suitable occasion, indulge in elaborate ornamentation and get away with it. Success lies in more than one direction and can be achieved by purpose, but seldom by hazard. Both antis and pros have done fine work the quality of which cannot be doubted except by the fanatics of the opposite faction. Often both kinds are done by the same man with no feeling of faction at all; but there are others who elevate a personal preference to the status of a principle, and these must be any sensible man's abhorrence.

Where ornament is used it may be of two kinds, either drawn or engraved or painted and printed by some reproductive process, or built up from printer's flowers. The first kind is usually made especially for a particular book; the second is made up of standard elements of type the arrangement of which is subject to infinite variation. Frederic Warde's *Book of Monotype Ornaments* is a first-class demonstration of how printer's flowers can be used.

Even the most beautiful ornament or arrangement of flowers needs to be used with discretion and judgement. No ornament can of itself make a book design successful, but any ornament can, if it is not well used, prove an enemy that will ruin all. Ornament must contribute to the design, not strive to dominate it or impose disharmony or incongruity. If there are many chapters, and particularly if they are short, an ornamented chapter head may prove an irritation and an obstruction because it is repeated too often. There is always a danger in repeating an ornament, a danger that is more acute with freak or individual patterns, or with those that seem to incorporate something of illustration. That particular difficulty can be
GIAMBATTISTA BODONI

A CHI LEGGE

Eccovi i saggi dell'industria e delle fatiche mie di molti anni consecrati con veramente geniale impegno ad un'arte, che è compimento della più bella, ingegnosa, e giovevole invenzione degli uomini, voglio dire dello scrivere, di cui è la stampa la miglior maniera, ogni qual volta sia pregio dell'opera far a molti copia delle stesse parole, e maggiormente quando importi aver certezza che
THE DESIGN OF BOOKS

avoided, of course, by making each chapter head different—if the designer has the time, the patience, and a store of invention. The large initial with which in many books each chapter commences is a legacy from the manuscript. By the fifteenth century the calligraphy and especially the illumination of manuscripts had reached a high level, and on the best of them was lavished such a care as few, very few printed books have received. The treatment of initials was particularly remarkable. It is true that some of them were so elaborated that to us they no longer appear to bear the shape of letters, but whether there could be any doubt about them in the minds of our ancestors it is difficult for us, who have been nurtured on the roman letter, to judge. What we do know is that the tradition of the illuminated or decorative initial was of some importance, for it was carried over into the printed book: not as a printed letter, however, for it was difficult with the apparatus of the fifteenth century to print multicoloured initials in register; although by some means not certainly known, Peter Schoeffer, Gutenberg's successor, printed magnificent two-colour initials in perfect register. For a time after the introduction of printing, initials were drawn in the printed book by the illuminator, a space

135. Wood-cut initial used by Johann Landen, Cologne, 1496

136. Chapter head from *The Bible designed to be read as Literature*, Heinemann, 1937
THE FORMER TREATISE have I made, O Theophilus, of all that Jesus began both to do and teach, until the day in which he was taken up, after that he through the Holy Ghost had given commandments unto the apostles whom he had chosen: to whom also he showed himself alive after his passion by many infallible proofs, being seen of them forty days, and speaking of the things pertaining to the kingdom of God: and, being assembled together with them, commanded them that they should not depart from Jerusalem, but wait for the promise of the Father, which, saith he, "Ye have heard of me. For John truly baptized with water; but ye shall be baptized with the Holy Ghost not many days hence."

When they therefore were come together, they asked of him, saying, "Lord, wilt thou at this time restore again the kingdom to Israel?" And he said unto them, "It is not for you to know the times or the seasons, which the Father hath put in his own power. But ye shall receive power, after that the Holy Ghost is come upon you: and ye shall be witnesses unto me both in Jerusalem, and in all Judæa, and in Samaria, and unto the uttermost part of the earth."

And when he had spoken these things, while they beheld, he
THE DESIGN OF BOOKS

being left by the printer to receive them; or they were impressed, colour by colour, with hand stamps. In this space was printed a small letter, a capital or lower-case of the text type, to inform the illuminator what initial was required—a practice that seems to suggest that the illuminator could not read, or at least was unable to read the language in question. It was intended that the printed letter, the initial indicator, should be covered by the

Oatho rzo duytzchem.

Otho was cyn wijs ver man
Der sicf wyjscheyt versoan
Was zo risme i eren grois
So he sacht by werle blos
Van eren ind van roecht
Begind hey zo sochten
Amb eine soen had hei da
Lertende ind spach alsa

yn gedangte nir in myn herzien quaeem
Daer van ich in moide vernam
Dat veik der lude yr zijte verquissten
Die gisder seden noch nyc en gewussen

137. Wood-cut initial used by Ulrich Zell, Cologne, c.1500

illumination, or so we may think, but in practice this did not always happen; apparently its continuing presence did not worry the artist or the reader. It is probable that the same illuminators supplied the initials of both manuscripts and printed books without distinction, despite the antagonism that developed between the scribes and the printers. It can have made little practical difference to the artist whether the book on which he worked had been written by hand or had been produced by the new mechanical means; though he may have found that with the advent of printing he had more work to do, because there were more books.

At what stage and by whose order books were thus embel-
lished is not clear. Sometimes, it seems, the printer had the work done (he may even have employed an illuminator in his printing-house), so that he could present a complete and finished book for sale; on the other hand, the purchaser of the book sometimes commissioned the illuminator, and so obtained the kind of work he preferred. There appears to be no doubt that printed books were sold without illumination, perhaps for this reason, and some of them survive with the spaces provided still unfilled and others with the work partly done.

It was not until late in the fifteenth century that printed initials came into use. Their advent was one of many signs of independence of the manuscript and the illuminator that was slowly arising, though it was not to be complete until well on into the following century. These printed initials were by no means as grand or as complex as those done by hand, and some of them were embellished by the pen and the brush. The illuminator and those who valued his work made here their last gesture. The art of illumination was dying in proportion as the craft of printing improved and as books increased in number and their price was reduced. Printing ceased to imitate the art of the scribe, and was applied to the production of less elaborate books in
greater numbers; in other words, it began to be realized that the press was an instrument of mass production, and painstaking and laborious illumination became impossible on the score of expense, if not incongruous aesthetically. The illuminator was compelled
to find other work to make his living, and if he returned to illumination it was only to execute a commission for some single volume valued by its owner or intended, perhaps, to be used as a present or a prize. That is exactly his position to-day.
PART TITLES AND CHAPTER HEADS

The printed initial could not pretend to compete with the
illuminated one because it could be neither as rich in colour nor
as elaborate in detail except by an expenditure of labour and
time out of proportion with the result—which even then was
likely to fall short of what was aimed at; but to our eyes those
early initials seem to be complex and
rich, even when they were printed in
only one colour, for they remained
overlaid with the tradition of gothic
art. In these days, for ordinary use,
we have abandoned colour and
complexity, and the initials of most
of our books are no more than plain
letters of large size. The fifteenth-
and sixteenth-century printers had
more courage and more ingenuity
than we in this matter, it seems—or
was it that the world turned more slowly then and men did not
so value haste? Plain initials were exceptional in their books,
and were by no means the rule even as late as the Victorian era.
This first letter of the chapter was subjected to every kind of
decoration, it was superimposed upon
line drawings or engravings or set
among intricate patterns of arabesque
or acanthus, cut to show white upon
a black or white-line pattern, or set
among a criblée ground; or the letter
itself, however staid, burgeoning and
put forth tendrils and leaves and
flowers in a convoluted and delicate
pattern. All this, of course, was the
work of the type designer and the punch-cutter; nine times out
of ten the printer set his wonderful initials badly, where they
never could fit, and so destroyed some of the glory.

It is a pity that the art of the initial should so have declined
in this, the twentieth century. We have technical means that far
surpass those of any other period and could manufacture ini-
tials with greater ease; but that does not mean that we could
do it with the same aesthetic success. There are, apparently,
few artists interested in this branch of design, and I cannot
recall anything of the kind among artist's
specimens submitted over a number of
years to a large publishing office. We
are not entirely destitute: some excellent
initials have been produced for par-
ticular books, or for a printer for use in
his work alone, but they are not many.
Among those made for particular books
those of Eric Gill for the Gospels should
be studied; both initials and illustra-
tions, they stand upon the page aptly,
and with dignity and power. Barnett
Freedman designed a notable set for the
Baynard Press; these, done in a tech-
lithography, are not intended for any
particular book, but they are, in fact, too individual in design
to be of wide application, and need to be
used circumspectly.

No initial is complete in itself. Each is
a unit, not only in the design of the chap-
ter head but in the orthography of the
word of which it is part. It should be in-
tegral in and congruous with the chapter
head, which in turn should be in har-
mony with the typography of the rest of
the book. A subtle or intricate design is
out of place in a children's book; just as
a masculine one is unsuitable for an essen-
tially feminine book. There are relations
and harmonies that are right, and others
that are wrong; characteristics that are in agreement or in
contradiction. More mechanically, there are right ways and
wrong ways of placing the initial in the line. It must join with
the word of which it is part without danger of misapprehension
and without unsightliness; and it must agree with subsequent lines as though it were made to fit there, and not dropped hap-hazardly on the page.

These conditions have more often been ignored than observed, sometimes with unlooked for and unfortunate results. In English there are two one-letter words, the article 'a' and the pronoun 'I', and it is possible to split many words commencing with these letters so that they read like article and noun or pronoun and verb; for example, the word 'Ideal' becomes 'I deal'. This danger of dissonance is particularly present with some kinds of ornamented initials, especially the kind in which a wide border surrounds a comparatively small capital; they can seldom be made to fit, and most of them should never have been designed.

To fit well, an initial should equal an exact number of lines of text in depth and should fit as closely as possible to its word, with little more than ordinary letter-spacing, in fact. This is no difficult matter, but it is one that sometimes requires practice slightly out of the way of the ordinary compositor, and for that reason too often escapes attention; not to speak of the force of bad precedent some three hundred years old.

The simple initial of modern books is a letter larger than the text size and frequently, but not necessarily, of the text face. It is spoken of as of so many lines, a three-line initial, for example, being equal in size to three lines of the text type. This 'line' is not the 12-point line by which compositors measure poster types; it is an arbitrary term with no meaning if the text size is not known; thus, an 18-point titling letter will make a three-line initial for 6-point type set solid. Ideally, any initial should be of such a size that it equals exactly the distance from the top of the ascenders of the first text line to the base of the x-height of the second, third, or fourth line, as the case may be: this, of course, ignoring special cases aiming at special effects. An example will make this clear:

\[
\text{HERE is an initial that fits properly and which has also been used properly.}
\]

\[
\text{HERE is one that fits badly; an effect too often seen.}
\]
THE DESIGN OF BOOKS

The H on the left is, theoretically, perfect; it is not, however, possible to find initials that will fit every variation of x-height and leading, for type is not made in as many gradations of size. When one cannot be had that is exactly the right height, the effect on the right above is not the one to be aimed at. The initial should still be aligned at the foot and allowed to project above the first line at the top, thus:

Here is an initial of intermediate size aligned at the foot and projecting above the line at the top.

Letters like H and I will stand close to the text type without alteration, but there are some that have to be cut to do so, otherwise the dissonance I spoke of earlier will occur. This is not the thing to do:

About set like this becomes two words and may be misunderstood; and it looks shoddy.

Other letters show similar effects when set badly, for example O or Q or B when its upper bowl is smaller than the lower one. The cure is to cut away the blank metal from the shank of the letter so that it fits like this:

After the operation. The text is aligned down the side of the sloping letter and gaps are avoided.

The improvement is obvious; and yet printers have a passion for spaces, and even where an initial is straight-sided, like H or I, prefer to insert an en or an em between the initial and the
second and third lines; this is an old custom that is followed even with A and L, in spite of the ugliness of the result.

There is some difference of opinion concerning what should follow an initial: capitals, small capitals, or lower-case. The caps and small caps have the majority vote, but they are no more in the right because of that than any majority is. Personally I dislike seeing that odd word in capitals; the first word of the chapter is seldom worthy of stress, and capitals give too much emphasis. If they are used at all, they should be used for the whole of the first line at least, if not more; otherwise I prefer to use even small capitals or lower-case, or else capitals of a size intermediate between the text capitals and small capitals.

Among other possible elements of the chapter head are quotations and synopses. Introductory quotations in this place annoy me as a reader, but apparently there are people who like them. They are commonly set in text italics or in a smaller size of roman, with the author's name and the source set to the right. It is a custom to treat them thus pianissimo, but there is no law about it, and if there is reason the quotation can be made much of and set monumentally.

I have never been able to see the point of the synopsis, unless it may be designed for those who do not want to read the book but would like to know roughly what it is all about—a supposition that the author surely does not foresee! None the less, many writers are addicted to synopses and for the typographer they are among the many minor problems to be dealt with. A synopsis consists usually of a number of independent phrases, separated by some kind of punctuation mark or a dash; or it may be of the kind that begins 'In which the hero . . .' and so on. There is very little to say about the manner in which it is set. It should
not be given too great prominence, and it should not be set so that it is confused with the text. It can be split off from the text by means of rules, or by setting it in a smaller or larger type. I make one plea—that the divisions between the sentences should not be marked by a dash; so many dashes together look untidy and sprawling, and a full point or colon will do the work just as well.

It is usual to commence each chapter on a new page, but in some books it will be found that it is not done, the head of the next chapter lying under the tail of the last. During the war this style was followed in fiction as a measure of economy, because by this means a few pages were saved in each book, and that saving multiplied by the number of the edition amounted to a fair quantity of paper. In normal times it may be done for other reasons. When the chapters are short and numerous (like Tristram Shandy's famous one-sentence or wordless chapters!) running on will prevent a sense of fragmentation of the text. They may be run on, too, where the chapters are merely conventional divisions in a continuous narrative. In general, however, I prefer to see chapters commencing on a new page.

I remarked earlier that chapter heads could be set in the same series as the text. There is a school of typography that advocates that this principle should always be followed, and not so long ago it was a strong school; it has lost much of its influence now. The one-series notion was applied as a rule not only to chapter heads but to the whole book. There is no doubt whatever that the rule has achieved a great deal of good—indeed, it may be claimed that it has contributed more than any other to the improvement of typography we have witnessed in this century; but having achieved that improvement, its work is done, and it may be rubbed from the statute. It was the pleasant habit of Victorian printers to use in one job as many type faces as they could lay their hands on or find excuse for.
PART TITLES AND CHAPTER HEADS

This insensate passion for variety was indulged for fifty years or more, and its traces can still be seen in the work of some small and 'conservative' printing shops. In this chaos the one-job one-series rule was introduced as a salutary innovation, and it appeared as a new and somewhat revolutionary idea. There was really nothing new about it, for it had been practised, though not formulated, from the birth of printing to the opening of the nineteenth century. It was imperative to reduce chaos and confusion to order and harmony, and the best way to do it was undoubtedly to confine the layout of any job within the limits of one series or family. The idea was reinforced by the appearance of such type families as Cheltenham. For the printer unskilled in the niceties of typography it was a safe guide; for the typesetter, when he appeared, it formed a firm base from which he could project his interest to latitude and variety. It remains a sound method by which pleasant and homogeneous and even noble books can be made when it is properly applied.

It is an elementary rule, and as such it still forms part of the teaching of art schools and schools of printing, where it is liable to be so impressed upon the budding printer or typesetter that it becomes for him a dogma never to be refuted. That is a restriction from which, when he can walk firmly, he must escape, for it takes out of typography the idea of contrast and the spice of adventure.
ODDMENTS

In the printer's mind, it seems, a book properly commences with the introduction or first chapter and ends with the last page of the last chapter; all outside these limits is included, by long custom, under the term 'oddmments'. It is a word of convenience, not of opprobrium. The oddments are a divided family, sundered in the middle and parted by the long and heaving seas of the text; the half at the front is known as the preliminaries, while the half at the back, having never succeeded to a decent name, is called, a little lamely, end-matter. There may be some other word for it, but I cannot remember having met with it.

The preliminaries, or prelims, as they are more generally called, may consist of some or all of the following:

(a) bastard title
(b) a list of other works by the same author, or books in the same series, or other similar announcement
(c) frontispiece
(d) title-page
(e) bibliographical note or imprint
(f) dedication
(g) preface or foreword
(h) acknowledgements (which may also go at the end)
(i) list of contents
(j) list of illustrations.

This catalogue is not exhaustive; there is no limit to an author's genius or flights of fancy, and so there is no telling what he may or may not devise for inclusion in his prelims. He may feel, perhaps, that as they are they represent no more than the
ODDMENTS

scraping of the violins before the show begins, and he may like to think that they will be converted into an overture by the addition of a page or two of apt quotations or a poem of his own, or some other inspiring matter calculated to put the reader in the right state of mind for what follows.

The order in which I have given the elements of the prelims above is not my own invention, but one that has been hallowed and fixed by custom and tradition, and it cannot be violated without incurring suspicion of ignorance of the art of the book. That it is not entirely an arbitrary or illogical order both the maintenance of the custom and new consideration may indicate, though in fact it must be admitted that it has become so settled that it is followed not so much of deliberate choice as of habit. It is a beneficial habit, because when it is known to everyone what the accepted order is, a great deal of rearrangement and correspondence and divergence of opinion is avoided.

Except for the title-page, which deserves a chapter to itself, and the frontispiece, which is covered by the chapter on illustrations, I propose to deal with the preliminaries in the order I have shown above, and the end-matter afterwards.

(A) THE BASTARD TITLE

This is page 1 of the book, unless, as in some books, it is preceded by blank leaves the purpose of which is to make the extent up to an even working convenient for machining. These blanks should not be confused with the free half of the endpaper, which is called the flyleaf, and on which some people have the amiable habit of writing their names.

It is curious that the word ‘bastard’ should be used for this purpose, but no more curious than that it should be used for anything that appears to be an imitation of or substitute for something else, or which is regarded as spurious. Our forebears saw something appropriate in the term, and did not mind these ‘strong’ words, as many people do now in a time that we like to think is more civilized, but is perhaps only more queasy. There has for many years been a tendency to say ‘half-title’ instead of ‘bastard title’, no doubt because of this objection to a ‘strong’
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word, but it is a bad tendency in that it bans an exact term in favour of one that is inexact. There can be only one bastard title in a book, but there may be several half-titles, for this term is used, inexactily, for any part title that occupies a page of itself.

In most books the bastard title bears only the name of the book and nothing more, and the style of setting is usually simple and unostentatious. The page does very little real work, and it may appear to be useless. If it does not appear so, it may be wondered how it managed to become so inevitable among the elements of a book. There are several theories of its origin, and what is probably one of the most reasonable of them I shall give in the next chapter, because it purports also to explain the origin of the title-page. Commonly the title of the book is set on the bastard title in a smallish size of type in the upper part of the page, though it is not unusual to find it placed exactly in the middle. Whether it stands in any preconceived typographical relation to other parts of the book is, it seems, a point of so little importance that it is scarcely to be wondered at if it is overlooked, and overlooked it often is. It is a neglected page, because so little can be done with it if the traditional restraint of its character is to be preserved; not even the moderns, or the modernists, have succeeded in stamping their new individuality upon the bastard title.

I think it best to link it typographically with the body of the book by setting the wording in one of the types used for the chapter head, and more often than not it turns out that the type of the chapter title itself is the most suitable. If this is done the question of the drop settles itself, for the line should obviously have the same drop as the corresponding line in the chapter head.

The style of an elaborate chapter head may appear too pretentious in the open space of the bastard title, and this is especially so when ornament or decoration is used; then the alternatives are compromise, or a simpler setting that will nevertheless harmonize with the style of the book. Decoration is not necessarily banned, but because of the very modesty of the page, it should be discreet. The bastard title is not a competitor
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of the title-page; it is not an ambassador extraordinary, but a mere vassal going before a lord to announce his approach.

(b) THE ANNOUNCEMENT

There is no common name for this, the reverse of the bastard title. The word 'announcement' does not always fit, because the page is frequently left blank and announces nothing to anybody: but when it is used, it is, in effect, used as an announcement or advertisement. Here may be listed the titles of other works by the same author, or other books in the same series, or other such cognate information. I find it also useful, when the author is replete with titles and distinctions and honours (of which, naturally, the reader must be informed), as a home for these details, which may make a whole block of type, and are an encumbrance and a nuisance on the title-page. They suffer no harm by this divorce, and it may be argued that in a more roomy space they can be made more legible, without being obtrusive.

In calling this page the announcement I have of purpose avoided the word 'advertisement' because of the blatancy of display that is connected with the latter word nowadays. On no account should this page be displayed in any manner that makes it compete with the title-page opposite. The title-page is the main announcement of the book; what is printed on the announcement itself finds itself there only because that page is one that otherwise would be left blank. Any matter upon it must be set discreetly in type not larger than that of the text, and possibly smaller, if the text type is large. It depends a great deal on the amount of matter to be included. A prolific writer may feel that it is an advantage to have all his previous books announced, but fecundity can in this connection be a nuisance, and typographically he may be well advised to restrict his pride.

(e) THE BIBLIOGRAPHICAL NOTE OR IMPRINT

This is usually called the biblio, which is as good a name for it as another, provided that it is remembered that, although the word 'biblio' is an abbreviation for 'bibliography', a biblio
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should never be called a bibliography. A bibliography, which should never be called a biblio, is quite a different thing and is placed near the end of the book. A biblio may also be called an imprint, if this is where the printer puts his name and address, which by law he should include somewhere in the book. The law does not dictate where the imprint is to go, and some printers prefer to put it at the end, either on the last printed page or on any blank that may follow it. On the biblio, however, by command of the American customs authorities, will be found the words ‘Printed in Great Britain’. The page is also used for a statement of the date of publication and details of previous reprints or editions. The publisher’s name and address may be included, and should be included if the title-page contains only his name.

There are here four elements—publisher, printer, ‘Printed in Great Britain’, and the details of editions—and they are too often set as four, scattered across the fair surface of the page, so many counters flung idly upon a table. It entails no great strain upon the mind to gather them together and to set them in some manner that shall at least be neat. There is nothing here that is of clamorous importance, and nothing that needs the emphasis of type larger than the text type. Indeed, if the text type is itself large, the biblio can very well be set in a smaller size. All the four elements can be gathered together in an orderly and grammatical paragraph and set like an ordinary paragraph of type, either to the text measure or narrower, perhaps in upper and lower-case italics or in even small capitals, or the paragraph may be made to tail off into a wedge; or each phrase may be set on a separate line, and centred, so that all together they make an irregular but not unpleasing shape; or there may be some other neat arrangement that satisfies and is not obtrusive. There is no great triumph to be won upon this field, but there is the minor pleasure of orderly existence.

In all but a very few books there is no indication of manufacture other than the printer’s imprint (the publisher being not a manufacturer, but an agent or factor). This imprint is that of the printer of the text. Illustrations may well have been printed
by another printer, and if they are printed by a different process they almost certainly have been; it is unfair not to designate any such printer. More serious, in my view, is the failure to name the binder. His omission was understandable, for his inclusion was impossible, when books were issued unbound or in temporary bindings, so that they could be rebound by hand; but to-day the binder plays an important part in the manufacture of a finished product and he is entitled to credit for his work. There are good binders and bad binders, and both might benefit by this publication of responsibility. For the good binder it would be a valuable advertisement; for the bad one it would be a public proclamation of his defects and might compel him to mend his ways.

(f) THE DEDICATION

A dedication is, I suppose, the result of paternal pride working upon the heart of the author, who here calls to the object of his admiration or affection to come and see what he has done, and suggests by including a name or other identifying phrase that it has all been done for the sake of or under the inspiration of the dedicatee.

There was a time when writers were fulsome in their dedications, but that time has passed, and we have become parsimonious of words. Nowadays we tend to say no more than ‘To John Smith’, although, if we are feeling loquacious, we may add a small quotation or even a phrase suggesting the nature of the debt to Mr. Smith. Our predecessors were more adventurous, more careless of the hearts upon their sleeves; they did not count their words like so much small change. If they wished to honour the person to whom the dedication was made, they did it without feeling that the mere fact of dedication was in itself enough. Everyone knows the charming, if perplexing, dedication of Shakespeare’s sonnets, which, perhaps in order not to lose any of the elements of the mystery, is still set in the double triangle arrangement in which it first appeared. Dedications were destined to become more fulsome and elaborate by far than T.T.’s tribute, and in the eighteenth century they attained
the height (or depth) of absurdity. A mere dedication was not enough, not by any means; it was thought desirable, or perhaps advisable is the right word, to wrap it up in four or five pages of highfalutin and generally servile nonsense; the eighteenth-century author loved to have a noble name to grace his pages, and thought he knew how a lord should be treated by those of lesser estate. That the noble lord may have provided the means whereby the book came to be written seems little excuse for this larded flattery. Such dedications were a formality in their time, and the terser modern dedication is the formality of our time. We may think that we are more sincere than our ancestors in this matter, and that their fulsome was no more than their way of paying off a monetary obligation. The truth is perhaps that neither the eighteenth century nor ourselves know how to pay a compliment without being self-conscious, and prolixity and terseness are merely two sides of the same medal.

We still accord the dedication the honour of a right-hand page, but nowadays it is set very simply, probably in one of the variations possible within the limitations of the text type, and placed at about the level of the chapter drop or at the optical centre of the page. If it is rather more elaborate than the simple 'To John Smith', it may be treated monumentally but discreetly and set in capitals and in lines of varying length, each centred. The shape accidentally produced in this way is generally pleasing, and it needs only a little care in choosing the size of capitals and the amount of leading and in fixing the position upon the page to achieve a satisfactory result.

(G) THE PREFACE OR FOREWORD

It was once customary to set the preface in some manner distinct from that of the text, often in larger type or with wider leading, or even in italics throughout. When the preface was written by some notability, who had thus graciously condescended to boost the book, the flattery of large type perhaps struck home. We are plainer to-day and we have lost something of this local colour: the preface has come to be regarded as part of the book, and is set in the same type as the text.
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I see no reason why the preface head should be treated differently from the chapter head, though examples are not difficult to find in which it appears to have been regarded as belonging to another class. It is my practice to treat each heading between the preface and the commencement of the text in the same manner as the chapter head, including the headings of the list of contents and the list of illustrations; I like to have them in the same type and with the same drop as the chapter title (not the chapter number, which may be different). By this means a continuity is ensured that brings these trifles of the prelims within the unity of the book. But it cannot and should not always be done. Sometimes the repetition of the chapter-head style perhaps half a dozen times within as many pages proves as irritating and uncomfortable as a hoary joke. This may happen if the chapter head is elaborate or ingenious or is in some way unusual; the very point that makes for delight is blunted and spoiled by too frequent repetition.

