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The Past in Pieces

by P. E. Cleator

THE ROBOT ERA
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ROCKETS THROUGH SPACE



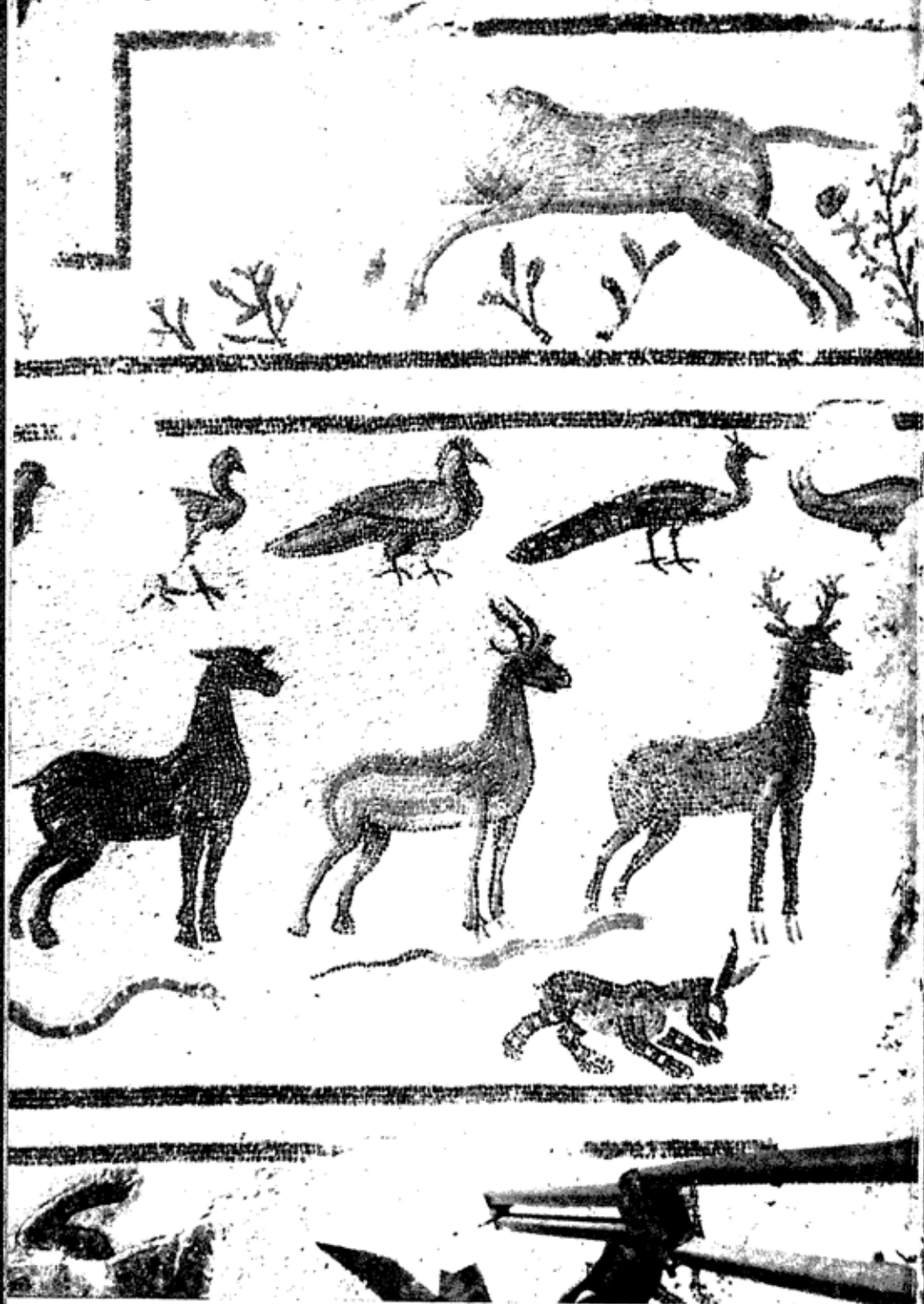


PLATE I. Part of the Flood Mosaic discovered on the floor of a ruined Byzantine synagogue at Jerash, in Transjordan. Photo: Yale University.

P. E. Cleator

The Past in Pieces

AN ARCHÆOLOGICAL
APPRAISEMENT



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To M.
and to the memory of
H.L.M.

100

Acknowledgments

THIS work, both in name and in outline, was conceived by Rayner Unwin, and the idea passed on to me for attention by his colleague (and my ever-indulgent taskmaster) Charles A. Furth, with a request that I at any rate exert myself to the extent of providing a suitable sub-title.

It must be said at once that I am not a professional archæologist, and that in carrying out the assignment, I necessarily had recourse to the writings of many of those who are. But this would have been unavoidable in any case, for the study of the past is now a highly specialised business, and no single authority could hope to provide a series of highlights from each of the three main geographic-chronological divisions of the historic period, without reference to the findings of his fellow experts.

A detailed list of the many works which were consulted is given in the Bibliography (pages 162-167), and where I have found myself more than usually indebted to a particular publication, its title and the name of its author have been given additional mention in the text. Other sources of information from which I have derived considerable assistance include sundry issues of the magazines *Nature*, *Science*, *The Physical Review*, *The Journal of Hellenic Studies*, *The Sphere*, *The Illustrated London News*, and such well known works as the *Cambridge Ancient History*, *Black's Bible Dictionary*, and Sir J. A. Hammerton's *Wonders of the Past*, not to mention a representative selection of the leading encyclopedias—*Americana*, *Britannica*, *Chambers's*, *Collier's*, *Columbia*, *Universal*, *et al.* Nor must I omit to place on record that a purposeful study of all this literature was greatly facilitated by the unflagging efforts of the staffs of half a dozen local libraries, who not only uncomplainingly devoted much time and effort to the locating of elusive and long-forgotten works on my behalf, but who on occasion discreetly flouted minor rules and regulations, that I might privately monopolise over the week-end, some volume or other which was not supposed to leave the reference room.

For the provision of photographic prints, and for permission to reproduce them, I have to thank the following: Professor P. V. Glob, of the *Aarhus Universitets Forhistorisk*, and E. Munksgaard, of the *Nationalmuseet*, Copenhagen (Tollund Man); the *Librairie-*

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The onerous task of proof reading has once again been undertaken by my wife, and also by my old friend, W. H. Browning, and to them, and to all at Museum Street who have contributed to the production, due thanks are tendered.

P. E. Cleator

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PART ONE

*Men,
Methods
and
Materials*



I

Archæologists—and Others

I

MORE than seventy years ago, excavations at Abu Habba, on the Euphrates, enabled the site to be identified as that of ancient Sippar. And it was also learned from the large collection of inscribed cylinders and tablets which were unearthed there, that Hormuzd Rassam, their finder, was by no means the first in that particular field. One of the records he brought to light proved to have been written at the dictation of Nabonidus, King of Babylon, more than 2,000 years before — and it recounted how he, too, had been at pains to investigate some structural remains which had excited his curiosity, and of how he had discovered beneath the ruins of a temple, at a depth of eighteen cubits (about thirty feet), a foundation-stone laid by Naram-sin, self-styled 'King of the Four Quarters of the World', some 2,000 years earlier still! No doubt for the intended benefit of posterity, though in fact greatly to the confusion of modern historians, Nabonidus vouchsafed the information that the foundation-stone in question was one 'which for 3,200 years no previous king had seen', thereby dating Naram-sin, and through him the renowned Sargon of Akkad, c. 3570 B.C. This date was for long accepted, but with the aid of more reliable information, it has now been reduced by more than 1,000 years.

The unsuspecting Nabonidus was destined to be the last king of the last dynasty of Babylon, and the indications are that his archæological leanings contributed not a little to his ultimate downfall. His acquisitive instincts appear to have been aroused by the sight of numerous statues of divinities which littered his domain, and these revered images, to the indignation of the local priesthoods, not to mention the consternation of their lay customers, he proceeded unconcernedly to add to his collection

of antiquities. So greatly was this affront to the high gods resented, that when Cyrus II of Persia arrived on the scene in 539 B.C., he and his invading army were seemingly welcomed as deliverers. At all events, Babylon itself was entered without a fight.

In the centuries which followed, interest in the past remained superficial and uninspired until, heralded by a tentative exploration of the remains of Pompeii in 1748, and by such activities as the investigations of Stuart and Revett in Greece a few years later, the seeds of revival were planted by the scientifically-minded Napoleon Bonaparte. On the occasion of his ill-fated expedition to Egypt, he was accompanied by savants as well as by troops, and some measure of compensation for the lack of success of his soldiers was afforded by the more rewarding efforts of his men of science. Their imposing *Description de l'Egypte*, a multi-volume work published by the French Academy in the years 1809-1813, was the first systematic account of the ancient monuments of Egypt, while the accidental finding of the Rosetta Stone, and the decipherment of the hieroglyphic inscriptions to which it led, were events of outstanding importance. But although world-wide interest was thus engendered, it required the passing of many years before the emerging science of archæology was able to disassociate itself from the hitherto prevailing cult of antiquarianism, a transformation which was decisively assisted by the work of Flinders Petrie in Egypt from 1880 onwards.

It was Petrie who laid stress on the usefulness of seeming trivialities, who demonstrated the importance of stratification, who emphasised the significance of associative finds, and who insisted upon the need for accurate recording, evolving in the process a technique which remains the basis of sound excavatory work to this day. All too many of his predecessors, in particular those unofficial adventurers who roamed the Nile valley in the early part of the century, were little more than relic hunters and seekers after treasure. The redoubtable G. B. Belzoni (and he was far from being the worst offender) made no secret of the fact that the primary aim of what it pleased him to call his researches, was to relieve long-deceased



PLATE 2. (a) Dr. Albert Jamme inspects a long latex squeeze of an inscription from the Temple of Ilumquh, at Awwam, Southern Arabia. The inscription refers to the building, and mentions the dedication of a part of the enclosure wall to the moon god Ilumquh. Photo: *Wendell Phillips, Quataban and Sheba.* (b) Down among the amphorae—an underwater find of Greco-Roman remnants. Photo: *H. Chenevée.*





PLATE 3. Stratified mound of Hajar bin Humeid, in Southern Arabia. Before reaching the sterile soil upon which the first town had been built, the excavators dug through 51 feet of cultural debris, containing a minimum of 15 occupation levels, and thereby established a pottery time sequence back to 1,000 B.C. Photo: *Wendell Phillips, Quataban and Sheba.*

Egyptians of their accompanying papyri—and of anything else that might command a price in the market. And this carefree plundering, it need hardly be said, was undertaken with scant regard for the welfare of other objects which did not happen to possess a monetary value at the time. Belzoni, on his own admission, left a trail of indescribable destruction behind him in the course of his exploratory journeyings. To him, the sealed door of a tomb was merely an invitation to batter it down with an improvised ram of palm logs, and his unconcerned accounts of the ransacking which ensued, once access had been gained, all but surpass belief. In his *Narrative*, he tells how he blundered along a narrow passage, so choked with mummies that he was unable to make any headway without his face coming into intimate contact with that of some decayed Egyptian or other. Fortunately, as he explains, the passage was a sloping one, so that he was assisted by the force of gravity as he plunged downwards, showered all the while by a rain of human arms, legs, and heads. And when, on another occasion, in similar surroundings, he sought a moment's respite from his vandalism by seating himself upon a convenient corpse, it promptly collapsed under his weight, and in trying to save himself from falling, he inadvertently pulled down some adjacent mummy cases. These at once burst asunder, half-burying him under a heap of cadaveric débris, and raising so great a dust cloud that he had to wait a full fifteen minutes for it to settle. Thereafter, coughing and choking, and trampling a mound of friable bodies underfoot, he contrived to make his escape!

II

Among his other claims to fame, Belzoni was the first, in modern times, to gain admittance to the second largest of the pyramids of Gizeh. Inevitably, this famous group of structures had early claimed the attention of the despoiler, and it is evident from a contemporary account that as late as Roman times, the whereabouts of the entrance to the so-called Great Pyramid (of Kheuf) was a well-known secret. But by the time of the Arab conquest of Egypt in the 7th century, the secret had been lost, and in A.D. 818, Mamun the Great, in the hopeful but

mistaken belief that much treasure was to be found within, laboriously tunnelled into the solid stonework for more than a hundred feet, until he finally encountered one of the internal passages.* With this example of private enterprise before him, Belzoni gave his attention to the Second Pyramid (of Khefre), which had seemingly been successful in resisting earlier attempts to break into it. After a month of excavatory effort, he at last gained the burial chamber, only to find an empty sarcophagus, while on the walls of the tomb, sundry graffiti intimated that other intruders had long anticipated his visitation.

Meanwhile, a less mercenary interest in the relics of the past was beginning to be displayed, both in Egypt and outside it, by various officials—diplomats, consuls, army officers, and the like—whose professional duties not only entailed prolonged residence abroad, but also allowed ample leisure for the pursuit of such intellectual inclinations. In the process, these enthusiasts experienced many trials and not a few tribulations, from interruptions caused by international disputations (not only was the despatch of the Parthenon marbles from Greece for long delayed by the Napoleonic Wars, but Lord Elgin himself was captured by the French, in whose hands he remained a prisoner for many months) and obstruction on the part of local authorities (in Mesopotamia, P. E. Botta, Henry Layard, and other pioneer excavators found themselves continually harassed by officials who, while professing friendship, endlessly schemed against them in secret) to retaliatory measures by an unsympathetic peasantry (in Egypt, a series of exquisite wall paintings was destroyed by a farmer because sightseers

* Thanks to such depredations, the Great Pyramid long served as a convenient source of building stone, and in 1356, the Sultan Hasan, intent upon the construction of a mosque, stripped it of much of its outer casing of gleaming white limestone. By comparison, modern molestations have been of a minor character. The latest indignity the monument has had to endure occurred in 1954, when a well-known American film company, before shooting scenes which called for the pyramid as a background, supposedly newly erected, went to the trouble and expense of scrubbing down one of its four sides, that it might exhibit the required degree of freshness. That the now rugged exterior originally boasted a perfectly smooth surface would seem to have been overlooked!

trampled on his crops) and difficulties and dangers imposed by sheer inaccessibility (the famous inscription on the Rock of Behistun, located at a height of three hundred feet on a precipitous cliff face, was several times visited by H. C. Rawlinson, who contrived to copy it at considerable risk to his neck).

One outcome of these activities was the development of a mania for the wholesale removal of antiquities from the land of their origin to the incongruity of foreign museums, it being argued in justification that to plunder in the public interest was somehow less reprehensible than to loot for private gain—especially if (as was almost invariably the case) the ancient sites concerned were ignored and neglected by those whose heritage they were. Whether or not the fact that the proprietor of a unique possession chooses to ignore it, entitles an admirer of it to save it from destruction, and thereafter to regard it as his own—this, no doubt, is a proposition of somewhat dubious legality. But what is not arguable is that in many instances, had not such expropriation occurred when it did, irreplaceable works of art such as the Elgin marbles would have shared the fate of numberless other treasures which have been lost to the world because of the indifference of their rightful owners.

This is not to suggest, of course, that the mere commandeering of an antiquity on behalf of some museum or other automatically ensured its preservation. On occasion, it was the very removal of a coveted item which resulted in its loss. In 1837, Colonel Howard Vyse, after tunnelling in vain at much too high a level, eventually located the entrance to the Third Pyramid (of Menkeure), and found within it fragments of a broken coffin and some human remains, which evidence of an earlier despoliation he sent to the British Museum. A magnificent stone sarcophagus, minus its lid, was also discovered, and this was likewise despatched to London. But it did not reach its destination, for the ship which carried it sank with all hands, it is presumed off the coast of Carthage. Moreover, not all such losses in transit were of an accidental nature. On one particularly disastrous occasion, a convoy of rafts and boats, loaded with several hundred cases of specimens recovered from various Mesopotamian sites, was attacked by Arab brigands in

the vicinity of Kurnah, and irretrievably sunk beneath the combined waters of the Euphrates and Tigris Rivers.

III

Thus, one way and another throughout the greater part of the 19th century, archæological treasure beyond reckoning was looted and sold, mishandled and despoiled, scattered and lost. In Egypt, the turning point came in 1858, in which year, more as a matter of political expediency than as an indication of concern for the handiwork of the ancients, the viceroy Said Pasha was prevailed upon to appoint Auguste Ferdinand Francois Mariette to the position of Director of the Service of Antiquities. Mariette, an ex-schoolmaster, had joined the Egyptian Department of the Louvre in 1849, and in the following year he had been sent to Egypt to buy Coptic manuscripts. In the course of his travels, he arrived at Memphis, where he noticed the head of a miniature stone sphinx protruding out of the sand. Mindful of Strabo's account of an avenue of sand-covered sphinxes which led to an Apis (sacred bull) cemetery, he took it upon himself to hire some workmen, and to institute digging operations. And by the time the funds with which he was supposed to purchase manuscripts had been expended, it was clear that he had made a discovery of first-rate importance. He had indeed found the entrance to the Serapeum, now revealed as an extensive series of underground vaults, belonging to three distinct periods, and containing immense granite and limestone coffins in which the bodies of the supposed divine animals had been laid to rest.

From his position of newly-acquired authority, Mariette put an end to the wholesale plundering of Egypt's ancient monuments by decreeing (to paraphrase the discerning James Baikie) that henceforth the only plunderer should be himself. As to this, his own activities were undoubtedly of a somewhat summary nature—among other things, frescoes were damaged beyond repair, that their more interesting portions might be exhibited in isolation from the remainder, impressions of painted reliefs were made with wet pulp, to the instant ruination of coloration thousands of years old, and dynamite was

used to clear away unwanted ruins which threatened to impede the progress of adjacent excavations!

To some extent, these hasty and ill-considered methods were thrust upon Mariette by the unenviable conditions under which he worked. On the one hand, he had to justify his existence by the making of impressive finds, rather than by any display of the (yet to be devised) niceties of scientific excavation, and on the other, he was plagued by a watchful army of corrupt and unscrupulous government officials, who sought at every opportunity to rob him of the fruits of his labours. Not long after his appointment as head of the Service of Antiquities, some of his workmen unearthed the sarcophagus of Queen Aahhotep while digging in the vicinity of Thebes. But before it and its precious contents could be brought to Cairo and comparative safety, the find was seized by a local Mudir, who extracted the jewellery which the coffin contained, and then sped by boat down the Nile with the intention of gaining the favour of the Khedive by presenting it to him in person. Not to be outdone, Mariette intercepted the thief, regained the stolen treasure by force, and then made haste to the royal palace himself, that he might tell his side of the story first!

Nor was it merely with scheming Egyptian officials with whom he had to contend. In 1867, a few years after Said had been succeeded by the spendthrift Ismail Pasha, an exhibition was held in Paris at which Mariette was able to make a fine showing of Egyptian antiquities, including many gems. The collection was, of course, merely on loan for the occasion, but so greatly did it appeal to the Empress Eugénie, wife of Napoleon III, that she expressed a desire to receive it as a gift. This request put the Khedive in an extremely difficult position. But with oriental astuteness, he contrived to extricate himself by placing the onus of consent upon the unfortunate Mariette, whose determined refusal, though it retained the treasure for Egypt, cost him the favour of his outraged emperor!

The death of Mariette, and his replacement as head of the Service of Antiquities by Gaston Maspero, chanced to coincide with the appearance on the scene of Flinders Petrie, who lost no time in putting his revolutionary archæological ideas into

practice. Prior to his arrival in Egypt, he had not hesitated to criticise, in a recently-published work,* a feature of the otherwise admirable *Description de l'Egypte*, the substance of his complaint being that the measurements given in it were worthless, as many of them, though to all appearances displaying a most commendable exactness, were in fact merely round numbers which had been methodically converted into millimetres!

In undertaking an extensive series of careful and detailed surveys himself, Petrie began with the pyramids at Gizeh. It was while thus engaged, so report has it, that he encountered a compatriot, carrying a tape measure and a steel chisel, who was imbued with the notion that the Kheuf structure contained a prophetic message for mankind embedded somewhere in the commensurabilities of its vast bulk. And the purpose of the cutting tool, it transpired, was to ensure that actual dimensions conformed with those which theory demanded! †

IV

By the turn of the century, thanks in large measure to the enlightenment spread by Petrie in Egypt, by Schliemann in Greece, and by Evans in Crete, the role of archæology as an elucidator of historic problems was at last recognised and established. And because of the emphasis now laid upon the importance of associative evidence, unauthorised digging and the peddling of chance finds were considerably discouraged. Gone, too, was the ready market for fake specimens which, in the past, had been produced in their hundreds by the unscrupulous for the benefit of the uncritical. On the other hand, the

* *Inductive Metrology* (Hargrove Saunders, London, 1877).

† It is instructive to observe with what assiduity members of the lunatic fringe keep well abreast of the times. As these words are being written, there has just appeared in print what purports to be a work of serious intent from the pen (it is claimed) of a noted archæologist and instructor in astronomy at a well-known American university. In it, the author suggests that in common with other megalithic monuments throughout the world, the pyramids were constructed by the survivors of a race of supermen, armed with a hovering spaceship and a levitational device of the familiar anti-gravitational kind, by means of which outsize blocks of stone were hoisted into mid-air, transported to the site, and then gently lowered into position!

absence of any hope of monetary reward did not deter the practical joker, as revelations concerning the authenticity of portions of the famous Piltdown skull have recently shown. It may be doubted, however, in view of the many searching techniques which the investigator now has at his disposal, whether a deception such as this could again be practised with any hope of success.

In the course of the last fifty years, not only have there been far-reaching improvements in archæological methods generally, but a steady broadening of the field of enquiry has inevitably led to ever-increasing specialisation, so that to-day an acknowledged expert in ancient Egyptian affairs tends more than ever to confine his attentions to some particular aspect of the subject of his choice. Again, the study of the past has become more and more dependent upon the sciences—physics, chemistry, sociology, economics, and botany among them—and no one can possibly aspire to competence in them all. In consequence, a director of excavations is now liable to find himself surrounded, not merely by a gang of native labourers, but also by a host of fellow-experts, ranging from engineers and geographers to artists, photographers, draughtsmen, and surveyors. The modern archæologist, that is to say, is just as likely to be a ceramist as a philologist or an epigraphist, and working costs have multiplied accordingly.

Certain aspects of work in the field, however, remain unchanged—there are still discomforts to be endured and difficulties to be overcome, disappointments to be borne and dangers to be faced. That the last-named can on occasion be real enough is evidenced by the murder by a brigand of J. L. Starkey in 1938, in the vicinity of the site of the Judean city of Lachish. And if it seems incredible that in these days of universal enlightenment and international understanding, there could be any suggestion of the deceit and double-dealing which beset and hindered the pioneer excavators of a century ago, or a repetition of the disaster which overtook Hilprecht and Peters at Nippur in 1887,* it is necessary to look no further than the

* Various troubles with local tribesmen came to a head when an Arab thief was shot dead by the camp guard. Three days later the expedition's headquarters were overrun, sacked and burned to the ground.

experiences of members of the expedition sponsored by the American Foundation for the Study of Man, on the occasion of their Yemen explorations in 1951-1952, as vividly recounted by Wendell Phillips in his *Quataban and Sheba*. Although formal permission had been granted by King Imam Ahmed for the conducting of excavations at Marib, the ancient capital of Sheba's domain, local officials were suspicious and hostile from the start. No sooner was one obstructive demand complied with than it was followed by another, until all work was gradually forced to a standstill. In the end, cut off from the outside world, with their incoming supplies blocked and their finds confiscated, and with tension mounting daily, Dr. Phillips and his companions learned of a plot to provoke an argument with them as an excuse for bloodshed, at which point it was decided to escape with their lives at the expense of all their equipment. On the pretext of visiting the nearby scene of their operations, the entire party climbed aboard the only two of their trucks for which sufficient fuel remained, and made a dash for the border, with a horde of armed horsemen in close, but happily unavailing, pursuit!

II

Ways and Means

I

IN his study of human handiwork, it is now recognised that the archæologist's legitimate domain extends not only over most of the land surface of the earth (the polar regions alone are exempted from his attentions), but also beneath a considerable expanse of the sea,* and the question at once arises as to how new and important finds, or indeed any finds at all, continue to be made when the would-be discoverer has so vast and extensive an area before him.

One answer is that large centres of population have always tended to congregate in fertile river valleys, rather than in the midst of inhospitable deserts, or on the summits of snow-covered mountains. And another is that isolated finds are all the while being brought to light inadvertently, from the bastion of the old London Wall at Cripplegate which was exposed by a bomb explosion during the last war, to the hypogeum, containing an immense sarcophagus, which was revealed by a landslide at the Syrian town of Gebal (ancient Byblos) in 1922.

Consider, for example, the chain of circumstances which led, first to the accidental finding, and eventually to a recognition of the importance, of the dozen or so documents known as the Dead Sea Scrolls. In the spring of 1947, two Bedouin in search

* The possibilities offered by the wrecks of ancient vessels, many of them lying in shallow littoral waters, are beginning to attract an increasing amount of attention. Equipped with Aqua-lungs and other such devices, the modern marine archæologist can readily retrieve specimens from the sea bed at depths of up to twenty-five fathoms, as the pioneer activities of J. Y. Cousteau in Mediterranean coastal regions have demonstrated. Not long ago he found a Græco-Roman ship of six hundred tons, the property of one Marcus Sestius, which sank about 230 B.C. From its hold he recovered hundreds of amphoræ, some of them still sealed, and containing wine mellowed for more than two thousand years!

of lost goats chanced to enter a wadi in the vicinity of 'Ain Feshkha, at the northern end of the Dead Sea. Here, their curiosity was aroused by the sight of a cave entrance, and on climbing up to it, they beheld a number of stone jars, which on examination were found to contain linen-wrapped scrolls. Hoping that their discovery might prove to have a monetary value, the two Arabs took the scrolls to Bethlehem, and there showed them to a Moslem sheikh. At his suggestion, they next approached a leading member of the Syrian community, by whom they were directed to Athanasius Teshue Samuel, Metropolitan of the Syrian Orthodox Monastery of St. Mark, in Jerusalem. After due consideration, the Archbishop bought five of the scrolls, and the remaining half-dozen, together with some fragments, were subsequently purchased by Professor E. L. Sukenik, on behalf of the Hebrew University.

Early in 1948, the American Schools of Oriental Research were consulted about the St. Mark's acquisition, and among the scrolls were identified a virtually complete Hebrew MS. of Isaiah, a commentary on the Book of Habakkuk, and another non-Biblical work known as the Sectarian Manual of Discipline. The Hebrew University's collection was of a like character, and the find, in part if not in its entirety, was ascribed to the 2nd or 1st century B.C., and thus promised to provide scholars, among other things, with portions of the Old Testament record which were a thousand years or so nearer to the original than any similar documents known to have survived.*

No archæologist, it goes without saying, is content to rely upon the fortuitous outcome of air raids and landslips, or even of goat herding, and not a few individual finds have been made

* Although there has been considerable controversy over the age, worth, and even the authenticity of the manuscripts, most authorities are now satisfied as to their genuineness. Examination of the 'Ain Feshkha Cave revealed the remains of several dozen jars of the late Hellenistic period (estimated to have once contained as many as two hundred scrolls), together with innumerable fragments of the missing scrolls themselves. Seemingly, the hoard had been found and plundered long ago, an occurrence to be dated, perhaps, by the pieces of Roman pottery which were also found. To add to the piquancy of the situation, additional scrolls, written in Hebrew, Aramaic, and Greek, have since been discovered (in 1952, and again in 1953) in the same vicinity.

as a result of excavations hopefully maintained despite months, and sometimes years, of disappointment. It was a patient and persistent approach of this kind, made in a not particularly promising part of the Valley of the Kings which previous investigators had declared to be devoid of further interest, that ultimately resulted in one of the greatest discoveries of all time. Where earlier workers had been content to sink a series of trial holes in likely-looking places, Howard Carter, acting on behalf of Lord Carnarvon, adopted the slow and tedious method of clearing the ground down to bedrock, on the theory that if in fact there was anything to be found, such a procedure would be bound in time to reveal it. And after the painstaking removal of surface debris since estimated to have weighed nearly a quarter of a million tons, there came into view the topmost tread of a flight of rock-hewn steps which led invitingly down to the intact tomb of the Pharaoh Tutenkhamen

Fortunately for all concerned, the locating of more extensive items of archæological interest calls for no such laborious and long-sustained effort. The sites of ancient cities, for instance, are practically impossible to conceal, for even if no actual structures are in evidence, or no tell-tale mound is to be seen, there is always the unfailing indication which broken pottery provides. And in places where dense vegetation has since overgrown the site, subtle differences of colour among its foliage will betray the outlines of an earlier soil disturbance. It is true that this may be difficult to perceive at ground level, but it will most certainly not escape detection from the air, as the work of O. G. S. Crawford in this connection has served to show. In time to come, it may be expected that the complete mapping of the globe by aerial photography will provide an infallible guide to all age-old centres of human occupation of any consequence, be the memory of them still preserved, or all recollection of them long-since lost.