The custom of placing the preface before the list of contents is old and tenacious, and in the main is right; but a reasonable objection is possible if the preface is a long one. It is an inconvenience and an annoyance to have to look through thirty or forty pages of preface before coming to the contents, and when the preface is so long that it makes the contents inaccessible in this manner, it is better to transpose the two and defy custom and tradition. If there is a list of illustrations, that should come along with the contents.

These long prefaces are often more truly introductions, and then the transposition is doubly warranted. Indeed, it is sometimes difficult to distinguish between a preface and an introduction, and as authors appear to have even more hazy notions about the matter than printers have, what they call them is of little importance. There are prefaces and there are introductions, and there are hybrids or mules that partake of both sides and in which both parents can be traced, with neither dominant. The printer has no terminology or disposition for the mule, and when it turns up is willing to accept whatever label may be attached to it. If, however, he thinks that it is long
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enough to be better as an introduction and puts it after the contents, he may feel a twinge that it should still be called a preface.

This confusion of the true natures of preface and introduction is further confused by a widespread ignorance among all kinds of writers concerning the difference between a preface and a foreword. That there is a difference appears to be a conviction, and it is not uncommon for a book to have both a preface and a foreword. There is, in fact, no difference whatever. The pair should be either both prefaces or both forewords—which you choose may depend on whether you are by persuasion a latinist or a saxonist. It is, it seems, the fear of repetition that strikes terror and calls for a difference; let us not, for mercy's sake, I hear the author say, use the same word twice—is it not a cardinal crime in the calendar of authorship? They must be differentiated. And this notion is carried out to the extent of labelling three plain prefaces, preface, foreword, and introduction. One book I came upon had, besides a preface and a foreword, an 'ante-scriptum'!

(1) THE LIST OF CONTENTS

It may appear that there is little room for display of individuality or virtuosity in so simple a thing as the list of contents, but it is in this page, together with the title-page, that bad design or no design does show obviously. Open any poorly made book and let us see what we shall find. There is wide spacing, with a large gap between the chapter number and the title. Between the chapter title and the page number there is a rash of dot leaders, placed there, apparently, under the impression that the reader must be an imbecile who cannot keep his eye on the line. Above one shoulder of the contents is the word 'chapter' in small letters, to inform the uninitiated that the figures below represent chapter numbers; above the other shoulder is the word 'page' with an equally essential function. Neither of these words is really necessary, and nothing is lost if they are omitted: if the word 'page' is thought essential or if it performs some small function in the pattern, as it may, it can be set in
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lower-case of roman or italics immediately before the first page number and on the same line, in type of the same size as the figures. Nor are the leaders desirable—white space is pleasanter; but the removal of the leaders may leave a large blank that really does make it difficult to keep one's eye on the line and to distinguish which page number belongs to which chapter. In that event the list can be set to a narrower measure and the difficulty will be gone.

Spacing on this page, as on any other, must be even. It is better to avoid the columnar effect achieved by inserting extra space after the chapter number; there should be no more than a normal space here, for the full point usually placed after the numeral is sufficient division without extra space. Chapter titles so long that they turn over on to a new line may produce unpleasantly wide spacing if an attempt is made, as it usually is, to space the first line out to the measure, and it is better to avoid this by sacrificing the straight alinement on the right and to leave the lines of varying length but with consistent spacing. Leading is important enough to deserve some consideration, for by means of it a measure of distinction and emphasis can be obtained that usefully distinguishes this page from any other without making it alien. Comparatively wide leading may be used with advantage, and particularly so if the page is set in capitals or small capitals. Variations in the leading should be avoided unless it is clear that variation performs some necessary duty: in a contents elaborated by the inclusion of part-titles and chapter summaries, it may be necessary to vary the leading.

Chapter numbers and page numbers should follow the text in the use of arabic or roman numerals. There is no sense in using arabic in the contents if the chapter heads have roman numerals, and there is no need to do so. All numerals set one under the other in a column must be alined on the right-hand side. Roman numerals running beyond xxx may prove awkward because of this, which is an argument against using them that reinforces the contention that people are unfamiliar with them and find it a nuisance to have to interpret. Roman numerals set in capitals, and any words in capitals, look better if they are

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letter-spaced one unit at least. This amount of space may be scarcely visible, and yet it is enough to make a difference, and a difference for the better, in the result.

The method of setting the contents with the chapter number on the left, then the chapter title, and finally, at the other end of the line, the page number, is usual, but not compulsory. There is no reason why any different method that will do the work required should not be tried. Involved typographical tricks are out of place in as much as they make the page, which is essentially a reference page, a nuisance to consult, but outside that limitation there is room for variety and experiment.

Not infrequently an author makes his contents a detailed and even elaborate guide to the book, including in it a résumé or list of heads of argument for each chapter and part. This may entail the use of several values of typographical emphasis, which can be provided for either by variations of type size or by means of leading, or in both ways together. It is better to avoid a redundancy of type sizes; the necessary emphasis can more often than not be achieved within the scope of the text size; even if other sizes are desirable for one reason or another, they will retain more of their value if they are used sparingly. In this kind of contents the aim should be lucidity; bungling produces only a forest of words, forbidding and trackless.

(j) THE LIST OF ILLUSTRATIONS

This, coming closely after the contents, is typographically closely related to it, and the layout of the one should be assimilated to that of the other. Where both are simple, they should be set in the same manner. There are, however, occasions when a difference is desirable, and a long or elaborate list following a short and simple contents is such an occasion. The expedients adopted to give value to a slight contents will make a large list of illustrations altogether too clumsy and some other form must be devised. This may mean nothing more than the setting of the contents in capitals and the list of illustrations in upper and lower-case of the same fount. It is customary to set in the list the full legends appearing below the illustrations
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themselves, and when these are brief it serves very well; but long legends are better abbreviated or digested in some manner, and the author should be persuaded to do this or to allow it to be done. In any event, such wording as 'left, Mr. Johnson; right, Mr. Smith' is out of place in the list, and legends of this kind are better altered to read simply: 'Mr. Johnson and Mr. Smith'.

END-MATTER

The oddments at the end of the book are more unpredictable than those at the front, and while it is possible to draw up a list of what may occur, as I have done below, it is quite another matter to claim that it is traditional or complete. What appears at the end of the book is subject to no laws other than those of authorship, and what the author wishes to insert there is his own business. Among the useful functions the end-matter performs is that of acting as a place of relegation; here may be printed, for example, the foreign originals of translations in the text, or perhaps there will be set out the body of an Act of Parliament of which the organs have been dissected in the book. But there are items that occur over and over among books, and from these a list may be prepared of common ingredients. These are:

(k) appendixes
(l) bibliography
(m) notes
(n) supplements
(o) indexes
(p) imprint or colophon
(q) advertisements

There is little point in dealing with these in detail item by item. The first four, except in special cases, are better set in the text type, with headings after the manner of the chapter heads. The index is customarily set in a smaller size of type than that of the text, and generally in double column; the columns may be separated by a rule down the centre of the page, and some printers insert this invariably, as though the phrase 'double column' also signified 'rule'; but I think it is a bad practice—
the rule serves no good purpose and might just as well be omitted.

The notes, too, are sometimes set in smaller type, and this is particularly so when they are no more than footnotes that have been transferred to the end, perhaps because the author is of the opinion that footnotes clutter up the text or because the typographer desires the effect of a clean and even rectangle of type. This, however, is no excuse for setting either the notes or the index so minutely that it requires an effort of the eye to be able to read them at all.

Explanatory notes that are in effect paragraphs outside the text should be set throughout in the text type, so that for those who wish to read them (and their inclusion is surely motivated by the notion that someone may wish to) there is no impediment. I remember one author who included some pages of notes and asked the publisher to have them set in very small type so that the reader should be discouraged from paying attention to them; an attitude of mind scarcely reasonable.

Bibliographies are boring things to compile, and the results of the boredom are all too often evident in the bibliography itself, expressed in uncertainties, hesitations, incompetencies, and inconsistencies. The compiler is frequently the author himself; it is a kind of work that he abhors and it is undertaken in the spirit of grim duty, whatever may have been the spirit in which the body of the book was written. Faced with a collection of minute bits of information, he is apt to become confused because he does not know how bibliographies are made. There are many authors, some have written more than one book, and for each book there is the following list of items: the name of the author, the title of the book, the name of its publisher, and the date of its publication; to these may be added volume, chapter, and page numbers for reference to particular passages. If the reference is to a magazine the number and the date of the issue and the titles of the article referred to ought to be given. It is necessary to get these items in some reasonable order, and to maintain it throughout the bibliography. I think it is best done as follows:
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History of Meath (Eason, 1905), ch. iii, p. 75.


Authors’ names can be set in caps and small caps for extra emphasis and to help the reader to pick them out during reference. In the absence of any other arrangement, the order should be alphabetical under the author’s name. Bibliographies are often divided up into sections corresponding with the chapters they refer to or to the subjects dealt with, and when this is done some simple form of crosshead must be devised to make the arrangement clear.

In a modern book the imprint, when it is placed at the end, is apt to be a very inconspicuous line in very small type, suggesting that the printer is afraid of claiming responsibility for his work, and would never dare to do so were it not for the compulsion of the law. But if the printing is well done there is every reason why the printer should announce that he has done it even if he has no other excuse than that good work is his best advertisement. This timidity contrasts with the boldness and self-assertion of the colophons used in the earlier days of printing, and still used at times, if a little self-consciously, by some printers who may feel that they are following in the steps of the private press. The Oxford University Press uses its coat of arms as a colophon, or, sometimes, following a later practice, sets it upon the title-page; it even uses it on jackets as the main decoration, which certainly does not suggest any shrinking from responsibility. Many early colophons were no more than a device incorporating the printer's initials, or were frankly monograms. They were printed on a separate page at the end of the book, often quite large, and not only suggested that the printer was proud of his work, but that he was pleased as Punch at having produced it, which often he had the right to be. Many of the colophon devices are decorative and charming, and it was not long before they graduated from the end of the book to the front, to become the chief ornament of the title-page, and

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imprint and advertisement to boot. Notably the Aldine printing house followed this practice, and examples of it will be seen among the illustrations in the next chapter.

But there were colophons more informative than the devices, which, with or without device, were set in type and gave details concerning the book; sometimes details concerning its production. Naturally their prime purpose was to give the name and address of the printer, but in addition they might give the date and the number of the edition, or other relevant information. The wording was frequently arranged to make some kind of pleasing shape, and might be embellished with flowers or borders. In some modern books the informative colophon reappears, and is extended to include details concerning the type and the paper it is printed on, and even the name of the typographer. I have already remarked that the name of the binder should appear, and where there is a colophon in a modern book he should be included in it. I would like to see the informative colophon used more widely than it is, because, or so it seems to me, it is desirable to make the reader conscious of the fact that there is more than one kind of type and more than one kind of paper, and to emphasize that books can and should be designed.

We have got away from the odious habit, common enough in the last century, of filling the last few pages of a book with commercial advertisements. When these advertisements consisted merely of a selected list of other books in the publisher's stock, some justification might be claimed; though against it there is the argument that a book is intended, in theory at least, to be permanent, and, no catalogue being anything of the kind, the two should not be confused. But the catalogue of books was a venial, even an amiable, thing compared with the advertisements for soap and sealing-wax or other desirable commodities that were inserted in books. There was no telling what one might come across. There might be something appropriate in concluding a sentimental novel, in which the hero and the heroine enter into connubial bliss in the last paragraph, with announcements for layettes and baby foods, but if it happened it
was quite fortuitous; an advertisement for whisky, that ancient bogey and breaker-up of happy homes, was just as likely. It was perhaps, a useful source of income, but I doubt that it enabled the publisher to make any reduction in the price of the book.

There appears to be something of psychological importance about a right-hand page. All the parts of a book other than the chapters are placed or begin on a right-hand page, to take advantage of the emphasis it confers. Bastard title, title-page, dedication, preface, lists of contents and of illustrations, all normally are placed or begin on right-hand (or recto) pages. After the preface the introduction and the first chapter, part-titles and the first pages of parts all begin on right-hand pages. Where illustrations are printed on one side of the paper only, they are made to face left-hand pages, that is, they are placed in the position of right-hand pages; they look wrong and unprofessional if they are placed otherwise. Only the frontispiece is an exception, and that may be said to derive its importance from the reflected glory of the title-page. All this may entail many blank left-hand pages, but if it does we accept them without discomfort as part of the effect of a book; as though a blank left-hand page scarcely mattered, where a blank right-hand one would matter very much.

What is the magic of a right-hand page? Is it anything more than that it is necessary to turn the first page of any book in order to find a left-hand page, and that therefore we regard the left-hand page as the back of a right-hand one? And who rates the back of anything at the same value as the front? This relation of back to front is not as obvious in the body of a book, but the idea is preserved in the terms ‘recto’ and ‘verso’, nowadays more in use with bibliophiles than printers.
THE TITLE-PAGE

We have become so accustomed to the title-page, its presence is now so inevitable, that a book without one would appear to us to be a book without a head. And yet the title-page has not always been indispensable; it is, in fact, a comparatively recent development in the history of books. No manuscript possesses one in the sense that we understand it, and of the few that do allow a leaf for the purpose many have the title on the back of that leaf, on what we would call page 2. The majority start straightway into the text on page 1 or 2, though not without, in many cases, some such annunciatory phrase as 'Here beginneth the history of Arthur king of Britain . . .'. The custom was international, and 'Here beginneth' or 'Incipit' or 'Cy commence' appears often enough to be monotonous.

If the reader of manuscripts felt no need of a title-page, how is it that we have come to regard it as indispensable? How and why was the title-page developed? There is no definite answer to these questions. Certainly the modern title-page serves a purpose of information that is essential now, whatever may have been the case four or five hundred years ago, and the rise of the necessity must have played some part in its development. The increasing importance of the title as a means of distinction and identification, of the author's name as a commercial asset, and of the publisher's name as a brand of value, must early have made itself felt, and if it did not of itself suggest the wisdom of setting aside a separate page for the display of these items, it must have caused the suggestion to be seized upon when it was made.
THE TITLE-PAGE

One theory put forward implies that the title-page originated as a matter of utility, that it arose out of a commercial necessity rather different from the one I have adumbrated above. A manuscript was bound immediately the scribe had finished with it, and was thus at once protected from the soilure of dust and handling. It is probable that this was also the practice with the first printed books, but it did not continue so; books began to be sent out to the bookseller unbound, packed in bales or barrels, and many of them must have remained unbound in the shop for long periods before they were sold. In this state, the first page, taking the brunt of wear and handling, was particularly liable to damage. To protect the text the printer took to leaving the first leaf blank, so that it could be cut away by the binder when its function was over, leaving the book whole and in good condition. But this expedient was only partially effective, because in protecting the book it also obscured its identity, to the inconvenience of both the bookseller and his customer; the blank page had to be turned to discover what the book was, and the first page of the book was once again exposed and endangered. To avoid this the title or some identifying phrase was printed on the face of the blank, which then assumed something of the appearance of a bastard title. As the inclusion of other information became desirable it developed and became the title-page. As soon as the value of this was realized, it too required protection, and the process began again. Another blank was added, and on this the title was printed as before and for the same reason. In this way the present arrangement of bastard title and title-page was arrived at. When the practice was established of binding printed books at once, the original purpose of the bastard title had been forgotten, and it became, as it has remained, a traditional part of the book.

It is of interest to remark that this theory of the development of the bastard title and title-page appears to be supported by the peculiar name the Germans give to the bastard title—Schmutztitel, or dirt title.

The theory is neat and plausible—in fact it is too neat and too plausible. History is seldom so tidy, so naïve and uncom-
licated as this, and small research is needed to show that there were other factors that contributed largely to the development of the title-page. No history of books can be written without the word 'colophon' cropping up very soon, for whatever it may have been in the beginning, the colophon soon became an embryo title-page, and not only that, but at times a potted preface and dedication as well. True, it appeared, not at the beginning of a book, but at the end, but the more it came to resemble a title-page, the more it tended to wander from its original home. As a title-page it took some time to settle down into what seems to us the logical position, and for a while it was apt to appear anywhere among the oddments, or even after a prologue. Caxton, for example, was notably undecided about what to do with it.

It was not until the sixteenth century that the fully developed title-page appeared, bearing the title of the book, the name of its author, and the name of the printer or bookseller who acted in the capacity of publisher, and even then it continued for a while to be the exception rather than the rule. The printer here proclaimed himself, for at this time the printer was a more important person than perhaps he was ever to be again; he was generally the publisher as well. The printer's device advanced from the colophon to take its place on the title-page, and on the score of decoration alone it not infrequently deserved its promotion. These devices had grown in size and grandeur and complexity, and it was not only for decorative reasons, or even for the purpose of identification, that they were brought forward. They were the equivalents of coats of arms, demonstrating the importance and the potency that the new craft of printing and its directors had acquired. They had become proud emblems, and the humble and hidden colophon was insufficient room for them. They spoke not only of the pride of the printer in himself, but also of his pride in his craft and in the example of his work that bore his mark.

The title-page of the sixteenth-century gothic book was often printed in the same size and face of type as that used for the text, at least in the early part of the century, and this

148. Typical 'Here beginneth', Cologne, 1485
Hye begynne de seuen psalmen
ker penitencien two duytessch.
Ere minterb
holgenheit en
straiff mynch
heit noch in dy
me tzone en be
rispel mich neit
A harme dich myze heren want
ich cranck by mache mych gesüt
want alle myne getepnte spryt
gesütter
Ind myne selte is altese
tere gesütter mer du hete we langer
Here dich wanne he in der
ter myne selte mache mych gesüt
t van dyne barmhertigkeit.
Want heyn en is in EÚoer
der dynter gedachte sal ind wer
practice is noticeable in the immature title-page of the previous century. The need for diversity soon made itself felt, however, and larger sizes of type, especially of the impressive lettre de forme, were brought in for the main line. This line was not necessarily the whole of the title; the pattern of the page seems to have occupied the designer more than any question of shades of emphasis, and what was set in the larger type was simply the first few words of the phrase that formed the title, as much, in short, as could be got into the line; the remainder was set in the following lines in a smaller size of type and even in a different face. The result apparently produced no sense of discomfort. Gothic types, and particularly lettre de forme, were used on title-pages otherwise set throughout in roman, in exactly the way I have described. Nothing odd was felt in having part of the title in a large size of gothic and the rest in a smaller size of roman, not even when the division came, as it often did, at a hyphen in the middle of a divided word.

The gothic line was in many instances cut in wood rather than set, and by this means the intricacy to which gothic lends itself was exploited to produce lettering delightfully decorative, if not always legible. It was carried to such lengths that the title became as much a decoration as a group of words. Then a fashion arose of cutting a device or illustration also, which caused little extra work for the printer, and enhanced the appearance of the page still further. Many of these woodcuts are remarkable for the understanding they show of the typographical problems concerned in the marriage of type and illustration, problems that in our time are too often ignored. Elaborate and beautiful borders were also cut in wood with similar success, and there are examples designed by artists of such eminence as Dürer and Holbein. Many of these borders were designed for particular books and included scenes or symbols appropriate to particular trades, professions, or subjects. Theoretically their use was restricted to the subjects for which they were intended, but in practice there seem never to have been enough borders to suit the printer's purpose, and he did

149. The first displayed title-page, Ratdolt, Venice, 1476
Aureus hic liber est: non est preciosior ullā
Genia kalendarō: quod docet stud opus.
Aureus hic numerus: lūne: solis: laborēs
Monstrantur facile: cunctāq: signa polī:
Quotō sub boc libro tetēr: per longā regantur
Scitur in instanti quæcunque sit hora diei.
Hunc emat astrologus qui uelit esse cito.
Hoc Ioannes opus regiō de monte probatum
Composit: tota notus in Italia.
Quod ueneta impressum fuit in tellure per illos
Infersius quorum nomina pīcta loco.

1476.

Bernardus pictor de Augusta
Petrus loslein de Langeneen.
Erbardus radolt de Augusta
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not hesitate to regard any border as merely decorative and to apply it in books for which it is, for us at least, incongruous.

Decorative arabesque borders built of type flowers appeared in the sixteenth century, and enjoyed considerable vogue. The patterns that could be made with them were limited in variety, however, and no doubt this was partly responsible for their disappearance eventually. They were revived in the eighteenth century with flowers capable of greater variety in assembly, only to be dismaded once more by a growing tendency towards purity, or puritanism, which eschewed all kinds of ornament. They soon reappeared, and never again lost their appeal completely.

The printer was not always immersed in the delights of woodcut illustrations and borders, and type flowers, and at times he preferred to embellish his page by means of rules printed in black or in colour, or even to depend on the effect of type alone. With a little ingenuity—there was perhaps too much ingenuity—rules were formed into various patterns and frames, and were sometimes combined with woodcuts or other devices to give a new twist to an old border. When rules and borders and all such adventitious aids were dispensed with, ingenuity was applied to making shapes out of type masses. A common one was that of the hour-glass or the double triangle. It was no doubt a pleasant pastime, giving much innocent pleasure to the compositor when it was his own idea, or annoying him when it wasn’t, but it soon palls on the reader. It was the fag end of the enthusiasm for experiment that always arises with a new process; and a similar progress was soon to start with a different method of printing—engraving.

Engraved title-pages were popular throughout the seventeenth century. In some instances only part of the title-page was printed by this means, but more commonly it was the whole of it. Later there were to be books printed throughout by engraving. The effect of an engraved page is pleasantly different, and no doubt the novelty was in some degree responsible for the increasing frequency of the use of the process. Many kinds of illustration or device or decoration in combination with lettering

150. Title-page showing typical mixture of gothic and roman, and division of words, 1545
A PRONO:

A procyon practyled
by master Mathi-
as Brothelok
Kauens-
burgh.
Anno. 1545.

EXCVDEBAT LONDINI

Richardus Graffoimus clarissimi
Principis Edouardi typo-
graphus.
can be printed by engraving, and engraved title-pages were often very beautiful while they remained comparatively simple. Later on they were developed in elaboration and virtuosity to such an extent that at last they became pompous and overburdened, the lettering becoming of quite secondary importance. The word 'engraved' when applied to a title-page still suggests something of this pretentiousness. Engraving was a fashion that flourished and became rich and died of surfeit. Yet even at best it is true that there is something incompatible in its marriage with typography; and perhaps there is recognition of this in the common practice of providing a typographical title-page behind the engraved one. Nevertheless, it had another vogue in the eighteenth century.

Colour has at all times been used in typographical and woodcut title-pages, and the combination chosen has most commonly been black and red. This is again an inheritance from the manuscript, derived through the incunabula. It survives because of its peculiar effectiveness and adaptability. Green and black is another effective combination that continues to be used with success, but its popularity is much smaller.

The best examples of every period demonstrate the truth of the contention that colour, if it is to have its full effect, must be used with restraint, and early printed books show no exception of any importance. Frequently the colour was used for one line only, usually the main line, or it was used to heighten the effect of a decoration or border. In gothic books it was used more generously, even to the extent of printing alternate words of a paragraph title in red and black—a practice akin to that from which, because of the appearance of a rich textile that resulted, we have derived our word 'text'.

During the seventeenth century a peculiar sort of typographical title-page came into fashion the aim of which appeared to be to give a maximum amount of information concerning the book, its author, and its publisher, and also a conspectus of the types in the printer's office. The wording scrambled over the page, crammed and crowded and tautological, so that it is to be wondered what sort of mind deemed such a portal necessary for
IL LIBRO DEL CORTEGIANO
DEL CONTE BALDESSAR
CASTIGLIONE,
Nuovamente ristampato.

IN VENETIA, M. D. XLV.
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a plain book. These were pages of dual purpose: the printer struck off a number of copies of the title-page alone, to be used as posters and stuck up on hoardings or in shop windows for advertisement. Hence the wealth of wording: these people did not know, or did not heed, the notion that posters should be so managed that he who runs may read, and perhaps they were not wrong. But they did confound principles: a title-page is not an advertisement in this sense, and it serves a purpose the antithesis of that of the poster. The two cannot be combined.

With the eighteenth century there came some simplification in the design of title-pages, as of books as a whole, and in the latter part of the century this proceeded to its furthest extent—extreme would be the wrong word to use. It must not be thought that the result was bareness or aridity. That sense of proportion and excellence of taste evident in this period in so many things was not absent from books. On the contrary it was exhibited in what was perhaps its purest form, and as in other things, simplicity was more apparent than real. If to abandon ornament and decoration is to be simple, then the typography of the period was often simple; but subtlety may inform simplicity, and in the work of such men as Baskerville and Bodoni and Didot there was decided subtlety in exact spacing and the use of a limited range of type sizes and a more strictly limited range of type faces to achieve perfect proportion. In the best title-pages of Baskerville and Bodoni not the smallest alteration can be made without detracting from the perfection of the whole. Classical simplicity is never as simple as it looks.

These printers worked with types they had designed themselves and of which they had every reason to be proud. Their typography was intended to show off the merits of their types, and they adopted styles that only types of great excellence could support. Where there is ornament or decoration a defective type face may go unnoticed, but when these are made away with and typography is reduced to its bare essentials the lettering must be capable of supporting the whole weight of the burden.

The emergence of a classical formula should have proved a healthy corrective to extravagance, but its period proved in the

152. Poster title-page, London, 1663
CABALA,
Sive SCRINIA SACRA,
Mysteries of State
and Government:
IN LETTERS
OF
Illustrious Persons and Great Ministers of State
As well Foreign as Domestick,
In the Reigns of King HENRY the Eighth,
Q: ELIZABETH,
K: JAMES, and K: CHARLES:
WHEREIN
Such Secrets of Empire, and Publick Affairs, as were then in Agitation,
are clearly Represented;
And many remarkable Passages faithfully Collected,
Formerly in Two Volumes.
To which is added several Choice LETTERS and Negotiations, no where else Published.
Now Collected and Printed together in One Volume.

With two Exact Tables, the One of the Letters, and the Other of Things most Observable,

LONDON,
Printed for G. Bedell and T. Collins, and are to be sold at their Shop
at the Middle-Temple-Gate in Fleetstreet,
M: DC: LXIII.
event to be no more than an interval; for with the new century, the nineteenth, taste returned to a profusion of both ornament and wording. Ingenuity was applied to letter design as it never had been before, and great quantities of new faces appeared on the printed page. Ingenuity in the use of these letters was also abundant. We think of many things Victorian with a shudder and thank God we live in another and better time; as if to say, 'There but for the grace of my better taste go I.' Until very recently the word 'Victorian' was an epithet of pure disdain, and even our tardy appreciation of some of the notions and things of that rapidly receding period is not untinged with condescension. It is true that much Victorian typography is bad, and very bad indeed, in despite of the hours of labour lavished on it: either this or the springs of their aesthetic remain incomprehensible to us.

The blame has been put on the lithographer. Certainly that capable gentleman, his craft but lately perfected, was having his dog's day. The limitations of the rectangular type body, which had hitherto acted in some degree as a healthily corrective corset to the fancy of the letter designer, did not apply when he turned his attention to lithography. There his fancy expanded floridly and grotesquely. The typefounder followed in his steps to the best of his ability. The formula that resulted, in which both lettering and ornament are loaded and over-loaded with sentiment, may to a more sober conscience and a sadder day appear to be bad in itself, yet it did achieve successes, even if of a minor kind. There is no longer any thrill in the title-page of, let us say, a Christmas story made up of letters contrived out of icicles or of twigs crowned with snow and robins. The title-page of a ladies' annual might well be enlivened (or smothered) by every kind of decorated letter the printer could lay his hands on or the artist invent—and in the latter case there might also be a sprinkling of half-naked (but discreet) graces and totally naked (but sexless) cherubs. Much of this work is indescribably vulgar and superficial, and yet it was not the formula that was wholly to blame. Some Victorian title-pages, and in particular those of the travel books, achieved
charm of a kind impossible in any other period. Certainly it is sentimental and profuse and at times glib, but it is also delicate and even graceful. It is not great design, but the pleasure it gives has something of the quality of permanence.

Around about the seventies a remarkable idea arose that manifested itself particularly in posters but that also had its effect on the title-page—a conjunction that is reminiscent of the poster title of the seventeenth century. It is the doctrine that every line should fill the measure and be set in as large a type as possible, and, if it could be achieved, in a type face different from that of any other line on the page. I do not suppose that the doctrine was stated in this manner at that time, but I have heard it seriously so stated by an old comp in my time. There were now enough contracted and expanded types to make the idea capable of near fulfilment. A title of only one or two short words could be set in a type so expanded that it stretched from one end of the measure to the other, while below it the author’s name, perhaps a triple-barrelled one, would be set in a type so tall and narrow as to be scarcely legible. The word ‘by’ between the two could not possibly be made to fill the measure, but the desire that it should could be expressed by setting it in the most expanded type the office possessed, with an ornament on each side of it to enhance the effect.

The riot could not last, and as with most riots it gave way to an unnatural peace of law and order. Responsibility for this, or at least part of it, is laid with the rest of the groceries at the door of William Morris. His passion for medieval things led him to abandon the nineteenth century and caused him to reiterate the past, in the hope, perhaps, that it would burgeon into a new life; and in his hands it did appear to live again, even if the appearance of life was achieved by continuous artificial respiration. Morris went back a long way, even beyond the earliest days of the title-page. His books are untraditional in that they have a bastard title, but no title-page in the modern sense; thereafter he reverted to the style of the ancient ‘Here beginneth’. This appeared at the head of a page of text that was the most splendid thing in a splendid production. The
two pages of Chaucer reproduced here are from his finest work. The great decorated initials, the heavy, convoluted border, the close, almost crowded setting, these are marks of Morris's style. Now this page is not less decorative than the worst excess of the ingenious compositor, but it is decorative in a very different manner. Where the printer's work shows a hodge-podge of decorative vulgarities and unassimilated ideas of design, Morris's page is a carefully designed whole, with type, ornaments, and illustration contributing to and merged in a completely integrated unity. All this was quite different from what had for long been accepted as the proper thing, and the commercial printers of Morris's time neither understood what he was trying to do nor approved. They knew little or nothing of the distant days of their craft, and perhaps cared nothing for them, and in this as in other things in the making of books Morris's ideas seemed to them newfangled and irresponsible. Few, if any, of the established printers, followed Morris's lead, but many of the private presses that succeeded the Kelmscott in different parts of the country acknowledged Morris as their master and inspiration, in their work if not in words.

Something quite contrary to the richness of Morris's work has also come from the private press, and this is the style of title-page still used in the plays of Bernard Shaw. The title and the author's names and other details are set in capitals in the upper part of the page in the form of an ordinary paragraph without the initial indention. Sometimes the title begins with a large dropped initial letter. This over-simplified style is probably to be explained as a reaction against both the general excess of the latter half of the nineteenth century and also against the elaborate magnificence of Morris. The style soon died out, and in his adherence to it Mr. Shaw was, in this at least, old-fashioned.

There is no doubt that the influence of the private presses was useful and even salutary for commercial book printing, despite the fact that many of them were so consciously odd in everything they did. Possibly they set the doddering craft of printing on its feet again, as some enthusiasts claim, but if they did,
D. JUNII JUVENALIS
ET
AULI PERSII FLACCI SATYRAE.

BIRMINGHAMIAE:
Typis JOHANNIS BASKERVILLE.
MDCCCLXII.
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printing went its own way, and it was not and could not be the way of the private press.

Among the many styles of setting title-pages in force at the present time, a leaning towards simplicity and the elimination of unnecessary wording is evident. The verbal and typographical profusion of the Stuarts and Victorians is avoided, and in general the exemplars are Baskerville and Bodoni. The formula for the wording is basically: the title, the author’s name, and the name and address of the publisher. To these essentials there may be added as necessary the name of any preface writer or illustrator, or a quotation, or a date, and so forth. Ornament and other typographical embellishment are indulged in at the typographer’s inspiration, but we no longer fill the page with miscellaneous information and a typesounder’s catalogue of faces and flowers.

It has, it appears, always been the custom to place the greatest weight of type, with the most important information, in the upper part of the page, even though much of the lower part is left blank, and this custom is still followed with very few exceptions. The reason for it is not far to seek. It is that the natural optical centre of the page is distinctly higher than the physical centre, appearing at approximately a third of the depth down, which corresponds with the painter’s rule of the intersection of thirds. There are, as I have suggested, exceptions to this placing of the type mass at the optical centre, but they depend on some means of leading the eye from the optical centre to the position chosen for the type mass: which in effect means no abandonment of the rule. The title of the book and the name of the author are generally set in the upper part and the name of the publisher in the lower. The title usually comes first, but on occasion the author’s name is found at the top with the title beneath it. The latter arrangement brings the title more nearly on the optical centre, and yet also places more emphasis on the author. If the author is to be emphasized, obviously he must be of some importance, and therefore the arrangement should not be adopted in books in which the point of authorship is no great matter—a state and a statement not as illogical as they may appear.

154. Bodoni title-page, Parma, 1791. Note the curled serifs on the word ‘Flacci’
Q. HORATII FLacci OPERA

PARMAE
IN AEDIBVS PALATINIS
CID IC CC LXXXI
TYPOIS BODONIANIS
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This slight variety practically exhausts the possibilities of the title-page so far as the order of the items is concerned, and even the modernists scarcely ever depart from it. There is no need to quarrel with it, for this inflexibility is the rock on which all the modest and gaudy, good, bad, and middling title-pages of millions of books have been built. Variety is brought in by the endless subtleties of type faces and type sizes, by display and spacing, and further by the use of borders, ornaments, illustrations, rules, and whatever may be printed; and the addition of colour increases still further a scope already incalculable.

But there is little virtue in mere variety. Whatever kind of title-page may be conceived for any book, it must bear a relation to the design of the text. It is homogeneity that is here the virtue. The simplest way to achieve it is to set the title-page within the field of the text area and in the type face used for the text—a direction in which lie both the commonplace and the excellent. Where contrasting, or even clashing, type faces have been used to enliven or characterize the chapter headings, they can be adopted in the title-page: for the title-page is the introduction to the typography as well as to the subject of the book. I regard it as the most obvious test of the book typographer's ability. It is here that he may indulge his sense of design, but he must control himself too, for it does not do to be carried away by enthusiasm for this or that type or fashion of typography. In the end it is by the total effect, including consonance with the subject and the literary style of the author, that a book must be judged.

Display is a term that covers all the means that are summed up in the result, and it is misleading to suggest that any one element of it is of primary importance; perfection is achieved only in the perfection of every detail. Of the elements of display, disposition and spacing are placed first in this account only because they are apt to present themselves first for consideration. It is plain that disposition of the words upon the page must be closely allied with their sense, and in any division of lines that becomes necessary this must be taken into account; and there is also to be taken into account their relative importance among themselves. The title is commonly set in a larger

155. Bodoni title-page, Parma, 1806
ORATIO
DOMINICA
IN
CLV. LINGVAS
VERSA
ET
EXOTICIS CHARACTERIBVS
PLEVMOVE EXPRESSA.

PARMAE

TYPIS BODONIANIS
MDCCCVI.
size than anything else on the page in order to give it the primary emphasis it is deemed to deserve, but this practice is not without exception. A title-page can be set in one size of type throughout and relative emphasis secured by position and spacing. Spacing is of importance, because by its means lines can be placed in exactly the position that best enhances and enforces them in relation to others, a matter in which Bodoni and Baskerville, with their nice sense of judgement, still remain the best models.

There is an unfortunate tendency among compositors to put too much space between words in display lines, and this is particularly in evidence when the lines are set in capitals. The effect is a division of the line into so many segments and is destructive of unity. It is undesirable and unnecessary and can easily be avoided. Generally a thick space is sufficient for lowercase and an en space for capitals, but rather more is needed if the line is letter-spaced.

Letter-spacing is a simple and effective means of achieving emphasis and enhancing legibility, and even of obtaining variety, for in some subtle manner it alters the appearance of a face, the extent of the alteration varying with the amount of letter-spacing. But it is easily overdone. Capitals are nearly always better for slight letter-spacing, but many lines generously letter-spaced are trying to the eye, and prevent an instant grasp of word shapes. Yet single lines can be spaced very widely indeed without losing their identity as made up of words. Baskerville was particularly fond of generous letter-spacing, and Theodore de Vinne remarked of one of his title-pages that it looked as though the letters had been flung apart by an explosion—a criticism more unkind than useful. Heavy types, such as the fat faces, e.g. Falstaff, Ultra Bodoni, etc., look better and are more legible when generously spaced; and so too do the condensed or elongated types. Incidentally letter-spacing allows optically equal spacing of letters to be obtained much more easily than when they are set close.

Lines of upper and lower case are sometimes found letter-spaced. It should be done only with the very greatest care,
because the result is apt to be more novel than pleasant—the spaces begin to look intrusive and the individual letters are over-emphasized. In my opinion the necessity for spacing lowercase characters occurs very seldom indeed, and even the little that is done nowadays is often too much.

For our own convenience we may divide the title-pages of the present day into five classifications, in one or other of which any title-page will be included. These five classifications are: plain; decorated; illustrated; coloured; and miscellaneous. The last heading may appear to have been included merely to gather up anything that could not be included under the others, but actually I have used it to cover the modern and the modernistic and the deliberately different.

I have already suggested that the plain title-page may not be as simple as it looks. By the word ‘plain’ I intend nothing derogatory, but merely that style that depends for its effect upon exploitation of the good qualities of a type face by means of display, and that eschews the use of flowers, ornaments, or borders. No doubt the majority of title-pages of the last twenty or thirty years come within this category, but by no means are all included by right of merit. Like any classification, the present one is subject to division, in this case into the good, the bad, and the merely indifferent. In our time, in books at least, we are free of the notion that typography must depend on embellishment for its effect, but we do not always avoid the contrary danger of believing that any plain piece of typography must be successful. Too much of this kind of work is dull or insipid. There are many books that are of no more than ephemeral value, and intended as such; they are business-like and ordinary, and there is no reason why the typographer should exert himself unduly on their account. Their typography may with justice be left on the higher levels of mediocrity. These, the middling good, form the plain from which we may measure the mountains.

No formula is capable of producing good work automatically, whatever the branch of design, and fine typography as much as any needs individuality, imagination, and discrimination. The need of these qualities is perhaps more acute in the design of
'plain' title-pages than when decoration is resorted to, for in the latter case the design may get away with it more on the strength of the decoration than on the ability with which it is used. Sound choice of face and nice judgement in its use are essential. In the relation of type sizes one to another, in the contrast or harmony of mixed faces, and in their placing upon the page, there is the possibility of immense variety; yet for any given combination there is, it often seems, only one final perfection, and to achieve it is not always an easy matter. It depends not only on the layout, but also on the paper and the ink and the printing, not only on the typographer, but also on the printer.

I have arbitrarily excluded from the plain class all title-pages containing rules or ornaments, but there is in practice no such clear-cut or natural division. If we cannot be arbitrary it would be difficult to say where the plain title-page ends and the decorated one begins, though it is easy enough to recognize specimens of either. It is reasonable to argue that plain rules may be entirely functional and therefore essential, but it is only a step from plain rules to swelled rules, and thence by a chain of nuances to the most elaborate decoration.

The simplest use of the rule is for emphasis or underlining; but rules can also be used for separation, or to divide space, to partition the field of the page into compartments. For these purposes the rule may be of any length required, and may even bleed at either or both ends, and it may be of any thickness that does not throw the page out of balance. Generally, but not invariably, the rule should not be heavier than the weight of the thickest stroke of lettering on the page, unless it is to be printed in colour. Rules of different weights lend themselves to combination, and such combined, or composite, rules are effective in the right places. Rule combinations make effective borders, particularly if a second colour is used. Indeed, there is more in the rule than is always realized, and a useful essay might be written on its function in typography.

The swelled rule, wide in the middle and reduced by a curved line to a point at each end, is a simple contrivance, but an effective one. The curved taper confers on it a quality quite
The works of Geoffrey Chaucer now newly imprinted.
HERE BEGINNETH THE TALES OF CANTERBURY AND FIRST THE PROLOGUE THEREOF

The tender croppen, and the yonge sonne
Nath in the Ram his halfe cource yronne,
And smale fowles make melodie,
That sleepe in the nyght with open eye.
So prieth hem nature in her corages;
Thanne longen folke to goo on pilgrimes.
And palmeres for to seek straunge strondes
To serve halwe, howte in sondry londes;
And specially, from every shires ende
Of Engeland, to Caunterbury they wende,
The hooly blissful martir for to see,
That hem hath holpen whan that they were anche.

THAT April with his shoures soote
The droutht of March hath perced to the roote,
And bathed every seyne in swich lioure.
Of which vertu engendered in the flour;
When Zephirus eek with his sweeete breath
Inspired hath in every holt and heethe

BIL that in that season on a day
In Southwerk at the Cabard as I lay,
Redy to wenden on my pilgrims-
To Caunterbury with ful devot corage.
At nyght were come into that hostelry
Wei nyne and twenty in a companyse,
Of sondry folk, by aventure yfalde
In felaweisphe, and pilgrimes wered they alle,
That toward Caunterbury wolen ryde.
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different from that of the plain rule; it gives it grace and
elegance, but at the same time it restricts its potentialities. Even
so, its value is greater than common use suggests. As a mere
ornament upon the page, a petty adjunct, it has no great merit.
Used with more imagination, it can convert what might other-
wise have been an undistinguished piece of display into one
possessed of some dignity and strength. On a title-page it may
be used to give breadth where the wording otherwise makes the
composition narrow. Essentially conventional and conservative,
it possesses nevertheless an atmosphere peculiarly its own, and
it will repay experiment.

Swelled rules, as I have said, point towards the decorative,
and within their shape and that of the allied French rule there
are many patterns, some of them complex. These patterned
rules undoubtedly come under the heading of decoration or
ornament quite as much as do printers' flowers or efflorescent or
geometrical borders and so forth. In the employment of decora-
tion on a title-page there are various considerations to be kept
in mind. It should suit the character of the book, be in harmony
with the subject and the style in which it is written—obviously
literary and typographical expression must not be at variance.
A book is not like the amorphous lump of stone or clay upon
which the sculptor imposes his conception; on the contrary,
before it comes to the typographer at all there is embodied in it
deliberate design. It is not a graphic expression, but it does con-
tain within it a germ, or direction, if you will, that influences
typographic design applied to it, or at least should do so.
Unwittingly, the shape of the book has been broadly and
roughly indicated by the author (though it is nothing unusual
to find that the author's conscious desire is for something totally
and childishly incongruous), and it is the typographer's concern
to bring the implied shape or pattern to the surface. If decora-
tion is implied, there lies in the combination of type and
decoration the exact shade of expression the typographer
requires. He does not need to call in the artist, unless there is
some special reason, for there is no limit to the new patterns that
can be contrived out of existing units. A decoration or border

158. Title-page designed by D. B. Updike, The Merry-
mount Press, Boston, U.S.A., 1923
STEPHEN CRANE

BY

Thomas L. Raymond

NEWARK NEW JERSEY
The Carteret Book Club
1923
made by an artist, however, has an effect different from that of one made up of type units, and possesses a freedom and continuity not otherwise readily obtainable. This is noticeable in the better examples of the woodcut borders and pieces to be found in old books, and it is a pleasant thing to reproduce them for use in another book of this later day; they can generally be reproduced without trouble by line block, though some may need retouching. This source of decoration has been very little explored from this angle, which is strange when it is remembered that many of the printers' flowers now in use are recuttings of older ones. There are many fine things in old books, and they are still capable of freshness and surprise.

I have so far laid especial stress on decoration, but it is essential to remember that the title-page has a job to do and that, though decoration may be used, the page does not exist merely for its display. The central motif must always be the type; the words are the real point. Though decoration and words be welded into a single design, a unity, and though the total effect be aesthetic as well as literary, yet the decoration is there only to subserve, or better, to enhance, the literary meaning of the page. If the details of authorship, title, and publisher are confused or overwhelmed, however fine the page may be as an example of decorative art, as a title-page it is a failure. That is inescapable, and yet it was sometimes forgotten or ignored by the Victorians and also by some of the private presses, not excluding the great Morris himself. But decoration is not often pushed as far as this in a typographical page—the uncompromising horizontals of lines of type are the salvation of many who are too fond of ornament. Type and type ornaments or flowers are made to go together, and with whatever measure of felicity they will cohabit even where they will not marry. It is in the partly or wholly drawn title-page that the danger of submersion of the wording is most likely to arise.

The drawn title-page is a comparative rarity. The equivalent was popular in the heyday of engraving, and it appeared again, this time through the medium of lithography, in the nineteenth century, and once more, either engraved on wood or reproduced

159. Title-page, *The Iliad*, Nonesuch Press, 1931
HOMER
THE ILIAD
POPE

THE NONESUCH PRESS MCMXXXI
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by means of the line block, towards the end of the century. But it seems never to have achieved any permanent popularity, in spite of the rise of the drawn bookjacket. The artist has staked his claim in the field of jacket design, but has failed utterly to achieve any lasting influence on the design of the title-page. Some of the reasons, if not all, are fairly obvious. There is, of course, the extra expense of the artist's fee and the cost of reproduction; but the greatest obstacle in the way of any publisher who might like to experiment in this direction is the dearth of suitable artists. An artist capable of the work must have an intimate knowledge of letter design and good taste in its use. The fancy display lettering in use in advertising, which may be valuable when used on bookjackets, is nearly always out of place on the title-page; here the need is for a purer, less self-assertive form. Again, knowledge of process-engraving is necessary, the more expert the better. Few artists can both draw and letter well; fewer still know how their work will be reproduced, or how to make the most of their opportunities within the stringent limits of printing processes.

Pictures and devices of one kind or another have appeared on title-pages from the earliest times. Speaking generally, any picture used here serves the purpose of decoration, and should in justice be treated under that head. If the drawing is well done, with understanding and appreciation of the type face with which it is to be used, a picture may certainly contribute greatly to the beauty of a fine page. How the picture should be placed, and how large it should be, and what shape, are questions with more than one answer, and obviously depend on the design of the whole page, but the artist should know what is being done and should work in collaboration with the typographer. He may, indeed, subject to the typographer's direction, design the page and choose the types himself. How often these ideal conditions are fulfilled is another matter.

I have used the word 'picture' in this context because of its convenience, though it embraces a wide variety of graphic expression, but one sense I want to avoid is that of illustration. It is nearly always undesirable to use on a title-page a picture

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16 Engraved title-page from Theatrum Praecipuarum Urbium, Amsterdam, 1657
LE
DÉCAMÉRON
FRANÇAIS.
PAR M. D'USSIEUX.
TOME SECONDE.

À PARIS
Chez DUFOUR Libraire rue St. Jean de Beauvais.

M DCCLXXIV.
that is truly illustration in the sense that it depicts some definite action in a narrative. Such a picture is almost bound to have too strongly individualized or detailed an interest to join with the abstract qualities of the title-page, which represents, at least theoretically, the whole book.

Even when colour appears nowhere else in a book, it may be used with advantage on the title-page. It cannot make good typography out of bad, as some designers appear at times to believe, and it will not improve a page that is entirely satisfactory in black only. It should not be used for its own sake, and it should not be spread with too lavish a hand. Used discreetly and skilfully, it can bring with it a jewel-like quality that is not otherwise easily obtainable.

Colour has at all times been used on title-pages, and as in printing it entails an extra cost, it is in books of special interest or merit that it is most likely to be found, that is, in editions that are intended to be better than the common run. These conditions still hold, though it is now the publisher and not the printer who controls the use of colour—unless the reader, with a pen and a bottle of ink, chooses to add the colour for himself. Adding colour in this way was popular in the seventeenth and eighteenth centuries, and perhaps earlier, and commonly took the form of inscribing red rules crossing at the corners in the manner of an Oxford border. So many books embellished in this way have survived that it is a little difficult to say who really did do the embellishing. Was it the printer, who found that it was easier and cheaper to draw coloured rules by hand than to print them (a questionable conclusion), or did there exist an army of indefatigable book-lovers who spent hours ruling books in this manner? Some books have every page ruled by hand, each page bearing six or seven different lines. Bibles were favourite subjects, and being rather long books, offered ample scope to the practitioner. It is difficult even to say whether the printer foresaw the ruling and allowed for it, for every specimen I have seen would have been a perfectly normal book of the period without it. What the practice does show is the strength of the desire for colour in books, at that time at
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least. For those who want to try it now, a little experiment with a pen and ruler will show how much the effect can be varied.

To-day the addition of colour to a title-page, however small the amount, remains as it has always been, an additional expense. That is no doubt the main reason why colour is so little used in modern books, and it weighs seriously whether colour is worth while for the book in hand. It may also lurk behind the notion, not uncommon, that if colour is to be used, one might just as well have a lot of it as a little.

It is commonly considered that colour is emphatic, and that this is so may be most easily seen in the posters that come from the local jobbing printer—nearly always it is the important lines that are in colour. I believe it to be a fallacy, and that the truth is that, compared with black, colour is recessive, even when the colour is red. It forms as it were a second plane, a screen or level one step beyond the black. Thus, the introduction of colour gives a prominence, a sense of relief, to the black that is not observable when black alone is used. Colour therefore imports a new set of values into display. A page in two colours must be designed as such, because each size and face of type becomes endowed with characteristics it does not possess in the absence of colour. For example, where an important line, such as the title itself, is to be printed in colour, it must be set in a manner that will give it emphasis, that might indeed make it over-emphatic if it were printed in black. This can be done by setting it in a larger size of type, or in a bolder face, or by means of spacing or disposition. Colour and type must be interdependent, must rest in a state of suspended balance.

Emphasis may be gained by a restricted, even parsimonious, use of colour in other places than the main type line. I have said that colour introduces another plane, and that this must imply that it makes the black to stand forth. A small amount of colour will do this: one thin rule in red may be enough to give quite a different effect to the entire page. This is especially noticeable when the presswork is good and the quality of the inks high. So small a quantity of colour may be hard to defend when set

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162. Title-page cut on wood by Eric Gill for the Golden Cockerel Press, 1927
TROILUS AND CRISEYDE

BY GEOFFREY CHAUCER
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against the deal of trouble necessary to place it there, but it can
be worth while in the end.

While emphasis is a function of colour, it is not in my
opinion its most important function, at least on the title-page.
It is the sparkle, the quality of the jewel, it brings with it, that
interests me more, and the feeling of depth, of perspective, that
is implicit in the illusion of planes. Emphasis is inseparable from
colour, however it may be used, but it is the wholeness or unity
of the design in which it is used, and the aesthetic value of the
design, that matter, not the force with which it impresses salient
details on the eye or the mind.

Different colours naturally have different effects, and they
must be used differently to achieve the best result. Red is
potent, like an old liqueur, and a little is usually enough.
Bright reds, like vermilion, have a tendency to rawness, par-
ticularly in the mass, even to the extent of offence, and I
prefer reds that have something of brown in them, rusty reds
and autumn reds. They are brilliant among the black, but with
a soft, warm fire. Brown, on the other hand, is a dull colour
with black, and must have a little red in its composition if it is
to please. Blue appears to me to lack vigour, to be too languorous
a colour to consort well with a rich black, even when the blue
too is rich; but this is no doubt a personal reaction, for there are
many who like blue. Green, if it is not too yellow a green on the
one hand, or too blue-bottle a green on the other, is a good
colour. It is in some senses opposite to red, because where red is
bright and enlivens the page by its vividness, green is cool and
restful; but it is like red in that it combines well with black.

Diluted colours, like pink or Cambridge blue, are not much
used, and when they are tend to give an impression of femin-
nity. Mixed colours, such as magenta and lilac, are rather
precious, but effective and valuable where preciousness is not
out of place. Yellow is valueless, unless it can be surrounded
with black, as in a two-colour type face; otherwise it is prac-
tically invisible on white paper.

The colour of the paper on which colour is printed naturally
influences the total effect. Pure white shows any colour at its

163. Title-page designed by Seán Jennett, London, 1945;
the border is enlarged from the device in Figure 151
EDITH OLIVIER

FOUR VICTORIAN LADIES OF WILTSHIRE

with
an essay on
THOSE LEISURED LADIES

FABER & FABER
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best. Inks are more or less transparent, and the brilliance of white paper increases the brilliance of colours printed on it. Toned papers give a softer result, both because the contrast is reduced and because the brilliance is less, because the tone to some extent alters the colours.

The classification 'miscellaneous', which I cheerfully admit is no classification at all, is so capacious that I cannot pretend to deal with everything that may be consigned to it. I might with justice have allotted the modern title-page a heading of its own in this chapter, but it seemed to me more convenient to deal with it here under 'miscellaneous', without, however, allowing the word to suggest that there is something trivial or contemptible about it. What the word may suggest in connection with the modernistic I scarcely care. The modern and the modernistic are not by any means the same thing, though the dividing line is sometimes indistinct. Dogmatically, it may be stated, as of some assistance in detection, that the modern may be good, but that the modernistic is always bad. This dichotomy is apparent in every branch of design and in the fine arts, and it is probably most easily observable in furniture and architecture. Here the modern arises from the emergence of new materials and the impact of new needs, and desires to use the materials through design to satisfy the need without hindrance from useless convention. The result not infrequently appears self-conscious, and when it is so it must be counted a failure. The self-consciousness arises no doubt because modern design has sprung a little abruptly from the bases on which it has necessarily grown. No kind of art can be entirely new and independent of the past, but modern design and art are often perilously close to believing that they are rootless. It is a temporary phase, and will pass.

What is called modernistic is sham art that follows a mistaken or false use of the methods or materials of the modern—or what its practitioners believe are those methods or materials. Consciously or not, it is deficient in integrity and simple honesty. Its aim generally appears to be to ape the successes of the modern, which presumably appeal to the modernistically minded, not out
of the necessity of the material or the need, but simply for commercial advantage. In furniture, at least, the intention appears to be to rope in customers who can be persuaded by superficial qualities to take the apparent for the real.