But recognising the existence of a site is one thing, and establishing its identity is another. Among the early investigators, there was often much uncertainty about the name of the place whereat they were digging, which explains how P. E. Botta, after protracted excavations at Khorsabad, came to publish a

voluminous account of his labours entitled *Monuments de Ninève*. In the case of cities as well known by repute as Nineveh, such misapprehensions, of course, are usually short-lived, and to-day, thanks to the widespread archæological activities of the past hundred years, there are few, if any, historically famous centres of population whose location is seriously in dispute. On the other hand, a tremendous amount of work remains to be done, and even within the much-explored confines of the Nile valley, let alone in the relatively unknown interior of the jungles of Central and South America, important discoveries continue to be made, as recent announcements concerning the finding of yet another 1st-dynasty tomb at Sakkara, and the unearthing of a pair of funerary boats at Gizeh, go to show.

II

As is to be expected, the condition in which ancient ruins are found varies from groups of buildings (and, on rare occasions, entire cities) in a fine state of preservation, to no more than a few crumbling foundation walls, barely recognisable as such. Much, of course, will depend upon the age of the structures, upon the nature of the materials used in their construction, upon the skill of the builders, and upon considerations climatic and geographical. Also to be taken into account is the matter of liability to attack by enemy forces—and few ancient cities of any note appear to have escaped destruction by burning at one time or another. But if the site were of sufficient importance, it would in due course be levelled, and new buildings would replace the old, a process of reconstruction which might well be repeated a dozen times or more in the course of several thousand years. As a result, the general level of the site would gradually be raised above that of the surrounding terrain until, after a final abandonment, the disintegration of its remaining edifices would contribute to the topmost of its many layers.

The excavation of such a stratified accumulation of man-made debris, if it is to produce scientifically useful results, must entail far more than the carefree search for items of artistic merit which characterised the pre-Petrie activities of the last

century. Nothing less than a careful and systematic investigation, conducted layer by layer, will now suffice, that there may be disclosed, by way of the artifacts each stratum contains, as much as possible of the history of the site, including information concerning the number of years which have elapsed since it first came into being. In other words, there is to-day a full appreciation of the fact that the value of any object which may be retrieved, be it a fragment of pottery, or a helmet of beaten gold, resides not so much in the intrinsic worth of the article itself as in its archæological associations. A piece of a broken jug may well prove to be of far greater worth than any amount of silver and gold.

Ideally, the whole of a site should be excavated. In practice, however, this is not always possible. Apart from the question of expense, there is the time factor to consider — work at Pompeii, still far from complete, has now been going on more or less continuously for about two hundred years! Again, some extensive sites, such as that of Nineveh, are in part occupied by modern villages, not to mention the burial grounds associated with them. In such circumstances, where the scope of operations is restricted for one reason or another, there must be resort to selective digging. To this end, a preliminary survey may serve to reveal the position of some building of importance by the conspicuousness of its (not necessarily visible) remains. But this failing, the most satisfactory answer is provided by a system of trenching, in which a surface strip, having a width, say, of a couple of yards, and any length that is deemed necessary or desirable, is marked out in a succession of squares. These are then dug out, until ultimately sterile soil or bedrock is reached.

In addition to groups of workmen wielding shovels, other gangs will be required to remove unwanted debris. And while time and money demand that the carry be as short as possible, experience shows that, as often as not, the precise spot chosen for the dumping of waste material will prove to be the scene of subsequent excavation. Annoyances of this kind are not easy to avoid without resort to mechanical aids, and at some favoured sites thousands of tons of rubbish have been conveyed

to a safe distance by means of trucks, or even a light railway. But all too often, luxuries such as these are not available.

Sooner or later, the exploratory digging may be expected to yield loose finds, to reveal structural remains, and to provide evidence of stratification. Essential to the success of this part of the work, is that it should be carried out under the supervision of someone who knows what to look for—and when to call a halt. The locating of some portion of a building may well lead to the identification of a floor of occupation, an event which will mark a definite stage in the proceedings, as everything found above this level will either belong to the same period as the building itself, or be of a more recent date. And as, regrettably but unavoidably, all excavation is accompanied by the destruction of evidence which, once it has been lost, can never be recovered, it is essential that the work of clearance be accompanied by a careful and detailed recording of the nature and position of all finds, and supplemented by a liberal use of the camera. A constant lookout, too, must be maintained for fragile articles, that unnecessary damage to them may be avoided, and for small items which might otherwise escape notice, and so find their way to the rubbish heap (many excavators guard against this by sifting all dust through a screen). Care must also be taken that a newly-exposed layer is not damaged by rain, or surreptitiously plundered, either by workmen in search of gold, or by stray animals looking for bones. The expedition's leaders, in short, must be constantly on the alert, and ready if need be to keep watch over a particularly important discovery throughout the night.

III

In certain areas, the dryness of the soil assists in the preservation of objects buried in it. The Delta region excepted, Egypt is especially favoured in this respect, and even papyrus records, often recovered from the rubbish heaps in the vicinity of ancient dwellings, are usually found in a readable condition (though the frictional effect of wind-blown sand has been known to erase the writing). Desiccation apart, the conservation of animal and vegetable remains is also promoted in other

ways. From time to time, the peat bogs of Scandinavia disgorge the embalmed bodies of the prehistoric dead, and a particularly fine specimen (the Tollund Man) was dug up in Central Jutland in 1950. Again, the refrigerative effects to be encountered in the Far North have led to the discovery of the carcasses of entire mammoths, their frozen flesh still sufficiently wholesome for it to be eaten, at any rate by other animals. And then there are freak circumstances such as the blanket of volcanic ash which descended upon Pompeii, though this archæological Godsend, alas, has not proved impervious to rain.

More often than not, the excavator finds that the presence of moisture has had a most deleterious effect upon all cloth, wood, leather, flesh, and the like, though on occasion the form of a perishable object (such as the human body) which has vanished completely, may be recovered merely by pouring plaster of paris into the mould-like cavity it has left behind. Certain animal products, *e.g.* bones and teeth, and many metals (iron excluded), are often discovered reasonably well preserved, while flint implements and ceramic materials can be relied upon to endure indefinitely, no matter how damp the locale. On the other hand, items of stone, even though they may have long lain buried without hurt, are liable to suffer damage on exposure to the air. Many kinds of stone are sufficiently porous to absorb various salts from the soil, and these may crystallise and cause disintegration as the material dries out, if due precautions are not taken. A prompt soaking in water, however, will remove the cause of the trouble.

Wall paintings, by general consent, should if possible be left *in situ*, there to be viewed, examined, and photographed at will in their proper setting. But if for any reason their safety cannot be assured, removal from a mud or plaster wall may be accomplished by interposing a sheet of waterproof paper between the ornamentation and a second wall in the shape of a suitably thick application of cement-like material, whereby a sandwich is formed. This can then be sawn into blocks of suitable dimensions. As for immovable inscriptions which are carved on rock or stone, these (in the early days copied by hand) are best pre-

served by means of impressions.* Wet paper pulp, once much used in this connection, is now being replaced by rubber latex, a solution of which, thinned down with ammonia and water, is applied to the appropriate surface. Other, and less fluid, applications then follow, until a layer of sufficient thickness has been built up. When dry, the squeeze is carefully pulled away, to provide a reproduction which combines accuracy with durability.

Small inscribed objects, such as the miniature clay tablets which have been recovered in their thousands from the libraries of Ur, Nippur, Sippar, and other centres of Mesopotamian culture, it is customary to remove to a place of safety, where they may be studied at leisure. In the case of clay tablets, however, these are first baked for several days in a high-temperature oven, whereby they are rendered sufficiently hard to withstand the rigours of a thorough cleaning. A drying-out process is also prescribed as a rule for wooden items which have been recovered, say, from an underground burial vault. Any dampness in the wood, however, must be dispelled gradually, lest undue shrinking and warping occur. This may, indeed, have already taken place, as G. A. Reisner discovered when he found the tomb of a wife of the Pharaoh Snofru. In the course of some forty-seven centuries, the woodwork of the funerary equipment had become so badly distorted as to render it useless. Careful study of the misshapen furniture, however, enabled replicas to be made which were so faithful a representation of the original design that the existing gold leaf decoration fitted the copies exactly.

Such restorative work belongs to the laboratory rather than to the field, but emergency measures are not infrequently required of the excavator. The finding of a skeleton, its bones reduced to little more than powder by an excessive weight of earth, clearly calls for special attention, if it is to be retrieved

* The value of the process is illustrated by the case of the famous Moabite Stone, discovered at Dibon in 1868. It was offered for sale by Arabs who, in the course of a disputation concerning the sharing of the anticipated spoils, reduced the inscription to fragments. The pieces eventually found their way to the Louvre, where a satisfactory repair was effected with the aid of an impression taken before the destruction occurred.



PLATE 4. The Tollund Man, recovered from a Danish peat bog after a period of immersion estimated at 2,000 years. He would appear to have been the victim of a ritual sacrifice. Photo: *Nationalmuseet, Copenhagen.*



PLATE 5. (a) An *in situ* plaster cast of two of the many hundreds of citizens who perished in Pompeii nearly 2,000 years ago. (b) A similar portrayal of the last agonising moments of a canine victim of the disaster. Photos: Museo Nazionale di Napoli.



in any sort of shape at all. Yet the recognised procedure is as simple as it is effective. Without disturbing the remains, the surrounding soil is carefully dug out, and molten paraffin wax poured into the excavation and over the skeleton itself, and a backing of wax-soaked cloth added as a stiffener. The undersoil is then cut away, and the specimen tilted over and onto a cushioned board, cleaned, and the waxing process repeated. After crating, it is then ready for despatch to headquarters, where the backing can be steamed off, and the wax removed, at first by scraping, and in the final and more delicate stages, by the application of a solvent.

Among other specialised techniques which have been developed is that designed to deal with broken pottery. When the famous Portland Vase was wantonly smashed in the precincts of the British Museum in 1845, those faced with the task of its reconstruction were at any rate fortified by the knowledge, not only that they were in possession of all the fragments, but also that there were no extraneous bits and pieces. Collections of potsherds gathered in the field carry with them no such comforting assurance, and a process of painstaking selection must precede any attempt at reconstitution. Work then proceeds from the base upwards, and as difficulty may be experienced in making the rim meet, it is important that the cement used should permit of any necessary readjustment. An adhesive which meets this requirement is celluloid dissolved in acetone, a solvent which can always be used to produce a subsequent softening of the bonding material, should the need arise.

IV

On occasion, archæological finds raise more problems than they solve. Bronze-Age graves in Wiltshire have been shown to be more than three thousand years old by the fact that they contain a distinctive type of blue bead, undoubtedly of Egyptian origin, and identifiable as belonging to the latter part of the 18th dynasty. But how did these ornaments make their way to the British Isles? Again, a gold object retrieved from the tomb of the 2nd-dynasty Pharaoh Kheneri was found to be coated with a red deposit which chemical analysis showed to

be a compound of antimony. But, says A. R. Burn,* the two metals will not combine except in the presence of a third and rare element called tellurium—and geologists know of only one region where all three substances are found together: Transylvania. Are we to suppose, then, that in 3,000 B.C. the Egyptians were obtaining gold from north of the Danube?

That nothing must be taken for granted, however, was shown by the experience of Davis and Weigall, when they came to examine an Egyptian tomb in 1907. The accompanying inscriptions proclaimed it to be none other than the burial place of the famous Queen Tiy, wife of Amenhotpe III. It later transpired, however, that the supposed mummy of the queen was in fact that of a man, apparently the substituted remains of her heretic son Akhnaton, thus saved from desecration, perhaps, at the hands of the outraged priests of Amen.

In this instance, the inscriptions were merely inadvertently misleading. Many records, however, contain statements intended to deceive—Assyrian annals, for example, often begin by claiming that 1,000 sheep were captured in this or that battle, and then gradually increase the figure in successive editions until it tops the 100,000 mark! This process of progressive elaboration is amusingly illustrated by the interminable accounts of Rameses II concerning the battle of Kadesh, in which Egyptian fought Hittite for the dominion of Syria. Rameses and some of his forces were outmanœuvred, and the Pharaoh found himself surrounded, from which predicament he extricated himself by boldly charging through the ranks of the encircling enemy. The outcome of the struggle, however, was inconclusive, and Rameses eventually retired from the field without having gained his objective, which was to drive the Hittites out of Kadesh. A great Egyptian victory was nevertheless announced, and as time went on the story gained with every telling, until in the end we find the boastful Rameses asserting, not only that the enemy were wiped out to the last man, but that he personally disposed of each and every one of them!

* In his *Minoans, Philistines, and Greeks* (Kegan, Paul, Trench, Trubner and Co. Ltd., London, 1930).

The archæologist, it need hardly be said, is not deceived by such extravagant claims. But from among all the worthless details, he can usually extract some reliable information, if only that a battle was fought. Similarly, when correspondence is found wherein King X writes to King Y, complaining about the activities of King Z, the investigator is likely to be less interested in the contents of the letter (which may, or may not, be justified) than in the evident contemporaneity of the three monarchs.

The immense accumulation of random facts which has been garnered in this and other ways has been likened to a jig-saw puzzle, each of the individual pieces of which has to be fitted into its appropriate place. The comparison, however, is not without its limitations, for not only are many of the pieces missing (with little expectation that most of them will ever be found), but the picture itself is subject to never-ending change. Hence the puzzle must be regarded as possessing three-dimensional attributes, as extending depthwise, as it were, in terms of time. The manifold complications thereby introduced will be evident.

III

Chronological Note

I

AS the handmaiden of history, a primary aim of archæological research concerns the all-important question of dating. Approximate estimations of age, always useful as a guide, can be made in any number of ingenious ways. The undoubted antiquity of Eridu, for example, traditionally regarded as the most ancient of Babylonian cities, has been demonstrated by a consideration of the location of its ruins in relation to the present position of the head of the Persian Gulf. The city, which originally occupied a place on or near the seashore, now finds itself no less than 130 miles inland, and thanks to an observation made at the time of Alexander the Great, it is known that silting-up has been going on at the rate of about 40 yards a year. Assuming a constancy of deposition, Eridu has evidently been in existence for at least 6,000 years.

Of more general application are methods based upon stratigraphical considerations. Given that a deposit containing archæological material has not been overturned, or otherwise interfered with, it will be evident that artifacts found in a low stratum will be older than those discovered in a high one, and that the age of any particular layer must be less than that of the most recent object found in it. In the system of sequence dating which Flinders Petrie evolved, ancient pottery ('the archæologist's alphabet') was the yardstick used—a choice dictated by the fact that earthenware has been in universal use since time immemorial, that it breaks easily, and so quickly serves to mark a site by giving rise to an ever-increasing accumulation of discarded bits and pieces. Thanks to the indestructibility of these fragments, details of successive changes in shape, colour, and decorative design in pottery are

faithfully preserved, and such information, when supplemented by other evidence, can provide a dated classification of well-established reliability. Nor is this all. At Gurob, Petrie recognised the presence of alien sherds among the remains of Egyptian pottery belonging to the 18th dynasty, and he was able to identify the importation as of Mycenæan origin, and to ascribe it to 1500-1000 B.C.—at once establishing the hitherto unsuspected existence of an early Hellenic civilisation, and demonstrating by this classic exhibition of cross-dating the far-reaching possibilities of his methods.

Within the past decade, there has been evolved a new and independent method of age determination, based upon the atomic disintegration of a particular elemental isotope—carbon 14. The use of radioactivity as a dating mechanism relies upon the Rutherford rule that the fraction of the total number of atoms of a substance which undergoes disintegration in unit time is constant. Thus, after a certain interval, a given amount of material, and hence the strength of its radiation, will have been reduced by half; and after another such interval, this remainder will have been reduced by half again; and so on. The period in question, the half-life value, is a characteristic feature of all radioactive substances, both natural and artificial, and it may range from a fraction of a second to millions of years. Uranium, for example, has a half-life of no less than 4,500,000,000 years, and armed with this information, and with a knowledge of the end products of its disintegration (helium and lead), geologists have been enabled to estimate the age of rocks containing it—and it transpires that strata relating to the Archæan period are some 2,000,000,000 years old!

The application of this novel dating technique to organic remains is made possible, improbably enough, by the fact that the outer atmospheric layers of the earth are being continuously bombarded by cosmic rays, a radiation postulated by C. T. R. Wilson at the beginning of the present century, and the non-terrestrial origin of which was subsequently demonstrated by Gockel, Hess, and others. It has since been shown that on encountering the earth's atmosphere, this bombardment gives rise to a secondary effect in the guise of neutrons of various

energies, and it is to be expected that many of these particles will find themselves in frequent collision with surrounding air molecules. Now air, essentially, is a mixture of oxygen (about one-fifth) and nitrogen (nearly four-fifths), and experiments have proved that while oxygen is relatively inert, its atmospheric companion reacts to neutron bombardment in a number of ways, the dominant effect being the transmutation of a specific nitrogen isotope into an unstable carbon atom of mass 14. In the laboratory of the sky, the fate of such newly-formed carbon atoms will be an early oxidation to radioactive carbon dioxide, and this, in association with ordinary atmospheric supplies of the gas, will in due course be absorbed by plants in the normal way. Thereafter, some of the plants will be eaten by animals, either directly as food, or, in the case of the carnivores, indirectly through the flesh of their plant-eating victims. In effect, one way and another, all living things will be rendered faintly radioactive by virtue of assimilated carbon 14—a phenomenon which should lend itself to detection by conventional means.

So reasoned W. F. Libby some years ago, and in 1947, with E. C. Anderson, he published an account describing how this theorising had been verified by comparing carefully selected samples of the hydrocarbon methane, one batch obtained from deep underground (petromethane), the other derived directly from Baltimore sewage (biomethane).^{*} The outcome of this painstaking investigation was decisive: while the tests indicated that the biomethane contained radiocarbon to the extent of ten or more disintegrations per minute per gram of carbon, the corresponding figure for the petromethane was considerably and unmistakably less.

It so happens that the half-life of carbon 14 is very nearly 5,600 years, and if it be assumed, reasonably enough (for there is convincing evidence in support of the assumption) that cosmic ray intensity has remained more or less unchanged for a period at least several times greater than this (say for 20-30,000 years), it may be expected that a state of equilibrium will have

^{*} 'Natural Radiocarbon from Cosmic Radiation' in *The Physical Review* for 15th November, 1947 (Vol. 72, No. 10).

established itself between radiocarbon production and decay, so that the total amount of the substance terrestrially in being, estimated at some eighty tons, will remain constant at or about this figure. The maintenance of such a balance, moreover, will be faithfully reflected in the amount of radiocarbon which organisms assimilate while they are alive, in that the amount of radiocarbon absorbed will exactly offset the amount that suffers decay. At death, however, assimilation will cease, and the process of disintegration will be left to continue alone, the attendant radiation growing progressively weaker all the while. Thus careful measurement of the strength of these signals will afford incontrovertible evidence of the number of years which have elapsed since the organism breathed its last.

Substances which are particularly suitable for dating by means of their radiocarbon content are charcoal, charred organic matter (such as heavily-burned bone), well-preserved wood, grasses, cloth, and peat. It is essential, of course, that the selected sample shall contain the original carbon atoms which were present when death supervened, *i.e.*, there must have been no subsequent chemical changes leading to their replacement (as might happen when underground waters wash over shell), or contamination by modern carbon (in the guise, say, of intrusive rootlets). Contingencies such as these having been guarded against, the material, after cleaning, is oxidised to carbon dioxide, and then reduced to carbon, whereafter its tell-tale radiation is checked by Geiger or scintillation counter. An alternative method, independently devised by H. E. Suess, of the U.S. Geological Survey in Washington, and by A. R. Crathorn, at the British Museum, is to convert the carbon into acetylene, as a prelude to measurement.

II

The older a sample of material is, the weaker will be the signals which it emits, and there is thus a point beyond which an accurate interpretation can neither be expected nor obtained, even with the aid of expedients such as the isotopic enrichment of the sample under test. At present, the extent of satisfactory measurement is about 30,000 years, though it is anticipated

that eventually this may be increased to as much as 60,000 years. In the meantime, the inherent reliability of radiocarbon dating, within the prescribed limit, has been demonstrated by means of materials of known age, among them a piece of wood from an Egyptian coffin of the Ptolemaic period, and a portion of the deck board from the funerary boat of the Pharaoh Sesostri III.*

Among the hundreds of samples from all over the world which have since been treated are such varied items as charcoal from the Lascaux Cave in the Dordogne ($15,516 \pm 900$ years), lake mud from Knocknacran, in County Monaghan, Ireland ($11,310 \pm 720$ years), charcoal from Stonehenge, Wiltshire, England ($3,798 \pm 275$ years), and woven rope-sandals found buried beneath pumice in Fort Rock Cave, Oregon, in the U.S. ($9,053 \pm 350$ years). Other determinations have concerned a lump of beeswax, formerly associated with a collection of Late Bronze objects estimated to be upwards of 3,000 years old, and found not to belong to the original hoard—the wax registered a mere eight or nine centuries; charcoal from an ancient Indian butchering site in Wyoming, in the U.S., which proved to be in the region of 7,000 years old; a variety of hard pine found buried beneath the youngest pumice deposit in the Medicine Lake Highlands area of California, which was shown to have perished some 1,360 years ago, thus dating the final volcanic upheaval which occurred in these parts; and charcoal from a tree carbonised by yet another long-forgotten eruption in the U.S.—the gigantic Mount Mazama explosion which formed Crater Lake 6,000 years or so ago.

Significantly, radiocarbon estimations are in good agreement with dates which are accurately known, or which have been reliably assessed by more orthodox methods, and it is where uncertainty has hitherto been acknowledged to exist, *i.e.* where

* *Vide* 'Age Determinations by Radiocarbon Content: Checks with Samples of Known Age' by J. R. Arnold and W. F. Libby, in the issue of *Science* for 23rd December, 1949 (Vol. 110, No. 2869). Sundry lists of radiocarbon dates have since been published by various investigators, and the examples which follow above have been taken from an extensive compilation to be found in the 2nd edition of W. F. Libby's *Radiocarbon Dating* (The University of Chicago Press, Chicago, 1955).

archæologists have tended to be in dispute among themselves, that the verdict of the carbon atoms has on occasion been challenged—naturally enough by those whose own estimations it has inexplicably failed to uphold.

Up to twenty years ago, Hammurabi, the famous 6th king of the 1st dynasty of Babylon, was considered to have reigned from c. 2123-2081 B.C. (as determined by L. W. King in confirmation of information furnished by the errant Nabonidus), or at any rate not much later than 2067-2025 B.C. (as announced by Langdon and Fotheringham after prolonged scrutiny of the so-called Venus Tablets of Ammi-zaduga).^{*} This dating of Hammurabi c. 2000 B.C. remained without serious challenge until after 1935, in which year a French team of archæologists, under M. A. Parrot, began excavations at the ancient city of Mari, an Amorite stronghold on the Middle Euphrates. Here, some 20,000 inscribed tablets were found in the palace archives, and in 1937 came the announcement that from a perusal of these documents, it was clear that Hammurabi had been a younger contemporary of Shamshi-adad I of Assyria, whose date was to be regarded as nearer 1800 than 2000 B.C! Hammurabi's date was reduced accordingly, and support for the change was forthcoming a year or two later, when Leonard Woolley, in the course of excavations at Alalakh, in north Syria, found evidence that the famed law-giver had also been a younger contemporary of Yarim-lin, King of Yamkhad, who died about the middle of the 18th century.

Although the need for a considerable reduction in the date of Hammurabi is now generally conceded, the precise extent of the alteration has yet to be determined and agreed. At present, there are conflicting interpretations of the available

^{*} These Tablets, concerned with astrological omens, are based upon observations of the planet Venus. One of the series, maintained over a period of twenty-one years, was identified by F. X. Kugler with the reign of this length of Ammi-zaduga, 10th king of the 1st dynasty of Babylon. Attempts to use this information to arrive at a date for Ammi-zaduga (and through him, for all the other monarchs of the dynasty) are conditioned by the fact that the various astronomical phenomena involved repeat themselves every 172 synodic periods of Venus = 3,401 lunations = 275 tropical years (very nearly).

evidence, the forty-three years of his reign extending from 1792-1750 B.C. according to one leading authority, and from 1728-1686 B.C. in the view of another. Sidney Smith, in his *Alalakh and Chronology*, argues in favour of the higher of these datings, it being supported not only by the evidence provided by Woolley's Syrian excavations, but by a reconsideration of the Venus Tablets on the assumption that the observations in question concerned the period 1645-1624 B.C. rather than the 275-years-earlier period 1920-1899 B.C. as was formerly supposed. But in any case, the revision is a drastic one, the full effects of which have yet to be seen, and these may well be far-reaching. Hammurabi has for long been claimed as the Amraphel, King of Shinar, mentioned in Genesis. This is an identification which many Biblical scholars, who hitherto proclaimed it with conviction, are now suddenly at pains to deny. But should it nevertheless be upheld, the repercussions promise to be felt right down the Patriarchal line, from Abraham to Moses and beyond.

In these portentous circumstances, it is of interest to note that the alteration to the Hammurabi date has meanwhile been confirmed by radiocarbon estimations. Of necessity, the problem was approached in a somewhat roundabout fashion—by way of the ruins of the ancient city of Nippur. At this site, charcoal was obtained from the roof beam of a house which had been ascribed (by means of dated tablets) with a high degree of probability to a period not earlier than the year 1 of King Shu-sin (c. 2048-2040 B.C.) or later than year 3 of his son and successor, Ibi-sin—a range of twelve years. The sample was divided into three equal portions, and triple readings taken, all of which gave slightly more than four counts per minute, as against nearly seven for modern wood. The conclusion reached was that the roof beam was constructed from timber felled $3,945 \pm 106$ years ago—in 1993 B.C. or thereabouts. And as it is known that the two kings in question reigned some two and a half centuries before Hammurabi, it follows that Hammurabi himself must now be regarded as having lived considerably later than was formerly supposed.

III

Neither the Egyptians nor the Babylonians devised a continuous chronological scheme based upon a fixed era, and in modern times much effort and not a little ingenuity have been expended in an endeavour to make good this deficiency. The ancient Egyptians were content merely to date events by the regnal years of the king, so that in the absence of a complete list of monarchs, giving the lengths of their reigns, any attempt at dead reckoning (entailing simple addition, followed by the subtraction of the total number of years from a fixed starting point) quickly breaks down. But a number of incomplete (and on occasion conflicting) king-lists have survived, and with their aid a reasonably satisfactory chronological framework has been devised—thanks also to the phenomenon of the helical rising of the Dogstar Sirius and the vagaries of a 365-day calendar, as will in due course be recounted.

The state of archival affairs in Mesopotamia has proved considerably more helpful, in that the Assyrians named each year after some high dignitary, beginning as a rule with the king, and thereafter descending in order of seniority from one official to another throughout the reign. So-called *limmu* lists were prepared, recording the name of the year, *i.e.*, that of the official concerned, and noting any outstanding event which occurred during his period of office. Numbers of these lists have been recovered, and as may be imagined, the information which they contain has been of inestimable value. One fragmentary record dates from King Adadnirari I (*c.* 1300 B.C.), and another, by good fortune more complete, which was found at Khorsabad by members of the Oriental Institute of Chicago in 1933, extends as far back as the 3rd millennium B.C. Yet a third, discovered earlier, provided a vital clue which enabled its purely relative sequence of dates to be read in terms of an absolute chronology. This was the *limmu* of a certain Pur-sagail, of Gozan, wherein mention was made of a solar eclipse which took place in the month of Sivan (May-June). The event was subsequently identified as a total obscuration of the sun, visible at Nineveh, which happened on 15th June, 763 B.C., and Assyro-Babylonian chronology from 900-666 B.C. was thereby

immutably fixed. To some extent overlapping (and where it overlaps, fully agreeing with) this astronomically-determined period, is the well-known Canon of Kings, used by the Egyptian geographer Claudius Ptolemy (2nd century A.D.). It provides a no less reliable list of Babylonian, Assyrian, and Persian rulers, complete with reign lengths and a record of eclipses, from 747 B.C. down to the conquest of Babylon by Alexander the Great in 331 B.C.

Consequences at once far-reaching and gratifying followed this precise ordering of events in the Nile and Tigris-Euphrates valleys. For one thing, the two systems serve to reinforce one another—the unearthing of communications* sent by Ashuruballit I, King of Assyria, and Burraburiash II, King of Babylon, to Akhnaton (Amenhotpe IV), Pharaoh of Egypt, clearly establishes a contemporaneity of events in all three domains; and for another, they have provided even more valuable synchronisms in respect of neighbouring states and even distant countries—as is exemplified by the dating of Late Minoan pottery (and thence that of allied periods) from the pictorial representations of vase-bearing Cretan envoys to be observed on the walls of Egyptian tombs of the 18th dynasty.

IV

Particularly revealing has been the light thrown upon the momentous happenings which marked the settlement of the Israelites in Palestine. This former Canaanite territory, though hardly to be considered desirable in itself, lay at the crossroads

* Part of the famous Tell-el-Amarna Letters, a store of baked clay tablets discovered in 1887 by an Egyptian peasant woman at the site, lying midway between Memphis and Thebes, of the ruined city whose name they bear. The tablets, inscribed in cuneiform characters (the diplomatic language of the period), proved on examination to consist of a series of letters which passed between Amenhotpe III and his successor Akhnaton, and various independent rulers, vassal kings, and Egyptian governors in Palestine, Syria, and elsewhere. That widespread unrest existed at the time is shown by the fact that among the despatches were found urgent and moving appeals for help against the inroads of superior enemy forces—requests which the pacific Akhnaton steadfastly ignored. Ribaddi, a loyal and hard-pressed governor of Gebal, writes that 'Like a bird that is caught in the snow, so am I in this city of Gebal,' and his final plea intimates that 'Unless help comes, I am a dead man.' The rest is silence.

of the ancient Middle East, and the strategic importance of its position had made it a battleground down through the ages. Intimate contact on the part of its luckless inhabitants with the invading forces of Egypt, Mesopotamia, and other lands was thus inevitable, a circumstance which now makes possible a series of interesting and highly informative comparisons between the historical records of the various nations concerned.

Prior to the 19th century, our knowledge of these events was both one-sided and confused—one-sided in that it was to a large extent derived from the accounts contained in the Old Testament, and confused because of the manifest unreliability of Biblical chronology (among other misleading things, the regnal years given for the kings of Israel and Judah, from the beginning of the divided monarchy to the fall of the Northern Kingdom, do not add up to the same total, while the list of Babylonian monarchs found in the Book of Daniel is not only incomplete, but hopelessly muddled, and in part fictitious).

Archæological research has done much to clear up these inconsistencies, and it has succeeded in providing a satisfactory series of dates from the advent (c. 1020 B.C.) of the Hebrew Monarchy onwards. Prior to this, the dates ascribed to leading characters and events are admittedly of a much more tentative nature. The home of Abraham, though it may well have been at Ur, was evidently not the Ur of the Chaldees, for we now know that the Chaldeans (Semitic nomads) did not reach Babylonia earlier than the middle of the 7th century B.C., whereas the available evidence, such as it is, suggests that the migration of the Terah family began anything up to fourteen hundred years before this. Jacob has been provisionally assigned to the 18th or 17th centuries B.C., while conjecture about the date of Moses and the departure of the Israelites from Egypt ranges from shortly after the expulsion of the Hyksos, c. 1550 B.C. (with whom, indeed, the Israelites were long ago identified by the Jewish historian Josephus), to the reign of Rameses II, some two and a half centuries later. In so far as the Egyptians are concerned, it is hardly to be expected that their records would make mention of what, to them, would be no more than the flight of an unruly body of slaves. But a time

limit is seemingly placed on the escape by a stele of the Pharaoh Merenpthah, which indicates that the Israelites were entrenched in western Palestine by 1230 B.C. or thereabouts.

Considerable chronological uncertainty also surrounds the events of the period from Joshua to Samuel—suggested dates for the capture of Jericho, for instance, extend from the 1400 B.C. of J. Garstang to the 1250 B.C. of L. V. Vincent. But with the unification of Israel under the monarchy—Saul (c. 1020-1000 B.C.), David (c. 1000-960 B.C.), and Solomon (c. 960-922 B.C.) much firmer ground is reached. W. F. Albright and others have contrived so to amend the Biblical account of the divided rule which followed the death of Solomon, as to remove its inherent contradictions, a corrective process assisted by Assyrian mention of the fact that Ahab, in alliance with Benhadad of Damascus and other local rulers, fought with Shalmaneser III at the battle of Karkar. The participation of Ahab in this fierce but indecisive struggle, of which there is no mention in the Old Testament, provides the all-important information that he was reigning over Israel in 853 B.C.

Up to the present, there have been unearthed no less than ten outside allusions to members of the divided monarchy (six of Israel's kings, and four of Judah's), and these references, together with sundry accounts of the various Assyrian monarchs who periodically ravaged the two kingdoms (including their versions of the siege of Jerusalem and Samaria) have presented Biblical scholars with much invaluable material, a careful study of which has not been without its surprises. Among other things, unmistakable evidence has been adduced (*vide infra*) that well-known portions of the Old Testament were appropriated (in some cases almost word for word) from the earlier traditions and writings of Moabite, Canaanite, Edomite, Egyptian, Babylonian, and Sumerian authorities. On the other hand, references of a corroborative nature abound, from the clay tablet found in a palace of Nebuchadnezzar, with its mention of the daily rations of the captive King Jehoiachin of Judah and his associates (in confirmation of statements contained in 2 Kings) to the account inscribed on the walls of the Temple of Karnak by the Libyan Pharaoh Sheshonk I, relating

the story of his sacking of Jerusalem shortly after the death of Solomon, and of his seizure of that monarch's golden treasures (as described in 1 Kings and 2 Chronicles). All in all, the Old Testament narrative has stood up remarkably well to the long and searching investigations to which it has been subjected, and shorn of its borrowings, its mythology, and its supernatural content, it has been revealed as an historically accurate account of the life and times of the peoples it so vividly portrays.





PLATE 6. Interior view, showing contents, of one of the two recently discovered (May, 1954) boat graves belonging to the Great Pyramid of the Egyptian Pharaoh Kheuf (4th dynasty, 26th century B.C.). Although three other boat graves associated with the Great Pyramid have long been known, the boats they once contained perished in antiquity. Photo: *The Egyptian State Tourist Office, London.*



PLATE 7. Pit F at Ur—an extensive excavation which descends below the layer of deluge silt. The unearthing of kilns and pots at various intermediate levels shows that the site was for long associated with vase manufacture. Photo: *The British Museum*.

PART TWO

*Oriental
Origins*



I

Enter The Pharaohs

THE history of ancient Egypt is pre-eminently the story of the three hundred and fifty or so members of its long line of kings—their matrimonial entanglements and their theological pretensions, their building operations and their diplomatic manœuvres, their exploits in battle and their interminable expeditions to the ancestral land of Punt.

Our knowledge of these pseudo-divinities and their worldly affairs is derived from a variety of sources, including sundry regnal lists. And in the 3rd century B.C., it is said at the command of Ptolemy I (Philadelphus), a history of Egypt was compiled by one Manetho, high priest of Sebennytos. It was he who divided the pharaohs* into thirty royal houses or dynasties, an arrangement which, though in many ways arbitrary, has nevertheless proved convenient, and is now firmly established by long usage. On completion, the account was placed in the famed Library of Alexandria, an establishment which was subsequently destroyed by Moslem invaders.† But

* Pharaoh is a Hebraic corruption of the Egyptian *Peroe*, 'The Great House'. It is a title which, strictly, is not applicable to the very early kings, though it is so used to-day as a matter of general convenience.

† In A.D. 642. It is said that the Caliph Omar, in making reply to the plea of the philosopher John Philoponus that the library be spared, answered that if the Greek writings were in agreement with the Koran, they were unnecessary; that if they were in *disagreement* with it, they were pernicious; and that either way, they were fit only to be destroyed. This declaration was prompted by the pious belief that the Moslem Scriptures were the outcome of 70,000 conversations which Mohammed was permitted to have with Allah, each consisting of 70,000 words, during a heavenly interview which lasted but a moment of time—a supernatural origin which clearly made all other literary works superfluous. But the story that for six months thereafter the baths of the city used more than half a million manuscripts for fuel, is no longer entertained. Part of the library was, in fact, housed in the famed Temple of Jupiter, which structure (and presumably its contents) was destroyed by a mob of Christian fanatics led by Archbishop Theophilus in A.D. 391.

though the original work perished, it was not lost entirely, for excerpts from it are to be found in the writings of Julius Africanus and others.

Manetho's catalogue of kings was presumably based upon such records as were available to him, and it is probable that these included most, if not all, of those which are still extant—notably two royal registers, of 19th-dynasty origin (Seti I and Rameses II), to be found at Abydos and Sakkara; a document compiled (so the style of its writing suggests) during the 17th-19th dynasties, which lists the monarchs from the 1st dynasty onwards, not to mention the high gods who reigned on earth before them, and which is now known as the Turin Papyrus of Kings; and a large stone tablet, originally some nine feet in length, which was set up in 5th-dynasty times, and upon both sides of which are inscribed the royal names associated with that remote era.

It should at once be added that reference to these records as being still extant requires some qualification. More than a century ago, the priceless Turin Papyrus was despatched to the town in Italy from which it derives its name, so carelessly packed that it reached its destination in hundreds of small and brittle pieces, since when much effort has been expended in not altogether satisfactory attempts at reconstitution. As for the ancient 5th-dynasty stele, unhappily this is also in fragments, the bulk of them missing. The most important of the known pieces, named after the towns in which they are now to be found, are the Palermo and Cairo Stones.

That these diverse sources of information, such as they are, sometimes contradict one another, it is perhaps unnecessary to add, and in attempting to separate the factual from the fanciful, there are a number of considerations to which due regard must be paid. One of these is that the pharaonic law of succession was through the female line, a long-standing custom which was introduced, according to Manetho, by King Bineter of the 2nd dynasty. But although the pharaoh's eldest daughter was thus the acknowledged heiress to the kingdom, it was usual for her father to select from among his multitudinous offspring a male heir to succeed him, whereafter the chosen prince proceeded to

legalise his claim to the throne by marrying his sister. To be sure, in the ordinary course of events, he would inevitably acquire scores of other wives as well, but their position was always one of secondary importance to that of the Great Queen.

In addition to this fundamental brother-and-sister relationship, the matriarchal law of succession led to associations which, seen through 20th-century eyes, appear even more dubious and bizarre. While the position of the pharaoh remained secure enough during the lifetime of his Great Queen, he might find himself forced to abdicate in the event of her predeceasing him. To safeguard himself against such a contingency, he accordingly took the elementary precaution of marrying every possible heiress in sight, regardless of the relationship between them. Thus, if the information given to Herodotus was correct (and there is no reason to suppose that it was not), the Pharaoh Menkeure paid court to his own daughter, as without question did the eminent King Snofru before him—a fruitful union whereby he achieved the distinction of becoming the proud father of his own grandson.* And at the other end of this somewhat unconventional matrimonial scale, the famed pyramid builder Kheuf, another scion of the Snofru ménage, made a successful bid for the throne by marrying his dead father's paramount widow, though it is true that there is nothing to suggest that the lady in question was actually his own mother. Even such unions as this are on record, however, and the probability is that they were common enough. M. A. Murray cites the case of some minor personage or other who, not content with marrying his mother, by whom he had a son, also wedded his daughter (by another wife), who in turn presented him with another daughter!

Apart from these genealogical complications, other difficulties arise from the fact that the pharaohs, by virtue of their suzerainty over a collection of once independent states, were endowed with as many as five different names. Thus, Dudu-

*A certain Prince Nofremaet. That the facts of his parentage were deemed highly honourable and unusually fortunate, is made clear in the inscription which recounts them.

mose, of the 17th dynasty, was also known (Weigall transliteration) as Uth-khe (his Hawk-King title), as In-hotpe (his Hawk-King of Nubi title), as Ded-hotpe-re (his Reed and Hornet title), and as Shedet-toui (his Lord of the Vulture and the Cobra title). Various authorities, moreover, have tended to give different renderings of the original hieroglyphs, so that Kheuf, for example, appears as Kheof, Khufu, or Khuf, thereby adding not a little to an already existing confusion of names. And as if all this were not enough, the Egyptian Manetho chose (or was commanded) to write in Greek, whereby Kheuf became Cheops, Suphis, and even Saophis!

Again, although the Pharaoh Menes, as No. 1 of the dynastic rulers, is credited with being the first to inherit the united kingdom of Upper and Lower Egypt, there were subsequent periods when feudalism and civil strife prevailed, or when much of the land was occupied by a foreign power—dark days which have inevitably introduced uncertainties and blanks among the records. At the close of the 6th dynasty, what is now known as the Old Kingdom terminated in a series of internal disorders which continued for nearly six centuries. Then the Middle Kingdom emerged, a restorative epoch occasioned by the rise of the 11th and 12th dynasties. Thereafter, the power of the central authority waned once more, ultimately becoming so ineffectual that the Delta region was overrun by hordes of Semitic nomads, who gradually gained control of one district after another, and finally established a series of pharaohs of their own (the Hyksos Kings).

The reign of these usurpers extends through several dynasties, and continues until the appearance of the Egyptian chieftain Seqenenre, who was killed whilst warring against the Hyksos King Apopi, but whose son Amose eventually defeated and expelled the invaders. Manetho begins his 18th dynasty with this Amose, whose reign marks the start of the New Kingdom—the third and last phase of Egyptian greatness. The new empire was destined to thrive until the end of the 20th dynasty, whereafter a permanent decline set in, a collapse followed in turn by Libyan incursions and Nubian overlordship, by Assyrian supremacy and Persian enslavement, by Roman

occupation, by Arab conquest, and by Ottoman annexation—which last state of servitude persisted, at any rate nominally, long after the Napoleonic descent upon Alexandria in 1798.*

II

It was the arrival of the French (who were quickly ousted with the assistance of the British) which led to the discovery of the long-lost secret of the hieroglyphs, the sacred script of the ancient Egyptian priesthood. This script was a development of simple picture-writing, and more than six hundred different characters were ultimately evolved. Of these, some denoted certain sounds (phonograms), while others indicated specific ideas (ideograms), and to the uninitiated the combined result appeared merely as a picturesque collection of mute and meaningless symbols. Moreover, for everyday (as opposed to sacred) purposes, abbreviated hieroglyphs in cursive form were used—the hieratic writing found on papyral records, which eventually degenerated into the simplified and popular script known as demotic.

These several forms of ancient Egyptian writing defied all efforts at decipherment—until some French troops, digging in the vicinity of the Rosetta (western) mouth of the Nile in 1799, by chance unearthed an inscribed slab of black basalt which was unexpectedly to provide the answer. Examination of the find revealed that the inscription, which concerned a decree issued in 196 B.C. by the priests of Memphis in honour of Ptolemy V (Epiphanes), was both threefold and bilingual. The first two scripts were unreadable, the one hieroglyphic, and the other demotic. But the third version was in Greek!

By equating Greek words with their demotic counterpart, de Sacy was able to publish a partial solution in 1802, a task completed by Akerblad in the same year. The hieroglyphic text, however, proved much less amenable, and its unravelment

* After the expulsion of the French, the Turkish Sultan, in 1805, appointed Mehetmet Ali as Governor of Egypt, in which office he was in due course succeeded by other Turkish nominees. Even after the British assumed administrative control in 1882, the diplomatic fiction was maintained that Egypt remained a part of the Turkish Empire. It ceased officially to be so regarded after the outbreak of war in Europe in 1914.

required another twenty years of intensive effort. The first essential was to ascertain the phonetic values of the unknown characters, and the only conceivable approach was by way of proper names—these, it seemed reasonable to suppose, would be common to both the Greek and Egyptian languages. And it so happened that a few years earlier, it had been suggested by Zoega, in a moment of conjectural inspiration, that such names might well be found in those places where groups of hieroglyphs were distinguished by an encircling ring, or cartouche. The Rosetta Stone confirmed this assumption, for where the name Ptolemaios (Ptolemy) occurred in the Greek inscription, the corresponding group of hieroglyphic characters were found to be enclosed in the royal oval.

The next step was the outcome of an even more fortunate circumstance. On the base of a small obelisk discovered at Philæ, one of a pair erected by Ptolemy VII (Euergetes II), a bilingual inscription bore in Greek the name of his wife, Kliopatra (Cleopatra), and also gave its hieroglyphic equivalent. A highly instructive double comparison at once became possible, and it was observed that whereas certain characters common to the two Greek names were also denoted by identical hieroglyphs, other characters, though the same in Greek, were differently represented in Egyptian—and presumably indicative of dissimilar sounds. Aided by these and other clues, and by the labours of Akerblad and Young before him, Champollion, on 14th September, 1822, succeeded in identifying the names Rameses and Thutmose on some impressions taken from a temple which ante-dated the Greco-Roman period. The key to the problem had at last been found.

One of the interesting facts which then came to light was that high up on the list of despoilers of ancient buildings must be placed the pharaohs themselves. The inscriptions show, both directly and indirectly, that these revered monarchs did not hesitate to mutilate or demolish the monumental handiwork of their predecessors, either because of religious fanaticism, or as a matter of expediency, or even out of personal pique. In the course of what Professor Breasted has called the 'Feud of the Thutmosids', the name of Queen Hetshepsut was methodically

removed from her sculptured reliefs by her puppet husband and eventual successor, Thutmose II, while Thutmose III, more vindictive still, went so far as to deface two obelisks set up by the queen, by encasing them in sandstone to a height of eighty feet! Even more destructive was a tendency to erect new structures at the expense of the old, and many a noble building was ruthlessly torn down, and the debris quarried as a convenient source of stone. But down through the centuries, perhaps the greatest archæological loss of all has been occasioned by the indefatigable and never ending activities of unauthorised seekers after treasure.

Both the age and the extent of the problem are apparent from the inordinate lengths to which the rulers of ancient Egypt went, in an effort to ensure the safety of their mummified and bejewelled remains. And when, as time went on, it became evident that mere mountains of brick and stone offered no sure protection against unwarranted intrusion, burial sites were sought in inaccessible locations (the entrance to one intended sepulchre was cut more than half-way up the 250-foot-high face of a precipitous cliff), or hidden away in remote and unfrequented places (such as the now-famous Valley of the Kings), often with additional safeguards in the guise of a multiplicity of false trails and blind leads.

An outstanding example of this particular development is provided by the succession of secret passages which Flinders Petrie encountered in the pyramidal tomb of Amenemhet III, at Hawara. To begin with, the entrance was concealed on the south side of the structure, instead of on the north—the customary location. And at the bottom of a long staircase was an empty chamber, seemingly devoid of interest. A large sliding panel in the ceiling, however, covered an opening which disclosed two passages at right-angles, one of them filled with loose masonry (through which barrier some early intruder had hopefully tunnelled his way), and the other leading to a second empty room. The blocked passage led nowhere, but in the unfurnished chamber, as before, a roof outlet led to another corridor, once again to all appearances a dead end. Yet a third sliding panel, however, gave access to a further gallery, in the

floor of which was a deep well, and beyond this another chamber and a second well. But the two wells were merely a blind, for the way to the tomb was to be found elsewhere in the floor, from where a short passage led to the actual entrance—and to a final obstruction in the shape of a 45-ton block of stone. All these ingenious expedients, however, had been devised in vain, for when Petrie arrived on the scene in 1889, it was to discover that his visitation had been anticipated long before. Not only had some enterprising vandals succeeded in reaching the portals of the tomb, but they had laboriously mined their way right through that final bar to progress, the 45-ton block of stone!

III

Yet the policy of secluded interment occasionally succeeded in its aims, and one comparatively undisturbed tomb at least, all memory of its existence lost in the course of three millennia or more, remained safely hidden until 1922, in which memorable year the splendours of Tutankhamen were revealed to an astonished world. Prior to this unprecedented event, although one royal tomb after another examined in modern times had been found empty and despoiled, some remarkable discoveries were nevertheless made, including the finding, by Davis and Quibble, of the untouched sepulchre of Yuua and Tuua in 1904. This, though not the tomb of a pharaoh, contained a collection of objects the equal in quality, if not in quantity, to those of Tutankhamen. Again, in 1914, a rifled burial place at Lahun which was being cleared under Petrie's direction, unexpectedly gave up a rich store of golden treasure which the early plunderers had somehow missed, while at the beginning of the century, another of Petrie's workmen, this time at Abydos, discovered the torn-off arm of the consort of King Khenti (Zer), complete with several bracelets, which bejewelled limb some nameless ghoul had plucked from the dead queen's body and thrust into a crevice, presumably with the unfulfilled intention of retrieving it later.

. Dramatic evidence of the frustration of another attempted robbery was brought to light by Engelbach in 1912, during the

excavation of a 12th-dynasty tomb at El-Riqqa. The roof of the structure had long ago collapsed, filling the interior with earth, and beneath the debris was found the body of a would-be robber. He had been buried alive by the roof fall, caught in the very act of removing the corpse of his intended victim from its coffin!

Usually, it is to be feared, the thieves succeeded only too well—on occasion in collusion with the undertakers. Although when it was unearthed, it was clearly and unmistakably evident that the tomb of Prince Nofremaet had not been opened since the burial of its owner more than 4,500 years before, it was nevertheless found to have been thoroughly rifled, in all probability, as Wainwright has suggested, before the family mourners arrived home from the funeral! And elsewhere, J. Garstang has reported the finding of coffins with openings constructed in their sides, filled up with pieces of wood painted to match, and fastened with flimsy pegs designed to permit of easy access!

It was in 1126 B.C., or thereabouts, towards the end of the reign of Rameses IX, that royal tombs in the vicinity of Thebes were found to have been entered and robbed. A Commission was appointed to enquire into the circumstances of the outrage, and at the same time determined steps were taken to apprehend and punish those responsible—a retributive undertaking of which details are given in various papyri. Seemingly, however, violations of the dead continued, for about a century and a half later, the drastic decision was taken to remove all the known royal mummies from their rifled sepulchres, and give them a mass burial in one or more secret hide-outs—a decision which was to lead, some three thousand years afterwards, to the unearthing of one of the greatest necroscopic finds of all time.

The first hints of it came in 1876, when the appearance on the open market of sundry valuable relics gave rise to the suspicion that some unauthorised persons had gained access to a hitherto unknown royal grave. But it was not until 1881, after diligent investigations on the part of the authorities, that the culprits were found, and the objects traced to their source—an isolated spot, in the vicinity of Der-el-Bahri, where a square shaft dropped forty feet into a series of rock-hewn chambers

below, crammed with the remains of kings and queens representative of half a dozen dynasties! Here were found the mummified owners of some of the most famous names in Egyptian history—Amenhotpe I, Amose, Thutmose II and III (18th dynasty); Seti I and Rameses II (19th dynasty); and Rameses III (20th dynasty). Also among those present was the valiant Seqenenre, challenger of the Hyksos, whose violent end was clearly evident from his appalling head wounds, his clawing hands, his clenched teeth, his bitten tongue . . . More ghastly still was the sight presented by the grotesque and misshapen figure of an unknown man whose frame and features were so contorted by unendurable agony that Maspero was moved to voice the suggestion that the fellow had been invested with the wrappings of the dead whilst he was still alive, though possibly a more likely explanation is that he was a victim of self-poisoning, an outcome of the conspiracy trials instigated by Rameses III, after the discovery of a plot to seize the throne.

An echo of the great Der-el-Bahri find came a few years later, when Loret happened upon the resting place of Amenhotpe II, in the Valley of the Kings. Although the tomb had been plundered years before, the mummy of the pharaoh was found lying beside its sarcophagus, a discovery unique at the time. More, in a side chamber, where they had been gathered together for safe keeping, were found upwards of a dozen other royal mummies, including those of Thutmose IV and Amenhotpe III (18th dynasty), Rameses IV, V, and VI (20th dynasty), and Merenpthah, long (but no longer) believed to have been the pharaoh of the Exodus.*

* When the body of Merenpthah was not found among the Der-el-Bahri collection, its absence was widely regarded as providing confirmation of the notion that he had been drowned and lost during the Red Sea episode. The subsequent discovery of his remains, though momentarily disconcerting, was soon turned to good account when the presence of a bodily incrustation of salt was providentially observed, a phenomenon promptly hailed as evidence of prolonged immersion in a saline solution. And any doubts that remained were at once dispelled when a closer examination revealed that Merenpthah had suffered from atheroma—proof positive of the Biblical statement that his heart had been hardened. Unfortunately for the propounders of this ingenious thesis, it has since been shown to be highly improbable that the much maligned Merenpthah was the pharaoh of the Exodus at all!

IV

Even to-day, after more than a century of continuous investigation, useful additions are still being made to the immense accumulation of information and misinformation about the pharaohs which it is the task of the expert to assemble, examine, compare, and sift, that the ostensible facts may be patiently pieced together—a laborious and often baffling assignment which has inevitably been attended by some divergence of interpretative opinion.

In the past, there was much disagreement over the question of dates, and at one time there would appear to have been almost as many conflicting chronologies as there were Egyptologists. Relatively minor divergences apart, however, two main schools of thought eventually emerged, respectively the advocates of a high date (*c.* 5000 B.C.) and the propounders of a low date (*c.* 3500 B.C.) for the accession of Menes and the beginning of the 1st dynasty. There is thus revealed a difference of some 1,500 years, on the face of it a discrepancy of incredible proportions. But the period in question, as will be seen, is one of peculiar significance in pharaonic chronology.

The process of dead reckoning (due regard being paid to the practice of co-regency) succeeds well enough as far back as the 18th dynasty, *i.e.*, to the start of the New Kingdom, *c.* 1576 B.C. Beyond this point, breaks in the surviving documentary evidence produce results which are of a highly speculative nature. Accordingly, there is resort to another method of dating, which relies upon recorded observations of certain astronomical phenomena, though here again there are difficulties and limitations which introduce an element of uncertainty.

Unlike the peoples of Mesopotamia, the ancient Egyptians appear to have paid no regard to eclipses. But at Heliopolis (the Biblical On), note was early taken of Sirius (Sothis), conspicuous as the brightest star in the heavens. Its reappearance over the eastern horizon after its period of invisibility was an annual event which on occasion coincided with the arrival of the Nile flood, and it has been surmised that, when the calendar was invented, this all-important inundant event was used to mark the start of the New Year. The calendar, however, com-

prised three seasons of 120 days each, to which total of 360 days there were added five intercalary days, making 365 in all, whereas the year as determined by the helical rising of Sirius consisted of almost exactly $365\frac{1}{4}$ days. In effect, the calendar at once began to lose one day every four years, a cumulative discrepancy which automatically corrected itself every $365 \times 4 = 1,460$ years. In other words, 1,461 calendar years equalled 1,460 Sothic years.*

Now it so happens that it was recorded by Censorinus (3rd century A.D.) that the two events—the first day of the calendar, and the rising of Sirius—coincided in A.D. 139, *i.e.*, in that year, a new Sothic cycle began. Accepting this, it follows that a similar happening took place in 1321 B.C., and again in 2781 B.C., and so on, correct to within the aforementioned four years representative of the period necessary to make up the difference of one day from the Sothic year.

The incidental question of precisely *when* the 365-day calendar was introduced remains debatable. Professor Meyer, on the assumption that it must have been at a time when the first day of the first month coincided with the start of the Nile flood, sought to pin it down to a Sothic date, *i.e.*, either to 1321 B.C. (obviously too late), or to 2781 B.C. (also considered improbable), or to 4241 B.C. (regarded as more likely). But this view, though long accepted by some, has been challenged by others on cultural and other grounds. According to Weigall, the calendar year was primarily an agricultural phenomenon, based on the average interval between two successive Nile floods, *i.e.*, 365 days, and he argues that the beginning of the calendar year was in all probability sowing time, marked by the subsiding of the river waters in mid-October. He accordingly postulates an introductory date of 3400 B.C., in which year the Sothic rising coincided with the beginning, not of the first, but of the last of the three seasons.

* In 1928, the length of the Sothic cycle was more accurately determined by Schoch to be nearer 1,456 than 1,460 years. A further complication is provided by the fact that the Sothic year differs from the true solar year of 365.24224 days by several minutes, so that in relation to the actual seasons, the Egyptian calendar corrected itself approximately every 1,500 years.