In typography there are no new materials and few new types that are not at least a hundred years old in original inspiration. The field may therefore appear to be somewhat unpromising. But there is new need; there is, in fact, enormous new need. The printed word is used in our day for purposes far more numerous and diverse than in any other period of its history. Advertising alone accounts for many new purposes, and it is out of advertising that the modern has grown, or so it seems to me, though the more obvious origin is the revolutionary example of the Bauhaus. The principles worked out in advertising and elsewhere have been applied to book production with undoubted success, though they had to suffer a sea-change first. It cannot reasonably be claimed that there is in book design the same need of a new aesthetic as may have been apparent in advertising, but there is no doubt that the modernists have contributed something worth while to books; and they have helped at all times to lift book design from the rut of complacency and self-satisfaction.

How should the modern be expressed typographically? Paper is still the material of books and type design must essentially be firmly rooted in the customs of the past. A man may live comfortably in a house that appears to have been built on principles different from any known before, but he cannot be comfortable with a book printed in type faces radically different from those he has become accustomed to. Even the mild revolution involved in the use of sanserif types for book texts proved a decided failure; success must have meant overturning the habits not only of a lifetime but of centuries. There have been only two such successful revolutions in the history of printed books: the first in the abandonment of gothic for the roman letter; and the second, far less drastic, that of Giambattista Bodoni.

None the less, though it was found that text types could not be

165. Title-page designed by Seán Jennett, London
COMPTON MACKENZIE

REALMS OF SILVER
One hundred years of banking in the East

ROUTLEDGE & KEGAN PAUL
Broadway House, Carter Lane
London
altered, the general layout of the book was made subject to experiment in the search for a different mode of expression. The Bauhaus led the way in the development of the modern, matching its revolutionary dogmas in this as in other branches of design, under the supervision of Walter Gropius, with Jan Tschichold in the role of typographical anarchist in chief. The Bauhaus was brought to an end by the servid opponents of 'Kultur-bolschevisms', and it was succeeded by a number of isolated workers scattered throughout the world. Many of these were products of the Bauhaus, and the others are mostly dependent on it for inspiration.

The principles underlying the modern in typographical design may appear fairly simple, but they are in fact as subtle as those underlying any other kind of design. The aim, as in architecture, is to produce a clear and articulated whole the primary purpose of which is to be of service, but which exploits the aesthetic involved in the purpose. In typography experiment is conducted through the whittling away of what are considered to be inessentials, through contrast of type faces, and rearrangement of the elements of the page. No preconceptions, at least ideally, are allowed to deter experiment or to deflect the aim. This determination is indeed often in danger of confusion with the desire to be different, and that is the slough into which the modernist too often falls. It is apparent in the practice of mixing types that no one had thought of mixing before. But if there were egregious failures that for a time passed as admirable, there have also been some astonishing successes.

A prominent characteristic is the use of space. It makes of space a forceful and yet subtle quality that is as important to the whole as the types that are more immediately obvious to the casual observer, though the effect of this use of space can scarcely be lost on anybody. There is a tendency to avoid the traditional centring of lines, and to set the type in blocks or areas related to one another by space rather than by their possession of a common axis. Flowers, decorations, and borders are avoided, but play is made with plain rules. Round blobs or stars in black or colour are sometimes used, but the tendency
seems to be towards severity, or, if you prefer it, towards purity. Type faces may in theory be of any kind in the catalogue, but in practice it is found that the variety is severely restricted. Those principally used are members of the sanserif group, for these are thought to represent the ultimate purity of type design—such things as serifs are excrescences and unnecessary. Later, and perhaps degenerate, practice has brought in members of the egyptian, script, and fat-face families—and of course the usual text faces.

Occasionally the dictum that the unit of design in a book is an opening appears to be taken to mean that the title-page should cover the opening, that is, two facing pages. It is an experiment that is interesting for its novelty, but in my opinion it is based on a misapprehension. However successful, such titles are always in some way uncomfortable; the fold between the two pages emphasizes that the opening is not a unit in this sense. It might be logical to incorporate the fold as part of the pattern, if it could be done, but I have yet to see it.

Perhaps the greatest disadvantage of the modern is an almost inescapable sense of fashion, which may be very well while the fashion lasts, but is undesirable when it has languished and died. The period of its production is too evident, and it may look as absurd as a woman in the style of thirty years ago. While the contents of the book may remain alive and valuable, its garb becomes that of an outworn mode.
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It is curiously interesting to consider how closely graphic action and speech are interwoven, how characterless of themselves are words that in speech are enforced by a lift of the eyebrow or a gesture of the hands. Sound and sight combine in the expression of an idea or an emotion. In literature this combination is paralleled in the relationship of the picture and the written word. In past ages the picture and the word were, indeed, the same thing, so close did they lie in the minds of men. Many languages recorded their literature by means of pictures, and the hieroglyphics of the Egyptians, the Hittites, and the Mayans, and the pictograms of the Chinese are only the most obvious examples that spring to mind. It seems certain that men drew or painted or incised pictures long before it occurred to them that there could be a visible symbol for sound, and when the symbol was needed it was to the artist that they turned for its form.

The Western world has passed beyond this stage of calligraphy. Though it appears evident that the letters of our alphabet are ultimately derived from pictograms or hieroglyphics, they are now wholly abstract, and the artist and the writer are different persons. It is not in the merging of their personalities, but in their alliance that we are concerned in the literary expression of an idea. I suspect that this alliance is far more ancient than may be thought. It has been suggested that the remarkable series of wall paintings executed by Magdalenian man in the caves of Altamira and elsewhere were part of a magical rite to ensure good fortune in the chase. It seems to me that the archaeologist is too ready to imply that prehistoric man
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was of a kind inferior in common sense compared with the species that digs him up several thousands of years later. It does not follow. These pictures may have been made for whatever reason an artist makes a picture, and they can stand on their merits without excuse. They may also have been made as illustrations. As in other primitive societies, were not stories told about the fire at the end of the day, or when professional storytellers stopped by the way with stocks of heroic tales told many times before? In historical times, and still even to-day among primitive peoples, old stories were told repeatedly, perhaps by some gifted member of the household or by some such conscious artist as skald, minnesinger, troubadour, or seannchaidhe. The Magdalenians were a hunting people. Their stories must have been concerned with hunting, and what is more likely than that the artist joined with the storyteller to better the effect. Their spirited drawings of animals may have been illustrations valid from generation to generation.

This is speculation, and may be no more, but it is undoubtedly true that pictures have been joined with words from time out of knowledge. Self-sufficient as the artist and the writer in their purest form may be, they are not mutually repugnant. There have been periods when the artist apparently thought illustration his main business. The Pre-Raphaelites, to cite an example close to our own day, seem never to have thought of a picture divorced from a story. Indeed, the picture complete within itself seems for all practical purposes to have been an invention of the Renaissance.

The power of the picture and its popularity are such that it is not surprising that attempts should have been made to multiply pictures in the same way as attempts were made to multiply works of literature. What is surprising is that it was not done sooner. The Chinese were undoubtedly first in the field, but leaving China aside, even in Europe the art of wood-cutting antedated the mystery of type printing by some decades at most. Thus when printing did appear, it came complete with the ability to multiply pictures as well as words.

Copper engraving was also known before the invention of
printing, and when printers began to feel the need of illustrations, which was soon, for illustrations contributed greatly to the richness of the manuscripts they set out to emulate, engraving was a method they turned to. Apparently it proved too troublesome and too difficult for them. They wanted a process that allowed the illustrations to be printed with the same apparatus and at the same time as the text, and they turned back again to wood-cuts, even to the extent of printing with wood-cuts second editions of books that had originally appeared with engravings.

Engraving remained the most suitable means of reproducing maps and diagrams in which fine detail was necessary, but until the seventeenth century wood-cuts were preferred by the printer. Then began a decided vogue for engraving. It was revived once more in the eighteenth and early nineteenth centuries. The best work seems to have been done in France, but there was no lack of good work in other countries, and artists of the first water set their hands to illustration. In England, for example, there were William Blake and J. M. W. Turner.

The engraver did not stop at title-pages and illustrations. In some instances the whole book was engraved, a curious return in principle to the block book. In spite of its vogue, engraving was not to endure. It declined in popularity and ceased to attract artists, until at last it became an unusual method of illustration, which it is to-day.

Various kinds of etching and engraving flourished and had their day. Mezzotint, aquatint, and steel engraving have all been used in books. None of them ever achieved the popularity of engraving on copper. They are undoubtedly capable of beautiful results, but they suffer from drawbacks of one kind or another from the point of view of the printer and publisher.

The later history of engraved and etched book illustration is a repetition of what happened in the fifteenth century. Fine as the results of these processes undoubtedly are, the printer hankered after something simpler, something more consonant with his own method of printing. Just as the fifteenth century

167. A page from Hypnerotomachia Poliphili, Aldus, Venice, 1499
Hora quale animale che per la dolce esca, lo occulto dolo non perpen
de, postponendo el naturale bisogno, retro ad quella inhumana nota fen
cia mora cum uchementia settinante la uia, io andai. Alla quale quando
essere uenuto ragionuoluamente arbitraua, in altra parte la udiua, Oue &
quartd a quello loco properante eragiunto, altronde appareca essere affir
mata. Et cuisi como gli lochi mutaua, similmente piu suau & delecteuo-
le uoce mutaua cum coelesti concenti. Dunque per questa inane fatica,
&tanto cum molestia sete corso havendo, me debilitai tanto, che apena
poteua io el lasso corpo sussentarre. Et gli affannati spiriti habili non esser
do el corpo grauemente affaticato hogi mai sostenire, si per el transaeo pa
uore, si per la uergente sete, quale per el longo perugabondo indagare,
&e etiam per le graue anxietate, & per la calda hora, diseo, & relieto
dalle proprie uirtute, altro unquantulo desiderando ne appetendo, se
non ad de debilitate membra quieto riposo. Mirabondo dellaccidente
caso, stupido della melliflua uoce, & molto piu ser ritrouarme in regio-
e incognita & inculta, ma affai ameno pa e. Oltra de questo, forte
me doleua, che el liquente fonte laboriosamente trouato, & cum tanto
folerte inquisito sufe sublato & perdito da gli chii mei. Per leuale tu-
tete cose, io fatti cum uanimo intricato de ambiguitate, & molto trapen-
loso. Finalmente per tanta laffitudine correpto, tutto el corpo frigeceen-
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returned to wood-cuts, the nineteenth returned to wood-engraving, and later to a new method of producing blocks for the letterpress machine—process engraving.

In his experiments with engraving the fifteenth-century printer had been seeking, not something better, but something different, something that promised a more ambitious or more luxurious result. He was defeated by the complexities arising out of the alliance of two distinct methods, complexities that did not bother him when he returned to the wood-cut.

The wood-cut was no despicable means—it needs only the name of Albrecht Dürer to show to what heights it could attain. Many printers in Germany did excellent work in the printing of wood-cut illustrated books, and they had at hand many excellent artists. Their blocks were cut with surprising vigour and also with considerable virtuosity in the use of the knife, so much so that it is sometimes difficult to believe that they are not engravings.

The best work, however, was done in Italy. At Venice in 1499 was produced one of the finest illustrated books of all time. This is the Hypnerotomachia Poliphili, printed by Aldus Manutius with wood-cuts by an unknown artist. Its quality does not lie in any dazzling superlativeness of the wood-cuts, for it is questionable whether these, good as they are, are of themselves better than much work done elsewhere. It lies in the concord of the illustrations with the type, in the total effect.

It is generally conceded that, apart from this one great work of Venetian artists and printers, the best illustrated books were produced in Florence. Here distinct wood-cutting studios seem to have grown up to supply printers with blocks, and large numbers of illustrated books issued from the Florentine presses. There are two characteristics of Florentine work. One is that most of it is anonymous, and the other is that each illustration is surrounded by a decorative border, apparently cut on the same block. The best example is probably the Quadrirregio, illustrated by Frezzi, and published in 1508.

The wood-cut declined with the general decline of printing, and was presently thrust out of favour by the increasing popularity
168. Engraved illustration by Moreau le jeune, from Œuvres de Molière, Paris, 1773
169. Engraving made for Rupert Brooke's poems by Ru van Rossem, 1948
170. Wood-cut from *Quadriregio*, Florence, 1508

of copper engraving. When wood again appeared in the forefront it was not cut, but engraved. Bewick brought to wood-engraving remarkable technique and artistic ability, and in the books of the period his work appears frequently.

Henceforward wood-engraving was to have increasing importance in the growth of the press, but unfortunately not increasing aesthetic value. Technically, it achieved near perfection, but it became craftmanship, not art, a mere means of reproduction of work done by artists with no knowledge of the medium. It could be delightful for all that, as the Dalziel brothers in particular showed. It was rescued from this state by William Morris and his private-press disciples, who used wood-cutting and wood-engraving to good effect, if anachronistically, in conscious emulation of the early masters.

In our time wood-engravings have been made for books by a number of notable artists, among whom may be mentioned Robert Gibbings, Eric Ravilious, John Farleigh, and Blair Hughes.
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Stanton. But it is to the versatile Eric Gill that we owe the finest work in this medium, in my opinion the best since the great days of the wood-cut in the fifteenth and sixteenth centuries. His engravings for an edition of the Gospels published by the Golden Cockerel Press are particularly fine.

The invention of line process engraving offered for the first time a means of reproduction by the camera and at once threatened the livelihood of those wood-engravers who had given themselves up to the copying of other people's drawings so that they might be printed. Publishers soon began to avail themselves of process engraving and a few artists began to draw with the conscious intention that their work should be reproduced by this means. In too many cases the artist thought, as he still thinks, that the camera had freed him from all obligations, that he could do now just as he pleased and the result would be faithfully reflected in thousands and thousands of copies issuing from the printing press. I shall deal with this fallacy shortly. There were artists who understood the medium, and among them the name that most immediately leaps to mind is that of Aubrey Beardsley. His work was not the first to do honour to the line block, but it was much the most startling and unexpected. If any doubt had existed concerning the value of photo-engraving, here was proof that it could be a sensitive and valid medium for the artist who knew what he was doing. Contemporary exponents of the line technique are Robin Jacques and Mervyn Peake, who have made of the press a successful medium for the expression of talents as personal as Beardsley's.

Four other methods of photographic reproduction have been developed and have attracted the attention of publishers. These are half-tone process engraving, photo-lithography, photogravure, and colotype. In monochrome or colour each is capable of a high standard of work, but in practice it is to process engraving that publishers most often resort. This preference is not based on the quality attainable by this process, but on its relative cost and convenience.

These processes are without ancestry in the history of the book and are the result of a desire to reproduce tones as they appear

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171. Wood-cut by Albrecht Dürer,
from *The Great Passion*, Nuremberg, c. 1510
in a painting—or, it would be better to say, as they appear in a photograph. They are primarily processes for the reproduction of existing originals or of photographs, and have not been of great service to the artist who would do original work in book illustration. Half-tone engraving was for a while used by artists who tried to ‘draw’ photographs, and around the turn of the century this pseudo-photographic form of illustration was popular—see for examples books for boys of the period and such magazines as the _Strand_, in which many of the Sherlock Holmes illustrations were done in this way. Photo-lithography has been
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used with more imagination and more success, but even so it would appear that for the artist working in black and white there is just a little too much of the mechanical in screen processes.

An older process that appears from time to time is stencilling. This is not really a method of printing at all. The black or grey outline or 'key' is printed, either letterpress, litho, or intaglio, and then the colour is applied by hand through stencils. Never greatly used because of the expense of the handwork involved, it has on the other hand never died out, and perhaps the peculiarly individual character of the result, which has great charm, will ensure that the process will survive even this machine-ridden age. The Curwen Press strove to keep it alive, and many of the modern English examples will be found to have been stencilled by them. Most books with this kind of illustration are in the high-price class, and even so there are not as many of them as one might wish. At least one example was issued at a low price, and this was Mervyn Peake's *Ride a Cock Horse*.

In the eighteenth century illustrations with a printed key coloured by hand were used in certain kinds of books, particularly in books on botany, to the great delight of the collectors of to-day.

There are now many artists drawing for books, and many more who are ambitious to draw for them, and every publisher is constantly on the watch for work of an original character. It is true that we no longer illustrate books of the kind that used to be illustrated. Adult fiction is seldom given pictures now, except for classics appearing in special editions, and we seldom illustrate poetry either, although it was done by the Victorians and earlier. Technical books rely rather on the camera than on the artist for their examples, and the photographer has replaced the artist in many other ways also. The most fruitful field remaining to the artist seems to be the children's book, a state of affairs that, however pleasant it is for children, is neglectful of adults. We have come through the war into a remarkably healthy state in regard to children's books, and publishers have appeared to vie with each other to produce the most charming
and effective ‘juveniles’. Books for the young have always attracted a certain kind of artist, and even drawn the best out of him. Who does not remember Tenniel’s drawings cut on wood by the Dalziels for *Alice in Wonderland* and *Through the Looking-Glass*? Or the dream world of Kate Greenaway interpreted by Edmund Evans through the medium of coloured wood-engraving? Or

173. Wood-engraving by Dalziel from a drawing by A. Hughes, 1872

Arthur Rackham’s elves and hobgoblins, reproduced either by line block or colour half-tone? The accent has now shifted to auto- and photo-lithography, though good work is being done in other ways. There is no great outstanding figure, but there are many who are good and whose work is delightful.

In the wider field many artists of note have turned their hands to book illustration, too often, it is to be regretted, in limited editions. In this respect the name of Ambroise Vollard, of Paris, is famous. Apparently with no deterrent thought of expense, he set himself to produce illustrated books of the most ambitious kind and he did not hesitate to approach the most notable artists of his time. Bonnard, Braques, Chagall, Degas,
174. Wood-engraving from a drawing by F. Sandys, 1865
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Rodin, Maillol, Derain, and Picasso were commissioned by him for particular books. Vollard's enthusiasm and his knowledge of painting seem to have led him into thinking of a book as a challenge to himself and the illustrator, as though the text were simply an excuse for illustration. This is the wrong approach, and the result is that, fine as Vollard's books undoubtedly are, they are picture galleries built on the text, rather than illustrated books in the true sense, in which illustrations and text join hands to produce a new unity. All the same, Vollard's achievement is wonderful enough, and tribute must be paid to his skill and courage. His example inspired others to like endeavour, to produce books illustrated by Matisse, Chirico, and Toulouse-Lautrec, among others. English publishers were more cautious and less enterprising, if we except the private presses, which did much good work in the employment of artists for books. The commercial book publishers perhaps could not afford to be as adventurous as the inspired amateur. One such amateur of particular ability, Francis Meynell, founded the Nonesuch Press and proceeded to show the trade how to produce fine books, mostly in limited editions, illustrated by many notable artists. The Golden Cockerel Press has also done remarkable work in limited editions. These two presses are still in existence, striving to produce fine books in a world in which good workmanship becomes scarcer.

Despite the high quality of the best of the work done since the revival of printing and book design, it is questionable whether we have achieved the greatness evident among illustrated books in the fifteenth and early sixteenth centuries. If we are to achieve it I believe it must be through a return to unity of style derived from unity of method. The French, particularly during their great days under the tutelage of Vollard, used non-typographic methods of reproduction for illustrations, such as etching, engraving, and drypoint, and there is inevitably a feeling that their marriage with typography is not perfect. The artist is apt to judge an illustration for its quality as a drawing, but this is totally to ignore the reason for its existence. No illustration can have merit in itself; it can be judged only in the harmony of its
175. Wood-engraving from a drawing made by Gustav Doré for *The Rime of the Ancient Mariner*, 1877
alliance with the text and the type used for it. Text and illustration must co-exist not merely in amity, but in harmony and indivisible unity. I believe that this can only be achieved by unity of method, by understanding on the part of the artist of the technique involved in the whole book, and sympathy between his line and the spirit of the type face.

In the great days of the wood-cut this sympathy was evident. With both wood-cut and type, ink is impressed on paper by methods and with implements based on common mechanical principles—the idea and principle we now call letterpress. Because of this, mechanical unity in the result is assured. A further reason operated to give aesthetic unity also. From the beginning the printer secured in his type faces the feeling of impression as distinct from that of drawing, a distinction subtle enough but apparent to anyone who has compared a drawing with a print from a line block made from it. It is essential, if true unity is to be achieved, that the artist should realize the distinction and work towards impression. For Gutenberg and his successors there was small diversity of choice to impede success. If they were limited they were also safeguarded by the necessity of employing an artist who was expert in the cutting of wood. Such a man would understand not only the problems involved in cutting the block, but also the technicalities concerned in printing from it. His contribution to the book, a block or blocks from which prints could be taken directly, was as intimate as that of the typefounder.

Perhaps there was from the first impatience with the labour of wood-cutting, and there came to be men who for payment would cut blocks from other men’s drawings, as happened later with wood-engraving. It seems certain that at an early date the actual cutting of the wood was left to an apprentice or workman in the artist’s studio, or delegated to others outside. Despite any virtuosity the wood-cutter might have developed, the printed result must have begun to diverge more and more from the drawing, as the artist forgot or ignored the limitations of the medium or grew lax in his supervision.

This process is more noticeable in wood-engraving. Wood-
176. Line drawing by Audrey Beardsley for
_The Rape of the Lock_, 1896
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cutting is a poor medium for the reproduction of an existing picture, but wood-engraving is more adaptable. Bewick had shown what white-line engraving was capable of doing, and his technique was improved by succeeding generations until it began to seem that there was nothing that wood-engraving could not do. Artists who drew for the press began to suppose that a knowledge of wood-engraving technique was unnecessary or would have liked to forget that engraving was anything but a mechanical process, a necessary medium between their work and the public. It had become a servant craft, a mere go-between. It is true that as such it attained astonishing heights of virtuosity in the hands of such people as the Dalziel brothers, but it lost the genius and originality of the true artist.

What the artist wanted, whether he knew it or not, was some method of transforming his drawing into a printing surface, a method that would free him from any worry concerning the technique and limitations of printing. And quite suddenly it appeared that such a method had been devised. The application of photography to the problems of typographical reproduction resulted in a process that, or so it appeared, was just what the artist wanted. The new process miscalled photo-engraving seemed to have solved the problem, to have provided a means of producing exact facsimiles of an artist's drawing. The offer was to prove not altogether as fair as it seemed.

Laziness is a fundamental quality of man: he will seize on anything that promises to enable him to avoid labour or trouble or even thought, and this propensity has cost him more in sweat and quality than can be imagined. Process engraving, the artist appears to think, for he continues to think so, has divorced him from the galling necessity of considering means of reproducing his work; for whatever he might do in the future, could not the magic eye of the camera discern the true contour of his line and the alchemical skill of the etcher transmute his vision into cunningly wrought metal from which any number of duplicates of the original drawing might be made in the press? To any discerning observer it was soon apparent that the answer was No; and the answer is still No in this blessed and clever twentieth
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century. Even if it were otherwise, the ideal of book illustration would not be achieved, as I shall shortly try to show.

Line engraving is a process very strictly limited. There is much that it is incapable of reproducing satisfactorily, but when its limitations are known to the artist and he works within them, it is capable of the very finest results. Unfortunately the majority of artists remain ignorant of any such limitations,

177. Scraperboard drawing by C. F. Tunnicliffe, 1949

ensconced in an invincible belief that anything can be reproduced. What we see is once more the result of that division of labour that we saw in wood-cutting and wood-engraving, but here, for the first time, is a process that the artist cannot learn to understand by learning to work it for himself. Nevertheless, with a little study and some experience, he can, if he wants to, learn what can be done and what cannot.

The problem remains unsolved. The artist making a drawing for its own sake cannot be blamed if it proves refractory from the point of view of the process engraver. We must do what we can if we are called upon to reproduce such a drawing, and if
with the best of workmanship and materials we are unable to achieve true reproduction, it is the insufficiency of our means that is to blame, and not the artist. The artist who works specifically for the press is in a very different position. Whatever aesthetic merit his work may possess, it must be accounted a failure if it cannot be satisfactorily reproduced.

It is instructive to compare a typical drawing made for its own sake in, let us say, pen and ink, and one made with full knowledge for reproduction by line block. They are both composed of lines, but with an important difference. The lines of the first are not even in colour. The artist’s hand varies the pressure of the pen, and this is most easily seen at the commencement and end of each line, especially if it is fine. The line begins and develops almost out of nothing, deepens in colour, and again diminishes and fades away. In the lightest parts there is scarcely any ink at all, and what there is is thin and grey and only on the surface of the paper—there is insufficient to fill up the pores and what may seem a continuous line shows up under a glass as a mere string of particles. There is, in short, tone in the line as well as disjunction. Such a drawing cannot be satisfactorily reproduced by line block. Tone is impossible and the line must be an even black. The fine particles either tend to vanish, or from the effort to preserve them become much coarser than in the original. A great deal of the character and charm of the drawing depend on this tone and disjunction in the line, and the reproduction, however well done, is bound to be unsatisfactory because the softness inherent in these peculiarities becomes in the print a harsh and strident statement that destroys all the balance and quality of the original.

The artist drawing for the press must know what the printed result will look like, must be able to foresee it. This he cannot do if he produces work that does not conform to the exigencies of process engraving and letterpress printing. Ideally a drawing made for reproduction must look as though it were itself printed, with every line fully black and clear. A print derived from such an original may very well be indistinguishable from it, and is then a true reproduction. If, as often happens,
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a reduction in scale is to take place, it must be allowed for in the thickness of the lines and in the closeness of their spacing. This does not mean that fine work is impossible—on the contrary, it is remarkable how tenuous a line can be brought out with fidelity. There is no ban on the fine pen; what is necessary is that the line shall be distinct and defined.

This is all very elementary, but would that the artist knew it and would practise it. It is only when it is mastered that he can come to a deeper and subtler knowledge, the feeling for the fact of impression. It is distinct from the feeling of drawing, and yet it is to be achieved through drawing. A pen-drawn letter preserves the sensation that it has been formed by a sequence of motion. A printed letter, on the other hand, is impressed all at once, and whatever flourish or script-like quality it may have, the sensation of sequence is lacking. It is the difference between two distinct methods of putting ink on paper, and it applies to a drawing with even greater force than it does to letters of the alphabet. It must be understood by the artist, and he must aim at expression through impression, he must subordinate and direct his inspiration according to the exigencies of the medium.

Is it too much to ask that the artist should also know something of type design and understand the spirit beneath the face? The differences in detail may be only minute, but in the mass they are distinctive. The artist's work is to be accompanied by type, and he should know before he commences to draw what the type face will be and how it will be used. But in this respect the typographer comes up against either solid ignorance or a dilettante appreciation worse than ignorance. It is only by the most intimate collaboration between the artist and the typographer that harmony and unity can be achieved in the illustrated book, and it is essential that the artist should know enough or learn enough to make collaboration possible. If this were done, and it is not done, if artists in general knew so much, and they do not know it, we might achieve again that dignity and wonder in the printed page that was known in the childhood of printing, and which seems to have vanished for good.

In practice ideal conditions have a habit of never occurring,
179. Etching by Henri Matisse, for Poésies de Stéphane Mallarmé, 1932
and failing them the typographer can do much by choosing the right artist for the kind of book he has in hand and the treatment he has tentatively decided on. Artists have different styles, just as types have different faces, and the typographer can try to bring the right artist and the right face together. If shrewd judgement or luck can hit on him, likelihood of a good result is greater than when the need must be explained. Words are not precise instruments, and it is always difficult to explain to anyone what you feel you want when what you want is a feeling.

Apart from line engraving and wood-cutting and engraving, the process of greatest interest to the artist and to the typographer who would use him is auto-lithography. This process shares with wood-cutting and wood-engraving the distinction that the artist himself prepares the printing surface and thus takes an intimate share in the commercial result. In no such work can success go to the ignorant or the shirker of technique. The artist must know his business, and must know a great deal of the process of printing, even though it will not be he who will prepare the press and feed the sheets to it.

As a means by which the artist may project his vision into a mass edition, auto-lithography is of increasing interest to publishers. The process is capable of infinite variety and we have come no further than the brink of what is possible. It is still not as widely used as it might be, perhaps because it is expensive. It is expensive first because it requires a good artist who has the requisite technical ability, and secondly because it is not a process for the indifferent printer, and the good printer is seldom a cheap printer. In adult books auto-lithography may more often be seen on the jacket than within the covers, publishers seeing nothing incongruous in employing a first-rate artist and a first-rate printer for an ephemeral dust-cover while the more permanent book is devoid of their work. To such a mistaken scale of values has advertisement brought us.

Auto-lithography is being used increasingly for children's books, and some excellent work has appeared. The war, with the enormously increased demand it brought about, made the sales of these expensive productions assured, and this in turn
allowed the publisher to sell them at a reasonable price. The process has been used by Penguins for Puffin books, and may be seen, for example, in S. R. Badmin’s *Trees in Britain* and *Villages and Towns*.

A lithographic process introduced by W. S. Cowell Ltd., which allows the artist to draw on a plastic sheet instead of on stone or metal, has proved to be a very valuable addition to the artist’s range. It is more convenient and easier to work than ordinary forms of auto-lithography, as far as the artist is concerned, and it requires very little experience of lithography on his part. The plastic can be treated in several ways and is amenable to many different styles; and while it can be used as nothing more than a substitute for stone or metal, it can also be used to produce results that could not have been achieved by any other means. The drawing by Gordon Noel Fisher is an example of this process.

While I have deprecate[d] the use of screen processes for the reproduction of drawings made for books, I must modify this opinion where work in colour is concerned. Otherwise I should close so many fields to the artist that books and the public
would be the losers. Nevertheless, I would still say that what can
be done well by half-tone process engraving can usually be done
better by another process. Colour photogravure is not often used
in this way, but colour lithography is. Here again we may go for
the most convenient examples to Penguin books, again among
the Puffins and King Penguins, and also to many five or six
shilling children's books from various publishers.

So far I have written only of drawings especially prepared
by an artist for book illustration, but among the assorted
material that comes into a publishing office under the banner
of illustration there is much more that has been gathered by
the author from every sort of source. Diagrams, drawings,
wood-cuts, wood-engravings, lino-cuts, etchings, paintings,
prints, photographs—any kind of graphic representation that
has ever appeared in the world may be brought at some time or
other within the purview of the publisher. Whatever may be
thought to illustrate the text of a book, is liable to be presented
confidently for reproduction. Thus it is not uncommon to find
that the illustrative matter consists of an object or two, a
selection of photographs of varied size and vintage, three or four
paintings, and some drawings in line. Through the most
miscellaneous collection runs a common thread, their relation
to the text that has been the cause of their being gathered
together. Their value lies not necessarily in themselves or in any
aesthetic quality they may possess, but in their enforcement or
extension of the author's message. From the point of view of
reproduction they may not be ideal; if they are it is probably
more due to fortune than intention. Though skilful men, when
their abilities are challenged, may be able to perform apparent
miracles, there remain some things that cannot satisfactorily
be reproduced by any process, and when they occur they must
be laid aside with whatever regret may be due.

It is not often that the material is completely unsuitable.
Most people know a well made photograph from a bad one, not
from any fund of technical knowledge, but simply because a
good photograph looks better; and this is true of other kinds of
picture. An author who takes the trouble to select material that
Laurence Olivier — oil-painting by Harold Knight. (Four-colour photo-offset reproduction from *Theatre, Britain in Pictures* series).
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is technically competent is not likely to fail in his duty to his publisher. Sometimes, however, there is no choice, and then it remains to make the best of a bad job. Nothing is to be gained by rejecting a unique photograph, taken under difficulties or at serious risk, on the ground that it is unsharp or underexposed.

Selection of the process to be used for the illustrations is complicated by matters not purely technical or aesthetic. The price at which the book is to be sold, the size of the edition, convenience in reprinting, the kind of illustration, are all factors, among others, that affect the decision. Line subjects that can be printed on the same paper as the text may be set down at once as line blocks, though not inevitably, but tone subjects are very different. In the majority of cases these are reproduced by half-tone process engraving. This process is cheaper than others and the result is good—sharp, brilliant, and faithful, if a little factual in atmosphere. It can deal with all kinds of subjects from an agricultural implement to a famous painting. It is the process for all the ordinary run of books and for not a few of the extraordinary.

The other three of the four processes I have already mentioned—photogravure, photo-lithography, and collotype—have each a separate and individual effect and suit different purposes. Each complicates the economic factor. Photogravure is cheap enough if large editions can be printed, but it costs a lot to get going, and for the editions common for books at the present time it is prohibitive. This is a great pity, because it is capable of the finest work, and when it is done well (and it is too often done very badly indeed) it possesses richness of light and shade quite foreign to process engraving.

Collotype, often regarded as a luxury process, is not too expensive for the finer qualities of books. Among its advantages is one that is unique—there is no screen to break up the tones, and for this reason it is used where accurate reproduction of fine detail is desirable. Its tonal range is great, delightful to the eye, and never harsh. The ink used is rather similar in shade to that commonly used in photogravure, a warm black or cold brown.
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Photo-lithography is in effect an alternative method of printing images broken up by the familiar half-tone dot screen, but the result is not an imitation of process engraving. It lacks the crispness of half-tone, but gains in delicacy and softness. The loss of the air of mechanical precision is counterbalanced by a gain in an intangible quality that we may call 'humanity'. Conscientious and capable craftsmanship is essential, for without it the result will almost certainly be flat and degenerate.

When the illustrations are to be printed in colour, the question must be looked at rather differently. Aesthetically, I would place the processes I have mentioned in the following order: collotype, photo-lithography, photogravure, and process engraving. Full-colour collotype and photogravure are seldom seen in books because they are so costly that only a very expensive book could support their use. Collotype, especially, is astronomically expensive, and the magnificent colour work done in this way is best seen in the plates offered for sale by some museums and galleries, at prices some artists would be glad to receive for original pictures.

Colour photo-lithography, once a neglected process in the making of books, is now being more resorted to. The peculiar softness of the print gives to colour reproductions a distinct and engaging character. Deep rich colours and delicate tints are both possible, with every shade between.

Colour reproduction by half-tone process engraving, which I have placed last aesthetically, should practically be placed at the head of the list. In books this process is used more often than all the other three put together. It is not only because it is the cheapest that it is so, but also because it is the most convenient. It should be stated that, although my opinion is different, this process is thought by many to be the best and most accurate means of colour reproduction. It suffers, as half-tone always does, from the necessity of using art paper, and it has other disadvantages. For many subjects I think it is too assertive and too harsh. A serious disadvantage is that water-colour paintings and chalk drawings tend to lose their character and to look as though they had been done in some oil medium—an effect per-
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haps due to the oily ink sitting on the surface of the coated paper.

Whatever the process, the work of bringing an assortment of
originals into a common relationship with the page remains
essentially the same, and it should be understood that where in
the following pages I speak of blocks and process engraving
they stand as symbols to represent the printing surface of each
process. Illustrations may be treated in many ways, and what is
done with them must depend on the type of book, on the effect
aimed at, and on the illustrations themselves. The questions
that present themselves for answer concern the size and dis-
position of the margins, whether the pictures shall or shall not
bleed, whether they are to be printed on one or both sides of the
paper, whether to have more than one picture on a page, how
to set the legends, and finally how to place the pages in the book.

Any photographer is aware of the importance of mounting in
enhancing a picture, and the placing of a picture on a page
is the equivalent of mounting. There is, however, an important
difference between the practice of the photographer and that of
the typographer: the first cuts the mount to fit the picture,
while the other must make the picture fit the mount. The page
is the typographer's starting point, and however greatly he may
admire wide margins, it needs no demonstration to show that
the wider the margins are the smaller must the picture be.
Reduction may seriously affect its value, and certainly will do
so when detail is of interest. On the other hand, unduly narrow
margins are objectionable. In my opinion the best basis on
which to settle the question of size is the type area of the text
page. This is not to say that the margins of the illustrations
must be the same as those of a wide-margined text page, but
that the illustrations should be placed in relation to the text
page, that is to say, the rectangle of the text panel becomes the
foundation of the illustrations and determines what the margins
shall be.

Whether there should be more than one or two pictures to the
page is a moot point. It can be argued that if a picture is worth
including, it should be made a reasonable size. Quarter-page
illustrations, however, can be used effectively in books with
pictures in which detail is not of paramount importance. It means that the author can get many more illustrations into a given number of pages, and it may be of value to his argument to do so.

It is necessary to deal with each picture individually in determining its size, unless—and it scarcely ever happens—all the originals are exactly the same size and to be reduced or enlarged in the same proportion. The new size must be calculated for each picture separately and recorded in some way convenient for the process engraver—usually the new measurement of one dimension is marked on the back of the original. One dimension automatically controls the other, and the typographer must be able to calculate what the other will be, for it is not the length of one side that matters to him, but the area. There are several methods of making the calculation. It can be done by arithmetic, by geometry, or by means of a vernier scale.

Pictures may vary considerably in proportion, from the fat or square to the long and narrow, and the variations naturally reappear in the plates, unless steps have been taken to prevent it. If the diversity is too great to be comfortable, it may be possible to trim the originals, or to reproduce only part of them, and where these originals are photographs of, let us say, processes or people they can often be trimmed without harm to their composition. There is no need to strive for exactly the same proportions or the same size for every picture—the existence of diversity helps to prevent monotony. It must be kept in mind that the legend is optically part of the plate and must be allowed for.

Pictures of what is called landscape proportion, that is those that are wider than they are deep, are always unsatisfactory in a book unless they can be printed two on a page. If each one is given a page to itself, to allow of its being made a more useful size, it must be printed sideways. This means that the book must be given a ninety-degree turn every time one of these illustrations is encountered, and what a nuisance this is anyone who uses illustrated books understands only too well. It can keep a book with many plates constantly spinning, and with it the
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reader’s head also. It may be argued that it is good for the neck muscles, even if it is bad for the temper, but fraying of temper and wasted muscular exertion are not the most serious aspects of the question. The turning and twisting have a bad effect on the book itself, and a heavy one may begin to show damage after the first bout. When illustrations are commissioned it is worth while to impress on the artist or photographer that none should be made that are intended to fit sideways on the page. In the majority of cases there is, I believe, no reason why the pictures should not be conceived and executed as upright ones. Just as the cinematographer has had to learn to confine himself to ‘landscape’ composition, the book illustrator can learn to confine himself to the upright picture.

In a naught world legislation must be made to deal with the imperfect. When horizontal compositions do occur it must be considered how they shall be treated. It will not do to place the foot of the picture always to the foredge, for that means that left- and right-hand pictures will face different ways and only increases the swivelling and the annoyance. The best practice indicates that the foot of the picture should be always at the right. The margins should be based on those of the text page. The picture should not be placed in the centre of the field, because there it will undoubtedly look too low. It should be treated like a text page, with more space at the tail than at the head.

Upright or horizontal, the pictures must be brought into harmony with the rest of the book, and the first thing to be done is to reduce them all to a common basis of size related to the area of the text page. I have suggested that some may be trimmed to alter their proportions, but paintings and drawings and other originals that are presumed to have been carefully composed should never without good reason be interfered with by the typographer, and whatever diversity of proportion may exist must be made the best of.

The practice of running illustrations to the edge of the paper, known as bleeding, has increased considerably in recent years, particularly in magazines. It was considered a modernism once, but nowadays it has lost its daring look and become almost

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matter of fact. None the less, it has considerable use in book production, not only where it is desired to have the illustrations as large as possible; its peculiarly individual effect makes it of value in many kinds of book, just as it makes it unsuitable for others. I, personally, would not use it for illustrations of, say, Regency architecture, but it does suit 'modern' architecture; it is excellent for machinery and its products, but not in many cases for objets d'art.

These, however, are not the only considerations that govern the decision whether illustrations should be bled. It is, for example, essential that a book with bled illustrations shall be trimmed on all sides that bleed, and this may not be desired; where the effect of a rough edge is required, illustrations should be arranged in the ordinary way, with margins.

The ideal may appear to be a picture that bleeds on all four sides, but in practice this seldom happens; it can only occur when the original is of exactly the same proportions as the page or when drastic trimming to make it so can be endured. When it does happen it poses the question of what to do with the legend. Obviously the simplest thing is to abandon the legend altogether, but this might cause not a little inconvenience to the reader, who may be puzzled to know how the illustration is related to the text—particularly if the subject is something not at once easily recognizable, like a radiograph. Legends are usually necessary and must somehow be included. They can be incorporated into the block, as white lettering on a black ground or black lettering on a white ground, or even as mixed counterchange on a piebald ground. It may be amusing to experiment, but I don't think the result is satisfactory. The best thing to do with such a legend seems to be to print it at the foot of the facing page, either below the type area or included within it; in the latter case some device must be adopted to make the legend distinct from the text. Actually, since the proportions of picture and page seldom exactly coincide, there is usually a blank area in which the legend can be printed comfortably.

The success of bled illustration lies not in its harmony with the text pages, but in its contrast. The common relationship
between the type panel and the illustrations is abandoned and everything is banked on the contrast of large, dark, frameless areas with the smaller grey framed areas that are the text pages.

In this discussion of toned illustrations I have so far thought in rectangles. Many subjects are better reproduced in some other manner: some, such as medallions, are naturally round or oval, and there are other things whose shape is indeterminate. The latter description applies to such things as pencil or crayon drawings, silhouettes, and so forth. The background for these is the paper on which they are drawn, and it may be desirable as far as possible to preserve this effect in reproduction. In such cases the blockmaker will need special instructions.

A variety of finishes is available for the rectangular illustration, each incorporated in the block. It may be finished with a thin black rule round the edge to form a close frame within the margin, or it may have several rules, arranged thick and thin to form a pattern. More ambitious still, if one had a taste in that direction, there were a number of fancy borders in the engraver's catalogue, which were supplied on request. These may be encountered occasionally in books published before the first world war or in old-fashioned sales material, but their heyday is past. Now they are out of fashion, and like any outworn mode they appear a trifle ridiculous to the superior taste of the present time. Nowadays the practice is to take the block as it is and to allow the screen itself to form the edge.

After the material has been sent to the engraver, the next stage is the engraver's proofs. The material is returned together with proofs of the blocks made from it. The proofs are checked to ensure that the blocks have been made the correct size and that the required part of the original has been reproduced, and to judge the quality of the reproduction. If any defects or shortcomings are discovered the engraver is expected to put them right, just as the printer is expected to correct his own errors in type.

So far the proofs resemble the originals in that they are no more than a bundle of pictures, without arrangement or order,
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but differ in that they possess a common basis of size in relation to the page. The printer must be instructed how to deal with them.

When the illustrations are line drawings to be printed with the text the printer is told where they are to be placed in the book and also where they are to be placed on the page. No one can tell better than the artist what action in the story each drawing is intended to illustrate and it is worth while to encourage him to indicate clearly on each drawing its position in relation to the text, so that when proofs do arrive the typographer may do his work on them without further reference. Sometimes there is no indication of position and no way of finding it short of reading through the book with the illustrations at hand, a process that anyone with other work to do fights shy of. The easiest thing is to send the galleys and block proofs to the artist and to ask him to pin the proofs in where they go. He may be asked to do more than this if he is willing and cares sufficiently for his idea of how the drawings should be presented. With the galleys and proofs may go a specimen page from which the artist can build a paste-up showing the exact position of each block on the page and in the text. The book thus becomes an even closer collaboration between the artist and the typographer. The author too may be called in, and if he has any ideas of his own may insist on being called in.

Those drawings that are intended to occupy whole pages are generally better on right-hand than on left-hand pages, and this is particularly so when the reverse of the illustration is blank. I think it extremely objectionable to come upon a blank right-hand page and then to find an illustration on the back of it; but a blank left-hand page on the back of a right-hand illustration does not seem to matter at all. The position of the illustration on the page should be related to the text by its margins. Where the block is of the same size as the text panel the margins will be the same; where they differ the block is placed on the page within or on an imaginary rectangle representing the text area. This explanation is a little mechanical, and in practice there are factors that disturb it. For example, the balance of a drawing may not be in the drawing itself, but beside it, and mechanical
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placing of such a drawing will certainly make it look out of centre; it should be placed in relation to its balance.

It is questionable whether headlines and folios should appear on pages on which there are whole-page drawings. Some people appear to like them there, but I dislike them and choose to print the block as though it were on otherwise blank paper. Typographical details are apt to draw too much importance to themselves. The same remark applies to the legend, except that this is frequently essential. Where it can be dispensed with it should be; where it cannot it must be set in some manner that will make it part of the page and prevent it from being conspicuous or inharmonious.

Small line blocks may be put in the margin or as head or tail pieces or simply scattered throughout the chapter according to the references in the text. Margins permit of little more than thumbnail sketches, but if they are dealt with skilfully they are charming, import ing into the rigid rectangle of the text a kind of unpredictable variety, almost of irresponsibility in some books; and yet they are also capable of gravity when the occasion demands it. Headpieces really belong to the chapter head, but come in here in the sense that they are illustrations and not merely decorations. Illustration or decoration, they form one whole with the chapter head, and their placing and spacing must be governed by the design made for that. Headpieces are seldom large and are nearly always narrow horizontal bands presenting the artist with problems in composition. They may incorporate the lettering of the chapter head or provide an island space in which to print it. Here more than anywhere else the question of relative weight is important and the artist should know what kind of type is being used before he starts to draw. Tailpieces may be practically anything that will go into the space, though there is a tendency to restrict choice to subjects that may be considered illustrative of the chapter or book as a whole rather than of any incident in it. This may have arisen because it cannot be known until the book is in page what tailpieces will be needed, and if they are to be drawn in advance a general subject is a safe bet. Tail-pieces are sometimes used as
pendants at the tip of a typographical arrangement of the last page in the form of an inverted triangle. Small drawings in the text may be placed in practically any position one can think of, but one, the dead centre of the page, should be avoided, because a block so placed looks too low on the page. Apart from this, they are placed at the foot, at the head, at the sides with the type run round, if they are small enough, or near the optical centre of the page. Legends are not really necessary for illustrations of a story, but may be necessary for diagrams or technical drawings. The space that separates the block from the text should not be large, and usually it should not be greater than the equivalent of a line of text; if it is, it tends to become a gap and the colour and unity of the page are spoiled.

Illustrations in tone, printed on a paper different from the text, are treated differently. The printer must be told the order in which they will appear, how each will be placed upon the page, the position of the legends and the size and face of type in which to set them, and how the plates are to be fixed in the book. None of these are things he can be expected to know or to decide for himself, and the information is conveyed in the form of a paste-up, which is made in the publisher’s office or to his instruction.

One of the first things to be settled is whether the plates shall be printed on one or both sides of the paper. It is not entirely, or even mainly, a question of economy. It depends on the number of plates, on the importance of their relation to chapters or parts, and on the effect the typographer wants to produce. The effect of printing on one side only is more spacious and generous, and for that reason this method may be adopted. When it is adopted, the plates should be printed, for the reasons I have already stated, so that they occur on right-hand pages. When the illustrations are numerous the recurring blanks begin to look a little silly, and then it is better to print on both sides of the paper; and this should also be resorted to when there are many illustrations to go into one chapter, for then there are less interruptions of the text. The two methods may be used concurrently in one book, but this I prefer to avoid.
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There are several ways of making a paste-up, but the best way, even though it entails some trouble, is the most precise way. First a blank dummy of the correct number of pages and the correct size is made, with the pages grouped as they will finally have to be printed—i.e. if the plates are to be wrapped round text signatures, then the dummy will be made in units of four pages; if they are to appear in groups of eight or sixteen, then the dummy is made up of sections of eight or sixteen pages. The pictures are then cut out and pasted into the dummy in the positions in which it is intended they shall appear when finally printed, so that the completed paste-up shows the arrangement page by page, the correct order, and also the imposition required. Pasting-in of the block proofs also makes identification of the blocks by the printer as nearly foolproof as possible. Each page needs individual attention to determine the margins, which, as I have already said, are calculated in relation to the text margins, and the block proofs should be pasted down exactly in the positions required to give the margins stated; in addition, it is useful for the printer, and removes any possibility of doubt, if the amounts of the head and inner margins are stated for each page, preferably in ems for half-tone, because a type scale is a commoner tool in a letterpress office than an inch rule, and anyway the printer finds it handier to work in ems and points rather than in fractions of an inch. In determining the head margin an allowance must be made for the trim.

Provision is made in the paste-up for legends, copy for which should accompany it, together with instructions concerning the type and its disposition. Some means of keying legends and illustrations is essential, and it need only be parallel numbering of the legends and the plates. This is a small point that is too easily overlooked, and bungling it only means a puzzled and querulous printer—if the publisher cannot make up his mind, the printer cannot be expected to know that one of two portraits is Mrs. Smythe and the other Mrs. Browne.

The method of inserting the plates in the book may have to be decided in collaboration with the author. Most authors
plump more or less uncompromisingly for having each plate precisely opposite some predetermined mention in the text, which is all right ideally, but in practice raises a number of snags. In the end the author usually proves amenable to persuasion, cajolery, or hard facts. There are various considerations that govern the insertion of plates, and among them are ease and speed of binding, and the importance of physical strength in the finished book—which may almost be said to be the pole opposite to the placing of the illustrations against their references in the text. If the juxtaposition of plate and reference is essential, then each plate must be printed on a single leaf, which is pasted in in the bindery. From the author's point of view there is no better method, for he can juggle with his pictures as he likes and put them exactly where he wants them. From the point of view of the publisher and binder, it is not as satisfactory as it appears to the author. The leaf is held in the book by a narrow line of paste along the edge, and while it may be surprising how strong a little paste can be, it does give way in the end and the plate comes out. That with a little ill usage it can give way very quickly most librarians are aware. A stronger method is to hook the plate in, that is to print it on paper rather wider than the page, fold the surplus round a text section, and stitch in the ordinary way. As far as strength is concerned, this is satisfactory, but it is also ugly, because the stubs show up on the other side of the section and give the impression that either a vandal or a censor has been at work. The stubs are less obvious if they are pasted down, and though this is bothersome to the binder, it can be done.

In my opinion the best and cheapest way is that in which the plates are arranged to wrap round and stitch in with the signatures. It is true that by this method they can fall against any particular reference only by chance, and that the position of one plate dictates the position of another, but it is unlikely that the gap between plate and reference will be very great. In many books there is, indeed, no real point of reference at all, each illustration applying to several pages of text or even illuminating a whole chapter; in such cases it cannot matter greatly where
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the plate is placed, provided it does not fall in a section of the book that is foreign to it.

The method is simple. The plates are printed in four-page sections, and each section is wrapped round a section of text. If the text is printed in sixteen-page sections, and a section of plates is wrapped round signature B, there will then be a plate facing page 16 and, if the plates are printed on both sides of the leaf, another facing page 17; then follow sixteen pages of text and another plate facing page 32; the reverse of this plate will face the first page of the next section, page 33. When the plate sections are wrapped round alternate text sections, a leaf of illustrations occurs every sixteen pages. In books with many illustrations and a comparatively short text, this may not be enough, and then a larger number may be accommodated by inserting four-page plate sections inside the alternate text sections, which in section C gives plates facing pages 36, 37, 44 and 45. By wrapping round and inserting, every thirty-two pages of text can be made to accommodate eight pages of illustrations, with each leaf standing alone. Actually, plates occurring so frequently may be a serious interruption of the text, and it may be wiser to print the plates of a lavishly illustrated book in sections of eight or sixteen pages, to be bound in between the sections of text.

Particularly in books of the more expensive kind, plates, and especially colour plates, may be cut out and mounted, perhaps on paper of colour and quality different from that of the text. The effect is pleasing and a little luxurious, the texture of the mount adding richness and variety to the book. This method has some disadvantages, among which are the problems of fastening the mounts in the book, the risk that the plates, which are attached at only two corners, may be creased or damaged in handling, and increased cost. The purchaser of a luxury book is willing to pay more than usual, so that the question of cost need not detain us. Fastening is usually done by hooking in, of the disadvantages of which I have spoken already: the effect is worsened when a coloured mount is used, for then the stub is also coloured, and consequently more noticeable. The method
of attaching the print to the mount by two blobs of paste is most inefficient and dangerous, though I have known it defended on the ground that a plate lightly attached can easily be detached if the purchaser wants to take it out and adorn his walls with it—an unreasonable argument, because books are not, or should not be, made to be taken to pieces in this way. The only satisfactory mounting is one that will stick the print down all over and yet will not cockle either the print or the mount. Dry mounting is satisfactory as far as cockling is concerned, but I am not sure that it is as permanent as its advocates assert. Rubber solution is probably better, but again the question of permanence is one that requires investigation. Glue, paste, and gum tend to cockle any mount that is not very stout.

The completed paste-up, together with the copy for the legends and instructions for setting them, is sent to the printer, whose business it is to impose the blocks and set the legends and submit proofs of the forme. These proofs should be, but very often are not, in flat sheets properly backed up in register, but not necessarily made ready—all that is necessary is to be able to read the legends and to be able to recognize the blocks. One of the sheets should be ruled up by the printer to show how he has interpreted the margin instructions. Alternatively, the printer may insert a short fine rule to show where the fold or cut will come, and ruling up will then be unnecessary. The ruled-up sheet allows the margins to be checked and alterations can be marked on it if any are required. Collotype, photogravure, and lithography do not allow of correction of the margins at this stage, for that would entail a new plate or cylinder; the margins must be right in the paste-up.