Be this as it may, an invaluable chronological guide is available if it can be ascertained on what day of the calendar the Sothic rising took place in any given year. This information is occasionally given to us, and it has been established, for example, that a year in the reign of Thutmose III lay between 1474 and 1470 B.C., an important 'fix' which has also helped to determine the duration of the 18th dynasty to which Thutmose belonged. The result, incidentally, is in good agreement with those obtained by other means.

The troubled years between the New and Middle Kingdoms are astronomically a blank, but another Sothic date enables the time and extent of the 12th dynasty to be reckoned with precision, *subject always to a possible error amounting to an entire Sothic cycle of 1,460 years*. And as all dates which are ascribed to the Middle Kingdom necessarily affect the chronology of the Old Kingdom, and hence the accession of Menes, it will be evident why it is that estimates of this latter event have differed by as much as 1,500 years.

Both sets of dates thus attributed to the 12th dynasty offer difficulties. If the earlier dating be chosen, there has to be acknowledged a period of some 1,600 years between the New and Middle Kingdoms about which little or nothing is known, and the cultural remains of these two epochs provide no evidence of such a stupendous break. On the other hand, if the later dating be accepted, the 13th, 14th, 15th, 16th, and 17th dynasties are promptly telescoped into a mere 250 years!

It has been suggested that this is explicable on the assumption that because of the lack of a central authority, a whole series of two or more ephemeral pharaohs reigned simultaneously and as rivals in various parts of the kingdom. Alternatively, it is by no means impossible that the vital Sothic date (as derived from a certain Kahun temple-book) may have been misinterpreted, or that there was a deliberate tampering with the calendar in ancient times, in a belated attempt, perhaps, to bring it in line with the seasons.

At all events, in recent years archæological opinion has tended increasingly to favour the later dating, a conclusion which has now received confirmation from a series of radio-

carbon tests made on materials found in the tombs of several early kings and their associates. Thus the Vizier Hemaka, a contemporary of King Udi of the 1st dynasty, was dated 2850 ± 200 B.C. by the new method, and Menes (with due reservations) may be regarded as having ascended the throne of a united kingdom in the year 3,400 B.C. or thereabouts.



PLATE 8. (a) Ruins of the 3rd dynasty ziggurat at Eridu, with temples of the Ubaid period. (b) A diagrammatic reconstruction of the ziggurat, with the remains of the prehistoric temple added. Photos: Directorate General of Antiquities, Baghdad.

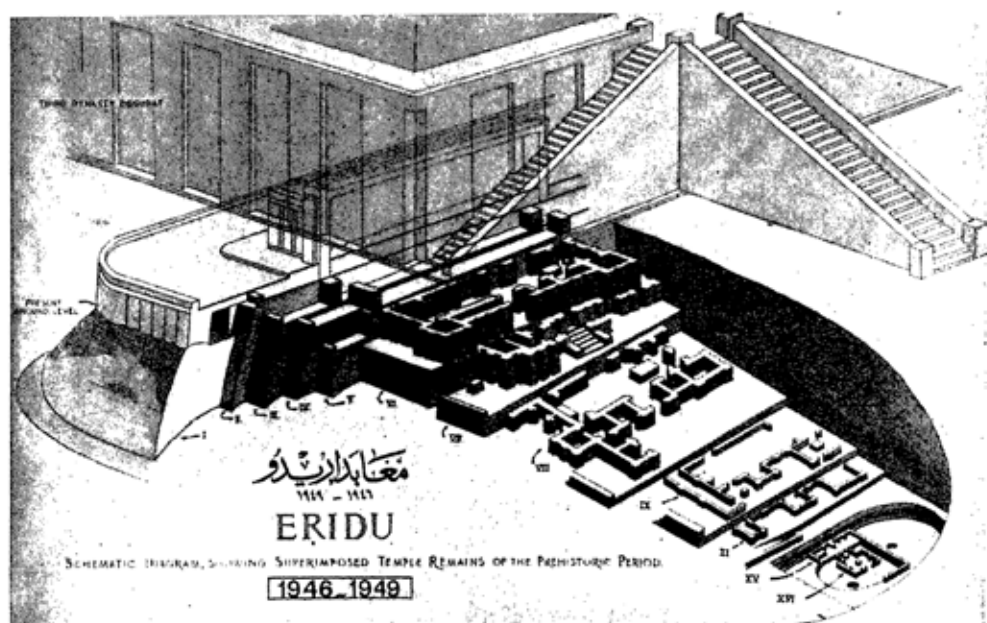


PLATE 9. (a) Babylonian map of the world. The accompanying cuneiform text relates to the exploits of Sargon of Akkad (c. 2400 B.C.) whose conquests the map is intended to illustrate. Photo: *British Museum*. (b) Kubr-er-Roumia from the air, showing one of the four false doors. Photo: *Marcel Christofle, Le Tombeau de la Chrétienne*.



II

Mesopotamian Heritage

I

IN the course of more than a decade of excavation undertaken by C. L. Woolley and his team at Tell al-Mughair (the Mound of Pitch), otherwise Ur,* the site of an ancient cemetery was found. Here lay buried a vast assemblage of ordinary citizens—the remains of no less than 2,000 of them were examined—together with the occupants of 16 royal tombs. Investigation revealed that two-thirds of the common graves had been rifled or destroyed, while of the more imposing sepulchres, two only were intact; and the discovery, here and there, of a series of vertical shafts which at bottom turned horizontally and tombwards, spoke eloquently of their fate. In one such tunnel, evidence was found which suggested that some of these carefully-planned robberies had taken place more than 4,000 years ago!

The first of the royal tombs yielded little, for it had suffered great destruction at the hands of despoilers. But in another part of the burial ground, five bodies were discovered, wearing copper daggers at the waist, and lying side by side on the floor of a sloping trench. Curiously enough, the assortment of personal belongings usually associated with interments was missing, apart from some small clay cups, the significance of which was not appreciated until later.

Below the bodies, a layer of matting was found, the unearthing of which brought to light another group of dead—ten women, carefully arranged in a double row, and resplendent in

* An up-to-date account of this extensive undertaking, jointly sponsored by the British Museum and the University Museum of Pennsylvania, is to be found in Sir Leonard Woolley's *Excavations at Ur* (Ernest Benn Ltd., London, 1954).

golden head-dresses and jewelled necklaces. Still further down the sloping passage was the wreck of a once gaily-coloured chariot, together with the remains of two asses, their grooms in attendance. And nearby was a miscellaneous collection of gold, silver, and copper instruments and vessels, in the midst of which stood what had been a large wooden chest. And underneath the chest was a gaping hole in the roof of a plundered vault.

But this was by no means all. Excavation round the outside of the chamber disclosed the existence of a second mass burial at a lower level. Here again there was a ramp, guarded by half a dozen soldiers, their helmets flattened and their skulls crushed. Beyond them were two waggons, each of which had been drawn by three oxen, together with drivers and grooms, and all around, the floor was littered with other dead of both sexes. There was also an orderly line of nine women, bedecked in ornate head-dresses, and wearing trinkets of gold.

Among the occupants of the plundered tomb was the deceased-in-chief, his name, according to an inscription on a cylinder seal, A-bar-gi—presumably King A-bar-gi. A second chamber, actually belonging to the upper part of the pit, proved on examination to be the resting place of a certain Queen Shub-ad, whose remains, draped in a mass of beads of gold and silver, lapis lazuli and carnelian, agate and chalcedony, were discovered on a wooden bier. A couple of women attendants crouched nearby, and the floor was covered with offerings in the shape of gold and silver bowls, and other such works of art.

From the evidence before them, the sequence of events which led up to this double mass interment was reconstructed by the investigators as follows: with the death of the king (or perhaps in anticipation thereof), a huge rectangular pit was dug to a depth of thirty feet or so, with a ramp leading down into it. At the far end of this pit, a royal tomb chamber of stone and brick was constructed, wherein, with due ceremony, the body of the king was laid, and there left in the company of a few personal attendants who were either drugged or killed before the entrance was walled up. There then trooped into the still open pit a representative selection of the dead monarch's retinue—

courtiers and musicians, officers and soldiers, attendants and serving-maids. Behind this procession trundled the waggons and oxen, accompanied by their drivers and grooms, followed in turn by an armed guard which took up its allotted position near the pit entrance.

No doubt after sundry obsecratory preliminaries, each member of the doomed company drank some potion or other, and lay down to await death, though the musicians, it would appear, played their harps and lyres to the last. Then, with the despatch of the animals (the order of events was indicated by the fact that their carcasses lay atop those of the grooms), and the skulls of the guards having been neatly stove in, the excavated earth was flung back into the pit, thus covering the bodies of the perhaps still unconscious throng below.

On the subsequent death of the queen, it is surmised, the king's grave was re-opened. And when the grave-diggers struck the arched top of the royal vault, the excavation was continued to one side, that a second chamber might be built there. The roof of the king's chamber, meanwhile, marked the floor level of the new death pit, wherein a repetition of the ceremonies already recounted took place, asses and chariot being substituted for oxen and waggons. The fact that the king's chamber had been plundered from above, though valuables at its roof level remained untouched, inevitably suggested that the workmen engaged in the second excavation had made the most of the opportunity presented to them. Apparently, after breaking into and robbing the king's chamber at their feet, they had calmly covered up the evidence of their depredation by placing the queen's massive linen chest over the tell-tale hole in the roof!

II

Who was this King A-bar-gi, who even in death could command such a following? As yet, little or nothing about him or his antecedents is known. Such evidence as is available suggests that in 5000 B.C., or even earlier, the land of Sumer, at that time no more than a swampy plain at the head of the Persian Gulf, was occupied by settlers of non-Semitic stock who came down from the Elamite mountains to the east. Thus established in the

lower reaches of the Tigris and Euphrates Rivers, the newcomers set about a gradual mastering of their unfamiliar surroundings. With the help of extensive drainage and irrigation projects, a system of flood control was introduced, and by 3500 B.C. the original areas of settlement had grown into such thriving city states as those of Eridu, Ur, Larsa, Umma, Urak, and Nippur. This development, in a land where timber and stone were at a premium, but where supplies of clay were superabundant, was assisted by an extensive use of sun-dried and kiln-burnt bricks, which in turn led to the devising of such architectural innovations as the arch, the vault, and the dome, not to mention elaborate drainage systems, in which continuous pipelines were built up out of terracotta rings.

An efficient method of writing (cuneiform) was also in use, and in 2000 B.C. or thereabouts, Sumerian scribes prepared a list of kings for the edification and enlightenment of posterity. The list begins by noting the names of eight antediluvian kings, the combined length of whose reigns, we are asked to believe, amounted to 241,200 years! * The eighth monarch on the list, one En-me-en-dur-an-na, appears to have been cut off in his prime, for he lingered a mere 18,600 years, and his name is followed by the significant announcement:

*The Flood came. After the Flood came, kingship
again came down from on high.*

Of the kings after the Flood, those of the 1st dynasty of Kish head the list, and the length of reign is reduced to an average of rather more than 1,000 years each. Next comes the 1st dynasty of Erech, in all twelve kings with an average of less than 200 years apiece, and this is followed by the 1st dynasty of Ur, the royal members of which are distinguished by their possession of comparatively modest reign lengths, all of which are entirely credible. The name of A-bar-gi, however, is not among them, and stratification evidence suggests that his period of office preceded the establishment of the 1st dynasty, c. 2800

* A rival version lists ten such kings, with reigns which total 456,000 years. These traditions have been preserved for us by a priest called Berossos, the Manetho of Babylonia. Like the writings of his Egyptian counterpart, his work is known only through the labours of copyists, and it has no doubt suffered in consequence.

B.C. It would thus appear that the extent of his domain was limited to Ur and its environs, *i.e.*, he was the head of a city state, and not monarch of all Sumer, as were some of his successors.

Semitic tribes, meanwhile, had entered northern Babylonia, and having settled there, eventually became powerful enough to menace their neighbours. But the Akkadian empire subsequently created by Sargon (*c.* 2400 B.C.) survived for less than two centuries after his death, and in the chaos which followed its downfall, Sumer regained a fleeting independence. That the period was one of considerable uncertainty is evident from the plaintive query contained in the king list aforementioned:

Who was king, who was not king?

There ultimately emerged the Amorites (Westerners), an event which was to lead to the establishment, *c.* 1850 B.C., of the 1st dynasty of Babylon, an already ancient city which had earlier achieved importance when a change in the course of the Euphrates brought its waters to its gates. And with the arrival on the throne of the famed empire-builder Hammurabi, sixth member of his line, the Sumerians once again came under Semitic rule.

To the Sumerian-Babylonian civilisation, with its system of notation which was in part sexagesimal (base 60), there has been traced our division of the hour and the angular degree into 60 minutes. And it was the Mesopotamians, assiduous observers of the heavens, who discovered the Saros, a period of 223 lunar months (*i.e.*, 18 years, 11½ days, or 18 years, 10½ days if the Saros happened to contain five leap-years), and were thereby enabled to predict with accuracy the occurrence of eclipses.* At the same time, they also subscribed to the notion

* The Saros is still of importance in this connection. It derives from the circumstance that a lunation amounts to 29·53 days, and that the synodic period of the moon's nodes is 346·62 days, so that:

$$\begin{array}{rcl} 223 \text{ lunations} & = & 6585\cdot32 \text{ days} \\ 19 \text{ synodic periods} & = & 6585\cdot78 \text{ days.} \end{array}$$

In effect, the conditions which make for solar and lunar eclipses re-occur after intervals of almost exactly 6585 days. During this period, some 70 eclipses of the sun take place, of which more than half are either total or annular.

that the stars and planets exercised a controlling influence over human affairs, and their genuine accomplishments in the realm of astronomy no doubt helped to sustain their reputations in the more dubious department of astrology. At all events, it is these ancient soothsayers we have to thank for the signs of the Zodiac—and for the daily prognosticative output which obliging newspaper editors cynically feed to their customers in these days of progress and enlightenment.

The astrologer-priests conducted their star-gazing from the summit of elevated buildings known as ziggurats, an early and distinctive example of Sumerian architecture. These remarkable structures were of solid construction, containing a core of mud bricks faced with the more durable kiln-made product, set in bitumen. The edifice took the form of a stepped pyramid, each successive stage being smaller than the one below it, the angles facing the cardinal points (in contradistinction to the Egyptian version, in which it is the sides which are oriented).

The ziggurat built at Ur (on the ruins of an earlier one) by Ur-nammu and his son Shulgi (3rd dynasty) was excavated by Woolley. Not much more than the lowest and largest of its three stages remained, and this was found to measure some $200 \times 150 \times 50$ feet high. The walls were sheer on three sides, the fourth being approached by a trio of brick stairways, one of them projecting out at right-angles from the building. There was a gateway between the first and second terraces, through which the projecting stairway ran straight up and to the door of a culminating shrine, while lateral passages, also stepped, connected the various levels at either end of the tower.

In a Neo-Babylonian style, subsequently developed, the number of stages was increased to seven, representative of the so-called seven stars, *i.e.*, the known planets. Each stage was faced with glazed bricks of a different colour, though the claim of Herodotus that the stairway wound spirally round the central tower was perhaps the outcome of an optical illusion. But that it was an outsize specimen of one of these structures which inspired the naïve flight of fancy to be found in Genesis xi seems likely enough.

III

The Assyrians, who conquered Babylonia about 1250 B.C. (and who, under Sennacherib, again had occasion to destroy the city of Babylon some 600 years later) absorbed much of the culture they found there, and to it in due course added the accomplishments of a military genius peculiarly their own. They subsequently waged war on all sides, bringing into action armoured vehicles, mobile battering rams, and other siege machinery which no city, however strongly fortified, could for long withstand. Nor did they neglect the psychological aspects of their favourite activity, and a calculated policy of savage and ruthless cruelty towards all who ventured to resist them won many an assault without an arrow being shot. Everywhere hated and feared, they remained the invincible masters of Western Asia until the fall of Nineveh in 612 B.C. And so complete and lasting was the destruction of this, their mighty capital, that two centuries later the Greek Xenophon, gazing wonderingly at its impressive ruins, in ignorance attributed them to the Medes who had, in fact, assisted in the city's final overthrow.

With Assyria vanquished, ancient Babylon, largely rebuilt by the energetic Nebuchadnezzar II, once again achieved renown. Of the wondrous tales concerning it at this period, there is no end. We are told that a wide moat ran completely round its outer walls, walls which stood 300 feet high, which were 80 feet thick, and which enclosed an area of 196 square miles! No less than 250 towers were said to line these immense battlements, which it was claimed were pierced by the openings of 100 bronze gates, while within, running right across the city from north to south, was the magnificent Procession Street, paved with blocks of white limestone, and bordered by sidewalks of red breccia—perhaps the finest highway the world has ever seen. And there must be few who have not heard of its luxuriant Hanging Gardens, a gift from Nebuchadnezzar to the Median princess who was his bride, and which terraced vegetation, according to Strabo, was nourished with water raised by screw pump from the Euphrates below.

Excavations at the site, however, suggest that on occasion the ancient chroniclers tended to exaggerate, *e.g.*, in the matter of

the city's superficial area. The circuit of its walls, variously given as anything from 360-480 stadia (40-54 miles) was ascertained by Koldewey to measure no more than 10 miles. On the other hand, the walls themselves were found to be double, and located some 40 feet apart. The intervening space was filled with earth, and the total width was thus in keeping with the account of Herodotus. The remains of the towers were also discovered, projecting from the inner wall at intervals of 60 yards. And the great Procession Street, which bridged the Euphrates, was indeed paved with limestone flags, each more than three feet square, with bevelled edges which bore the inscription:

*Nebuchadnezzar, King of Babylon, son of Nabopolassar,
King of Babylon, am I.*

As for the famous Hanging Gardens, Koldewey describes a well with three shafts which he concludes contained the watering mechanism. But the precise location and dimensions of the Gardens remain a matter of conjecture.

III

Although tales of the wonders of Nineveh and Babylon continued to echo down through the ages, no serious attempt was made to investigate them until about the middle of the 19th century, by which time groups of pseudonymous mounds were all that remained. Botta, in 1842, attacked the rubble heap known as the mound of Khorsabad, and unearthed what was left of the fortified palace of Sargon II, while Henry Layard, who excavated the mound of Nimrod (the site of Calah) a few years later, unexpectedly happened upon three royal residences, respectively those of Ashur-nazir-pal II, Esarhaddon, and Shalmanesser III. Subsequently, Layard turned his attention to the mound of Kouyunjik, the actual site of Nineveh, and there stumbled upon a priceless find—the libraries of King Ashurbanipal, no less, amounting in all to more than 30,000 clay tablets.

Here was treasure indeed, and the question of cuneiform decipherment became a matter of vital import. Work on the problem had, in fact, been going on for some years, and if the

task was proving more difficult than the assault on the Egyptian hieroglyphs, it was because no translations were available in any language that was known. Thus, although an inscription discovered at Persepolis early in the 18th century was ultimately recognised to be tri-lingual, not one of its languages could at first be read. In the 1770's, however, Karsten Niebuhr drew attention to the fact that one of the three versions exhibited alphabetical characteristics, and that it progressed from left to right. He contrived to distinguish 42 characters (though in fact there were only 32), and in 1802, G. F. Grotefend, profiting by a suggestion made by de Sacy, assumed that this, the least complicated of the three texts, was written in Old Persian. Assisted by the proper-names technique, he then essayed to identify the most frequently occurring references to royalty by nominating Darius, Xerxes, and Hystaspes.

But the worth of Grotefend's labours was neither recognised nor appreciated by his contemporaries,* and it remained for another independently to duplicate his achievement, and thereafter to surpass it with the aid of a knowledge of Eastern tongues which the unfortunate Grotefend did not possess. This success on the part of Colonel H. C. Rawlinson had its beginnings in the discovery, while he was on army service in Persia, of two short inscriptions which were also in tri-lingual form. And comparison revealed that, except in two places, both sets of inscriptions were couched in identical terms. As for the differences, in the 12th line of one inscription, there occurred a word (call it *x*) which was matched by a different word (say *y*) in the other, while in the 19th line of the first inscription, a third word (*z*) was represented in the second inscription by the aforementioned *x*, thus:

	<i>Inscription</i>	
	1st	2nd
12th line	<i>x</i>	<i>y</i>
19th line	<i>z</i>	<i>x</i>

* When Grotefend presented his Paper to the Göttingen Academy, it was refused publication. But in 1893, forty years after his death, the original MS. was unearthed and belatedly hailed as marking a turning point in the long history of cuneiform decipherment.

Precisely what, if anything, was to be inferred from this? Rawlinson responded to the challenge by making a series of brilliant deductions, based on the assumption that not only were the unknown words the names of three monarchs, but that the two inscriptions were proclamations issued by successive kings, *who in their respective announcements referred both to themselves and to their fathers*. By a process of trial and error, the names of three members of the royal House of Achaemenes were found to meet all requirements — Xerxes, the son of Darius, who was the son of Hystaspes.

Assisted by the fourteen characters of the Old Persian alphabet thus identified, a working knowledge of the language was gradually acquired, and this provided the all-important key to the other texts. In this connection, the Mesopotamian equivalent of the Rosetta Stone was provided by the Rock of Behiston, 300 feet high up on the precipitous face of which there had long been known to exist a series of reliefs and inscriptions. These, among other things piously supposed to be a representation of the twelve apostles, in fact extolled the merits and accomplishments of the great Darius I, and as usual, the proclamation was written in the three official languages of the Persian Empire—Old Persian, Elamite, and Akkadian.

The account promised to be particularly useful to would-be decipherers, for it was both lengthy and contained an abundance of proper names. Rawlinson, in 1837, correctly deciphered and translated a portion of the Old Persian text, and after revisiting the site in 1842, completed this part of the task a few years later. Attention then turned to the Susian and Babylonian versions, in a combined assault upon which Norris, Oppert, Talbot, Hincks, and others also took part. By 1857, such was the extent of the progress that had been made, that in a test devised by the Royal Asiatic Society, in which the decipherers were challenged independently to translate a newly-discovered inscription relating to Tiglath-pileser I, the various renderings proved on examination to be virtually identical.

IV

The inscriptions now began to yield up their secrets—to the

acute embarrassment and dismay of all those who regarded the sacred writings of the Hebrews as original, inspired, and authoritatively beyond question. George Smith, a member of the staff of the British Museum, while examining some of the tablets brought from Nineveh by Layard and others, discovered a fragmentary reference to the Chaldean version of the Deluge. The account, moreover, was but one of a series, actually the eleventh of twelve concerning the epic story of one Gilgamesh, sometime King of Erech. And the find, announced in a lecture given towards the end of 1872, created such interest that the *Daily Telegraph* provided 1,000 guineas to enable Smith to visit Nineveh in search of the remainder of the story — and much of the missing material was, in fact, recovered.

The eleventh of the twelve accounts tells how Gilgamesh, in search of immortality, learns from Ut-napishtim (who has achieved it) how he was given advance warning of a decision by the high gods to bring destruction to the city of Shurippak, the home of some alleged wickedness or other, by means of a rainstorm to end all rainstorms. As the least unworthy of its citizens, not too deeply steeped in sin, he was directed to build a ship, some 200 feet long, and to erect upon it a house six storeys high, each containing nine rooms. This accomplished, the vessel was made watertight by smearing it with pitch, inside and out, whereafter, a heavy storm impending, Ut-napishtin and his family climbed aboard, accompanied by a representative selection of animal life.

A mighty tempest then raged unceasingly for seven days, in the course of which convulsion flood waters reached an unprecedented level, and all non-piscatorial living things were drowned. On the eighth day, the vessel drifted onto the mountain of Nisir, and there lodged. A week later, a dove was let loose, but it could find no resting place, and returned to the ship. A swallow, sent forth the next day, likewise came back. A raven was then successfully released, whereupon the voyagers cautiously emerged. And after having given thanks for their deliverance by making a sacrifice upon the mountain top, they were vouchsafed a sight of the rainbow, as a sign from

aloft that henceforth such inundations would be kept under better control.*

That an unusually serious flooding of the flat Mesopotamian plain did at one time occur, there can be no doubt. In the course of his Ur excavations, Woolley happened upon unmistakable evidence of the catastrophe—a layer of clean silt, of eleven feet maximum thickness, sandwiched between layers of earth containing the usual evidence of human habitation. Microscopic analysis proved that the silt was water-laid, that it was composed of material washed down from the middle reaches of the Euphrates, and that it had been gently deposited.

The flood was, of course, no more than a local phenomenon, but to the inhabitants of the Tigris-Euphrates valley, its effect no doubt appeared calamitous enough at the time. Woolley estimates that the depth of water was not less than 25 feet—sufficient to inundate an area of some 30,000 square miles. In effect, the whole of the fertile territory lying between the Elamite mountains and the elevated Syrian desert was in all probability drowned, leaving only the larger cities, on their raised mounds, showing above the swirling waters. No wonder the incident made so lasting an impression upon the minds of Mesopotamian man!

From all the evidence that is now available, the conclusion that the Genesiatic account of the Flood is no more than an echo of an age-old Babylonian tradition is inescapable, though this is not to say that so damaging an admission was conceded without fervent denials and considerable equivocation.† Similarly, the Hebraic creation myth was derived from a Sumerian version which goes back to c. 2500 B.C., while in the original account of the Garden of Eden, there is a woman-from-rib

* An earlier (c. 2000 B.C.) version of this story also exists. It appears on a fragment of a Sumerian tablet found at Nippur.

† As late as 1925, Sir A. E. Wallis Budge, writing for the Religious Tract Society, was still hopefully asserting: 'The account of the Flood given in the Book of Genesis is not borrowed from the Babylonian Version, as has so often been stated.' But by this time, the battle was already lost. In the Preface to the sixth (1924) edition of his *The Ancient History of the Near East*, H. R. Hall, erstwhile keeper of the Department of Egyptian and Assyrian antiquities at the British Museum, refers casually to the Flood as the 'legendary event the Hebrews borrowed from Babylon'.

story which concerns Enki and Ninhursag. Enki, however, was tempted by a fox, and no less than eight fruits were forbidden to the luckless pair. Even a Canaanite Abraham has been found in the person of the Patriarch Keren—he, too, received the promise of a distant heritage, plus the comfort of a son in his old age. But perhaps the last of many such straws was the discovery of a black diorite stone by the de Morgan expedition to Susa, at the beginning of the present century. On it were inscribed some 3,600 lines of cuneiform, in half a hundred columns, which listed the laws of Hammurabi. This detailed and highly informative legal code throws considerable light upon the everyday life of the times, with its stipulations about family relationships, hire charges, medical fees, property inheritance, business transactions, offences against the person, accident liability, *et al.* And it (or its original Sumerian source) also reveals itself, by a parallelism so extraordinary that much of the phrasing is repeated word for word, as the unquestionable fount of Mosaic Law!

III

Riddles and Ruins

I

IN the vicinity of Cherchel (ancient Jol), some fifty miles west of Algiers, there stands on a hill-top a massive stone structure which for centuries defied all efforts to probe its secrets. Reputedly the tomb of Juba II of Mauretania and his consort Selene Cleopatra, offspring of the Egyptian queen and Mark Antony, it is believed to have been constructed about the beginning of the 1st century A.D. The Arabs long ago named the place *Kubr-er-Roumia* (The Tomb of the Roman, *i.e.*, Christian, Woman), and it was popularly supposed to contain much treasure.

This belief inspired many attempts to break in, but such endeavours were frustrated by the fact that seemingly, there was no entrance—it was quickly ascertained that four stone doors which faced the cardinal points were backed by solid masonry. For the rest, the edifice was a circular structure, some 200 feet in diameter, with vertical sides divided into sixty equal spaces by a similar number of Ionic columns. At a height of thirty-six feet, the sides tapered off into a dome, the top of which was originally 130 feet above the ground.

It is said that in 1555, Salah Rais, after failing to force a way in, started to pull the building down, but was persuaded to abandon the idea by swarms of death-dealing wasps, which emerged as a dark and angry cloud from their nests in the stonework. Perhaps with such a hazard in mind, a more enterprising successor, some two centuries later, renewed the attack aided by cannon, fired at close range. But although the structure was damaged, it was by no means demolished—its very bulk thwarted its would-be destroyers. And so the position remained until 1855, when Berbrugger and MacCarthy were

charged with the task of achieving success where so many others had failed, their determined sponsor being none other than Napoleon III.

Acting on the assumption that the monument was not as solid as it appeared, the two investigators gained the summit, and from here began to probe for hidden chambers with the aid of artesian well-sinking equipment. Six months and half a dozen trial bore holes later they were still hard at work when, at a point directly opposite the false door facing south, the drill suddenly indicated the existence of an internal cavity by dropping into it. Mining operations were at once started, and during the next ten days, a tunnel was driven horizontally through the intervening masonry for a distance of twenty feet. Berbrugger and his companion then found themselves standing in a gallery, some six feet wide and eight feet high, its walls built of large limestone blocks. The passage evidently encircled the centre of the monument, for it curved out of sight in either direction. To the right, at a distance of sixty feet or so, it bore sharply leftwards and inwards, ending in two vaulted chambers, one beyond the other, and entered through doors in the form of stone slabs, located in twin grooves, and dropped vertically into position.

There were no royal bodies—and there was no treasure.* But traced in the dust on the passage floor was evidence of earlier visitants. That some of these intruders had been disappointed in their search for valuables was indicated by the fact that from a point in the circular gallery on the west side, a long tunnel had been excavated in the direction of the centre of the mound for more than forty feet, apparently to no purpose whatever. But the fact that the interior passage itself had not been reached

* The search for occupants has continued down to the present day, one theory being that the royal remains were hidden in some secret chamber, yet to be discovered. Great interest was taken in the structure by Albert Ballu on his appointment as chief architect to the Algerian *Service des Monuments Historiques*, in 1912. He was succeeded in 1928 by M. H. Christofle, who, after making a thorough survey, has recently published a well illustrated account of his findings entitled *Le Tombeau de la Chrétienne* (Arts et Métiers Graphiques, Paris, 1951).

in this manner showed that these ancient plunderers had known the whereabouts of the concealed entrance.

This mystery, at any rate, was quickly solved. From the central chambers, the passage made an almost complete circuit of the monument internally, terminating in a flight of steps which led down to another door of the portcullis type. Beyond it was a vaulted chamber, located directly opposite the false door on the east side, and from it a low, underground passage, interrupted at either end by more sliding doors, led to a sunken approach which, in the course of centuries, had become filled with debris!

II

Although there are some hundreds of ruined sites throughout Southern Rhodesia to which the Bantu word *Zimbabwe* (Houses of Stone) can be applied, the name has come to be reserved for the largest and most impressive of these abandoned settlements, vaguely attributed to 'the ancients', which lies about seventeen miles from the township of Victoria, in Mashonaland—the Great Zimbabwe.

Records show that the place was in all probability first visited by Europeans as early as the 16th century, in the days when Portuguese adventurers were making their way into the African interior from the direction of the East Coast, lured on by Arab tales of gold, of King Solomon's Mines, and of a mysterious temple, not to mention an adjacent palace, complete with almug trees, attributed to the Queen of Sheba. Among others, a missionary, da Silveira, is said to have reached Zimbabwe in 1561, an excursion which cost him his life. But in the years which followed, the existence of the ruins was gradually forgotten, and no more was heard of them until after Livingstone's arrival in Rhodesia in the middle of the 19th century. They were then re-discovered by G. A. Phillips in 1867, according to one account, and by a wandering hunter named Adam Renders (or Benders) in 1868, according to another. Be this as it may, a preliminary exploration of the site was undertaken by Karl Mauch in 1871, since when it has been more fully investigated by a succession of savants, Theodore Bent, R. N. Hall, and D. R. MacIver among them.



PLATE 10. Zimbabwe Ruins—The Conical Tower.
Photo: *Federal Information Department of Rhodesia
and Nyasaland.*

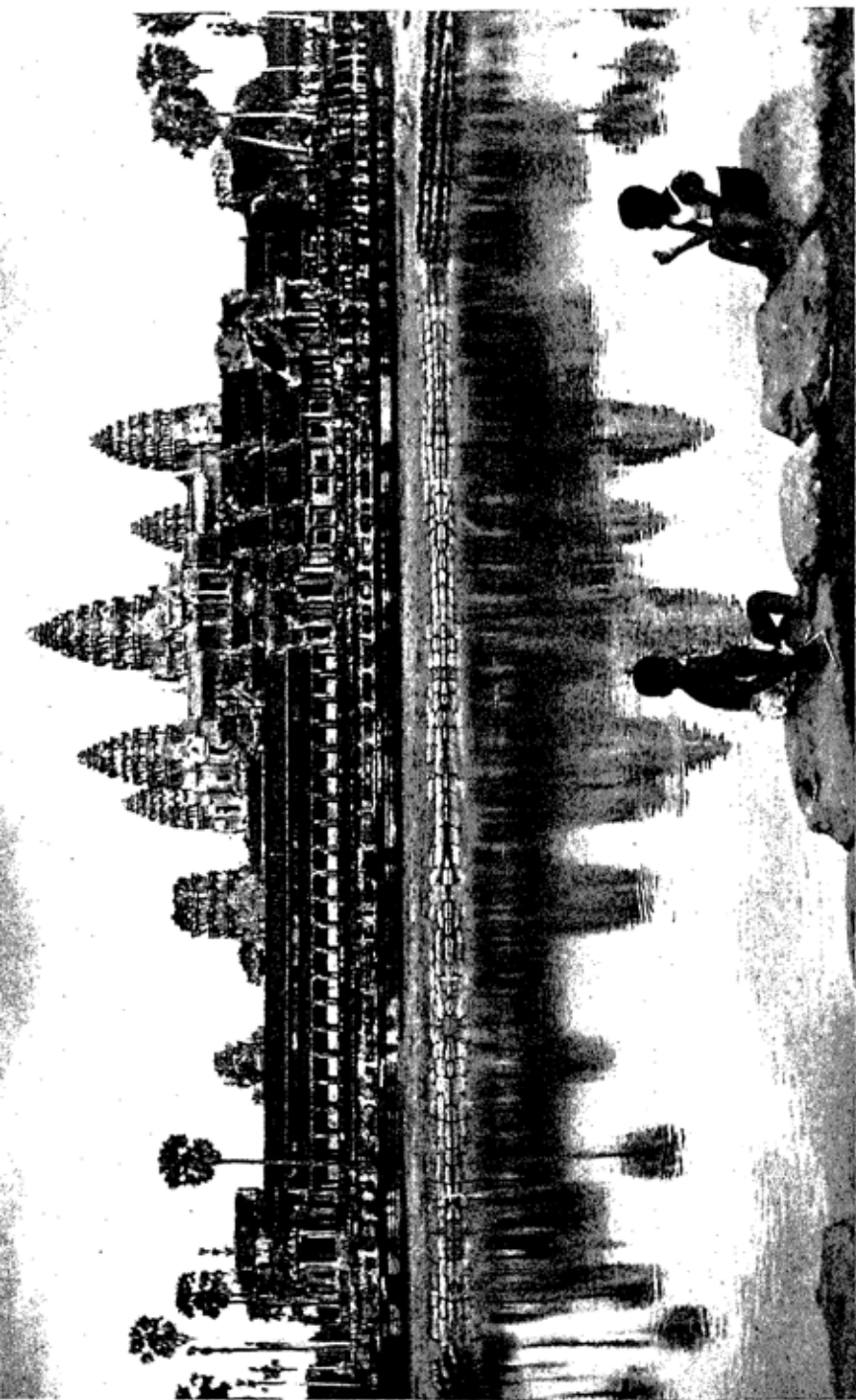


PLATE 11. Angkor Wat. Photo: Albert Portail, Saigon.

In all, the site occupies an area of some two and a half square miles, and for convenience, its buildings have been divided into three distinct groups, fancifully termed the Elliptical Temple, the Acropolis, and the Valley Ruins. Of these, the last-named are at once the most extensive and superficially the least interesting, for they consist of little more than acre upon acre of low and disintegrating stone walling, half-hidden beneath a wilderness of snake-infested vegetation. As for the so-called Acropolis, this structure occupies a commanding position, some 350 feet above the main area of occupation, and was plainly designed as a fortified post. The Elliptical Temple likewise has difficulty in living up to its name, for while it is true that its contours describe a somewhat irregular oval, the actual purpose it served remains a matter of conjecture.

It is this temple, alleged and supposed, which is the outstanding feature of the ruins. No mortar was used in the construction, and the stone, roughly dressed and squared, was quarried from a nearby kopje. Essentially, the place is an enclosure surrounded by a massive wall, more than 800 feet in circumference, some 30 feet high, and in parts 15 feet thick at the base. Three gaps serve as entrances, which lead to an interior of a labyrinthine character, an effect which is heightened by the fact that for much of its length the outer wall is double (and even treble), thus forming a long, narrow passageway which runs from the main entrance (facing the Acropolis) to an isolated area containing two conical towers, one large and the other small, solidly constructed of granite blocks. According to one of the early investigators, who attributed significance to the fact, the circumference of the small tower exactly corresponds to the diameter of its larger companion, though precisely what this commensurability is supposed to indicate remains far from clear.

From an abundance of auriferous fragments found in the vicinity, in association with the remains of crucibles, it seems evident that Zimbabwe was the centre of an ancient gold-mining industry. The place stands, indeed, in the midst of a mineralised area, some 200,000 square miles in extent, which contains thousands of abandoned workings, some of them

vertical rock mines descending to depths (150 feet or so) held to be beyond the limits of native excavation. Hence the suggestion has been made that Dravidian Indians were the builders of Zimbabwe, and that they originally journeyed to Mashonaland from the West Coast of India in search of precious metals. Theodore Bent, on the other hand, after an extensive examination of the site which he made in 1891 in the company of R. M. W. Swan, produced a theory more colourful still, and not only ascribed the settlement to the Sabæans of the Yemen, but developed the idea that Rhodesia was to be identified with the ancient land of Ophir, and thus revived the notion that it was the source of Solomon's gold.*

But these pleasing and romantic improbabilities have since given way to the considered opinion that Zimbabwe is by no means as ancient as was at first supposed, and that in so far as its relics are concerned, none (including soapstone carvings of birds) has been found which is inconsistent with the belief that the structure is of Bantu origin, and that its age is to be reckoned in hundreds, rather than in thousands, of years. Convincing evidence in support of this view was claimed to have been found by MacIver, who ascribed the ruins to the 14th or 15th century A.D. Subsequent investigations, while confirming his general conclusions, placed the date of construction some six centuries earlier, and radiocarbon tests, since carried out on timber used in the building of the temple, go back further still—to between A.D. 476 and 681. But the supposed Solomonic connections, at all events, may be regarded as definitely severed.

III

More than six centuries ago, a certain Chow-Ta-Kwan recorded what he saw at the fabulous capital city of the Khmer Empire, where he was stationed as the ambassadorial representative of the Emperor of China. But this contemporary account, when it

* A complete absence of inscriptions leaves ample scope for such idle conjecture, and nowhere has guesswork been more assiduously applied than in attempts to fathom the significance and purpose of the so-called Elliptical Temple. One particularly fanciful theory, expounded to the author some years ago by the curator at the site, was that in outline the place was intended to represent a human foetus in the womb!

eventually came to light after being lost for several hundred years, was of a nature so startling and bizarre that at first it was not believed.

It told of the existence, in the midst of what was regarded as an almost impenetrable jungle, of a fantastic walled city, square in shape, with a tower at each of its four corners, and surrounded by a wide moat. Not four (as might have been supposed), but five great gates pierced the city walls, and these entrances were approached by way of long causeways, leading to bridges which spanned the protective dyke. Each bridge was flanked by a line of fifty-four stone demons, upon the sculptured knees of which rested the long body of a nine-headed serpent. And in the city itself, surrounded by more than a score of lesser pinnacles, towered a Sivaitic temple known as the Bayon, a golden edifice on the eastern side of which was a bridge-like structure, likewise of gold, guarded by two lions made of the same precious metal.

In the envoy's description of everyday life in the city, even the penal code found mention, and it was recounted how capital punishment was administered by the simple expedient of burying the condemned without the tiresome formality of first putting them to death; how thieves were prevailed upon to renounce their acquisitive habits by a precautionary removal of their arms; and how other criminals had their toes sliced off, a disfigurement which debarred them from ever again entering the otherwise open city. The observant Chow-Ta-Kwan also vouchsafed the information that the king, apart from having access to four or five thousand concubines, was also the fortunate possessor of five official wives, one (as the envoy carefully explains) for his central apartment, and one for each of the cardinal points!

In 1858, not long after the discovery and dismissal of these highly colourful memoirs, A. H. Mouhot, a French naturalist, stumbled upon the jungle-enveloped remains of the very city they so vividly described—the long-lost Angkor Thom. And thereafter, investigation showed that, in all essentials, the place was very much as it had been portrayed. The ruins, located on the right bank of the Siem-Reap River, were both moated and

walled, and occupied an almost quadrangular area some three square miles in extent. Each of its four walls was pierced by a central gate, and two main boulevards ran from north to south, and from east to west, thus connecting the main entrances and quartering the city. On the east side, moreover, there was a fifth gate, evidently reserved for royal use. The massive causeways, too, were found exactly as they had been described—fifty feet wide, three hundred feet long, and each complete with a double line of snake-bearing carvings. And there was also identified the impressive structure of the three-storeyed Bayon, with its fifty towers and their multitudinous carvings of human faces, while on an adjacent terrace there still stood the two guardian lions—though tower, estrade, and animals, alas, no longer shone with the glint of gold, but evinced all the familiar attributes of ordinary stone.*

About a mile away, on the same bank of the river, standing in the midst of a moated park, was Angkor Vat. This most famous of Cambodian temples, unlike the city with which it was associated, remains surprisingly well preserved. Built of multi-coloured sandstone, it occupies three stages, approached by exterior staircases. The stages, progressively diminishing in size, culminate in a central pagoda which rises to a height of some two hundred and fifty feet.

The ruins, in common with others scattered throughout the jungle, are richly embellished with carvings and inscriptions. The carvings—mile upon mile of bas-reliefs—add much to the account of everyday life which Chow-Ta-Kwan provided. They depict scenes of battle and of hunting; they show the king enjoying a game of chess, and his subjects bargaining in the market; and they reveal hordes of slaves engaged in building operations, urged on by the whips of their overseers. The inscriptions, on the other hand, tell singularly little—not because they cannot be read (the writing is alphabetic, and derived from Sanskrit), but because they are mainly concerned with theological affairs. The (to the archæologist) more impor-

* It has been suggested, in view of Chow-Ta-Kwan's evident reliability as a witness in other directions, that even here his description may have been given in good faith, and that originally these structures may have been covered with gold foil, and that all trace of this gilding has since disappeared.

tant records dealing with matters political and historical, it would appear, were inscribed on perishable materials, and so did not survive. As a result, our knowledge of the Khmers is lamentably lacking in detail. We know the names of some of their kings, and the date and duration of some of the royal reigns. But their origin is as uncertain as is the manner of their end. Some authorities hold that they came from North India, after a mass migration across Burma and Siam, while others favour the view that they journeyed by way of the Menam and Mekong Rivers from somewhere across the sea. Their beginnings have been linked with the name of Fu-nan, and subsequently with a flourishing civilisation which existed in the pre-Angkorian era of one Chen-La. At all events, to the Khmer Empire, once it was established, there would appear to have belonged some 30,000,000 people, who occupied the extensive plains and low tableland now shared by Cochin-China, Cambodia, and Siam.

In the centuries which followed, there were constructed the vast, elaborate, and distinctive edifices of stone such as Angkor Thom (the beginnings of which were laid down by King Yacovarman in A.D. 900 or thereabouts) and Angkor Vat (believed to have been completed by King Suryavarman II, who reigned c. A.D. 1112-1182). Then, as mysteriously as they had come, the race of master temple-builders vanished, leaving behind them little evidence of their existence apart from their imposing monuments of stone. Various theories have been advanced for the sudden collapse of their empire, which was overrun by the Siamese about the beginning of the 13th century. One suggestion is that an outbreak of plague contributed to the downfall. Others maintain, with Groslier, that in the end there was a successful revolt among the slaves, by whom the intellectual minority was exterminated, whereafter the self-liberated vassals deserted the cities and reverted to the jungle.

IV

Ironically enough, the most famous and renowned antiquity of all is the one concerning whose origin and meaning virtually nothing is known—the Great Sphinx of Gizeh. Even the name

given to this inscrutable and enigmatic figure is misleading. It was bestowed upon it by the Greeks, who mistakenly regarded it as the Egyptian equivalent of a winged monster, boasting a feline body and the head and breasts of a woman, which, it was said, used to waylay travellers journeying to or from the Boeotian city of Thebes, and require them, on pain of death, to answer a riddle.* To the ancient Egyptians, however, the so-called Sphinx had no such predatory associations. Moreover, although, like its Greek counterpart, it possessed a lion's body and a human head, its sex was unquestionably male, for it wore the headdress and royal insignia of a pharaoh. It appears, at any rate in later times, to have been referred to simply as *Hu* (the hewn figure), and the real riddle of it, as Weigall has said, is the question of its age.

With the exception of its huge paws, which are of built-up masonry, the figure is monolithic, and carved out of a natural bluff of yellowish sandstone. It measures some 150 feet in length, and is about 66 feet high, while the massive head is 13 feet 6 inches wide, the mouth 8 ft. 6 inches across, and the nose 5 feet 6 inches long. After the sculptors had completed their work, the headdress was painted white, the face red, and the eyes black, with white globes. Thus adorned, and occupying a semi-recumbent position in an ancient quarry, it gazed out across the nearby desert, until in the course of time the ever-encroaching sand threatened to swallow it up . . .

About the beginning of the 13th century, the Arabian traveller and historian Abdullatif recorded the existence, almost within arrow flight of the great pyramids, of a colossal figure of a head and neck, projecting out of the sand, and added that it was called *Abu'l-hol*—Father of Terrors. Six hundred years passed, however, before an exploratory excavation undertaken by a Captain Caviglia disclosed a processional way leading

* The Sphinx (Gk. 'The Strangler'), if Apollodorus is to be believed, was an offspring of Typhon and Echidna, though Hesiod ascribes parentage to Orthus and Chimæra. According to Greek legend, the creature, having been taught a conundrum by the Muses, took up its abode in the vicinity of Lake Copais. The Riddle of the Sphinx—'What is four-footed in the morning, two-footed at noon, and three-footed in the evening?'—was ultimately correctly answered by Oedipus, who replied 'Man', whereupon the enraged enigmatist flung itself from a high rock and so perished.

down to a small, undecorated temple, no more than five feet wide, located between the front paws. By this time, the head of the monument, which had suffered successive acts of mutilation by both Moslem and Mameluke (who used it as a target for musketry practice), was sadly disfigured—its nose chipped, its headdress damaged, and its stylised beard broken off. To this wanton destruction, Howard Vyse, in 1837, proceeded to add. Seemingly possessed of the idea that the Sphinx might house one or more secrets internally, he bored a hole into the back of it to a depth of nearly 30 feet. All he found, however, was solid rock.

But though the Sphinx was laid bare, its significance remained hidden. Pliny, writing in the 1st century A.D., mentioned that it was supposed to be the tomb of Khnumibre Ahmose, a 26th-dynasty pharaoh (569-525 B.C.). But the worth of this supposition was revealed by the discovery, during the excavation aforementioned, of an inscribed slab in the miniature temple between the paws. This, the so-called 'Dream Stele' of Thutmose IV, recounts how the king, as an aspirant to the throne in the days of his princehood, fell asleep under the shadow of the Sphinx, and in an ensuing vision, was called upon by the statue to clear away the sand which even then was threatening to overwhelm it. Thutmose in due course performed this pious obligation, and his recording of the fact at one step takes the monument back to 1400 B.C. and beyond—for it is evident from the narrative that at the time of its restoration, the Sphinx had already been long in existence. Tantalisingly enough, Thutmose also makes mention of Khefre (Chephren, *c.* 2750 B.C.), though to the exasperation of the Egyptologist, the reference occurs in a fragmentary part of the inscription, and the context is missing.

What is the significance of this allusion to the builder of the second of the great pyramids, particularly in view of the fact that pyramid and Sphinx are to be found in close proximity? Not without reason, it has been held that the builder of the one is also to be regarded as the author of the other, though another school of thought has sought to establish that the Sphinx antedates even the 4th dynasty to which Khefre belongs—Maspero

ascribed it to the generation before Menes. Against this, however, attention has been drawn to the existence of a number of shaft tombs, none of them seemingly pre-Khefre, and one of which is actually cut in the middle of the Sphinx's back. The excavation of such a tomb, it is argued, would hardly have been undertaken after work on the Sphinx had been completed, and when it had become an object of veneration.

As to the purpose and meaning of the monument, one widely held view is that it represents a particular manifestation of Re, the sun-god, embodied, more than likely, in the divine person of the pharaoh who caused it to be constructed. Attempts to identify the statue with portraits of Khefre, however, have failed because of the facial disfigurement earlier mentioned. But the fact that royal likenesses were usually made in pairs lends colour, perhaps, to the tradition that buried somewhere in the desert sands lies another such guardian of the land of the Nile, awaiting the day when it, too, shall stand resurrected and revealed, if not remembered.

PART THREE

*Greco-Roman
Remnants*



I

Troy in Triplicate

I

WHO has not heard tell of the Tale of Troy—of how Paris, the second of King Priam's fifty sons, whilst on a visit to the realm of Menelaus, King of Lacedemon, repaid the hospitality of his absent host by running off with his wife, Helen; and of how the subsequent siege of Troy was at last brought to an end with the aid of the wooden horse built by Epeus, whereby the avenging Greeks were enabled to gain admittance to the stronghold, and so bring it down in flames?

In ancient times, no one thought to question the historicity of these and other events, as narrated in Homer's *Iliad* and *Odyssey*. But more recently, and prior to 1870, modern scholars had come to regard them as fictitious,* a view in keeping with the genealogy of some of the leading characters, including that of the wayward Helen, an illicit offspring of the even more wayward Leda (wife of the King of Sparta) and the amorous Zeus, mightiest of the Olympian gods. In short, the consensus of learned opinion was that there had been no Trojan War, and no Troy, a view supported by the fact that the site of the supposed citadel was unknown, and its whereabouts in dispute among those who clung to the belief that it once actually existed.

The claim that it was the direct successor to Homeric Troy was early made by New Ilios (the Roman Ilion), an assertion which, in days long gone by, a number of eminent visitors did

* Thus the historian Grote in his *A History of Greece* (John Murray, London, 1862) on the Trojan War: 'Though literally believed, reverentially cherished, and numbered among the gigantic phenomena of the past by the Grecian public, it is in the eyes of modern enquiry a legend and nothing more.'

not hesitate to acknowledge. Thus (so Herodotus informs us), the Persian monarch Xerxes, when crossing the so-called Trojan Plain, visited this alleged stronghold of Priam, and made sacrifice to Athene there, as did Alexander the Great more than a century later. Strabo, on the other hand, does not recognise what he regards as the pretensions of New Ilios, and points instead to a place known as the Village of the Trojans, some three or four miles away. But there was general agreement that the Troad, *i.e.*, the land of Troy, anciently held to comprise all that was bounded by Lesbos, Phrygia, and the Hellespont, was indeed to be found in the vicinity of the last-named (the modern Dardanelles).

In more recent years, attempts to decide between the various claims at once came up against the baffling problem of how to reconcile the existing landscape with Homeric descriptions of it, a difficulty not made any easier by the fact, now fully recognised, that no one site meets all the requirements as outlined by the imaginative poet. Thus, while it is true that the Menderes and one of its tributaries, the Dumbrek, are identifiable as the ancient Scamander and the Simoeis, complete with marshes to avoid, other of the alleged aspects of these two rivers are not as readily discerned. It is recounted in the *Iliad*, for example, how Achilles chased Hector round the walls of Troy, in the course of which pursuit two springs were encountered at a spot where the waters of the Scamander spouted skywards. And of two jets, one was as cold as ice, while the other billowed clouds of steam!

With this fanciful description in mind, the French traveller Jean Baptiste Lechevalier, in 1791, drew attention to a group of springs in the vicinity of the village of Bunarbashi, and declared a nearby hill to contain the remains of the long-lost city. But alas, thermometric devices, when immersed in the waters which gave rise to the claim, did not reveal the prescribed difference in temperature, or, indeed, show any difference in temperature at all. The Frenchman's view, nevertheless, attracted far more notice than it deserved, and as a result, it was to this alleged site that Heinrich Schliemann first gave his attention when, in fulfilment of a lifelong ambition (he

was then in his mid-forties), he began a belated search for the supposedly fabulous city.

In as much as the theory of Lechevalier was ill-founded, it is not surprising that this initial effort came to nothing. Two years later, however, in 1870, and after considerable trouble in obtaining the requisite firman (permit to excavate on Turkish soil) from the authorities, who claimed half of anything that might be unearthed, Schliemann turned to the traditional site of New Ilios, where, at the suggestion of F. Calvert, he made the mound of Hissarlik his immediate objective. Operations were started at the north-west corner of the mound, and almost at once he came upon the remains of a Roman wall—and no less speedily found himself involved in a protracted dispute with the owners of the land.

When work was resumed, it was on an ambitious scale, even if it was conducted in a somewhat unscientific manner. There was at that time no recognised procedure, and what Schliemann did was to hire a gang of 100 men, arm them with shovels and spades, and set them to digging a trench, some 30 yards wide, aimed at the centre of the hill—whereupon the question of precisely where to dump the excavated debris at once arose, for the extent of the site was unknown.

II

It was a puzzled and somewhat disappointed investigator who issued the first report on his efforts, for he had to confess to the finding of nothing but stone implements throughout the length of the trench. But the work went on, and in the following year a large terrace was cleared on the northern slope, and another broad trench begun, that the two avenues of approach might ultimately meet in the middle of the mound. It was at this stage in the proceedings that the corner of what had once been a substantial stone wall was uncovered, and in May 1872 a pair of gates were brought to light, in company with two buildings which, though of different age, both showed signs of having been destroyed by fire.

By this time, fully half of the ancient site had been laid bare, and there was no escaping the conclusion that it appeared

almost unbelievably small. Schliemann, though he had by no means realised the romantic aspirations of his boyhood dreams, coloured as they had been by visions of armour-clad warriors and buried treasure, felt satisfied that in so far as the existence of Troy itself was concerned, he had proved his point, and prepared to call a halt. At this juncture, he stumbled upon gold!

Near one of the two buildings aforementioned (which the excavator had not hesitated to attribute, erroneously, to King Priam himself) Schliemann espied a large copper object, and then saw the unmistakable glint of a rarer metal. The workmen, unaware of the discovery, were promptly given the rest of the day off, and as soon as they had left the site, Schliemann, alone except for his Greek wife, set about investigating the find. Before him, lying on top of a copper container, was a solid layer of ash, some five feet thick, and above it a section of a fortified wall. Impatiently, attended all the while by the danger that his activities might bring about the collapse of the upper structure, Schliemann hacked out the container, and conveyed it and its contents to his hut, where an examination could be made in safety and at leisure.

There proved to be more than 8,000 gold objects in all, most of them small items such as beads, buttons, earrings, and the like, though there were also a number of bracelets, several goblets, and a pair of diadems, one of them consisting of more than 16,000 separate pieces of gold. Inevitably, the finder attributed the hoard to the monarch in the ruins of whose palace he mistakenly believed it to have been found. It was also his considered opinion (duly announced a few weeks later) that the objects had originally been packed in a wooden chest (the key to which he claimed to have discovered), that they might be the more easily conveyed to a place of safety when the fall of the besieged city appeared imminent. But the bearers of the treasure, he surmised, had been overtaken by the fire started by the Greeks, and in the ensuing chaos, the chest and its contents had been left behind.

All this, be it noted, was based on mere assumption, and later proved to be misguided speculation of a very high order.

The alleged key to the supposed chest turned out to be a much corroded chisel, and the treasure itself, though undoubtedly of gold, was shown to be ornamentation of a decidedly primitive kind. Indeed, it transpired that it had no connection with Homeric Troy at all, and that it really belonged to an earlier epoch which antedated it by as much as 1,000 years!

Blissfully unaware of the more mundane facts of the matter, Schliemann found himself faced with the problem of how to ensure the safety of his great find. It was obvious that it could not remain at the site—and he had no compunction about placing it beyond the reach of the Turks. So it came about that two days later, the gold was smuggled on board ship, and then transported to Athens. Here, another difficult decision had to be made—whether to announce the discovery in the glowing terms which a natural pride demanded, or to belittle the find so as not to arouse the cupidity of the authorities he had outwitted. In the event, aggrandisement won, and the details of the jewellery (the true worth of which was, of course, not to be measured in terms of carats alone) were enthusiastically proclaimed to the world, though not before its discoverer had prudently distributed the entire collection among his wife's relations for safe keeping, with the result that when his house was searched at the instigation of the Turkish Ambassador, nothing at all was found!