Legends will need reading and correcting and should be shown to the author for this purpose. All corrections from all sources are next gathered together and collated on to one proof, which is then ready to be returned to the printer, either for press, or if the number of corrections warrants it, for a revised proof.

The list of illustrations in the prelims will need checking against the legends below the pictures, and the facing-page
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numbers must be supplied. This is a point that is easily overlooked, and bungling it results in an irritated binder trying to make plates face impossible pages before he at length announces that it is all wrong and he won't do it.

Colour illustrations offer essentially the same problems as monochrome in regard to margins, etc., and need not be treated in any way differently. But the colour itself brings in a new element in checking the proofs and provides a new problem for the printer. It may not matter greatly if, let us say, the colours of a children's book of inferior quality do not correspond exactly with the colours in the originals of its inferior artist; it appears that there are printers and publishers who believe that colour is the main thing and that any kind of colour is good enough for a gullible public. Accurate reproduction of good work is a very different matter, and an artist fails himself if he does not demand that the printed colours shall correspond as nearly to his own as the process allows. Where the original has been made for its own sake, as for example a painting, the engraver and printer must strive to achieve the utmost they can within the limits of the process, and if those limits preclude complete success the present stage of that process must be considered unsatisfactory as far as that particular painting is concerned. An original made for reproduction by an artist who knows his business is a different matter; engraver and printer are expected to produce a reproduction in the exact sense of the word, and if they fail it is they themselves who must be blamed and their skill considered insufficient.

These are harsh statements, and suggest that there are men infallible as judges. Unfortunately, the case is very different. No two people seem to see colour in the same way, and what one person considers an accurate match another may decry. This and carelessness or imperfection in the process produce between them diversities of colour in reproduction that are quite surprising and perfectly visible to anyone when two prints of the same subject from different sources are compared. This state of affairs does not apply only to indifferent or cheap printing; even good printing is frequently in error, and there can be no
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certainty that an expensive reproduction preserves exactly the colours of the original. There are so many stages at which differences may creep in, and if at the first stage in the engraver's works the original has been available for comparison, it is rarely available at the final stage in the printer's machine-room.

Certainly there are people, artists and others, who have trained themselves towards a true appreciation of colour, and such a person should be in charge or should have the final decision in all questions of colour, from the engraver to the printer. Only in this manner is it likely that the result will approximate to the original. The typographer is not necessarily such a person, and it may be wiser for him to lean upon a more expert judgement.

A final word may be addressed to the author. He of all persons connected with the making of books should know something about their manufacture, though it need be no more than will suffice to present his material in a reasonable manner. The astonishing untidiness, the incredible ignorance of the business of books exhibited by writers is nowhere so much in evidence as in the matter of illustrations. It is not uncommon for a publisher to receive a collection of dog-eared, foxed, creased, hazed, fogged, or faded material which turns out on examination to be three or four times as large as is required. There is no suggestion of order, no list by which the material may be checked. There are no legends, but there may be scribbled notes intended to inform some member of the publishing house that this is Bill and that is a dog—but whether it is Bill's dog who shall say? In short, there is nothing to suggest that the author has had any vision whatsoever of the pictures as part of a book.

Naturally, not all authors are like this, thank heaven, but even those who are orderly in mind and in their works might learn a lesson. Originals of any kind should possess at least technical competence in their medium. Photographs should be sharp and clear and properly developed and printed; the reiterated statement that photographs for the press should be contrasty is bunk, the truth being that they should be good
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photographs as photographs. Where there is choice they should be black and white and glossy, but matt or sepia will do as second best if nothing else can be had. Contact prints from small negatives will not do; wherever possible the original should be larger than the reproduction will be. Selection of the pictures is the author's job, and their arrangement in sequence should also be done by him. Only he can decide which pictures are more important to him, and therefore which may appear two on a page and which should occupy a page each. In short, what the publisher likes to receive is a set of good originals complete in one batch, with a list in duplicate of the legends numbered to agree (one of which is for the list of illustrations in the prelims), an indication of the relative importance of the pictures, and where necessary a list of owners of copyright and necessary acknowledgements. Any of these things may mean extra trouble for the author, but if they are left undone they mean much more trouble for the publisher and more likelihood of delay in the publication of the book.
IN spite of the prevalence of blank ends in modern books, it may with reason be claimed that the purpose of endpapers is mostly aesthetic. They contribute little to the mechanical perfection of the book and scarcely anything to the strength of the binding; they are placed where they are to hide the works that unite the stitched sections to the case and to mask the cut edges of the cloth or other substance used to cover the boards.

Aesthetically their qualities have been enhanced and extended by the artist and the decorator. The two-page spread is an excellent field for their work, and at various times it has been used in one way or another to strike an additional note in the chord that is the design of the whole book. Many examples are elaborate and involved, while others achieve their effect, which may be none the less rich, through simplicity and reiteration. Colour printing finds a use here, and it is possible to achieve both discreet beauty and sumptuousness by means of coloured inks and coloured paper.

The simplest but not necessarily the least effective pattern is that made by the repetition of a simple motif in a simple arrangement, as for example a fleur-de-lis arranged on a chequer-board; and variety may be introduced into this by the addition of a second colour used alternately with the first. The principle of counterchange introduces still further possibilities, either in one colour or more. In counterchange patterns there are usually heavy solids, and these can be lightened and enlivened by imperfect printing, that is by starving the plate of ink so that the solids print grey and broken and with something
of variety of tone. The variations are not under complete control and every impression will be different, but that does not matter—on the contrary, it may be considered an advantage.

Simple or intricate patterns suitable for endpapers could very well be built up out of printers’ flowers and ornaments, or even out of types, and that there are considerable possibilities in this direction Frederic Warde has demonstrated in his book on Monotype printing ornaments. Unfortunately the example he has set has been scarcely heeded, perhaps partly because of the strength of the modern tradition of blank ends, partly because some ingenuity and some expenditure of time are necessary, both of which are expensive commodities in a publisher’s office.

Another form of pattern, the arabesque, has by no means been neglected in the design of endpapers. It is scarcely necessary to say that the arabesque is capable of as great degeneration as excellence, and the book, while it has not missed the excellent, has also not escaped the degenerate. Arabesque patterns have at various times been in vogue, and were popular in the early part of this century, perhaps as undulations from the splash of the high dive of Aubrey Beardsley into the seas of art, or from the frolics and churnings of William Morris in the same waters. It is understandable that they should have been adopted by publishers of popular series of the classics, and the reader will remember the elaborate twinings of sinuous branches in the endpapers of the Everyman series in the format that was used for many years. The pattern was sometimes made to incorporate a plaque or a symbolical figure, or a little device with blank spaces for the owner to write his name and address in—a built-in book-plate, in fact, though at a time before the phrase ‘built-in’ had acquired the magic it has to-day.

Marbled papers, which are available in great variety, must be included under the heading of patterned papers. They were used more in former times than they are to-day, and I think it a pity that they have vanished from the ordinary run of books. Cost is the reason, for good marbled papers are necessarily hand-marbled
papers. They are still made, and appear in the occasional book that the publisher wants to make much of. Some patterns are delightful in their restrained use of colour and pattern. Good marbled paper can be pleasant as ends, if not for the common book, and even for the more expensive one it must be used with care and with awareness of the pitfalls and misuse which have perhaps been responsible more than anything else for its rarity in books to-day. It is easy with these materials to produce a sense of anachronism. Imitations of marbled papers have been made by photo-lithography and process engraving, and though in theory there may appear to be no objection to such change in the method of producing the pattern, in practice the imitations are generally too much like imitations to be successful.

Maps and diagrams sometimes appear on the endpapers, and maps in particular may be pleasantly decorative even when they have been made from a completely utilitarian point of view. It may be argued that the endpaper, being a part of the binding and liable to destruction in rebinding, is no place for matter essential to an understanding of the author's message; it is a somewhat old-fashioned argument now, and the answer is that modern books issued in cases are not intended to be rebound, but to be permanent in the form in which they leave the publisher's office.

Endpapers are sometimes made the vehicles of illustrations, or of illustrative decoration. True illustration, that is a picture of some transitory action or event in the story, should not be used as an endpaper if its local value outweighs its value in relation to the story as a whole; endpaper illustration, because of its detached position, should represent or symbolize the general theme or trend of the text.

Colour is always desirable, because black alone is inclined to be dull, and where there is to be only one printing it is better to print in colour. A two-colour effect can be obtained by using coloured paper.

Half-tone blocks are not suitable for the printing of endpapers because they generally necessitate the use of art paper, which is neither strong enough nor suitable for the purpose. Indeed,
reproduction in tone by photo-litho or half-tone appears to be out of key, perhaps because of the somewhat factual atmosphere of the processes. Line blocks are excellent, and so are non-screen forms of lithography. One form of lithography, indeed, strikes me as eminently applicable, but it is not used as often as it might be, outside children's books. It is auto-lithography, which can convey those idiosyncrasies and eccentricities of the artist that are often a great deal of what matters in decoration.

Coloured papers might be used for ends more than they are, though here again a nineteenth-century surfeit has perhaps affected their value for us. Everyone has come across Victorian books with dark and dismal endpapers in blue or brown or black, with the colour laid on so thickly that the paper has something of the feel and a good deal of the properties of carbon paper. This kind of paper was, it appears, purposely made for endpapers, but who invented it in the first place and why, no one seems to know, nor why it was used. It could not have served to prevent scribblers from making notes on the ends, for you can write on it with a fingernail. However, the use of coloured papers need not be as unsubtle as that. There is great variety of coloured papers, even when choice is restricted to the more delicate shades suitable for our purpose, and failure to achieve the effect aimed at can seldom be attributed to the papermaker. About coloured papers I personally would make two conditions. First, the colour should be on one side only, and the reverse should be as nearly as possible the same colour as the text paper—I do not care to see a two-page spread one half of which is coloured and the other not, or of which the two halves are of visibly different shades. Second, I prefer to avoid smooth and shiny papers, whether the ends are coloured or plain.

Selection of paper is, indeed, a matter that requires attention. No loose or fluffy paper should be used—featherweight antique, however specious its appearance, is out of place. There is no need to stint quality, for the amount of paper required is so small that cost is of slight importance. It certainly should not be of worse quality than the paper used for the text. Preferably it
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should be of a kind and substance sufficient to make a tangible difference in stiffness and strength.

I have emphasized that what is printed on the endpapers should be representative of the whole book, but this does not mean that the endpaper should be merely decorative or symbolical; on the contrary, it can perform a very useful function, as for example when it is the vehicle of a map or chart. It is easy and it is a common fallacy, to believe that the word ‘decorative’ entails a goodly amount of elaboration and ornament, surrounding what utility there may be in a riot of intricacy or colour, as though the useful could not be handsome in its own right. This error leads inevitably to excess of subtlety and ingenuity. Arabesques and even counterchange motifs may fail from lack of simplicity in design or of honesty in conception; and where decoration is used to embroider utility it may smother it with the weight of its encumbrance. None the less, it is true that greater latitude is possible in the treatment of the endpaper than is usually allowable in the text, and a boldness of design which would be out of place in the body of the book may here be very pleasant.

What colours are used, whether of inks in the pattern or of the paper on which it is printed, should not be selected without reference to the design of the book as a whole. The colour scheme characteristic of the general design may be repeated literally in the pattern of the endpaper, or be merely echoed, or there may be a deliberate contrast intended to enhance both parties to it. This can be stated simply and practically in the suggestion that where there is a colour-washed head, the endpapers should be either the same colour or a shade of it; or else a contrast, which should not be violent—one half of the endpaper, it should be remembered, will be framed in the margin of the binding cloth.
XXI

BINDING DESIGN

Perhaps no aspect of the book shows greater divergence between the old and the new, between hand work and machine work, than the binding. Bibliophiles may lament the vanished skill that produced the masterpieces of the dark and middle ages and deplore the poverty of our resources to-day. Yet are we so poor, who work for a different end? When for one book that was then bound so sumptuously for the pleasure of the great, we now produce a million in cheaper and more sober garments for the use of the multitude? We are not all dukes and princes, with large estates and noble revenues, nor their modern versions, rich industrialists; and our temper is different and would be not a little impatient of a process that by the loving care and skill of hand it entailed limited our property in books.

That is not to deny that among old books there are bindings that are wonderful achievements. No one in his senses can deny it. The best deserve reverence analogous to that inspired by a good painting or a cut jewel and give the same deep pleasure; the craftsmen who made them were not merely craftsmen, but artists. In the making of some of them, indeed, the professed artist played a part. Such bindings were made to order and could be commissioned by no mean customer, to enclose what were then treasures of great esteem. The precious binding was the shrine of a rare and precious possession.

A few of those old bindings were precious in the real sense, involving the co-operation of the silversmith, the goldsmith, the jeweller, and the artist. The boards were inlaid with silver or gold and encrusted with jewels set in them like the stones in
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a king's crown, mere units in a whole design of which a part might be the arms of the man who had ordered the binding. Perhaps no printed book was ever bound so munificently as this, and indeed few manuscripts were, but rich and elaborate workmanship continued after the invention of printing. Nevertheless the clatter of Gutenberg's press was the knell of the binder who worked in rich materials for rich customers. In the end the printer made books cheap, and made them commonplace possessions no longer thought worthy of the sumptuous fanes in which they had been set when they were rare and costly things. It became incongruous to set a book costing the equivalent of a few shillings in a binding worth a king's ransom, and consequently as the presses flourished bindings became cheaper and more sober. The binder did not willingly relinquish his traditions of richness and magnificence, even though all that was left to him that was precious was gold and his own taste and skill. On the less sumptuous sort of binding gold was used in abundance, but it was after all only leaf gold, and a little gold goes a surprisingly long way when the beater has dealt with it. What was incalculable was the patience and the skill of the binder, who might labour on one book for weeks or even months together, building up piece by piece the intricacies and the complexities of an elaborate design. There was no easy way round in his labour, there was no substitute for his skill.

Binding design is a subject of wide variety. I have already indicated how craftsmen and artists have contributed to the beauty of precious books, but beauty does not lie only in expensive or rare materials. It is always the workmanship and the power of design behind it that matter most, and many binders have been content with comparatively humble materials. Velvet was one of these, and silk, satin, canvas, and brocade have also been used. Velvet bindings were made for Henry VIII, who seems to have been fond of them. Embroidery was used for decoration, usually in thread, but sometimes in fine silver wire. Tooling on leather seems to have begun about the twelfth century, in Europe at least; this tooling was blind, the manner of applying gold leaf not being introduced until the
end of the fifteenth century, when it was brought into Italy apparently from the East. Gold did not, and never has, completely dispossessed blind tooling; the two have continued to exist side by side, frequently appearing together on the same book. Very beautiful work has been done by tooling, in particular, in England, by Samuel Mearne, binder to Charles II, and Roger Payne in the eighteenth century. The bindings made for Jean Grolier in France or Italy in the sixteenth century are regarded by many as the finest of all.

The binder's materials were principally wood, cardboard, leather, silk, velvet and gold leaf, wood or cardboard for the boards, leather, silk, or velvet for the cover, and gold for the tooling. Wooden boards were not always covered, but were sometimes smoothed and polished to reveal the decorative qualities of the grain; or they were inlaid with metal or with contrasting woods, or carved in low relief or intaglio. Most books, however, were covered, the majority in leather of one kind or another. Leather, with its capacity for taking dyes of fine colour, is capable of infinite variety of expression and is among the best of all surfaces for the tool. There is a peculiar satisfaction in leather; fine leather is a joy to the hand and to the eye. And there is additional pleasure when a beautiful material is made the basis of a beautiful design.

The binder might find among the tools in his shop all that he needed for his purpose, or he might cut new tools or have them cut for him to enable him to carry out some special design. In a previous chapter I described these tools and showed that they could be divided into a small number of categories. Wide variety of patterns is not necessary for any one book, for it must be understood that a tooled binding is nearly always an example of closely repetitive pattern. The symbols or patterns recur and some of them will very likely be found on a whole series of bindings issuing from one bindery. Each tool is separately and individually impressed in the leather, each impression separately and individually gilded. Because the hand can never exactly repeat itself, the many slight variations that creep into the design, however trivial, are in some way responsible
for that feeling of humanity, of manufacture, inherent in the work.

Most of the designs applied to books are based on organic patterns in nature—they are, in short, arabesques. Others are built up of rules or other abstract units. There is, of course, no distinct dividing line. The binder using arabesques did not scruple, and need not scruple, to use rules and geometrical shapes, or whatever else he found useful, to complete his design. No purist doctrine hindered him or detracted from his satisfaction in the result.

An element of common occurrence is the coat of arms or other indication of the owner's identity, which was usually made to occupy the centre of the field.

The leather was carefully moulded over the cords on the spine, dividing the length into compartments, four, five, or six, according to the number of cords. No attempt was made to disguise the cords; on the contrary, the bars they formed and the spaces between them were made the basis of the design applied to the spine. The value of the cords became a convention, and when, as did happen later, the cords were reduced in size and became too thin to make their mark through the leather, they were packed out until they showed sufficiently. The spaces between them are rectangles, and in these, designs were built up, either with the patterns that had been used on the boards or with others that could be used in harmony. The leather over the cords themselves was often left untouched, but on some books it was given a fillet or a combination of tiny flowers, or it was stained a darker colour. Not all the rectangles between the cords were filled. One at least was left, usually the second one down, for the title and the author's name, and perhaps another one at the foot to take any other information that might seem relevant. The spine thus became a dazzling intricacy of gold that presented on the shelf a richness of a kind to stir the heart.

Such bindings, with all the skill and expense they represented, were made to last as enduring possessions, but they were soon to be succeeded by bindings of a plainer and less ambitious
character. As books grew cheaper, so binding too must become cheaper, and one way of doing it was to abandon the elaborate tooing of the earlier day. In the process binding acquired perforce a new aesthetic based on the qualities of leather. It began to be realized that leather possesses beauty of its own, and perhaps the binder was no longer sorry to leave the boards partly or wholly plain. And yet artifice was not altogether abandoned. Methods of patterning the leather were introduced, as for tree calf, for example, which became very popular, or to give it a mottled or variegated appearance. Even so, boards were seldom wholly plain. They were given a rule border at least, blind or in gold, and more often a border made up of ornaments; and there was tooing round the edges of the boards also, and perhaps some more inside where the leather was turned in. The inside of the board, known among bibliophiles as the doublure, was sometimes tooled very elaborately, usually having a rectangular space in the centre. The spine tended to retain much of its complexity, if not all of its quality, of design.

With the nineteenth century came a different conception of binding in which three revolutionary ideas were blended. These were the introduction of cloth as a covering instead of leather, the application of the machine, and the discovery that bindings could be embossed in one piece. The introduction of cloth was of importance not only because it made the machine possible and edition binding feasible, but also because it introduced a new aesthetic of which we have not even yet explored the limits. The development of the embossing process, what is known as 'blocking', dispensed at one stroke with the hours and hours of labour that formerly had to be spent on each book. It was now possible in seconds to block a cover with as much gold ornament as it would have taken a hand worker days to tool.

It rather went to the heads of some people—of most people, it would perhaps be fairer to say. The idea seems to have been that, since it made no difference to the speed of binding, one might just as well have a lot of gold or blind tooing as a little.
The more recent and more chaste examples of binding design were ignored and a return was made, perhaps in intention but certainly not in fact, to the ideas of the binders of earlier masterpieces. The boards were covered with blocking, blind or gold, or in several colours, and the whole length of the spine. There are no cords in machine binding and it would be difficult to fake them, but the desire for them was indicated by parallel blocked rules in approximately the right positions. Aesthetically it was a bad period, but from the point of view of workmanship it is of the greatest interest because standards were not necessarily lowered by the advent of the machine. For strength and durability the cloth-covered edition binding of the nineteenth century is sometimes a better piece of work than the individual, hand-bound, leather-covered book of the later eighteenth century; but it is inferior in taste.

The two kinds of book are different in every way. The eighteenth-century book represented all the past ages of book binding, though it was a shrunken and emasculated representative; the cloth edition-bound book represented the future and the increasing domination of the machine. While one was a product of the hand, individual, bespoke, and capable of infinite variety of personal expression, the other was mass-produced, subject to the limitations of mass-production, and based on a method of construction radically different and which conditioned its appearance. Some of the results of mechanization were negative; there were things that the machine could not do: tooling vanished from the edges of the board, for example.

The craze for all-over blocking of cloth cases was perhaps not entirely without utility. To our eyes, at least, many of the cloths in use at the time were unpleasant and incapable of a satisfactory effect in their own right; all-over blocking, even if it was blind, gave a poor or unpleasant cloth a different character and helped to disguise its deficiencies.

Before the introduction of cloth it had been the custom of publishers to issue books in what are known as paper boards. This kind of cover was intended as a temporary protection to
185. Fourteenth-century jewelled gold binding, of German origin, for a manuscript of the Gospels written in letters of gold between A.D. 1000 and 1020.
186. Binding made for Grolier, for *Origenis Adamantii Directa in Deum*, c. 1535; brown calf, outer borders and corners stained black, central inlay of citron morocco; tooled in gold
serve until the purchaser could have the book bound to his own
taste in leather. Binding, it will be noted, was not the publisher's
business; it was the introduction of cloth that permanently
fixed the responsibility of binding on the shoulders of the pub-
lisher in England and America. These paper boards, plain,
with the title, if it was shown at all, printed on a label pasted on
the spine, were destined for a colourful future. While cloth
gained headway rapidly for most kinds of books, novels con-
tinued to be published in boards, particularly when it was in
single volumes; and as the century proceeded their treatment
became more and more elaborate. It is easier and cheaper to
print on paper than it is to block on cloth, and wider variety is
possible. The bookshops, and more particularly the bookstalls,
of the period must have seemed gaudy and garish to our eyes—
although what the Victorians did with their paper boards we
now do with our jackets. The last fling of paper boards was
expended on what have come to be called 'yellow-backs', which
showed the craft of printing in decline, but which did for
Victorian fiction what the cheap edition does to-day.

HALF-BINDING AND QUARTER-BINDING

If it is true that these forms of binding originated in a purpose
of utility, it is also true that even at an early period utility was
confounded or overlaid by aesthetics. It is a little difficult now
to see what useful purpose is served by half- or quarter-binding,
because, except in hand-binding, the trouble and expense
incurred may possibly outweigh the cost and convenience of
covering entirely in the stronger of the two materials used.
There is argument for them in the case of ledgers, each of which
might require a whole skin, but there are certainly many books
that could just as well, for the price at which they are sold,
have been bound entirely in leather. I think it safer to assume
that half- and quarter-binding are resorted to more for the sake
of effect than otherwise. There have at different periods been
clothing in one or the other form. Many late eighteenth- and
early nineteenth-century books are half bound in leather and
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marbled paper. Comparatively, quarter-binding is less popular, but it has its devotees, and a modern one is the Golden Cockerel Press.

THE MODERN BOOK

Limited editions, especially those from the private presses, are sometimes bound by hand even to-day, partly for the pleasure and durability of good hand-binding, and partly, it is to be suspected, for the value of the peculiar kind of snob appeal involved. Single copies of machine-bound editions also come the way of the hand-binder, when the purchaser desires a better binding or a different one—it should be noted that it is no good sending such books to the publisher, because machine-binding has so far ousted hand-binding that publishers make no provision for the latter. There is still work for the hand-craftsman, but as a figure he becomes rarer every day, and there is the sadness and nostalgia in his passing that arise from all things that are old and valued and vanishing. The machine has vanquished him and he cannot dispute with it; if he will survive it he must serve it and work within the new ethic it has introduced. That the machine has altered and to some extent controls the appearance of our books, does not mean, however, that any lack of variety has supervened. On the contrary, it seems that the possibilities of variety are greater than ever. Cloth may be had in dozens of different kinds and qualities and in as many surfaces and colours, and great play may be made with these and with blocking in coloured inks and foils instead of gold, or in combinations of gold and colours. Gilt, nevertheless, remains the most popular colour for blocking.

Choice of cloth is a matter of taste, and publishers tend to select the kind they prefer and to stick to it. Thus it is noticeable that the books of one publisher are mostly bound in glazed or smooth cloths, while those of another are bound in matt or rough cloths; one prefers dark, even drab colours, another brighter and gayer colours. There is room for every kind of taste, however good, and, unfortunately, however bad. For the imitationist there are cloths embossed with the grain of leather,
though what kind of leather the manufacturers of some varieties might find it difficult to say. Other cloths bear definite patterns of indefinite origin, but intended to disguise the nature of the cloth itself under the appearance of some other material. To this end some are coated with plastics of the rexine kind. To the extent that it is intended to conceal or mislead, any disguise of materials is fundamentally dishonest, and what is dishonest cannot be part of sound design. It may be part of sound manufacture; for example, many coated cloths possess considerable powers of endurance, and they are the only kinds of cloth that really can be washed when they are on the book; but few of them are pleasant to handle.

I believe it to be always better to use a cloth that proclaims itself, that relies for its effect on its material, texture, and dye. Cotton should show as cotton, linen as linen; variety may be introduced by the mixture of materials, but for the most part it is obtained by different methods of weaving and of dyeing. Many cloths are now so distinct and individual in their characteristics that proper use of them will produce a book in its own way as pleasant to the hand and to the eye as a book bound in leather. I personally find matt or slightly rough cloths preferable, of clear and clean colour, and without any adventitious embossings, fillings, or dope. They should have certain qualities that are necessary to any binding cloth: they must be opaque and impermeable enough to prevent the adhesive from coming through, they must not be easily soiled, they must not fade or change colour, and they must have a pleasant feel.

Buckram as a binding material is almost in a class by itself. It feels different from the common run of cloths, and it is different. Good buckram is strong. Some kinds are expensive and most varieties cost more than ordinary cloths. A book well bound in good buckram is a book on its best behaviour; it is as sleek and as quietly efficient and as modestly rich as a Rolls-Royce. It is a delight to the hand and a pleasure to the eye, and full of the satisfaction of fine material and fine manufacture. It seems to be almost a convention that buckram should be blocked in gold, and nothing, no, not even leather, takes gold better; but
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it also takes coloured foils and inks excellently and they can be made to combine well with one another and with the peculiar, slightly drab colours typical of buckram.

I do not think that I have ever seen a cloth-bound book blocked quite as luxuriantly or as elaborately as the leather-bound books of former times were tooled, though there are no technical difficulties in the way. For many reasons, blocking, in spite of early attempts at imitation or emulation, was not destined to follow tamely in the wake of the tool. In the main, development has been towards increasing simplicity, until in our time we have reached the limits of ingenuousness, and have begun to turn back. The majority of modern books bear nothing more than the minimum, which is the names of the author and the publisher and the title of the book; there is no ornament and the boards are left plain. There is nothing necessarily bad in this; even with so little, considerable variety is available in competent hands, and results of great beauty and dignity may be obtained. Further, such simplicity, though it requires fine and delicate taste to achieve the best result, is not subject to great degradation, as in the wrong hands elaborate ornament is. None the less, we have on too many occasions been a little too cautious in the design of the brass, too stereotyped and satisfied with the commonplace, and some experiment in richness is overdue. Such experiment has been made within the last few years, showing no desire to reiterate ancient successes, but aimed at a new kind of design through use of modern materials and the machine. Books have appeared from some of the better publishers which have achieved a fresh delight by fresh means; a new twentieth-century style, but backed by the force of tradition, has begun to emerge.