The price of this circumvention, which naturally enough did not endear the culprit to those who had been deceived, was that the aggrieved Turks refused him a new firman. But the unrepentant Schliemann by now enjoyed something of an international reputation, and he proceeded to make the most of it. As a result, not a few strings were pulled on his behalf, one of them by the British Ambassador at Constantinople. Ottoman obduracy, which one cannot help but feel was in the circumstances not entirely unjustified, was thus overcome, and the spring of 1879 once again saw Schliemann in charge of operations at the site, accompanied on this occasion by E. L. Burnouf and R. Virchow. Activity centred on the western half of the citadel, which was laid bare almost in its entirety, and in all, seven superimposed levels were distinguished. Of these, Schlie-

mann at that time regarded the first five as prehistoric, and nominated the third as Homeric. But when, in 1881, his *Ilios* was published, complete with illustrations and maps, grave doubts as to the correctness of his conclusions were voiced on all sides, doubts which eventually established themselves in the mind of Schliemann himself

III

With characteristic determination, and when at the age of sixty, he returned to the site in March, 1882, assisted on this occasion by colleagues who were competent architects, and this more scientific approach did much to dispose of earlier misconceptions. Schliemann, however, was not destined to see the completion of this reassessment of his labours, for the work went on intermittently, and it was still in progress when he died in 1890. The task was completed, four years later, by the architect Dorpfeld, who published his conclusions in 1902 (*Troyja und Ilios*). Nine superimposed layers were now recognised, three of them of outstanding importance—the second (to which the so-called treasure of Priam belonged), the sixth (regarded as Homeric) and the ninth (the Roman Ilium).

Here the matter rested until the meticulous and extensive re-examination of the site which was undertaken by C. W. Blegan and his colleagues on behalf of the University of Cincinnati, from 1932 to 1938. So as to avoid unnecessary confusion, Dorpfeld's nine-fold division of the stratified levels was retained, though numerous subordinate phases, amounting to no less than 46 in all, were actually distinguished. Seemingly, the site had been in almost continuous occupation for some 3,500 years, and originally stood 50 feet or so above the level of the surrounding plain, to which modest height the accumulated man-made debris of the centuries added another 100 feet. The final conclusions may be summarised as follows, in which arrangement the main divisions are those of Dorpfeld, with the number of Blegan's sub-divisions shown in parenthesis:

Troy I (10): This series of settlements, the first of which was established before 3000 B.C., comprised a central stronghold measuring some 300 feet in diameter, protected by an encircling

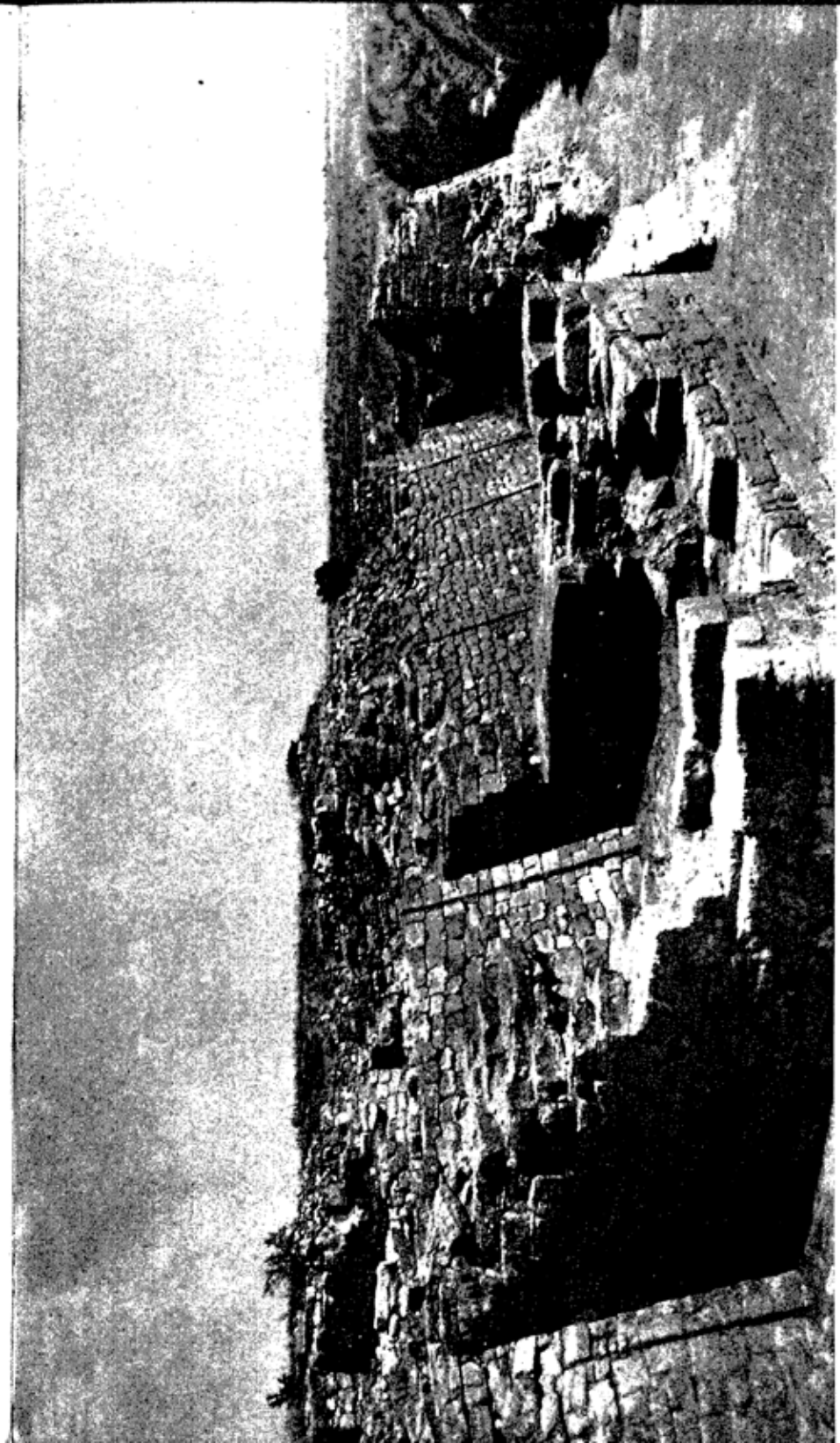
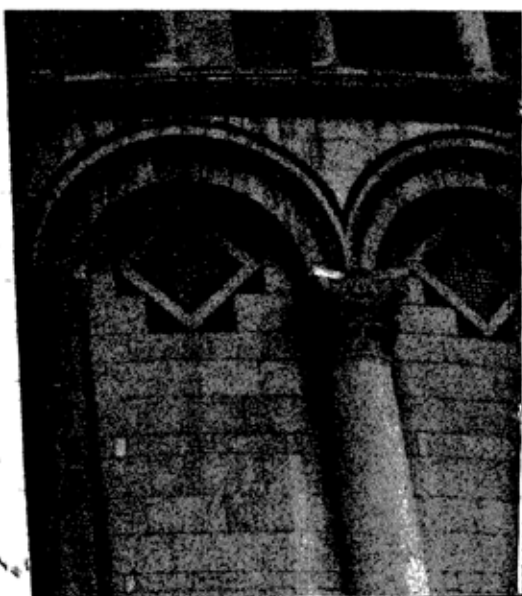


PLATE 12. Homeric Troy—a view of the East Fortification wall. It was built in the time of the Sixth Settlement. Photo: *Princeton University Press*.



PLATE 13. (a) Gold face mask (thought by Schliemann to belong to Agamemnon) recovered from one of the Shaft Graves discovered within the Citadel of Mycenae. Photo: *The Ashmolean Museum, Oxford*. (b) Graphic example of the time-honoured practice of purloining material from one building in order to erect another—a view of Pisa Cathedral. The upper inscription reads: Aelio Hadriano Antonino was at that time Leader of the Tribune for the third time and also a Consul of the third year. Photo: *A. Stanley Barnes, F.R.I.B.A.*



wall, complete with gates and towers, the remnants of which still stand to a height of eleven feet. Copper implements were in use from the onset, and the pottery of the period is a characteristic grey or black polished ware, made by hand.

Troy II (7): Early in the 3rd millenium B.C. the diameter of the old citadel was increased, and its area almost doubled in extent. There were massive retaining walls, with gates and towers as before. A broad ramp, with flagstone paving, provided an approach from the south-west, and a palace, containing a forecourt and a main hall, was located in the centre of the fortification. With the introduction of the potter's wheel,* the original dark ware was largely replaced by a more pleasing red and brown substitute.

During its 7th and final phase, in 2500 B.C. or thereabouts, Troy II suffered destruction by a fire of such great intensity that many of its stones were calcined by the heat. Evidence abounds (including that provided by the golden hoard which Schliemann found) that the inhabitants fled in such haste that they were able to make little or no attempt to rescue their household goods and other belongings.

Troy III (4): The occupation which followed the fire is marked by an unusual abundance of deer bones, the result, it has been suggested, of a sudden influx of game, or of the devising of improved methods of hunting, or of both.

Troy IV (5): This period represents a continuation of Troy III, with the area of settlement enlarged. A feature of the occupation is that the houses were small, and that they stood in groups separated by narrow lanes.

Troy V (4): Once again the area of habitation has been extended, and as before, the cultural tradition continues without any sign of a break. The pottery suggests a process of uninterrupted development from as far back as Troy II, and the ceramic remains are intermixed, as previously, with those of a number of importations from the Greek mainland.

* H. R. Hall considered it probable that both the potter's wheel and the baking-furnace originated in Elam before 4000 B.C., and from there reached Egypt between the 1st and 4th dynasties, subsequently making their way to Greece during the Third Early Minoan period (*vide infra*), which was contemporaneous with Troy II.

Troy VI (8): In its beginnings, the sixth settlement was contemporary with the Middle Bronze Age in Greece (c. 2000-1600 B.C.), and marked by the arrival of grey Minoan pottery, not to mention the coming of the horse. The settlement appears to have increased steadily in importance until, about the year 1400, it emerged larger in extent than ever before, endowed with a massive circuit wall, 16 feet in thickness, and surmounted by a parapet which brought its overall height up to 26 feet. The wall, built of huge limestone blocks quarried locally, boasted at least three towers and four gates. Concentric rings of terraced houses, together with more pretentious dwellings, stood within the area thus protected, while outside it, several hundred yards to the south, was the town's cemetery. Here, evidence of the introduction of cremation was found, for buried in the ground were the ashes of the dead, contained in urns.

Troy VI, about 1300 B.C., was destroyed by a violent earthquake, which cracked the strongest of its walls, and brought down many of its buildings. The paucity of household and other remains, however, suggests that on this occasion, the inhabitants managed to rescue most of their belongings.

Troy VII (3): Troy VII is sub-divided into Troy VIIa (1), and Troy VIIb (2). The first of these periods began with the re-occupation of the site after the earthquake which brought ruination to Troy VI. The outer wall was repaired, and in course of time conditions within the protected area seem to have become more and more crowded. This, and other evidence—*e.g.*, the presence of numerous large storage jars, sunk in the floors—suggests that many people who previously dwelt outside the walls found it necessary to seek safety within them. Be this as it may, in 1200 B.C. or thereabouts, the fortress was destroyed by fire, possibly, reports Blegan, after a long siege and a final sack by an enemy.

Some time after this disaster, the first of the two phases of Troy VIIb began with the return of the survivors, the second phase starting when these remnants were joined, amicably or otherwise, by an alien people who brought with them a distinctive, hand-made pottery reminiscent of Europe.

Troy VIII (2 or more): With the establishment of a Hellenistic monarchy in Asia Minor, Troy became the Greek town of Ilios, an incident in its history indicated by the finding of vast quantities of pottery of Greek origin, though some local ware also persists.

Troy IX (3 or more): An extensive rebuilding programme was instituted by the Roman Emperor Julian, in the course of which activity the top of the site was cut away and levelled (thus removing all the layers representative of the three preceding settlements, greatly to the confusion of the unsuspecting Schliemann) for the laudable purpose, among other things, of making room for the erection of a temple to the goddess Athene.

Thereafter, the town was sufficiently important for it to be considered by Constantine the Great as a possible site for his eastern capital. But when the imperial choice ultimately fell upon Byzantium (Constantinople), Ilium gradually declined. It appears to have suffered abandonment in the 5th century A.D.

IV

The finding and the identifying of the site of Troy, as might be expected, led to a careful re-examination of the Homeric epics concerning it. Much that is contained in the *Iliad* and the *Odyssey* is, of course, fictitious—e.g., the never-ending interventions from on high. Again, many of the incidents, and not a few of the characters, plainly come under the heading of poetic licence. The size of the contesting armies is in all probability a gross exaggeration, nor is it likely that the siege lasted for ten years.* On the other hand, that the accounts are founded on fact, however extensively embellished, there is now no good reason to doubt. A glance at a map is sufficient to show that

* Interestingly enough, other versions of the fray, purporting to be independent accounts, are also known—*De exidio Troiæ*, by Dares the Phrygian (who views the conflict through Trojan eyes), and *Ephemeris Belli Trojani*, by Dictys the Cretan, though both of these works are regarded by many (but not all) authorities as spurious. Be this as it may, Dictys, while retaining all the essentials of the story, omits such Homeric inventions as the divine interference aforementioned. He also reduces the length of the actual siege to credible proportions.

the fortress of Troy occupied a commanding position which would enable its ruler to control not only the sea lane through the Dardanelles, but also the land routes between Europe and Asia. And if some Achæan confederacy attacked it, geography, rather than marital infidelity, provides a sufficiently convincing reason for the aggression.

There remains the all-important question of date. Patently enough, if the events as related are founded on fact, they cannot have taken place *after* the lifetime of the narrator. Unfortunately, our lack of knowledge concerning the birthplace of Homer is matched by our ignorance as to precisely when he lived. His name, Homeros (Hostage), is perhaps of some significance in that it may reflect the Greek custom of naming a newborn son in accordance with the status of his father. But more than half a dozen places, extending as far afield as Babylon and beyond, have been claimed as his home town, while the date of his birth, according to the authority selected, may be at any time between 1159 and 685 B.C. With due reservations, Herodotus assigns the poet to the 9th century, and this, perhaps, is as good a guess as any other.

The date of the Trojan War is thus narrowed down to some extent. No one supposes, moreover, that Homer (who in any case was blind) actually witnessed any of the events which he so vividly describes—his function was to gather together and present in homogenous form a collection of traditional material which, in his day, may well have been centuries old. According to the Greek historian Duris, Troy fell in 1334 B.C., a date considerably older than the 1136 B.C. given by his predecessor Ephorus. The Parian Chronicle steers midway between these two, as does Eratosthenes, who assigns the conflict to the decade 1194-1184 B.C.

There remains the matter of the archæological evidence on this point. As already noted, Dorpfeld indicated as Homeric the sixth of the nine settlements distinguished by him, a choice which, in the light of recent estimations, would take the siege as far back as 1300 B.C. But the destruction of Troy VI, as the investigations of Blegan and his colleagues have since revealed, was occasioned by an earthquake. A century or so later, how-

ever, after the ancient stronghold had been rebuilt, it was again reduced — this time by fire. Thus the Trojan War, it would seem, concerned what is now designated Troy VIIa, a fortress apparently besieged and overthrown about 1200 B.C.

II

Land of the Minotaur

I

HEINRICH SCHLIEMANN, in between his labours at the mound of Hissarlik, found the time and energy to undertake excavations on the Greek mainland. And once again, his unconventional ideas were destined to produce unexpected results. According to the Greek traveller and geographer Pausanias (2nd century A.D.), there lay buried among the ruins of the ancient hill-top stronghold of Mycenæ none other than Agamemnon and some of his fellow-warriors, treacherously slain at a banquet on their return home from the Trojan War. And so at Mycenæ, Schliemann proceeded to dig, where he quickly confounded his critics (who did not believe a word of the story) by exposing the so-called royal burial circle, an area ringed by stelæ which, before they were made to do duty as a fence, may well have served as actual gravestones. Within this royal enclosure, excavation brought to light a series of shaft tombs, cut vertically in the underlying rock, which contained the remains of men, women, and children, together with numerous weapons, including swords and battle-axes. More arresting still, the dead were lavishly decked in gold, the men wearing face-masks and breast-plates of the metal, while their consorts were heavily laden with ornaments and jewels.

Such was Schliemann's implicit faith in the source of his information that, having found the five graves mentioned by Pausanias, he saw no point in excavating further, and left a sixth tomb undiscovered! And with his customary impetuosity, he promptly announced to the world that he had found the actual remains of the Achæan leader and his murdered companions — an enthusiastic declaration which a more sober

appraisal on the part of his contemporaries failed to confirm. But even so, there was no gainsaying the fact that he had brought to light evidence of a prehistoric Greek civilisation which extended as far back as 1500 B.C. and beyond. Designated *Mycenaean*, it subsequently came to be recognised as an offshoot of an even more venerable culture which had developed on the adjacent island of Crete.

Ironically enough, Knossos was one of a number of other promising locations which the indefatigable Schliemann had planned to investigate, and in so far as the proposed Cretan venture was concerned, it came to nothing simply because the would-be excavator failed to reach agreement about price with the owner of the land—an *impasse* the occurrence of which the eventual purchaser of this now famous site has since been frank enough to state that he regards as by no means unfortunate.*

It was in 1893 that A. J. Evans began a tentative archaeological exploration of Crete, and in the following year, accompanied by D. G. Hogarth, he visited the site of Knossos, and thereafter purchased a portion of it. The remainder of the area was acquired in 1900, in which year the work of excavation began. By the end of the season, much of the main building had been cleared, and already there was ample evidence to show that the palace had been the centre of a flourishing civilisation. Evans termed it *Minoan*, in deference to the legendary Minos, the capital of which famed sea-king he supposed he might well be in the process of unearthing, and the name remains, despite W. Ridgeway's protests that the monarch in question was to be regarded as the destroyer, rather than the creator, of the Cretan Bronze Age.

* *Vide* Arthur Evans' Introduction to Emil Ludwig's *Schliemann of Troy* (G. P. Putnam's Sons, London, 1931). After commenting upon Schliemann's failure to realise his ambition to excavate Olympia, Evans continues: 'Nor can I pretend to be sorry that he did not dig at Knossos, which he had also visited with the design of excavation. The complicated nature of the task in the great palace there was little adapted to his summary methods, and indeed throughout a large part of the building, with its remains of more than one upper storey, measures of support and reconstitution were continually needed, *pari passu* with the work of the spade, in order to save the whole from becoming an indistinguishable heap of ruins.'

II

The palace building covered an area of about five acres, and it has been estimated that in the course of time, it came to be associated with a city which housed upwards of 100,000 people. The royal quarters formed a veritable maze of halls, rooms, courts, and corridors, in places several storeys high, all grouped about a central courtyard some ninety feet wide, and about twice as long. Stairways connected the various levels, and among the multitudinous apartments which have been distinguished are a throne room (complete with an archaic stone chair), a council chamber, administrative offices, workshops, and storehouses, not to mention private living quarters replete with toilet facilities (including a bathroom upon the cemented floor of which rested an earthenware tub, seemingly supplied with hot water) served by an extensive drainage system, flushed by rainwater, which is in all probability superior to anything elsewhere contrived until the modern water closet was bequeathed to mankind by the Yorkshireman Joseph Bramah in the 18th century.*

Many clay tablets, covered with inscriptions, were early discovered, but down through the years they defied all efforts to interpret them. Thus denied the assistance of any relevant information which they might contain, the excavators set about tracing the course of Ægean affairs by making a detailed study of Cretan art, particularly Cretan ceramic art. As a result, three main periods were recognised — Early, Middle, and Late Minoan (for brevity designated EM, MM, and LM), each of which was in turn subdivided into three phases (numbered I-III), indicative of initial rise, subsequent maturity, and eventual decline.

The Early Minoan period, marked by the invention of painted ware, showed in its second phase important developments in the potter's art, while towards the end of EM III,

* The main drain at Knossos has cemented sides, and measures some three feet by two. Subsidiary connections leading to it are made up of tapered terra-cotta pipes (*cf.* the Sumerian equivalent), each about two and a half feet long. The narrow end of one pipe fits into the wide end of the next, projecting collars limiting the extent of the insertion. Watertight jointing was achieved by means of cement.

greater changes still were heralded by the arrival from Egypt of the potter's wheel and the baking furnace. Thanks to these new manufacturing processes, the pottery of the first phase of the Middle Minoan period exhibits a thinness and a delicacy not previously achieved, and its appearance is further enhanced by a profuse use of colours. This distinctive polychrome product, richly decorated with spiral coils (and known as *Kamaræ* ware, after the name of the village near where it was first identified) was subsequently exported in large quantities to Egypt, where examples of it were discovered in the tomb of Sesusri III (12th dynasty) at Abydos, in 1907. This, and other confirmatory evidence, made it possible to date the second Middle Minoan phase as extending from 1900 to 1700 B.C. In the same way, from an Egyptian statuette found at Knossos, ascribed to the 13th dynasty, in conjunction with other testimony, it was concluded that the third Middle Minoan phase lasted from 1700 to 1580 B.C. Again, as elsewhere noted, the dating of a subsequent period was contrived with the assistance of Egyptian decorations depicting Keftian (Cretan) envoys arriving at the courts of Hetshepsut and Thutmose III, for vases which the visitants are shown carrying do not exhibit the hitherto popular poly-chromatic pattern, but display dark colours on a light ground—a stylistic revival characteristic of Late Minoan I.

The vital question of dating was thus settled by reference to Cretan associations overseas. The complete chronology, with Egyptian synchronisms, may be tabulated as follows:

<i>Crete</i>	<i>Year</i>	<i>Egypt</i>
EM I	3400-2800 B.C.	1st-4th dynasties
EM II	2800-2400 B.C.	4th-7th dynasties
EM III	2400-2100 B.C.	7th-11th dynasties
MM I	2100-1900 B.C.	11th-12th dynasties
MM II	1900-1700 B.C.	12th-14th dynasties
MM III	1700-1580 B.C.	14th-18th dynasties
LM I	1580-1440 B.C.	18th dynasty
LM II	1440-1370 B.C.	18th dynasty
LM III	1370-1100 B.C.	18th-20th dynasties

It will be observed that the earlier the culture, the longer it tended to persist—LM, 480 years; MM, 520 years; and EM,

1,300 years, though this last figure is considered excessive by some authorities. J. D. S. Pendlebury would reduce it to 1,000, and G. A. Reisner to no more than 600 years, by dating the start of the EM I phase from 3100 and 2700 B.C. respectively. Prior to this, it has been conjectured that the first settlers in Crete were a Stone Age people who came from Asia Minor, and at Knossos there is unmistakable evidence of their long sojourn there in the shape of a neolithic deposit no less than thirty-six feet in thickness, a tell-tale accumulation which must have required many thousands of years to form. And among the debris have been found fragments of pre-dynastic Egyptian stoneware!

III

The Bronze Age in Crete appears to have begun in 4000 B.C. or thereabouts, and the thriving civilisation which in due course emerged may thus be regarded as having been contemporaneous with that of Egypt and Babylonia. The great palace at Knossos dates from the MM I period, as does a similar (though less extensive) building at Phæstus, in the south of the island.* After additions to the residential quarters at Knossos during MM II, much destruction was caused at both sites, either as the result of an earthquake, internal revolution, or a combination of the two.

During MM III, the palace at Knossos was re-designed, and much re-building was undertaken, though once again the ultimate outcome was a partial destruction, seemingly accompanied by looting. The next, and final, reconstruction took place in LM I. This work, which was on a less ambitious scale than hitherto, survived only until the end of LM II, when the building, in the company of numerous others throughout the

* In the course of Leonard Woolley's excavations at Alalakh, in Syria, earlier mentioned, the remains of a palace built by Yarim-lin, King of Yamkhad, were found to exhibit architectural features identical with those of the palace of Minos at Knossos. It was evident, moreover, that the Alalakh residence, unlike its Cretan counterpart, had been built in an old tradition. Hence it was concluded that the outstanding features of Minoan architecture had been derived from the Asian mainland. Woolley goes so far as to suggest that trained experts were sent to Crete (possibly, though not necessarily, from Alalakh itself) to undertake the construction and decoration of royal residences there.

island, was completely destroyed, and its site left deserted—the handiwork, it has been suggested, of those Achæan sea-raiders whose descendants laid waste the citadel of Troy. There is evidence of a tentative re-occupation during LM III, perhaps by the plunderers themselves, whereafter the ruins were seemingly left to moulder and decay.

Centuries later, Greek chroniclers told of a certain King Minos, who was reputed to have held sway over the Ægean Sea in the days before the Trojan War. To demonstrate his right to the Cretan throne (so the story goes), Minos called upon Poseidon, the deep-sea divinity, to send him a bull by way of a token, that he might offer up the creature as a sacrifice. But when the animal duly appeared, Minos was so enamoured of its beauty that he consigned a less prepossessing specimen to the altar, whereupon the outraged deity demonstrated the extent of his displeasure by causing Pasiphæ, the wife of Minos, to give birth to a monster, half bull, and half human.

This creature, the dreaded Minotaur, proved to be a man-eater, and the celebrated architect Dædalus was employed to construct special quarters for it at Knossos, in the shape of a labyrinth, within which maze of his own devising he was incarcerated. And thenceforth, it was decreed that the subject city of Athens should send a regular tribute to Crete in the guise of seven youths and seven maidens, to help feed the imprisoned beast. Among the third batch of intended victims, however, was Theseus, son of the Athenian king. And on arrival at Knossos, he secretly enlisted the aid of Minos's daughter Ariadne, thanks to whom he entered the labyrinth armed with a sword (with which he duly slew the Minotaur) and a ball of thread (which, paid out as he went, enabled him to retrace his steps).

The story, it will be evident, recounts events which range from the highly improbable to the downright impossible. But this is not to say that it has no basis in fact at all. Although the historicity of Minos has yet to be satisfactorily demonstrated,*

*The question is further complicated by the fact that there are references to more than one Minos, and it has been suggested that the name might betoken a royal title, similar to pharaoh.

both Homer and Strabo make him reside at Knossos, and it is not without significance that Thucydides credits him with being the first to command an efficient navy. That even the most important cities on the island were virtually without fortifications is a fact which becomes explicable only on the assumption that for their defence, they could rely upon the existence of a powerful maritime force. And if this be so, the wholesale sacking of Crete would either imply that the defending fleet had been overwhelmed, or that it was elsewhere engaged at the time. It is conceivable that the guardian fleet suffered destruction as a result of some natural upheaval which also reduced the towns to rubble—and significant, it may be, that the catastrophic end of LM II occurred about the time a devastating earthquake brought down the walls of Troy VI. On the other hand, there is the tradition recorded by Herodotus—that having voyaged to Sicily in pursuit of Dædalus (who had contrived to make his escape from the labyrinth), Minos was murdered by secret enemies; that an expedition which set out from Crete to avenge his death also came to grief; and that men of various nationalities then seized the opportunity to descend upon the comparatively defenceless island, and attack its leading cities with fire and sword.

There may well be an element of truth in this account, just as there is undoubtedly some substance in the legend of the Minotaur. The Knossos excavations have brought to light frescoes which depict youths and maidens indulging in what is presumably to be regarded as the sport of bull-leaping, and it is by no means impossible that Athens, at some period or other in its history, was called upon to supply toreadors in the interests of this dangerous Cretan pastime. As for the identification of Knossos with the legendary labyrinth, nothing is more likely than that after the final destruction of the palace, the sight of its intricate ruins, with their maze of passages and interconnecting rooms, combined with some vague memory of ancestral bull-leaping activities, gave rise to the fable of the imprisoned monster whose habitation the place once supposedly was.*

* A. J. Evans, in the third volume of his monumental *Palace of Minos* (Macmillan and Co. Ltd., London, 1930), after observing that the pre-

IV

There remains the matter of the Minoan inscriptions, and these, as has been said, for long defied all efforts to decipher them. They were first observed, in a primitive form, as pictograph signs on seal stones belonging to the Early period, though the so-called Phaistos disc, remarkable in that the hieroglyphics on it follow the path of a spiral, is regarded as of non-Cretan origin. Subsequently, two forms of a linear script (now labelled A and B) were successively used.

The Linear A script appears to have come into prominence immediately after the catastrophic termination of MM II, and it remained in use throughout MM III, whereafter it was superseded by the closely allied script B. But for half a century, all attempts to make some sense out of this writing failed—as well they might, for neither the language nor the script was known. From their appearance, it was conjectured that the records (on clay tablets) were probably official lists of commodities stored in the various palace magazines, a supposition which the discovery of further tablets at Phaistos and elsewhere tended to confirm. Examples of the script were also found at a number of places, including Tiryns and Thebes, on the Greek mainland, where in 1939 C. W. Blegen unearthed 600 more. This particular hoard was discovered at Pylos, from where a further supply was obtained in 1952, in which year still other records turned up at Mycenæ.

With the aid of this additional material, Ventris and Chadwick have recently made a determined attack on the problem

conceived idea that the palace of Knossos was itself of a labyrinthine nature dies hard, puts the matter in a single sentence, though in more than one nutshell: 'In the days of ruin and desertion, with choked gangways and disordered lines of walling, with subterranean ducts, along which a stooping man might make his way, but which are really great stone-built drains, and, above all, the appearance of girl performers grappling with charging bulls, which in the portico of the Northern Entrance had kept their place down to the coming of the Greeks—mysterious forms and features such as these, seen in the twilight of early saga, may well have called up the vision of the "Greek Labyrinth" together with the monster that abode within its inmost lair.'

of the script's decipherment, not without evident success.* In order to explain the large number of Linear B tablets which had been discovered on the mainland, three possibilities were considered:

1. That the tablets had been imported (or looted) from Crete; or
2. That the script constituted a sort of international dialect of Cretan origin; or
3. That the script represented an early form of Greek.

After dismissing, for various cogent reasons, the first two possibilities, the investigators were left with the third and last of them, a proposition which, though it went contrary to prevailing opinion, was nevertheless seemingly supported by certain linguistic features evident in the new material. At all events, and so as to provide a working hypothesis, it was provisionally accepted, not only that the language of the Linear B script was Indo-European, *but also that it was specifically Greek.*

This fundamental assumption having been made, a number of secondary surmises followed — *e.g.*, it was accepted as reasonably certain that the tablets were inventories, as had earlier been supposed; that actual commodities were listed in a sort of commercial shorthand (ideograms), while names, words, and sentences were written phonetically; and that certain commodities (such as Chariots and Wheels) could readily be identified by their ideograms, or from the manner of their grouping (Cattle, Sheep, Goats, and the like), while the nature of other items was to some extent indicated by the way in which they were counted—if by weight, metals; if by volume, cereals; if by fluid measure, liquids; and so on.

A careful comparison showed that among the 88 odd different phonetic signs which could be distinguished, there was almost complete uniformity, no matter what their source, and from the size of the signary, it seemed clear that the script was

* Full details of the decipherment of the Linear B script are given in their Paper, 'Evidence for Greek Dialect in the Mycenæan Archives' which appeared in the *Journal of Hellenic Studies*, Vol. LXXIII, 1953, from which account the outline here given has been culled.

not a true alphabet, but a syllabary, *i.e.*, a list of characters representing syllables. And from a statistical analysis which was made of the whole of the available material, useful information was obtained by grouping the signs according to whether their appearance was frequent, average, or infrequent, and by observing those which could be regarded as predominantly initial or final. Note, too, was taken of any pairs of signs which tended to occur often together, and of those which at no time appeared in association with one another — all peculiarities likely to assist in the making of a comparison with the idiosyncrasies of a known language.

The inscriptions were then examined from a grammatical standpoint, and it was observed that the language apparently showed inflections for at least two genders, three cases, and two numbers of the adjective and noun. In the process of inflection, moreover, a vowel variation was shown by many words in their terminal syllabic sign.

Finally, consideration was given to the occurrence of individual sign-groups, and a provisional division into four categories was made:

1. Place names (including names of buildings);
2. Personal names;
3. Names of trades and occupations, and those descriptive of men and women;
4. A general vocabulary for the describing of commodities.

It was anticipated, incidentally, as an indication of the correctness of this four-fold classification, that in a comparison of the distribution of the various sign-groups from different sources, vocabulary words would recur most frequently (and in related contexts), that personal names would be shared less frequently (and in random context), and that local place names would form a distinct series.

Armed with this formidable array of provisional assumptions, tentative deductions, and conditional requirements, and after a preliminary identification had fixed the four vowel series *-e*, *-o*, *-a*, *-i*, and the semi-vowel series *w*- and *j*-, it

remained to discover a consistent distribution of the consonant series, and thereafter to test whether the application of the resulting transliteration to the texts would produce complete and comprehensible Greek words, or merely gibberish. And incredibly enough, it was a form of Greek which ultimately emerged — though Greek a thousand years older than the language used by Plato, in the guise of an archaic dialect for which it has been proposed that the name *Old Achæan* be reserved.

The magnitude of the achievement will be evident from the fact that in one memorable instance, the chosen phonetic values yielded a recognisable patronymic out of a possible 200,000,000,000,000 permutations of the syllables of the eight-sign name in question!

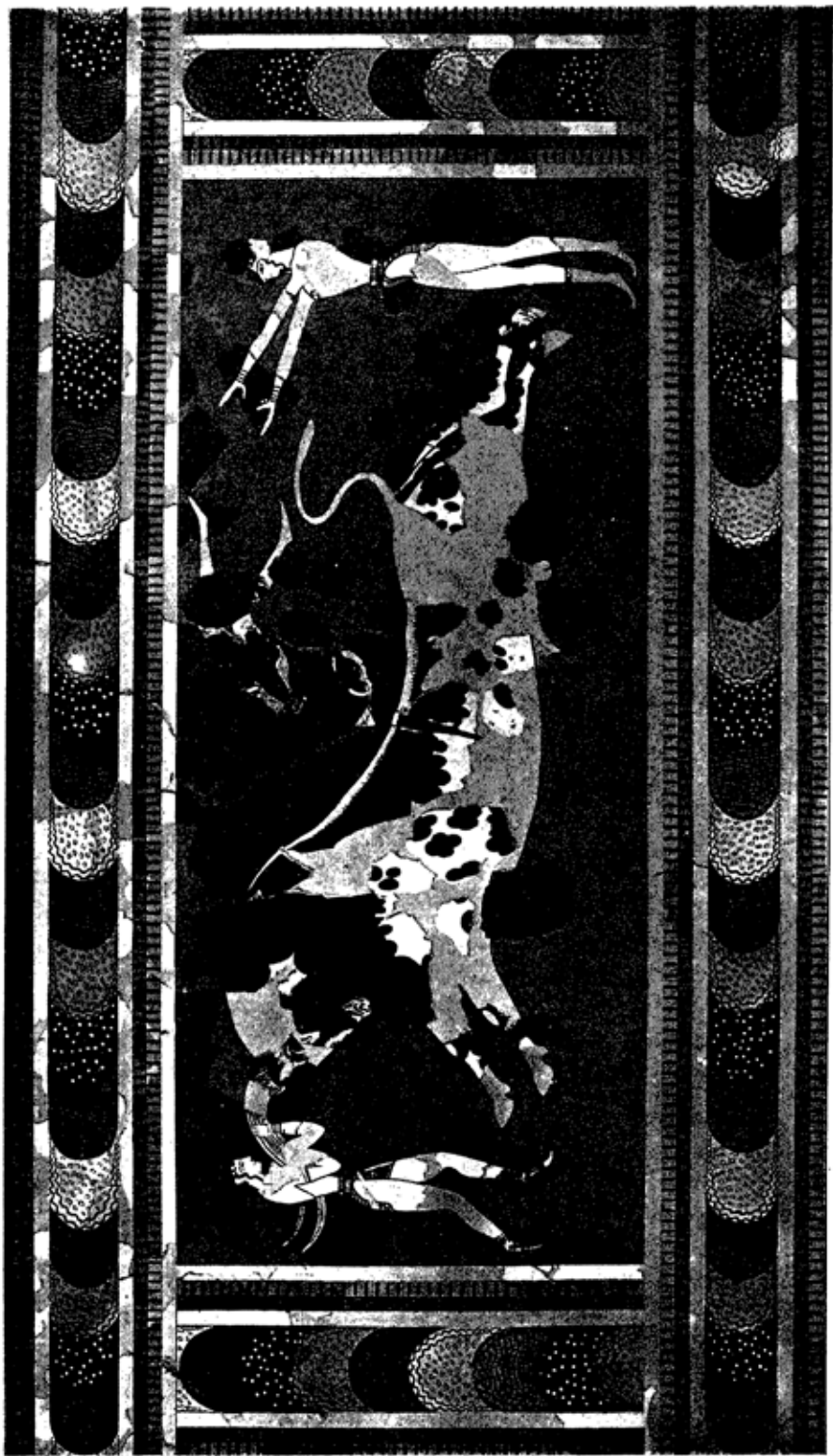


PLATE 14. The Cretan sport of bull-leaping, as depicted in a fresco found at the Palace of Knossos. Photo: *The Ashmolean Museum, Oxford.*



PLATE 15. General view of the remains of the Temple of Mithras, recently unearthed in the Walbrook area of London. Photo: *Planet News Ltd.*

III

Lost and Found

I

LONDONERS recently received a reminder that their metropolis was once an outpost of Rome, when the island site bounded by Queen Victoria Street, Bucklersbury, Walbrook, and Budge Row, suddenly came into the news. The area was in the process of being cleared in preparation for the erection of a new office block, and for many months members of the Roman and Mediæval London Excavation Council had been at work there, excavating some unidentified structural remains. On 18th September, 1954, their labours were rewarded by the finding of a carved stone head, complete with a Phrygian cap, which at once suggested that the building in question had been associated with the worship of Mithras.

Mithraism, an offshoot of Zoroastrianism, was a Persian innovation, and one of a number of alien religions which had come to be adopted by an easy-going Roman world. It is said to have been introduced to the west by Sicilian pirates, who were subsequently put down by Pompey in the early part of the 1st century B.C. At all events, traces of the new worship are to be found in Rome under Tiberius and the Antonines, while the 3rd-century Emperor Valerian was himself a devotee of the cult, which remained popular throughout the Empire, particularly among the troops, for several hundred years.

It was not a faith likely to commend itself to the squeamish. Not only was the neophyte, after taking an oath of loyalty, branded on the body with a hot iron, but there was also enacted an elaborate baptismal ceremony, in the course of which he found himself lowered into a pit, and showered with the warm blood of a sacrificial bull, as it expired from knife wounds above him! Report has it that in Rome, the last such

Taurobolium was a 4th-century affair which took place in the Phrygianum, where the basilica of the Vatican now stands.

In an account* of the investigations at the London site undertaken by the local Excavation Council, W. F. Grimes, of the London Museum, and director of the work, has drawn attention to two old finds which originally came to the Museum from a private collection. These items, which at the time of their discovery were described, somewhat vaguely, as having been found near the middle of the Walbrook at a depth of 20 feet, may well be connected with the more recent disclosures. Significantly enough, one of these relics (a votive offering made by Ulpian Silvanus, of the 2nd Augustinian Legion) also has Mithraic associations, while the other is in all probability a representation of some sea-god or other.

The Walbrook temple, the outline of which is well preserved, measures some 60 × 25 feet, and thus approximates the conventional basilican proportions, *i.e.*, rectangular, and twice as long as wide. The central area is flanked on either side by a row of column bases, and this nave, some eleven feet in width, runs the length of the building from east to west—from the entrance, that is to say, to the raised floor of a semi-circular apse at the far end. In this recess, it is assumed, there once stood a sculptured group, depicting Mithras in the act of despatching the sacrificial bull.

Such evidence as is available suggests that the building, largely of limestone construction, was erected some time after A.D. 150, and that it stood among birch and alder near the confluence of the Walbrook and the Thames. In the course of years, various structural alterations appear to have been undertaken, though the full extent of this work is difficult to determine. It has, however, been observed that a steady raising of the general level took place, so that the final floor ended by being three feet or so higher than the original one, while at some time or other, low side-walls were inserted between the pillars which divided the nave from the aisles. The last recog-

* 'London's Unique Mithras Temple', by W. F. Grimes, published in *The Illustrated London News* for 9th October, 1954. Other references in this journal (as captions to illustrations) will be found in its issues dated 25th September, and 2nd and 16th October.

nisable alteration, according to Grimes, was carried out in the 4th century, when a stone block was inserted in the floor to serve as a base for a new altar. Here, there was found a bronze coin (minted locally) belonging to the reign of Constantine the Great (A.D. 307-337).

Other items recovered from the site include a marble head, first stated to be that of a youth, and subsequently regarded as representative of the goddess Athene; the lower part of a scene depicting an attendant bearing a torch, inclined downwards; rather more than half of a circular plaque, showing horsemen and dogs in relief; part of a large stone washing bowl; the torso of an unidentified male figure; a sculptured head of Serapis, bearded god of the underworld, complete with headborne *modius*; the statue of a small reclining figure, identified as Hermes; a sandstone bowl; and a small Dionysus group, comprising the god himself, Silenus mounted on a donkey, a satyr, and a maenad with a leopard at her feet.

The finding of this oddly-assorted collection of divinities in the vicinity of a Mithraic temple has been explained by the supposition that the premises, towards the end, became a place of refuge for the gods of old, before they were at last submerged beneath the rising tide of an ever-encroaching monotheism.

II

Happening upon the crumbling remains of a temple at an old occupation level, even in the City of London, is not, perhaps, an event which need occasion undue surprise. But the accidental finding, also in metropolitan surroundings, of a complete edifice which had contrived to remain hidden in its entirety for upwards of 2,000 years, is an occurrence considerably more unusual.

The discovery was made in Rome, in the immediate vicinity of Porta Maggiore, in 1917. In that year,* a section of the railway embankment, carrying the main line to Naples, showed

* According to Jolliffe and Strong in an account entitled 'The Stuccoes of the Underground Basilica near the Porta Maggiore' published in the *Journal of Hellenic Studies*, Vol. XXIV, 1924. But S. B. Platner, in his well known *A Topographical Dictionary of Ancient Rome*, gives 1915 as the date of the discovery.

signs of an inexplicable subsidence, and investigation revealed the hitherto unsuspected existence of a narrow circular shaft, evidently an ancient light well, which gave access to a gently sloping corridor. This passage led downwards to a large underground hall, some 40 feet long by about 30 feet wide, which the investigators found to be more than half full of earth.

Removal of the debris disclosed a central nave, terminating in a square *atrium* (entrance hall) at one end, and a semi-circular apse at the other. Aisles on either side were formed by a double row of three rectangular piers, which supported a barrel-shaped roof. Excavation of the exit passage was discontinued because of a threatened collapse of the roof, and in due course, an entirely new approach was made, running at right-angles to the old, and joining it at the entrance hall.

The building proved to be situated no less than 50 feet below ground, and examination revealed that it owed its subterranean position, not to accident, but to design—a circumstance which at once explained how it had continued to remain hidden down through the centuries. The place was, in fact, a true hypogeum, and it appeared to have been constructed by the novel procedure of first digging out deep trenches in the soil. The top of the rectangular island of earth so formed was then fashioned to the shape of the roof-to-be, the whole forming the core of a huge mould into which selce (concrete) was poured. When this had set, the inside filling of earth was dug out, a floor was laid down (consisting of a fine mosaic pavement showing black lines on a white ground), and the walls and roof were smoothed and covered with a series of exquisite stucco designs.

The style of the decorations enabled the building to be dated about the middle of the 1st century A.D., though thanks to an absence of objects of any kind, and a complete lack of inscriptions, there has been much speculation concerning the purpose it served—the Italian scholar Bendinelli even argued that it had been a tomb. But the basilican plan of the structure, and the nature of its decorations (of which there are more than 100, depicting such scenes from Greek mythology as the liberation of Hesione by Hercules and Jason stealing the Golden Fleece),

not to mention the existence of sacrificial pits in the apse (buried near which were found the bones of animals, identified as those of a dog and a pig), combine to suggest that the building was used as a meeting place for members of some mystery cult. It has been suggested that the sect was of a Neo-Pythagorean character, its retreat hidden underground so as to endow it with the attributes of the Platonic Cave, and F. Fornari associates the establishment with the consul Statilius Taurus, who owned estates in the neighbourhood, and who is known to have faced a trumped-up charge of practising magical superstitions.

III

Given the necessary combination of crepuscular circumstances, the existence and whereabouts, not merely of a single building, but of an entire citadel, can come to be forgotten, as happened in the case of Petra, the fabulous mountain stronghold of the Nabatæans.* In 400 B.C. or thereabouts, this Arab clan of desert nomads wandered into and took possession of the land of the Edomites. And because their newly acquired territory lay astride an important caravan route leading from Saba (Sheba) in Southern Arabia to Egypt, Syria, and Mesopotamia, it became possible for the interlopers to levy toll on much of the trade passing between east and west. At first, however, their activities appear to have been indistinguishable from highway robbery, an undertaking which they pursued with such diligence that its very success threatened the enterprise with extinction. This lesson having been learned, a change of tactics led to the establishment of a system of protection, exercised, rumour had it, from an impregnable fortress located in the

* An early reference to the Nabatæans is contained in a cylinder-inscription of Ashur-bani-pal, the Assyrian monarch. About the middle of the 7th century B.C., the king's half-brother, vassal ruler of Babylon, plotted a widespread revolt—in the event, an abortive uprising which led to his death. And among his insurgent friends and allies (who were likewise routed by Assyrian arms) were certain Arab tribes, including the Nabatæans. The triumphant Ashur-bani-pal duly records the punishment which he meted out to the captured leaders of these misguided rebels, whom he treated, literally, like dogs. Two of them (one accompanied by his unfortunate wife) were chained up as though they were animals, and housed permanently in kennels placed beside the door of the conqueror's palace.

middle of a desert wilderness, a stronghold approached only by way of a narrow and easily defended defile which cleft a chain of mountains in two, and gave access to a collection of wondrous abodes carved out of solid rock. But although these tales persisted and grew, until they circulated from the Red Sea coast to the shores of the Mediterranean and beyond, few outsiders saw the place and lived to tell of it, and the stories of its many wonders were accompanied by sinister whispers concerning the fate of those who essayed to investigate its hidden mysteries.

There was an attempt on the part of the Macedonian Greeks to intervene, but the attacks mounted by Antigonos I in 312 B.C. were beaten off, and the Nabatæans not only maintained their independence, but actually extended their influence until, some three centuries later, it reached as far afield as Damascus. Even so, it had by this time been considered expedient to come to an understanding with Rome, and in 24 B.C. assistance was given to Ælius Gallus in his ill-fated attempt to disrupt the trading monopoly of the South Arabians—though Strabo, who accompanied the invading column, blamed its many misfortunes on the perfidy of Syllæus, its Nabatæan guide. Perhaps with the memory of this alleged treachery in mind, the expansionist Trajan, more than a century later, decided to end the alliance, and after severe fighting, Petra itself was occupied in A.D. 106, whereupon the desert fortress became the capital of the Roman province of Arabia Petræa.

Thereafter, with the opening up of alternative trading routes, the importance of Petra gradually declined, and it appears to have ended its days as an abode of hermits. At all events, isolated as it was in the midst of a desert wilderness, it in time became an almost legendary city which disappeared from history for some hundreds of years. Its memory, however, was preserved in the writings of Eratosthenes, Pliny, Eusebius, and others, and these chroniclers, not content with describing its wonders, also gave details of its supposed location. A judicious piecing together of their accounts suggested that the lost city lay somewhere along a line drawn from Babylon to the head of the Arabian Gulf (Suez), within measurable distance of Jericho.

And for good measure, Eusebius provided the added information that the tomb of Aaron was to be found in its vicinity.

Thus it came about that early in the 19th century, John Lewis Burckhardt, a Swiss engaged in traversing and exploring the ancient land of Edom, *en route* for Egypt, professed, as a devout follower of Allah, to have made a vow to sacrifice a goat in honour of Haroun (Aaron), and by this subterfuge prevailed upon his reluctant guide to conduct him to the alleged tomb of the revered patriarch. The ruse succeeded, and from a place called Refaya, he was led towards a range of mountains, and ultimately found himself approaching a seemingly impassable precipice, the sheer face of which rose to a height of eighty feet or more. But on reaching the foot of this formidable barrier, Burckhardt perceived that a stream ran into the wall of rock by way of a narrow creek, which split the mountain asunder.

By following the course of this stream, known as the Wadi Musa (a name bestowed upon it in the pious belief that it owed its origin to the rod of Moses), the two travellers entered the long and narrow gorge of El Syk. Some fifty paces from the entrance, high up the walls, a bridge with a single arch spanned the chasm, and this structure, the Arab declared, was obviously the work of some evil genii, for no one had ever succeeded in climbing up to it.* From this point on, the cleft was often wider at the base than it was at the top, and bulges in its sides cut off the sight of the sky overhead. And all the while, as it wound its way into the mountain, the passage grew narrower and sank deeper, until its calcareous walls towered for hundreds of feet above the river bed.

It was after this devious course had been followed for a mile or more that it suddenly debouched into a wider, sun-lit cleft running at right-angles, where there burst into view the rose-tinted facade of an ancient temple, carved out of the solid rock. Its topmost point (an urn) was some sixty-five feet above ground level, and its coloration was explained by the fact that the original limestone had given way to red sandstone. The

* Nor ever will. E. Hornby, who followed in Burckhardt's wake nearly a century later, searched in vain for this famous landmark, only to learn from her guide that it had been destroyed by an earthquake a few years earlier.

premises, fronted by a colonnade, consisted of a central chamber, sixteen paces square, on three sides of which smaller compartments had been cut. The place, Burckhardt learned, rejoiced in the fanciful name of Pharaoh's Castle.

Further on, the defile at first narrowed again, in which constricted section rock-hewn sepulchres were to be seen on either side, and then opened up into a comparatively spacious valley—and what remained of the long-lost city was revealed to appreciative eyes at last. Piercing the mountainous walls of the hidden dale were tier upon tier of dark openings, to be numbered in their hundreds, while the restricted floor area beneath was littered with masses of hewn stone and fragments of columns. What had been a large reservoir told of precautions aimed at conserving supplies of water for use during the summer months, and the remains of an open-air theatre, with row upon row of carved sandstone seats, had once provided accommodation for an audience of 3,000 or more.

The free-standing ruins have since been identified as of Roman handiwork, while many of the much earlier cave dwellings appear originally to have been tombs, though the more imposing of them, with their elaborately carved facades, perhaps served as temples. The excavatory work, as an unfinished example shows, was carried out in Egyptian fashion, from the top down. But what inspired it, and at whose bidding it was undertaken, no one can say.

IV

That knowledge of the whereabouts of an isolated desert stronghold, once it had been deprived of its usefulness by the march of world events, should gradually fade from human memory, is understandable enough. But that there should come to be forgotten the existence of a once-thriving town of some 20,000 people, whose houses and shops, gardens and swimming pools, theatres and temples, covered an area of 160 acres, located in the midst of a populous region of a highly civilised country—that a community such as this should sink into oblivion is less readily explicable. Yet it happened, and this despite the fact that nine tenths of the inhabitants managed to

escape the disaster which overwhelmed their homes, and so lived to tell and re-tell of the scenes of terror and horror which accompanied the overnight destruction.

Pompeii was originally one of a number of settlements established by Greek traders along the west coast of Italy, during and after the 9th century B.C. With the ending of the Samnite wars (343-290 B.C.), the district became a dependency of Rome, and as such it continued to prosper and expand until A.D. 63, in which year a violent earthquake brought down many of its finest buildings. Tremors of a lesser nature were common enough in the area, and the disaster was not associated with any impending awakening of Vesuvius, which was believed to be extinct. At all events, an intensive programme of reconstruction was begun, and by A.D. 79, much of the damage had been repaired, at which juncture more earth tremblings, this time of moderate force, culminated in an eruption of the utmost violence. There then began to rain down on Pompeii (and also on nearby Herculaneum) showers of pumice fragments, which continued to pile up until a depth of 10 feet was reached, whereafter a fall of fine ash added another 6 or 7 feet. Clouds of poisonous vapours were also released, the inhalation of which no doubt resulted in the death of not a few of the 2,000 victims.

When all was over, and the survivors were able to return to the scene, only the roofs of some of the taller buildings remained visible. Guided by these landmarks, many personal possessions were recovered by their owners, but proposals to restore the town were abandoned when the immensity of the task was fully realised. And although details of the catastrophe were recorded by such contemporary writers as Statius, Martial, and the eye-witness Pliny the Younger, less than two centuries afterwards it had already acquired a legendary character (Dio Cassius writes of attendant giants hovering in mid-air!), and by the Middle Ages, both the place and the event were forgotten.

The return to public notice was by a process as casual as it was leisurely. At the end of the 16th century, during the construction of an aqueduct in the vicinity, two inscriptions were

discovered. But no particular significance was attached to the find, and further action was not taken. Seemingly, however, some recollection of Herculaneum still lingered, and a century or so later, much shaft sinking and tunnelling was undertaken there, and considerable plundering done. It was while this lucrative business was in progress that further accidental finds were made at the site of Pompeii, as a result of which selected areas were excavated, searched for valuables, and then filled in again. In 1763, fifteen years after the start of these activities, an inscription of the tribune Suedius Clemens (who had been sent to Pompeii by the Emperor Vespasian to enquire into the matter of certain land encroachments) revealed the identity of the town, since when the task of clearing it has gone on without serious interruption down to the present time.

The early work was unsystematic, its primary purpose no more than the acquisition of museum specimens. Improved methods were subsequently introduced by Guiseppe Fiorelli, and later still, in 1911, the so-called New Excavations inaugurated a policy which aimed not only at excavation, but also at restoration. Although this has entailed the protection of exhibits from both pilferers and the weather, the results have amply justified the additional trouble and expense involved, as a comparison at once shows.

As is now evident, the town area was bisected into nine regions by four main highways which led to eight gates in the encircling walls, the seventh of which entrances was located by Amedeo Maiuri as recently as 1954. To date, about two-thirds of the enclosed area have been cleared, but even when this task has been completed, much will remain to be done outside the city walls, where other dwellings and many tombs, indeed entire cemeteries, are known to exist.

From an archaeological viewpoint, the fate of Pompeii could hardly have been more satisfactorily contrived. Here is to be found an entire city, its everyday activities suddenly halted by a freak disaster which simultaneously brought about its destruction and its preservation, thereby affording a unique glimpse of its inhabitants and their surroundings—the inns, the taverns, and the wine shops; the high kerbs of the paved streets; the

records of the money-lending transactions of the banker Lucius Cæcilius Jucundus; the three archways of the *Porta Saliniensis*; the municipal baths, and the water-heating system; the inn sign, depicting an elephant in charge of a dwarf; the hundreds of election notices, appealing for votes; the ruts in the roads made by cartwheels; the house with the surgical instruments in it; the mosaic of a cat, in the act of seizing a bird; the residence which faces four streets; the bakeries, with their batches of carbonised bread; the drink labelled 'Frenzy'; the gambling dens, and the houses of ill fame; 'Sodoma Gomora', scribbled on a wall; the stricken priest of Isis, surrounded by the temple treasurers he had tried to save; the twenty citizens who perished together in a cellar; the remains of a dog, frantically straining at its leash; the man who vainly sought refuge in a tree; the imprint of the last convulsions of another victim on the threshold of his house. . . .



PART FOUR

*Ancients
of
the
Americas*





I

Prelude to Machu Picchu

I

INASMUCH as the Incas, properly so-called, date no further back than the beginning of the 12th century A.D., it may be safely concluded that many of the essentials of the remarkable civilisation which is associated with their name were established long before the appearance of the royal title-holders themselves. To ancestral activities, that is to say, must go much of the credit for such achievements as the cultivation of maize and the development of the white potato; for the domestication of the guanaco, and the subsequent breeding therefrom of varieties so widely dissimilar as the alpaca for its wool, and the llama as a beast of burden; and for the introduction of that intensive agricultural system which entailed vast irrigation schemes, an unprecedented terracing of precipitous mountain slopes, not to mention the use of guano as a fertilising agent.

The existence has been recognised of two distinct early Andean cultures, the one highland and the other coastal, the coalescence (*c.* A.D. 500) and subsequent decline (*c.* A.D. 900) of which preceded the emergence (*c.* A.D. 1300) of the empire of the Incas. About 2,000 years ago, after an archaic and migratory period common to both areas, there was evolved along the shores of the Pacific Ocean, by the Nazcas in the south, and by the Chimus in the north, an adobe architecture which was accompanied by noteworthy attainments in farming, textiles, and ceramics. The highland culture, on the other hand, was characterised (particularly in its later stages) by the use of building blocks of such outsize dimensions that the manner of their quarrying, transportation, and erection remains a matter of wonderment and conjecture to this day—there are stones in the northern (as opposed to the southern) walls of the

Fortress of Sacsahuaman which have been estimated to weigh 150 tons or more apiece!