Essentially it consists of the exploitation of the possibilities of colour provided by the great ranges of cloth and inks and of coloured foils and gold. Gold is still, and seems likely to remain, the most important material in use in blocking, and in most examples of the sort of work I am about to discuss colour is used to emphasize or to enhance the gold. The foundation of the colour scheme of any cloth binding is necessarily the colour of
187. Cottage binding: Book of Common Prayer, 1678; red calf, tooled in gold, lines stained black
188. Binding by Monnier: Baudello, *La Prima Parte de le Novelle*, 1740; scarlet morocco, gilt and inlaid
the cloth itself, and it should be selected with care and purpose, and with the general colour scheme of the book in mind. The literary content of the book must also be remembered, because there are relations between colour and literature that make a crashing discord or even subtle insult too easy. For example, a book on Conservative politics need not be bound in blue, but it should not be bound in communist red; a poet may reasonably object to being bound in pink or a greenish-yellow; and I have known more than one Irishman object to being bound in green, on the ground that every English publisher appears to think green appropriate for every Irish author. With a little sense and a little knowledge, and perhaps a little tact, it is not difficult to avoid such errors.

On the basic colour of the cloth are imposed what other colours are to go to the whole scheme. The simplest way to use two colours on the cloth is to block, let us say, the title in one colour and the author's name in another. The result may be pleasing but it makes no departure in principle from the simplest form of blocking. Colour can be employed differently and to much better effect by using a solid panel of colour and blocking in gold on top of it. The effect is bolder and richer and capable of considerable exploitation. The panel may be blocked in foil or ink, either material having its own advantages and drawbacks: ink does not give as good a surface as foil, but it can be mixed to any shade desired; foil, on the other hand, gives an excellent surface, but the shades are restricted to those manufactured. The panel need not be rectangular. The brass for it is cut to order, and there is nothing to prevent its being made any shape the designer thinks will show to the best advantage, the only important restrictions being the dimensions of the area on which it is to be used. The panel may be enforced by a rule or ornamental border in gold or a different colour. Within the panel all or a selected part of the lettering is blocked in gold or otherwise. When foil is used for the panel and gold for the lettering the effect is magnificent; by no other means can gold lettering be made so brilliant and so sharply cut. Thus with two colours and the colour of the cloth a three-colour effect is obtained.
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Some cloths, particularly buckram and more coarsely woven cloths, can be panelled effectively without the use of ink or foil, the brass being used blind simply to crush and polish the surface of the material. As a result of the difference in the reflection of light the panel appears of a slightly different colour and the difference is sufficient to mark out the panel distinctly. Within it the lettering is blocked in gold or colour, and the panel itself may be emphasized by rules or borders blocked in the same material as the lettering.

The size and number and disposition of these panels is not to be decided carelessly because there are few restrictions upon them. In practice there are not usually more than two panels on a spine, and in most examples there is only one. Where there are two, one is placed near the head and contains the title and perhaps also the author's name, and the other is at the foot with the publisher's imprint or a date in it. The upper one is usually larger, not only because it may have to contain more wording, but also because that wording is the more important and because the general effect aimed at may dictate the difference. A single panel invariably appears at the head.

Panels are sometimes made separately, of a different material, usually leather, but sometimes paper, and glued on to the binding. This is an old practice revived, and in recent years it has been followed in standardized book-club bindings. There are many disadvantages, of which not the least is that the panels are not always permanent and with handling or ill storage will commence to peel off. That they can be repaired or a new panel made is no excuse. Some publishers who have used this method have apparently recognized its unsoundness and provide a spare panel tipped on to the endpaper.

This use of panels has to some extent been accompanied by an increased use of ornament. The ornament is not, however, strictly analogous to that used by the hand-binder or to the fleurons and unit borders of the printer. There is not in the modern bindery a corpus of ornaments and flowers from which an infinite variety of designs can be built up—brass type for blocking does exist, but it is neither as good nor as rich in
BINDING DESIGN

variety as the range available to the printer. This state of affairs has arisen because the almost invariable recourse of publishers to the specially cut brass has tended to cancel any demand there may have been for binder's brass type. As a brass is cut for each new title, it may be designed distinctively and individually to suit the character or typographical style of the book. It may be designed by anyone capable of design, but not without some knowledge of the process. There are pitfalls, and in some ways they are similar to those encountered in making drawings for reproduction by line block, but with further restrictions derived from the materials used and the manner of impression. No very fine lines should be attempted, for obvious reasons, and delicacy of feeling, where it is desired, should be achieved through firm lines that will withstand a firm impression. Then it is essential to remember, and it is too often forgotten, it seems, that when gold is used, any solid area or shaded portion will appear, not dark, as in a print from a line block, but light; in short, there are effects in gold blocking analogous to the effects of both negatives and positives in photography, and these not separately but present at the same time. The designer may make his drawing for the brass-cutter in black ink for convenience, but if he forgets for a moment that what he is working in is a brilliant, shimmering metal he is lost. To some extent, but not completely, a light-coloured cloth compensates because against it, in ordinary light, the gold appears darker. Indeed, the quality of gold of appearing light on a dark cloth and dark on a light one, though it may seem treacherous to an inexperienced designer, is of the greatest interest, and in expert hands may be an advantage.

Design applied to the brass, though our successors may perceive in it a distinctive period style, does not to our eyes follow any well-worn path. The design may be completely abstract, as many are, or it may be symbolical either of the book or its subject generally, or it may even be illustrative. Whatever it is, it must combine with the lettering that is always the main element of the whole; and it must be kept in mind that it is not a design in vacuo, existing like a painting within itself, but is part
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of the larger design that is the totality of the binding, and beyond that of the whole book.

The front and back boards receive comparatively little attention nowadays, not because of any technical difficulty in the way, but simply because we have fallen out of using them. It is a pity. Relatively few books have blocking of any kind on either board, and most of those that do have it show timidity and lack of imagination. In many of them the blocking consists of nothing more than a narrow blind rule border, of which the best that can be said is that it is innocuous; its absence would make no difference to anyone. Certainly it costs more to block the boards, but the difference is so small that I find it difficult to believe that this factor is a serious deterrent to a more venturesome policy. Perhaps the argument, which is a valid one, that blocking here has no basis in utility, as it has on the spine, but is entirely in the nature of decoration, has some power to affect the question, but that is to enunciate a principle that would deprive us of a great deal of pleasure in life. I like my useless pleasures, and I would like to see much more originality and more courage and determination applied to the design of the boards, not for every book, for that would be wearisome, but for those books that are intended to be a little better than the usual run, and certainly for more books than receive this attention to-day.

Where blocking of the boards is practised at present, it tends to follow well-worn grooves. Either the title is repeated on the front board, or a decoration or illustration from the text is used, or some decorative motif, which may be the house sign of the publisher. These are confined to the front board; in modern usage the back board is seldom utilized.

By means of lithography or a special adaptation of process engraving the whole binding may be printed with an all-over design or even a reproduction of a picture, which may include the necessary lettering or leave it to be blocked separately. If the design or picture requires several printings for colour, it adds considerably to the cost of the book, and no ordinary book will bear the expense; which is just as well, perhaps, because, though
there is no doubt that this method has achieved some success, it is capable of great degradation, and even at best would be wearisome if it were too frequently repeated. The yellow-backs of the Victorians and some of the earlier fiction series illustrate the horrors that lie in wait.

A similar thing may be seen more frequently on books bound in paper-covered boards, where, perhaps because the substance is paper and not cloth, the effect is less startling. With such books it is a common practice to make the binding the same as the jacket, and, of course, it may be printed by any process that is commonly applied to paper.

Though out of sight between the cover and the endpaper, the boards on which the cloth or other covering is laid play a more important part in the aesthetics of the book than might at first be realized; for it must be stressed that the pleasure to be had from a book, though primarily intellectual, is also visual and sensual. To me at least the feel of a book is of great importance, and the boards contribute a great deal towards the satisfaction of the sense of touch. Obviously they should be free from any tendency to warp, but their weight and density and hardness also matter. Hand-binders reject strawboard as unsuitable, and I think they are right, though it is the material generally used in machine-binding. In my opinion it is too soft, for any slight knock will dent it, while frequent use causes the corners to become limp—a phenomenon too well known to need any description. This objection might be overcome by subjecting the boards to greater pressure in manufacture, but that must inevitably make boards of equivalent thickness more expensive, and publishers, like anyone else, have to consider their costs. It is possible that plastics may eventually supply a better material.

Sometimes books are given very thin boards and announced as having flexible bindings. I personally do not like them, but others do, and it is entirely a matter of opinion. Very definitely such flexible bindings should not be used for large or thick books, or even for books likely to receive much handling. They cannot satisfactorily be blocked on the boards without risk of the blocking showing through on the inside. The thinness of the
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board should not be made an economy; the thinner it is, the better should be the material of which it is made, and a really flexible case should not be built on strawboard at all, as it often is, but upon millboard or some other substance that is tough and will bend without cracking.

In the majority of books the boards are cut with square edges, which are softened in outline by the folding of the cloth round them, but there are two other effects that are occasionally resorted to. These are bevelled edges and yapp edges. Both of these involve extra costs and are therefore applied to books that pretend to be a little better than usual. Perhaps this explains the conjunction of bevelled edges and buckram, which I have noticed, and it may most readily be seen in the Nonesuch Library series of classics. The general effect is pleasant and for the present at least is too uncommon to lose its novelty.

Yapp edges, in my opinion, are unpleasant. There are two kinds, those that are soft and floppy and those that are stiff and permanently turned at a right angle to the board. Both professedly serve the purpose of keeping the edges of the pages clean, and both, in my opinion, are a confounded nuisance to the reader, and from the aesthetic point of view are pretentious and ugly. For some unknown reason, they are used more for Bibles than for anything else. Concerning the kind of yapp edge that is provided with a zipp fastener to turn the book into an imitation of a handbag or a tobacco pouch, the less said the better.

The better class of book may be given a headband, or perhaps two bands, the second one at the tail. The colours of these gay little pieces should be chosen to harmonize with the colours of the binding and with the washing or gilding of the edges of the pages.

Part of the effect of a bound book is attributable to the treatment the edges of the pages receive. In my experience the majority of readers, without thinking, plump for clean, smooth, guillotined edges on all three sides. There is no reason why they should be right, and among publishers and book designers who do think about it there are many who prefer rough edges of one kind or another. Books that are intended to give only ephemeral
pleasure, as novels and so forth, are usually guillotined on all three sides, but in the better class of literature there are many books that are treated differently. In any kind of book the head is, and should be, guillotined, because otherwise it would be impossible to keep this surface, on which dust is so apt to settle, clean and tidy. The other two edges should also be guillotined for any book that is to receive much use, as a reference book, or for one, as a text book, for which it is important that any fussy or distracting demands on the user should be avoided. Guillotined edges are clean and easy to keep clean, and they make the rapid turning of the pages a simple matter. These conditions do not matter so much for a book that it is expected will be read in comfort and at leisure and which will be treated with respect.

Rough edges probably originated in the deckle of hand-made paper. When this was the only paper available the deckle seems to have been regarded as a disfigurement and was almost invariably cut off; now we have come to prize it as a mark of real hand-made paper, and books printed on such paper retain the deckle and also the bolts. As a result the margins of these books may vary a good deal, sometimes as much as half an inch. Such extreme variation strikes me as precious and pretentious in the worst sense, and it should be avoided. As for the bolts—they are a sore point with some people, while others find a satisfaction in slitting the folds. Books printed on machine-made paper are also given rough edges, either by leaving the book entirely untrimmed, except at the head, or else by folding the sheets so that the bolts project slightly, when they can be trimmed off without affecting the edges of the sheets. This latter method is particularly useful and pleasant, as it leaves an edge that is not unpleasantly rough, but on the other hand is not mechanically smooth, and it also does away with the need for a paper-knife.

Guillotined edges can be treated in several ways to produce particular effects, gilding and washing being the most usual. Gold, being a metal, does not absorb dirt, and books with gilt edges are easily cleaned; but this is not the only, or even the main, reason why gilding is used. The aesthetics of the question are much more important than the utility. Gilding is valued for
its appearance, and it can help to give to a book a special air of richness and distinction. Bibles are sometimes gilded on all three edges, in an attempt, perhaps, to make them superior to any other kind of book. The effect, in my opinion, is meretricious and unpleasant, and calculated to appeal to the vulgar. Washed edges also should be used only on the head, where, if the colour is wisely chosen, they contribute much to the sum total of effect. Any colour may be used, and obviously it must be selected to harmonize with the colour scheme of the book as a whole.

It is interesting here to remark that in the middle ages books were kept on their sides and the foredge was used as a surface on which to write the title and paint whatever decoration was required. Long after the spine had come to be the place for the title, foredge painting continued as a means of decoration, and some examples are elaborately and skilfully treated. Samuel Mearne invented a peculiar variation of foredge painting in the nature of an optical trick. The book was slightly fanned out and the painting was then done on the sloping foredge; afterwards the edges were gilded in the normal way. The result is that a minute fraction of the picture is contained on the foredge side of the face of each page. When a book so treated is closed in the ordinary manner the painting is completely invisible; it only becomes visible when the leaves are again fanned out as before.

While the work of the binder, like that of the printer, has under modern conditions become more and more restricted to the technicalities of his business, and the power of design has passed out of his hands into those of the publisher, the success of a well designed binding still depends a great deal upon him. The designer can do nothing without his co-operation, and if he is a poor craftsman or a careless one the design cannot be successful. The furthest flights of fancy in the end rest on solid, competent workmanship, which indeed makes its own powerful contribution to the satisfaction of hand and eye.
190. Modern fine edition binding by Paul Bonet: black morocco, with central Greek cross, white inlaid, enclosed by red flames and interlacing gold fillets; L’Apocalypse, Milan, 1941; bound, Paris, 1946.
XXII

THE BOOKJACKET

No part of the book is as young in history as the jacket or wrapper. It is a product, and a symptom, of modern publishing, if we assume, and it is a reasonable assumption, that modern publishing commenced at some date early in the nineteenth century. Before that time books were issued in paper covers or paper boards, which were intended merely as a protection to suffice until the purchasers could have the books bound to their taste in a more permanent manner. The increased demand which was one of the results of the industrial revolution, and which was assisted by an industrial revolution within the pressroom itself, arising first from the introduction of metal into the manufacture of presses and then, and much more important, the application of steam power, tended at once to reduce the price of books and to enlarge editions. The category of bookbuyers was swollen by persons who had no desire for or could not afford the practice of rebinding which had hitherto held the field. Temporary bindings in paper or boards began to disappear, and in their place came edition bindings intended to be permanent. Books were now bound in quantity for the publisher and sold as finished products.

Any book is handled by many persons before it is sold in the bookshop, and it must soon have become clear that if the binding was to be in immaculate condition when the book reached the purchaser some kind of protection from soiling was necessary. A temporary paper cover of some sort was the obvious answer. Perhaps the same problem had presented itself to the hand-binder who desired to protect the finished book until it
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was called for. If it did it is likely that he found it useful to wrap books in such a manner that they could be opened without removing the wrapper. Paper was always to hand, and it was easy to cut a piece to cover the boards and spine and to turn in over the foredge: the physical principle of the bookjacket needed no great inventive genius. Schoolboys who cover books with brown paper use a much more elaborate kind of wrapping than the bookjacket.

A wrapper of plain paper has the unfortunate effect of converting a book into an anonymous block that must be unwrapped or opened if its identity is to be known, and this necessity not unnaturally detracts from the protective value of the wrapper. A modern binder wrapping advance copies overcomes this by using transparent paper or cellophane. I remember, too, having seen in libraries special library wrappers with a rectangular hole at the head of the spine and others, more elaborate, which had little celluloid windows. But the simplest thing to do where large numbers of books are concerned is to print the title on the wrapper.

If the title is to be printed, other things can be printed with it without much extra trouble or expense. The author’s name and the publisher’s imprint would naturally be included. Further, it might be recorded as an inducement to the reluctant, that the author’s previous book had been received with rapture by the public and hysterics by the critics, and a paragraph could be added to explain the argument and laud the quality of the present one. And there was still space left to suggest that the publisher had other interesting books for sale and to describe some of them. This century has never been slow to discover any medium of advertisement, and here was a hoarding that did not sit still, but that travelled into the very homes of potential customers. It was seized upon, and to such effect that the original reason for having a jacket was lost sight of beneath the superimposed aims of advertisement. The jacket as hoarding came to stay, and in future it was to vary only in the amount and kind of advertising used and according to the wavering dictates of taste and fashion.

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Bookjackets are of their nature ephemeral things. Despite all the attention they now receive from artists, printers, and publishers, they are still regarded as temporary coverings, to be cast away when they have served their purpose. This makes their history difficult to trace. Each one of the many works on the history and design of books that I have consulted either ignores jackets altogether or else by-passes the subject with a phrase or two. It is as though bookjackets were Topsies; or even creatures whose birth must never be mentioned in polite society.

_The Growth of the Bookjacket_ by Charles Rosner has illustrations of a number of early jackets and recounts the scanty details that are available.

Whatever their origin, it seems clear that bookjackets soon began to be made much of in the sacred name of publicity and sales. They began to be designed, decorated, illustrated. Perhaps we learned something from the Americans here—and yet I wonder. There are more than the elements of jacket design in the covers of the part issues of the early years of Victoria's reign; and again, to modern eyes, the garishly coloured illustrated paper boards of Victorian novels such as those of some of the popular series and the yellow-backs look like jackets that have somehow got stuck on to the books. It is in this direction that we should look for one of the sources from which the modern jacket has been derived.

Before proceeding further it will be useful to describe the anatomy of the jacket. Its substance is paper, and may be of any kind or colour. Folded as it appears on the book, it has the following surfaces, on any or all of which there may be printed matter. The front and back boards and the spine are the parts first seen, as they are on the outside. Inside there are two flaps, by means of which the jacket is held on the book. Finally, there is the reverse of the sheet.

It is desirable that the paper should be substantial, but not so stout that it cracks when folded; it should hold a fold easily and yet be tolerably stiff. Thin paper offers no firm surface to the hand and tends to crinkle, and crinkling it refuses to hold on the book, which slips about inside it. Besides, it tears easily and soon
ceases to afford the protection it is primarily intended to give. This consideration does not prevent thin paper from being used by some publishers, with results of which any bookseller will tell you in more or less heated language. It is also preferable that the side of the paper that comes next to the book should not have a smooth or slippery surface, because this also causes the jacket to slip. Double-sided art is such a paper, and should be avoided. The bookseller is not the only person who may be irritated. The protective function extends beyond his shop, and many readers who are careful with books like to leave the jacket on while they read; it is a nuisance, and an exhausting nuisance, if the book has to be held tightly to prevent it from slipping about.

Adequate flaps, together with the ability of the paper to retain a fold, contribute as much as friction to the hold of the jacket on the book. The flaps should extend at least to half the width of the board, and if the sheet from which the jackets are cut allows it, there is no harm in their being even wider than this, though it is not necessary.

Any kind of paper that fulfils the requirements stipulated above can be used for jackets, which means in effect that a vast variety of surfaces and colours is available. The scope for expression in the combination of texture and colour of paper with the colours of the inks printed on it is beyond computation. Texture and colour are indeed important, texture not only to the eye but to the hand also.

The front board and the spine are appropriated to advertisement of the book on which the jacket is used. The front board bears the title and the name of the author writ comparatively large, and may also have the publisher’s imprint. In addition there may be decoration or a diagram or an illustration intended to enhance the book’s appeal and perhaps in part to explain its content or kind. On the spine the same information is given, rather more discreetly because of the exigencies of space: and similar elaboration by decoration or illustration is practised. A further item that sometimes appears on the spine is the price, but to speak of money here is, it seems, a sort of gaucherie, and the better class of publishers reserve the state-
192. Cloth bindings: *Moby Dick*, gold on smooth dark-blue cloth; *Roland*, gold and blue on grey cloth; *The Fool*, gold and black on patterned cloth; *Stephen Hero*, gold on black cloth; *Pride and Prejudice*, gold and blue on cloth with lithographed brown all-over pattern; *Swift*, gold on rough brown cloth
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ment for the hidden front flap. The publisher’s imprint almost invariably appears on the spine, even if it is also printed on the front board.

In the majority of jackets the back board is used for the advertisement of other books in the publisher’s stock, the list being usually one of books of the same class; thus, a volume of poetry is likely to have on the back a list of other volumes of poetry. Sometimes, however, it is used for a list of other books by the same author, perhaps with an appropriate blurb for each. Occasionally there appears here, reprehensibly, an advertisement for something, like soap or soda water, not in any way connected with the book—the use of advertisement pushed to a logical and tasteless conclusion. At other times the back board is appropriated to the book to which the jacket belongs and either repeats the front board or continues the design begun there or else has a separate design linked with the front by the spine.

The front flap is by custom reserved for the blurb. There may also be some quotations from reviews here, and sometimes such quotations are used instead of a blurb. At the foot of the flap is printed the price of the book.

The back flap is often left blank, but occasionally it is printed to continue a blurb that is too long to be accommodated entire on the front flap, or it may be used for more reviews or for more advertisements.

Rarely, the reverse of the sheet is also printed, sometimes with a collection of advertisements reminiscent of the old-fashioned theatre drop, but more usefully to present a catalogue of other books in the series—the jackets of the World’s Classics used to be treated in this way.

Admitting that any advertising matter or blurbs should at least be pleasantly set and will repay simple care in layout, it is the front board and the spine that will occupy further discussion in this chapter.

The problem of jacket design is to set forth the essential details of title, author, and publisher in such a way that the result shall be appropriate to the book, in its general layout and
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in its literary style, and at the same time attractive and effective in salesmanship. On the whole publishers understand very well the axiom that advertisement cannot afford to be verbose and restrict the wording on the jacket to the bare essentials. The aim is to influence potential purchasers, and elaboration and verbosity are least likely to succeed.

We may for convenience divide jacket design into two broad categories, typographical and artist, which is to say those that are printed from type, with perhaps a block or two, and which are designed by the typographer, and those that are reproduced from a drawing or painting made specifically for the purpose.

That the services of an artist are frequently engaged does not mean to say that there is any lack of variety or opportunity in typography applied to jacket design. Every type face in existence is potentially a jacket face and any mixture of type faces that is effective and successful is justifiable. A typographical design may be attractive by sheer simplicity; and it may be none the less attractive and yet complex. There are latent possibilities in the use of coloured inks on coloured papers that can never be exhausted, and two, three, or four, and even more printings may be used. All kinds of blocks are introduced, from tint plates designed to print a solid mass of colour in any shape required, either as a background or as decoration, to line blocks and half-tones. Type reversal by means of line blocks, resulting in a light-coloured letter against a mass of darker colour, is often effective. In short, qualities of display are called into use that have no place in the body of the book, and in general a broader, bolder, and less subtle technique is required.

It is too commonly supposed that emphasis is synonymous with large type, a vulgarity of which I shall have more to say later. I prefer to think that use or disposition of space is of greater importance than size or even design of type; further I would say that it is by his use of space that a good designer may be distinguished from an inferior one. A sheet of printing paper is, it may be said, a means of capturing space; and that space is not simply amorphous or anonymous: it derives distinction first from the texture of the paper and then from its colour. It is a
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denial of its value to relegate it to the position of a mere back-
drop or ground support. It can be used more actively, to give
emphasis subtly but positively where emphasis is needed, to
change the character of a letter or a drawing or of coloured ink,
and to bind and unify the whole design; and all this it does
without proclaiming itself, without self-importance or vanity.

We begin then with a field of space, and upon this must be set
the wording that is to be the verbal message of the jacket. This
field possesses a band of focus, or, it is better to say, our senses
superimpose a band of focus upon it, which is called, for want of
a better term, the optical centre. It might equally well be called
the psychological centre. This, as we saw earlier in connection
with the title-page and text pages, lies in the upper half of the
area and is conventionally said to lie at about a third of the
depth from the top, but in fact its position is considerably
affected by the design. It is a natural point of emphasis. Points
of subsidiary emphasis lie at the intersection of thirds. These are
generalizations drawn from an acknowledged optical or psycho-
logical phenomenon, abstractions from past experience the
value of which lies in the fact that they are generalizations. They
are not rules of conduct, for generalizations are made to be
applied, not to be obeyed. And they may be applied in a manner
not at all obvious. To particularize, the simplest manner of
application is to place the phrase it is intended to emphasize on
or near the optical centre, but on the other hand emphasis may
be gained by using the optical centre less obviously, as a starting
point to lead the eye to the message, and it is possible to do this
by placing there some illustration or decoration that will serve
that purpose, or even by leaving that part of the area blank.

The arrangement most frequently encountered places the
title first near the optical centre and follows it with the author's
name and any other necessary matter, such as the name of an
illustrator or the writer of an introduction, and last, if it is
included at all, the publisher's name. Thus the less important
the information, the farther it is from the main point of em-
phasis. That this arrangement is a common one does not mean
that it is not subject to variety, or that it is commonplace. It is

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the manner in which the designer uses it that matters, his choice of types and his use of colour and space. Indeed there is only one alternative arrangement of the details, and that is to place the author's name first. This can be done where it is desired to give extra emphasis to the name or simply for the purposes of design.

Simplicity, or it is better to say, apparent simplicity, in my opinion produces the best jackets. Good types, unencumbered by ornament or superfluous additions, can be made, when used with discretion and ability and full awareness of their qualities, to produce effective and pleasing, and even beautiful, results. Such design may, from some people's point of view, have a tendency to severity, and there are books to the literary style of which it cannot be said to be suited. These things cannot be ignored, for it must be remembered that jacket design is design with a distinct purpose.

For these lighter books pleasanter, gayer, and even foolish effects may be aimed at, depending on the sort of book that is to be contained within the jacket, and all sorts of decorative device or illustration may be brought into play. Do not let it be thought that the mere use of decoration or illustration connotes frivolity: there are plenty of examples to show that it is not so. But just as frills in dress design make an impression of gaiety easier of attainment, so they do also in typography; and there are shades of gaiety from that which is merely not severe to that which is frankly frivolous.

Printer's flowers, rules, and borders, all have their uses. Rules can be used singly and simply or in combinations of different weights, and either kind make very good borders to corral and enclose space. Borders can also be made out of flowers, and there are also special border designs available.

Blocks of one kind or another are frequently used, either as decorative motifs or as points of attraction for the eye and mind. An illustration, perhaps selected from the body of the book, may well occupy the most prominent position on the jacket and be intended, by drawing attention to itself, to draw attention to the book. On the other hand, it may be used as a mere accessory or
193. Lettered jacket by Dr. Akke Kumlien; lettering black, ornaments brown, on rough, stone-coloured paper; P. A. Norstedt & Söner, Stockholm, 1946
194. Design by Mogens Zieler, reproduced by two-colour line block; lettering black, lions sandy brown, white paper; Gyldendal, Copenhagen, 1945

195. Wood-cut jacket design by Robert Sessler, printed in two colours direct from the wood; pink and black on white paper; H. R. Sauerlender & Co., Aarau, 1945
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detail. Care is needed in choosing an illustration from the book for use on the jacket, and the same principles apply to this as to the title-page. Whatever the picture, it should in some way be capable of representing the book as a whole; an illustration comprehensible only in relation to some isolated action in the narrative is not suitable, and may even be misleading.

The spine is usually treated in a manner harmonious with the front board, and frequently the front board design is used again here, in a reduced size because of the narrower space. Where the wording runs across the spine, the title of the book and the author's name are placed at the head, and at the foot the publisher's imprint. Between the two groups the price is sometimes printed; when it is placed on the spine it should not be, as it usually is, the most important item in the display—the price of a book is not the first thing about it that matters. Although, when a book is put on the shelf, the spine is the only part of it that remains visible, it should not be designed without reference to the front board; there are other occasions when both the spine and the front board are visible at once. And yet the spine must be capable of sustaining attention alone and of attracting it from other books on the shelf. Blatancy is not the best way to do this, any more than it is the best in any other part of book design. What the quality is that is sought after is not easy to describe, and it scarcely seems sufficient to claim that it is good design; sales psychology also enters into the question.

The wording can seldom be effectively run across the narrow spine of a slim book, and then there arises the old controversy that goes on perennially between the runners-up and the runners-down.

The adherents of each side stick very strongly to their own opinion, but the difference scarcely mattered when examples to provoke it were exceptional. With the coming of the war and the rationing of paper, books rapidly became slimmer, lengthwise spines began to be common, and the need for unity of treatment became acute. Bookshops began to find that rows of thin books came together, some with spines running up and some down, and the book-buyer, with his head wagging from
side to side, began to look like an inverted pendulum. But nothing was done to mend matters.

Who is right? It can only be him whose method agrees more with normal reading habits and is in accord with practical common sense. I cannot pretend to be impartial on this question, and strive as I may I cannot think of any reasonable argument to support the practice of running spines up. I can think of several against. It is surely desirable that when a book is laid on a table, it should be face up—this is the way people normally lay a book down; if this is admitted, it seems equally desirable that the spine should be the right way up, but if the lettering has been run upwards, it will now be upside down. It cannot be argued that it is necessary to be able to read the spine when the front board is in full view, but it should not defy reading. Running the lettering down the spine settles this question at once.

Runners-up are apt to find themselves in difficulties concerning the order of the items on the spine. The usual order on a cross spine is title, author, publisher, but if this is followed on a spine running up, the publisher must be placed at the head. Even the runners-up have a sneaking feeling that this is not right, and attempt to improve matters by transferring the publisher's name to the tail. But then it becomes the first item to be read, and still draws more attention to itself than it deserves. If, however, the spine is run down, all these difficulties vanish; the title commences at the head, is followed by the author, and finally by the publisher in his place at the tail. To me, a partisan of the runners-down, it all seems so simply and incontrovertibly right that it is difficult to understand why those who are not of like mind differ. It may be added that to run a spine up, and thus to compel the eye to move from bottom to top, is contrary to the reading habit of the whole of our hemisphere.

The same problem occurs in the blocking of the bindings of thin books.

It may be possible to use a bolder style on the jacket than was used on the binding, and a wider range of colours may be avail-
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able, which can be used to give variety and richness and also to emphasize or differentiate one part of the wording from another. There is little room for anything other than the wording on a narrow spine, but single ornaments or other items may be used to separate the author from the title and from the imprint. The type itself can be reversed to make narrow panels of colour with the lettering showing in the colour of the paper, and these panels can be made to any shape that seems suitable.

Artist jackets in their arrangement of details are in general subject to the same conventions as the typographical jacket, but there is naturally much greater freedom possible in the use of these details and in the treatment of the design. Unless he is given a free hand it will be necessary for the artist to know how many colours the publisher is prepared to use, and also the process by which he intends to reproduce. Both matters can quickly be settled in collaboration, though in the latter case the choice of artist may more or less automatically decide the process. There are some artists who have made reputations for themselves through particular processes and a call upon their services implies use of their processes. It may be assumed that the typographer, working within the publishing office, though he may not have read the book, is at least familiar with it to the extent of knowing its category and general style. This is not true of the artist, who is usually a free lance outside the office, and he should be given proofs of the book so that he may know what he is doing. He can hardly be expected to produce a suitable design if he does not know what it is for.

Greater variety of lettering is available to the artist, since he may redraw and adapt not only any letter in the catalogue but also invent others for himself. Invention has given birth to some fine lettering and also to some exotic styles that little deserve the name; it is sometimes necessary for the publisher to exercise his prerogative of control. But what the artist can do with ease is to make his lettering a part of the structure of his design in a manner that the typographer can never do; he can give to it the motif of the whole design and make it grow from it. That is if, besides being a capable artist, he is also a capable
letterer—the combination is not as common as it may be thought to be.

A great many artists’ jackets come under the heading of picture jackets, which try to tempt the public by displaying a picture of some incident in the narrative. They are commonly used for novels. Some good ones of this kind have been made, but I think it is true to say that the majority are not good. The picture jacket, indeed, is capable of infinite degradation. We have become satiated with the gaudiness and even salaciousness of some jackets put out by less reputable publishers, with startling pictures in startling colours to goad the appetite of a jaded public, but apparently they still do their business with some people, for they continue to appear. The bookstalls around Leicester Square and parts of Charing Cross are lurid with them. The trouble is that if you want good quality in a picture jacket and are prepared to sacrifice low-class sales appeal, you very soon find that what you want is a first-class painter to paint it for you. And the services of a good painter are not likely to be cheap, even if he will condescend to a bookjacket.

Far more satisfying results have been achieved by artists who are prepared to use the picture, even when it is illustration, in an idealized or abstract manner that takes it out of the realm of illustration and more into that of design. A portrait of a hero or a heroine, for example, may be used in a manner that makes of it a symbol of the book without pretending to be a veracious picture of a man or a woman. Objects or scenes can be treated in the same way. There is some restriction in the sense that, while many unnecessary ideas or details may be whittled away in abstraction, the artist must avoid in his conception anything that is mistaken or inaccurate or liable to convey a wrong impression: there are pitfalls that the artist, not possessing the specialized knowledge of the author, may easily fall into.

But the artist is not confined to the picture jacket. He can also use pattern, abstract or geometrical or otherwise, and incorporate or superimpose the lettering on it.

The jacket spine must be designed in relation to the front board. It may have a picture or a pattern different from those
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on the board, but they must be related and in harmony. Picture jackets are frequently so designed that the picture spreads from the board over the spine, and this is a very good method provided it is kept in mind that spine and board must be capable of being viewed separately without discomfort or any sense of incompleteness. It is not as difficult to achieve this as it may seem, although it must be admitted that spines so treated are liable to be weaker in effect than the board or the whole of the picture.

I have remarked that the back board is sometimes appropriated to the design, and this may be done in several ways, both in typographical and artist jackets. The simplest thing to do is to repeat the front board, either as it is or reversing it from left to right (but not reversing the lettering!). On the other hand it may be treated differently, but harmoniously, and given a different design. When this is done it should be regarded whole, and not as a place to which some discarded idea or superfluous ornament can be relegated. I see no point or purpose in using the space for the display of a bunch of daisies in a small oval frame or a lonely printer's or publisher's sign. Where the backboard is used to continue the design, the spine becomes a link between the two boards, and it must perform its function of conjunction adequately without losing its own identity. Just as the spine and the front board can be contrived out of one continuous picture, so too can one picture be used to cover the back board as well. Such a picture must be capable of being divided into three parts so that each part is satisfactory in itself, if not complete in itself. Neither board should look as though it were only half the game; nor on the other hand should it look as though it were all the game. A picture that cannot be divided into other than incoherent remnants must fail as an all-over jacket design, even if as a picture it is among the best made by men. The only way of looking at such a picture is to view it whole and the bookseller is the last person to appreciate his customers' taking the jackets off his books to get the whole view. It is still the business of the jacket to protect the book, and since it has become an advertisement as well as a protection it must
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itself remain immaculate if its power of attraction and persuasion is not to be impaired.

The broad technique of poster design has been applied to jackets with interesting results. The approach of those who work in this manner has certainly some backing in logic; if they argue at all, it is reasonable to argue that if the jacket is in effect an advertisement, a hoarding intended to inform, attract, and persuade the potential customer, it should have applied to it the principles that have been worked out in the design of posters. Advertising design, which has produced poster technique, is not entirely an haphazard growth, but the result of specialized knowledge and ability applied to a specialized purpose, and the publisher no more than anyone else with wares to sell can afford to dismiss the ideas of the specialist. On the contrary, a case can be made out to show that publishers avail themselves too little of that corpus of empiric knowledge that is miscalled the science of advertising. Nevertheless the poster is not the only means. Valuable as the poster technique undoubtedly is in jacket design, there are other things that enter into it that are not the result of thinking along those lines, or even of thinking at all; rather there is something of instinct and inspiration. A mere glance around any bookshop will show that there are more principles than one on which successful jacket design may be founded; the criterion is not conformity to any school, but aesthetic pleasure combined with practical success.

Lettering is a factor of the greatest importance. While it is undoubtedly true, as some people argue, that even bad types can be used well, and that an artist can get away with indifferent lettering if his draughtsmanship or drawing is good, it must be recognized that these are occasions and only to be used by those who know perfectly well what they are doing. It is easy to point out that good lettering is more likely to improve such designs rather than otherwise. There are qualities that make one kind of lettering more suitable than another for particular uses, and they must not be lightly ignored, and there are qualities that enter into any criterion of excellence. Legibility is a part of the criterion. There is a belief, which has some prevalence, that
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the larger and bolder the lettering the more it must be legible and generally successful; and coupled with this belief is a dogma that the lettering must cover the jacket. There is a grain of truth in it, but not a large grain. It strikes me as essentially a salesman’s idea, and a rather unthoughtful salesman’s too. The intention is, I suppose, that the book when displayed shall draw attention to itself by means of the thunder on the jacket. A very cursory examination of a bookshop window will show that the theory does not work: where many shout, few are understood. Even if it is admitted that the thunder does attract attention, that is not the sole end: attention must be kept, and blatancy repels more often than it attracts. Worse, it is most likely to repel the very people the publisher wants to attract. Now some jackets with large bold lettering are successful, and equally successful are others on which the lettering is much smaller and more reticent. No question involving psychological factors, as this one does, is easy to answer adequately, and there are apt to be numerous partly satisfactory answers, some in direct conflict with others. It is certainly a gross error to affirm that either practice is exclusively the right one. I suggest that the secret lies in design, that if the design is good, and of a kind suited to the book, it will be successful in despite of faction.

Besides being large or small, lettering may also be simple or complex. It may indeed be so complex that it is difficult to read. It is arguable that a jacket design may be made that is successful by sheer force of design, and that such a design will attract the customer closer and persuade him to make out the meaning of even difficult letters. There is no reason why such an argument should not be true provided that it is not applied too frequently in practice; if it were to become popular, it must also become fallacious. Victorian type design died of this surfeit and remained dead for a good long time, until in our own day the nineteenth century began to be recognized as a source from which precious or intricate or decorated letters might be drawn in abundance, to extend a range of feeling that was beginning to find itself a little restricted after the comparative sobriety of the early years of this century. There was no servile imitation in

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the use to which these stolen sweets were put; on the contrary, it appeared that it had been left to the typographers of the twentieth century to demonstrate how they should be used. If it was presumption on the part of the men of a younger time to pretend to teach their grandfathers how to manage their own faces, it could go unreproved; there were few grandfathers left to resent the lesson. One of the minor pleasures of history is to observe how the sons deride the notions of their fathers, while their grandsons scarcely credit them with sense; but the great grandsons find that there was something in the old fellows, after all, but that they never quite knew what was what. Victorian type designs were seized upon and reshaped where it was thought necessary, and sometimes, it must be admitted, they were vastly improved. Typographers and artists took up the inheritance that had so long remained in chancery and used it in a manner not at all Victorian, and not amended or adapted only but pure and undiluted from the spring. Discrimination might have been more in evidence than it has been, but in spite of that this neo-victorianism has been no bad thing. Perhaps the fashion for decorated letters will pass, for it certainly depends to a considerable extent on the meretricious charm of novelty, but it does seem to have come to stay in this generation as permanently as anything founded on the sands of man’s capricious taste.

Experiment is always useful and to be encouraged, even when it fails, but there is no doubt that the bookjacket has been too much the home of queer and cranky letter design. In spite of the successes of decorated faces, there is something to be said for plain and honest letters. They are the basis of all letter design and decorated letters are only successful by contrast with them, and even then not for ever. The primary purpose of lettering is to be read and not to form part of decoration; the pleasure it may give, the beauty of its appearance, are secondary to its quality of legibility, however inseparable they may in practice appear to be. Actually good design and beauty of design are in lettering the same thing: a letter that has been well designed cannot avoid being a beautiful letter. Whether that beauty is
196. Lithographic jacket, drawn on the stone by Pierre Gauchat; light brown with maroon patches strengthened with black and green, on white paper; Eugen Rentsch, Zurich, 1946

197. Jacket by Leonard Weisgard, printed in six colours by photolithography; background brown, with dark grey-blue sky; label white with lettering in red and black; on white paper; Lothrop, Lee & Shepherd Co. Inc., New York, 1946

199. Jacket design by Mariette Lydis, reproduced by four-colour half-tone; background solid black, lettering white; Hachette, Paris, 1946
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retained on the jacket and made full use of depends entirely on the designer of the jacket.

There is something to be said for the contention that lettering on jackets should wherever possible be confined to type if the artist is not a good letterer. Lettering is not an art as easily acquired as many believe, and if type is used there is at least the likelihood that it will be a better letter and a more suitable and legible letter than the artist can invent or draw. And there is, heaven knows, sufficient variety of types to please all kinds of tastes.

While it is usual to give the title of the book the greatest emphasis, there are occasions when it may appear more desirable to emphasize the author's name. The name may be the selling point, and famous authors may find their names appearing in huge letters, with the title in something comparatively small. There is a taint of vulgarity in this, something of the suggestion that the author is a sausage-maker and that all his sausages are guaranteed to taste alike, that if you enjoyed the last one you are sure to enjoy the next. On the other hand, the obscure writer who has produced an interesting book may find himself overshadowed by someone more famous who has condescended to write a preface or a foreword, and the publisher, anxious to cash in on the celebrity, pushes the author into the background. This too is the wrong approach, and one that savours a little of false pretences. After all, it is not the preface that matters, but the book, and the author wrote it, not the celebrity.

Truth in jacket design, which includes suitability of the design to the book, cannot be ignored, for the jacket plays an important part in the creation and preservation of good will. It is true, and it deserves emphasis, that any book is aimed at a particular section of the population, at a particular stratum or strata of society, if you will, and it is the publisher's business so to clothe and present his book that its appeal to those for whom it is intended shall be enhanced and reinforced. A mistake in psychology or a wrong design merely means that we shall be trying to sell the book to the wrong people, and some may be per-
suaded to buy it who will not care to read it, and may be annoyed when they find out what they have spent their money on.

How widely publishers' estimates of the public's intelligence and taste vary is very evident in jacket design. At the bottom of the scale are the lurid and vulgar picture jackets so frequently used for inferior novels, and even for some that are not so inferior. Presumably the publishers who put out this kind of jacket have found out by experience that their low estimate is correct and is good business; but it does not mean that they have the right to degrade public taste still further. It is certainly more commendable, and it might very well be better business, to try to improve it by example and practice. There is no doubt that a higher estimate has on more than one occasion proved very good business indeed. The general level of taste may appear to be poor, or we may believe that it is so; but appearance and beliefs are not necessarily true. There is evidence that the ordinary man is surprisingly sensitive to good design and will react towards it positively enough to confound his enemies. He may not be able to say wherein lies the superiority of one design over another, but he can state his preference, and that preference can be enlightening.

The printing processes used for jackets are the same as those used in the printing of books. The majority are printed letterpress, from type or blocks. Occasionally collotype is used to print an illustration or similar detail. It is through the medium of lithography, however, that some of the most interesting developments have taken place, and it is indicative of the importance that publishers have come to attach to jackets that they are willing to resort to so comparatively expensive a process as colour lithography. Both photo- and auto-lithography are used, and the latter offers enormous scope to the artist, scope so wide that it can scarcely be said to have been fully explored.
XXIII

HARMONY AND THE WHOLE

The method of apportioning a chapter to each component of a book, which I have adopted in Part Two, is not without its dangers. It is a literary convenience and has simplified my work, but it should not be allowed to suggest that a book is so many separate pieces individually designed and jointed together at a later stage, without integration or overriding sense of unity. I do not deny that too many books from even reputable and sensible publishers are put together in a somewhat haphazard manner; where such books are successful in design, it is only by good fortune, and luck is not a lady to be depended on. However, scrap-book typography, as it may be called, is not always an offence of indolence or wilfulness. The typographer in a busy publishing office, struggling, among the multifarious details of several score or more of books concurrently in hand, to achieve an integrated unity for each, is a figure for sympathy and not condemnation; and if he does succeed in creating for each of his works its own typographical personality he has done well enough, though it may be no more than is expected of him. But it is important. Though the various elements of a book may be dealt with separately and at different times, and will certainly be interspersed with work upon other books, there should be kept in mind a distinct vision of the whole, and every part should contribute to it.

The starting point of typography in book design is the subject, the author, and his style. These three produce a character, atmosphere, spirit, or what you will, which may be inexplicable but is certainly there, and this is the key in which the typo-
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grapher will play his piece. It may or may not be subtle. It needs very little imagination to suggest that a book on, let us say, the city of Bath by a professional historian is likely to be a very different thing from one on the same subject by John Betjeman, and what would be typographically suitable for the one would not be suitable for the other. In short, each book needs a costume in accord with its character. But the character of a book is not always as obvious as this, particularly in a period when ambiguous or merely symbolical titles are popular, and it is necessary for the typographer to be able to recognize it. However desirable it may be ideally, he cannot afford to read through every book he handles, for if he did he would have no time for anything else and typography could go hang. He must be able to judge character by dipping here and there, and if necessary by picking the brains of anyone who has read the manuscript—for despite persistent belief to the contrary, there is nearly always someone in a publishing office who has read it. Usually this is sufficient. But when a book arrives that is to be treated with more care and which deserves the best he is capable of doing, he must, if he possibly can, find time to read it; and if he feels then that he would like to read it a second time, all the better, for the more he is interested in it the more he is likely to produce the perfect book. If it can hold him so much that he is captured by it, he may easily find that when he comes to design it the work has already been done for him by his subconscious mind. But in his surrender to the spirit of the writer he must not lose his sense of objectivity. Obviously only a comparatively small number of books are worth this amount of attention; no one should expect an ephemeral popular novel to be a masterpiece of typography, but there is no reason why it should not be a piece of good workmanship.

Text faces and display types and the general use of display and the treatment of the page are marshalled towards the completion of the typographer’s conception. The design should constantly enforce the message of the text, without intruding itself in front of it. Ornaments and flowers, where they are used, must be used in this spirit, but it is safe to say that most books
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are better without this kind of decoration. There is no need for the result to be frigid or stiff. Indeed, there are occasions when apparent abandon is justified—the emphasis is on the word 'apparent'—bacchic art is not created by drunkards.

Throughout the book should run one motif or related group of motifs expressed in the use of type, colour, and texture. This is no limiting or restrictive condition, because at all points new conditions and new requirements arise that extend the application of the motif. A jacket, for example, is quite different from the title-page in the purpose it serves, and the difference of purpose necessarily dictates a difference in appearance; but it does not imply design or expression in opposition to the character of the book itself.

Problems concerned with the use of colour, either in harmony or in contrast, are comprised within the scope of book design, even when, as in most books, no colour is used in the printing of the text. Other places where colour may be found are the endpapers, the binding case, and edges, and of course the jacket. Wherever it appears, colour must be used in the service of a coherent design aimed at a complete whole. Any discord or clash of colours must be the result of intention, and to be successful must achieve its purpose and at the same time add something essential to the whole. This is not to say that any book must be designed within a narrow range of colours or shades; just as in a painting many colours may be embraced within a single scheme, so too in a book may several colours contribute to the total effect aimed at.

To me at least the sense of touch is in many ways as important as the sense of sight, and it is catered for in the choice of paper for the text, of boards and cloth for the binding, and in the treatment of the jacket. Touch should definitely be a factor in the choice of cloth for the case. There is as wide a variety of textures as there is of shades, and among them there are always some that are right for a particular book and some that are equally wrong, and others that are neutral and innocuous. There are cloths that have the harsh texture of a silk stocking or a fine file and that make the fingers numb after a while, and
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these are wrong for any book. Others have the texture masked by a thick coating of filling material, on which a glaze may be laid, and these are also undesirable, because what comes into contact with the finger is not the character of the cloth, which is used merely as a base, but the soft and characterless filler. Others again, quite different, offend like a liar or a man in disguise, because they are not themselves, having been treated to counterfeit other materials.

I do not pretend that even at best a great deal of attention is paid to the sense of touch, certainly not as much as I would like. The tendency is simply to pick on a cloth the colour of which suits the selector's idea, and not to worry about the texture if it is not downright objectionable. I think this is a wrong approach. There lies a subtle relation between the sense of touch and the atmosphere created by the literary style and typography of a book, and that relation should be one precisely attuned to complete the orchestration of book design.

Touch is peculiarly important in connection with the jacket, which is the first part of a book to come into contact with the hand. A jacket is paper, and should feel like paper, and like good sound paper too. Varnishes, which look so fine to the eye, are mere impediments to the finger, worse, may feel definitely unpleasant. Coated papers have a similar effect, and while they may be necessary if half-tones are to be used, are none the less undesirable for that.

Indeed, the question of paper texture throughout the book deserves consideration. The kind and quality of paper may contribute a great deal to the total impression, and to ignore this is to ignore a useful ally. Among the many grades, surfaces, and textures, there is somewhere a combination peculiarly suitable to the purpose in view. The effect of the right paper when it is found is as strong and decisive as the effect of the wrong paper that turns up without search. There are, or it appears so, a great many people who like the feel of a soft, fluffy paper, for the manufacturers send out and publishers use large quantities of paper of this nature. I prefer papers of closer weave and harder surface and with some evidence of size
HARMONY AND THE WHOLE

in their feel. The difference is not only manifest on the surface; it is even more so in the feel of the book itself. Light, fluffy papers make light floppy books, while a more solid paper makes a book that may be thinner and may even be lighter in actual weight, but that yet feels as though it has been manufactured to endure. Featherweight antiques may be exactly the thing for some of the featherbrained stuff that finds its way into print. On the other hand, no paper is more solid or more heavy than art paper, and no paper makes a book that feels more like an ingot of lead; but it is no guarantee of the intellectual weight of the message it bears.

Whatever the typographer may do, however competent he may be, and however carefully he may direct all who are engaged in the manufacture of books, if he cannot depend on the craftsman, the man at the frame, the machine, or the bench, he must be defeated. Sound and conscientious craftsmanship is the rock upon which all industrial design is based, and without it the edifice must totter. Printers and binders, by which I mean the workmen and not their masters, call themselves craftsmen, and this proud title they should deserve. All too often they do not deserve it. The remarkable renaissance of typography that has taken place in this century began and has continued from outside the printing trade, and to no small degree it has been achieved in the teeth of the prejudices of the ‘craftsman’. This is indefensible. And yet it is not fair to blame the workman entirely: if the master does not care, or is sunk in ignorance, it is very hard for the workman to do good work. Such conditions are common enough to make the search for good workmanship heartbreaking. What the workman is paid and the length of his working day is reflected in the estimate, and need not delay us here; it is the interest and pleasure he finds in his work that matter, for out of these arises good workmanship, and good workmanship means good quality in the product. The workman who is careless and watchful for the relaxation of supervision, who cannot be trusted to do a thing properly, who sees the hands of the clock creep round like lazy snails, and works only because he would not starve, this man is not a craftsman, though
he serve an apprenticeship of seven times seven years; he is a mere labourer, and the sooner he is replaced by an efficient machine, the better it will be for all except himself—and why should we care about him? The trade unions remain convinced that all their members are worth their salt, and they spend their energies on the achievement of higher wages and better conditions, neglecting the quality of the workman. A renaissance of craftsmanship is overdue; without it we shall lose one of the greatest satisfactions in the world—the thing that is beautiful because it is well made, because it embodies within it the care and interest of all concerned in the making of it.

Finally, a word of warning. Because the subject of this book is typography, it looms large over that other aspect of the book, its literary value, and the reader may be left with the impression that typography is all that matters. Such an impression cannot be left undisturbed. No book should be treated merely as an excuse for typographical display or virtuosity, and in no book should the typographer allow his personality to obtrude in front of that of the author. To do so is unwarrantable egoism. The typographer cannot do without the author, and the author should not be made, as he too often is, to do without the typographer. The two are collaborators in the production of a book, but the author is the senior; it is his book, and contains his message, and it is this that matters. The typographer is an interpreter and his business is to present the message in its most attractive and suitable light, to interest and captivate the reader beforehand so that he will be drawn to the book, and when that has been done to make his reading easy and delightful. The reader may, and preferably should, know enough of the qualities of typography to know a well-designed book when he sees one, but if while he is reading he is constantly compelled to exclaim, mentally or even subconsciously, upon the design of the book, the typographer has failed at his job. Forceful typography is not typography that forces itself on the attention to the detriment of the literary message. Such typography is in bad taste, just as the literary style that gets in front of the idea, rather than elucidates it, is also in bad taste.
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On the other hand there are those who assert that the typographer should be completely self-effacing, even to the point of refusing any claim upon the gratitude of the book-lover. For these people the appearance of a typographer's name in an imprint or colophon is a red rag that incites them immediately to charges of egoism. They do not see that they perceive only the extremes of the question. The work of a good typographer is characteristic, and is itself a form of signature writ plain for the discerning; a literal signature conveys to the layman information that is as much his right as the name of the printer and the publisher. It seems to me that what the incognitos fear is swelled head, an insidious disease peculiarly dangerous to the interpretative character of typography; but that is no reason why they should impute to others the weakness they perceive in themselves.

And now I have come to the end of my book on books. If I have enabled the reader to enjoy books with a more understanding eye and wider and keener appreciation, because he now knows how they are made and how they are designed, I shall feel that I have been successful.
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