To this megalithic development, the term Tiahuanco has been given, after a crumbling site of that name situated nearly 13,000 feet above sea level in the region of Lake Titacaca. And the indications are that it was from the vicinity of these still impressive ruins, with their massive foundations, their giant stairways, and their ornately carved monolithic gateways, that the immediate forebears of the Incas came.

There is a tradition that the first Inca was Manco Capac, and that he founded the city of Cuzco in the valley of that name, after journeying thither in the company of three brothers, establishing on the way the dynastic principle that the Inca's Coya (queen) should be the Inca's eldest sister, though an unlimited number of concubines was also to be allowed. At all events (so the legend goes), one of Manco Capac's sisters bore him a son, Sinchi Roca. And he, unlike his reputed parents, may be regarded as an historic figure.

At the beginning of the 12th century, the Inca Roca, duly wedded to his sister Mama Cura, appears as the undisputed ruler of a tribe of Quichua Indians occupying the Cuzco valley, a dominion which was gradually extended southwards. There was thus initiated a policy of conquest and assimilation which was continued by his successors. His grandson, Mayta Capac (c. 1195-1230) inherited a kingdom which had grown to some 15,000 square miles in extent, while the Inca Pachacutec, by the time he attained the throne two centuries or so later, found himself the absolute ruler of an area more than ten times as large again—a process of expansion which steadily continued until there was absorbed virtually the whole of Peru, much of Ecuador, and a considerable part of Chile, Bolivia, and Argentina. Ultimately, under Huayna Capac, the Inca held sway over a territory occupied by more than 10,000,000 subject people!

II

The rule of the conquerors was authoritarian, but by no means unjust. Although the worship of the sun (and hence of the semi-divine Inca as a supposed descendant thereof) was im-



PLATE 16. Rock carving at Petra. The history of the monument is unknown, but its modern name of Ed Der (The Monastery) suggests that it was at one time used by Christians. Photo: *Richard Buckle.*

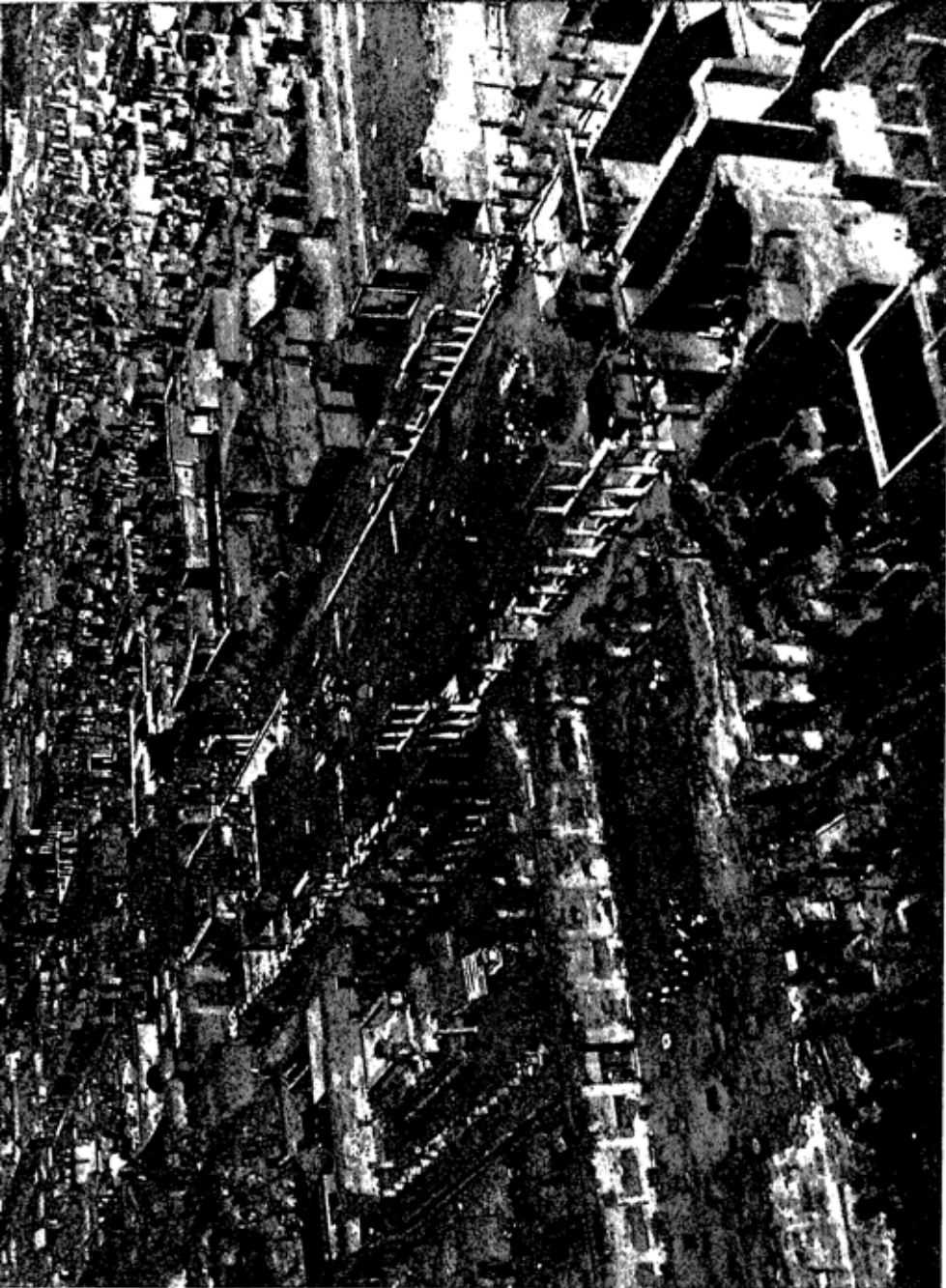


PLATE 17. Pompeii —
a general view of the
excavations. Photo: *Ente
Provinciale per il
Turismo, Napoli.*

posed upon all, and the use of the Quichua language was likewise obligatory,* great tolerance was nevertheless shown towards local gods, chiefs, dialects, and customs, while under the benevolent despotism which everywhere prevailed, no one was allowed to go without food, clothing, or shelter. And if, through maladministration, members of a village community were forced, say, to raid a government food store in order to avoid starvation, it was upon the incompetent official concerned that the wrath of the law descended, not the victims of his disinterest or neglect. This, however, is not to suggest that robbery was in any way condoned, still less encouraged. On the contrary, the punishment for theft was both salutary and severe, and after a third conviction, the supreme penalty was invoked. Persistent offenders were thus not permitted to persist for long, and petty larceny was virtually unknown. The owner of a hut proclaimed that he was not at home by placing a so-called taboo stick across the open doorway, and went about his business secure in the knowledge that no one would presume to enter his abode in his absence. When the Spaniards arrived on the scene, and made the customary arrangements for bolting and barring the massive doors of their own buildings, they earned the contempt of the Indians, who at once understood that they acted thus because there were thieves among them.

In the case of minor infringements of the law, the transgressor might fare no worse than to suffer the inconvenience of having to carry a heavy stone on his back for a while, but crimes such as murder, sacrilege, and treason were punishable by death. W. H. Prescott records that for the express benefit of traitors and others who incurred the Inca's particular displeasure, an underground dungeon was constructed in the vicinity of Cuzco. The place is described as reminiscent of the Cretan labyrinth, for it comprised a maze of blind alleys and tortuous passages, the floors of which were liberally strewn with sharp flints. And further to add to the discomforts of the condemned, a horde of wild and hungry carnivores—pumas,

* A number of words of this agglutinative tongue have even found their way into the English language, *e.g.*, cocoa, condor, guano, puma, quinine.

jaguars, bears, and other such Minotaurs in miniature (not to mention an assortment of poisonous snakes)—were also in occupation.

In the national interest, marriage was compulsory, and all hardened bachelors were provided with a wife as soon as they reached the age of twenty-five, at the equivalent of gun-point, if need be. Similarly, potential old maids were forcibly deprived of their spinsterhood if they remained unclaimed at the age of twenty. But while the conventional carnalities were thus encouraged, monogamy was widely practised, though polygamy was not denied to those who could afford it.

As to this, the luxuries of life, then as now, were reserved for a privileged minority. Foremost among the elect, of course, was the Inca himself, one of whose prerogatives was the right to choose for his seraglio an unlimited number of the most fetching damsels in the land. To assist the process of selection, special sanctuaries were established at various points, wherein the *Acllacuna* (Chosen Women) dwelt. These so-called Virgins of the Sun, garnered at a tender age, grew up under the care of elderly matrons, and on reaching their sixteenth birthday, the more desirable of them either became the personal possession of the Inca, or were presented by him, as a mark of special favour, to some important official or other. In time, the inmates of these nuptial nunneries reached such astronomical numbers that a periodic weeding out became necessary. Demireps thus discarded returned in high honour to their families as erstwhile brides, in theory if not always in fact, of the revered Son of the Sun.

The virile Huayna Capac added no less than 700 of these secondary wives to his private collection, and sired offspring in due proportion. As his predecessors in office had also demonstrated a no less enviable masculinity, there existed a multitudinous and closely related Incan nobility, to the members of which the emolumental offices of church and state were automatically awarded. It was thus not without reason that those who by accident of birth had the good fortune to belong to this ruling clique, were at all times concerned about the possibility of revolt, and to make control of the kingdom easier and more

effective, it was divided into four main regions, or *suyu*—Chinchay-suyu (north), Colla-suyu (south), Anti-suyu (east), and Cunti-suyu (west)—each ruled by a viceroy who was directly responsible to the Inca, the supreme lord of the Four Quarters of the World, Tthuantin-suyu.

Cuzco, capital of the empire, was the centre of a network of roads which extended to all four regions. One of the main highways ran for nearly 2,000 miles, first crossing the formidable mountain country which lies between Quito and Cuzco, and then turning southwards in the direction of Chile, here following a lowland coastal route. Along this section, causeways were extensively employed, and where (as happened in places) the way was disputed by long stretches of desert sand, a series of piles driven into the ground guided the traveller safely across intervening wasteland.

As might be expected, it was in the highlands that the greatest demand was made upon constructional enterprise and skill. Precipices which it was impossible to skirt were circumvented with the aid of tunnels, or the height was scaled by means of stairways cut in the solid rock. Deep ravines were crossed at high level along the tops of fillings of masonry, and where otherwise impassable torrents raged, the gulf was spanned by suspension bridges, hung from woven fibre cables, a foot or more thick, whose ends were anchored to stone towers on either bank. Many of these dizzily swaying foot-walks were more than 200 feet long, and all of them sagged alarmingly in the middle under their own weight. Some idea of the difficulties which attended the building of them may be gained from the fact that the recognised penalty for tampering with these vital crossings was death.

The roads, replete with the equivalent of milestones and a regular succession of inns and storehouses, were often paved with heavy stone flags, surfaced on occasion with bituminous cement, and Gutiérrez de Santa Clara, who travelled along some of them not long after the Conquest, reported that they surpassed those built by the Romans. Use of the roads, however, was restricted to the litter-borne Inca, and to those engaged on his official business, and in the absence of wheeled

traffic, steps, tunnels, and bridges were constructed with a view to their being negotiated by men on foot, and by convoys of laden llamas. Throughout the length of the highway, runners were stationed at posts, and by operating a relay service, distances of up to 150 miles a day could be covered. The couriers conveyed minor commodities in addition to verbal and other messages, so that fish fresh from the ocean could be delivered (within two days, according to Cobo) in prime condition to the Inca's inland table.*

There being no system of writing in use, detailed information about crops, taxes, enemy troop movements, and the like was conveyed in codified form by way of the *quipus*, a meaningful arrangement of coloured and knotted cords. Intelligence reports, in this manner speedily transmitted from outlying districts to the central authority, enabled action to be taken to avert a threatened crisis in some remote province, such as the danger of famine or invasion. But in the ultimate analysis, the effectiveness of these elaborate precautions was dependent upon the making of prompt and purposeful decisions by the all-powerful head of state

III

Huayna Capac, the last Inca to reign over an undivided empire before the coming of the Spaniards, was the father of several hundred offspring. The rightful heir to the throne, a son by his sister Mama Rahua Ocllo, was called Tupac Cusi Hualpa, though the boy was better known as Huascar, a Quichua word signifying *cable*, concerning which sobriquet more anon. But there was also another son named Atahualpa, of whom the royal begetter was so inordinately proud that before he died he decreed that the kingdom should be divided (unequally, it is true) between the two half-brothers. The unwisdom of this dangerous precedent quickly made itself evident, for within five years of the fond parent's decease, there was an outbreak of civil war, and in the ensuing struggle for power, Huascar

* At the time of this writing, members of 'The Inca Highway Expedition', led by Victor W. von Hagen, are engaged in locating and studying as much as possible of the ancient roads.

was defeated in battle and afterwards taken prisoner by his more ambitious opponent.

It was at this juncture that Francisco Pizarro and a handful of Spanish adventurers opportunely made their appearance, intent upon a forceful bartering of the benefits of European theology in return for the less ethereal consolation of American gold. The intruders were, of course, hopelessly outnumbered, and it may be supposed that in the ordinary course of events they would have received short shrift, notwithstanding their steel armour and their guns, and their possession of that frightening and invaluable monster, the horse. Indeed, even with the affairs of the kingdom in the unsettled state in which the invaders had the good fortune to find them, had the Indians at once destroyed their cherished bridges, instead of waiting until it was too late, the invasion might well have been checked at the onset. But as it was, the newly triumphant and over-confident Atahualpa did not deign to dispute the passage of the few bearded strangers, who boldly made their way inland to the city of Caxamalca.

Here, after professions of friendship had been exchanged, a meeting was arranged, and the unsuspecting Son of the Sun, accompanied by large numbers of his attendants and followers, entered the trap which had been prepared for him. On his arrival at the rendezvous, he was approached by Vicente de Valverde, the chaplain of Pizarro's armed band, with a demand that he embrace forthwith the religious beliefs of his visitors, and acknowledge the overlordship of the Emperor Charles V of Spain. Atahualpa's reply to this impudent proposal was as unsatisfactory as it was uncompromising,* and the outraged friar then called upon the waiting Pizarro for immediate action, at the same time promising him absolution for the premeditated slaughter which he and his companions were about to commit.

The precise number of unarmed Indians who perished in the ensuing massacre has been variously estimated at between

* That he was somewhat bemused by the intricacies of Christian theology may be judged from his reported remark, after lending an uncomprehending ear to a laboured translation of the dogma of the Trinity, that apparently the strangers believed in three Gods and in one God, making four Gods in all.

2,000 (admitted by the butchers) and 10,000 (claimed on behalf of the butchered). But the charge, in extenuation, that the Indians themselves contemplated treachery, is best answered by the singular fact that throughout the murderous attack, not a single Spaniard was so much as wounded by them, let alone killed. The only casualty, indeed, was Pizarro himself, who received a cut on the hand—from one of his own men !

Atahualpa, taken alive and held as hostage, was not slow to observe his captors' insane lust for gold, and he hopefully offered to satisfy this craving in return for his freedom. To the at first incredulous Pizarro, he volunteered to fill the room in which he was standing with the prized metal—some 3,366 cubic feet of it. More, a smaller room adjoining would in addition be twice filled with silver—it being understood that the offer referred to ornaments and the like, not ingots.

Thereafter, at the captive Inca's command, a seemingly endless stream of treasure began to pour in from the four quarters of the empire—goblets and urns, vases and images, salvers and plates. So great was the accumulation that the task of melting it down, though it went on day and night, required a month to complete. And the ransom, when it came to be counted, was found to amount to no less than 1,326,539 *pesos de oro* and 51,610 *marcos de plata*—worth in terms of our sadly debased currency of to-day, anything up to £5,000,000 sterling !

But although the Inca thus made good his promise, his unprincipled captors were not disposed to keep theirs. Instead, the luckless prisoner was rewarded by being brought to trial, one of the charges preferred against him being that he possessed a plurality of wives. Of practising this and other customs of his country, he was solemnly found guilty, and condemned to be burnt alive at the stake. Appropriately enough, the judicial proceedings, from the beginning a mockery, ended in a farce. Atahualpa, who throughout his captivity had obstinately resisted the temptation to become a Christian, was at the last moment induced to succumb by the opportunist Valverde, who offered him the boon of death by strangulation, instead of by burning, if only he would lose his mind to the extent of changing his faith. Thus prevailed upon to see the light, the convert

was baptised Juan, and then precipitated into the heaven of his executioners by garrotting.

IV

Fortunately for the hopes and aspirations of present-day archaeologists, there is good reason to suppose that once the full extent of Spanish perfidy became apparent, the Indians began to hide the gold and silver objects which the interlopers so highly prized—though not before Pizarro and some of his followers had descended upon Cuzco and stripped its temples of everything of value they could find. Much additional booty was thus secured, including a valuable hoard of life-size figures and other objects which was discovered in a near-by cavern. But among the many items which the Spaniards failed to locate was an immense golden chain, reputedly nearly half a mile long, with links the thickness of a man's wrist. More than ten tons of gold were used in the making of it, and it was fashioned, so it was said, at the command of the Inca Huayna Capac, in honour of the seventh birthday of his legitimate son and heir, Tupac Cusi Hualpa—hence the name Huascar (cable) which, as noted earlier, was bestowed upon the prince. According to the contemporary historian Augustin de Zarate, who spent many years in Peru, the massive ornament was held in the hands of an assembly of nobles during the performing of a series of national dances in the capital city's great square. Be this as it may, the Spaniards took the reports of this monster chain seriously, and by a judicious torturing of the local inhabitants, elicited the information that it had been cast into the Lake of Urcos for safe keeping. And there, in this event, it presumably remains to this day, for despite attempted salvage operations, it was not recovered.

Of tales about other fabulous treasures which the invaders failed to find, there is no end, and they range from the story of 7,000 llamas bearing more than 200 tons of gold, which auriferous load, too late for Atahualpa's ransom, was concealed in a cave near Piscobamba, to the description of a secret hall located somewhere in the Fortress of Sacsahuaman, to which hidden treasure house the last of the Incas led his blindfolded

wife, that she might gaze upon the accumulated wealth of his ancestors. But all such accounts, it goes without saying, need to be treated with very considerable reserve. On the other hand, there is no denying the amazing richness of the plunder which Pizarro and his fellow-marauders did manage to secure, and there may well be truth in the remark, reported by de Oviedo, which some Indian nobles made to Sebastian de Belalcazar :

'That which the Inca gave the Spaniards was but a kernel of corn, compared with the heap before him.'

Nor was it merely vast hoards of precious metals which escaped detection, their whereabouts forgotten in the centuries which followed. An entire Inca citadel, located no more than fifty miles from Cuzco, remained safely hidden in a mountain fastness until, finally abandoned by its occupants, it was lost to the outside world for hundreds of years. Vague rumours about the existence of a secret Inca stronghold, in the wilderness known as Vilcapampa (bursting, no doubt, with all the gold and other valuables prevented with such success from falling into the hands of the Spaniards) had for long been in circulation. And in 1911, the archæologist Hiram Bingham, accompanied by Harry Ward Foote and William G. Erving, began a determined search for the place.

After investigating many reports about little known or hitherto unexplored Inca ruins, the expedition eventually found itself in the vicinity of the stupendous canyon of the Urubamba River. Here, from time immemorial, progress had been barred to travellers by a raging torrent which swept tempestuously between sheer walls of granite. But in recent years, a way had been opened up by the dynamiting of a road across the vertical face of one of the cliffs. And perched high above the new highway, out of sight and its existence unsuspected, stood the forgotten citadel!

Bingham and his companions camped on a small plain, hemmed in by towering mountains, and they learned from the tenant of the land, a man named Melchor Artega, that the inevitable Inca ruin awaited examination on an adjacent peak. The mountain, it appeared, was called Huayna Picchu, and the

buildings occupied a connecting ridge, known as Machu Picchu.

The next day—24th July—broke cold and wet. Artega at first declined to make the journey on such a morning, protesting that conditions were unsuitable for attempting so steep an ascent. Bingham, however, was impatient to be on his way, and offered so high a reward for their host's services that he found it impossible to maintain his refusal. The other members of the expedition were less enthusiastic, and decided, all things considered, that there were more inviting tasks than the scaling of slippery precipices which demanded their urgent attention—and they thereby missed sharing one of the archæological finds of the century!

Following his reluctant guide, Bingham set off, and an hour and a half later, and some 2,000 feet higher, several Indians were encountered. They cheerfully confessed to being farmers, rejoicing in an isolation which left them undisturbed by government recruiting officers and tax collectors alike. They also admitted to being well acquainted with the ruins—they were, in fact, cultivating some of the terraced gardens associated with them. And while Artega sat down to enjoy a rest and a chat, a lad was delegated to show Bingham the rest of the way.

The first evidence of human handiwork that was encountered was tier upon tier of terraces, soon followed by a glimpse of the walls of ruined buildings. After passing a cave, carefully lined with cut stone (evidently a mausoleum), a great stairway of granite blocks was reached, and this gave access to a maze of narrow streets and cramped buildings, interspersed with more than 100 lesser stairways. The citadel, plainly designed for defence, occupied the restricted area of a narrow saddle which lay between two sharp peaks, while on all sides awesome precipices dropped hundreds of feet to the winding Urubamba valley below. That the place had long been deserted was evident enough, for it was overgrown with shrubs and trees, some of them boasting trunks at least two feet thick.

The discoverer solved the problem of what to call the place by naming the ruins after the narrow ridge of rock upon which they stood—Machu Picchu. And in the course of the next four

years, thanks to the combined interest of Yale University, the National Geographic Society, and the Peruvian Government, extensive clearing operations were undertaken, and a careful examination of the citadel and its immediate surroundings was carried out, in the course of which no less than 12,000 photographs were taken.

An account of this investigation may be found elsewhere,* but it may be stated at once that no fabulous treasure in the shape of stacked gold and silver plate was discovered. The 200 or so rooms of the buildings which occupied the site yielded little except the inevitable sherds—seemingly, when the last of the city's inhabitants left, they took all their belongings with them. A search of the surrounding mountain slopes, however, revealed the existence of a hundred or so burial caves, in which numerous skeletons were found, together with cooking pots and other domestic utensils. In all, the remains of 173 human beings were recovered, 150 of them women, a circumstance which suggests that Machu Picchu was perhaps a last refuge of some fugitive Inca and some of his Chosen Women. What may have been the grave of the person in charge of the seraglio, judging by some of the many items buried with her, was also discovered, as was the fact that the venerable lady in question had suffered during her lifetime from what is regarded to-day as a social disease of a somewhat scandalous nature.

The question of when Machu Picchu was built, and by whom, remains a matter of conjecture, as does the reason for its eventual abandonment. There are legendary tales to the effect that the city was the home of the forbears of the Incas in pre-Cuzco days, and the architecture of the place, a mixture of superb and poor workmanship, is suggestive of changes in ownership. The typical Incan walling, some of which tops the earlier and much superior polygonal stonework of the ancients, has been ascribed, with some probability, to the Inca Pachacutec (c. 1400-1448), who is known to have extended his domain in the direction of the Urubamba valley.

* In Hiram Bingham's *Lost City of the Incas* (Phoenix House Ltd., London, 1951).

II

Introducing the Mayas

I

IN A.D. 1511, some twenty years after Christopher Columbus had reached the New World, a Spanish sailing vessel bound for San Domingo from Darien (in what is now known as the Isthmus of Panama) struck a reef and sank with such rapidity that only one boatload of her crew managed to escape. Thereafter, for nearly two weeks, the survivors drifted towards the unknown coast of Yucatan, blissfully unaware of their impending fate. For on landing, they promptly received a taste of the hospitality reserved for strangers by the local inhabitants, while the Mayas (the local inhabitants in question) had their first taste of Spaniard. The luckless mariners were at once seized and led captive to a nearby city, where they were thrown into a pit. Several of them were then dragged to an elevated temple, and held down over a sacrificial stone while a fearsome priest, his long hair matted with the blood of earlier victims, performed the time-honoured ceremony of tearing out their palpitating hearts. The still warm bodies were then sent rolling down the steep temple steps, to be cooked and eaten by the attendant throng of worshippers below. The natives, in short, were not disposed to be friendly. But despite the great numerical superiority which the various tribes of the Maya collectively enjoyed, they proved no match for the successive waves of well-armed Spanish invaders who later appeared on the scene, and within the space of thirty years, the subjugation of the so-called Indians was virtually complete.

In so far as an appreciation of the ancient Maya civilisation is concerned, the advent of the Spaniards was a disaster. A compulsory conversion to what purported to be Christianity, accompanied by acts of inhumanity which were strangely at

variance with the tenets of the substitute faith, was forced upon the natives, whose own revered gods were banished, and their priests persecuted and suppressed. At the same time, there was begun a systematic destruction of all the Mayan records upon which the newcomers could lay their vandal hands. Thanks to the fanatical bigotry of Diego de Landa, Bishop of Yucatan, irreplaceable documents of historic and scientific import were consigned wholesale to the flames, and so zealously were his orders in this matter carried out that little of worth has survived. Of the original native books, in the guise of illuminated manuscripts on sized agave-fibre paper, the educational institutions of the world contain the only three examples known to exist—the Dresden Codex (preserved in the public library of the city from which it derives its name); the Codex Peresianus (to be found in the *Bibliothèque Nationale*, Paris); and the Troano-Cortesian Codex (the two parts of which are located in different Spanish museums).

These surviving codices appear to deal mainly with astronomical and calendaric questions, and not one of the three, as luck would have it, concerns matters of historic interest, though there is always the possibility that such a work may some day come to light—rumour has it that a complete history of the Mayas, engraved on fifty-two plates of gold, bound together in book form, was hidden from the Spaniards with such success that it awaits discovery still. In the meantime, there exist some of the writings of Spanish-speaking natives, wherein are preserved details of the oral traditions of pre-Conquest days, notably the *Popul-Vox* (Book of the People), and the *Chilam-Balam* (Books of the Tiger Priests), which provide a somewhat confused and not very enlightening account of ancestral activities. And to these sources must be added the descriptions given by contemporary Spanish authors of the manners and customs of the Mayas—though these writings provide a sorry substitute for the records which were destroyed, if only because the civilisation which the invaders beheld had reached its zenith nearly 1,000 years before.

The early Spanish chroniclers, who confined their accounts to such northern cities as Uxmal, Mayapan, and Chichen Itza,

were apparently unaware that in ancient times there had existed a much greater concentration of Maya sites four hundred miles or so to the south, in the densely forested region of what is now Guatemala and its borderlands—Tikal, Uaxactum, Copan, Tulum, Ichpaatun, and the rest. The existence of these long-deserted and jungle-hidden cities, which formed the Old Empire of the Mayas (thus named in order to distinguish it from the so-called New Empire sites in Yucatan) was brought to the notice of the world as a result of the penetrative wanderings of de Waldeck and others, and by the spare time activities of the American diplomat J. L. Stephens, who visited and explored a number of the sites in the company of the British artist Frederick Catherwood. A more scientific approach in the 1880's by A. P. Maudslay not only provided much photographic data, but made available actual casts of inscriptions, and in the years which followed, extensive investigations were carried out by American expeditions under the leadership of W. H. Holmes, S. G. Morley, J. E. Thompson, F. Blom and O. Le Farge, and independently by Thomas Gann, a retired medical practitioner stationed in British Honduras.

The information thus variously acquired from historical and other sources provides an interesting picture of the every-day activities of the Mayas at a time when their civilisation was at its height. Their staple food (as it still is to-day) was maize, usually eaten in the form of griddle cakes, a cereal diet which was supplemented by items such as sweet potatoes, tomatoes, and plums. There was no domestic milk supply, but bees were kept for their honey, and this apiarian product was converted into an intoxicating wine. Turkey and deer provided meat, as did a special breed of dog which, kept in large herds and fattened for the table, was considered a great delicacy. And among other animals, the wild hog and the tapir were assiduously hunted.

Apart from the chase, gambling was a popular pastime, and so was the watching of a ball game, played by teams in walled-in courts. It was the aim of the contestants to drive a hard rubber ball through holes in projecting stone discs, and there appear to have been several variations of the sport. According

to Spanish accounts, the ball was bounced from the hips of the players, the winning team receiving as a reward the clothes of the spectators!

While lesser citizens lived in thatched wooden structures (which have long since disappeared), buildings of importance, such as temples, palaces, and the residences of high officials, were constructed of stone, and occupied elevated positions—almost invariably on the platforms of truncated pyramids. The Mayas, however, did not bond the corners of their buildings, and they had no knowledge of the true arch. Thus their architecture, though impressive enough, nevertheless had its limitations and its faults. In roof construction, recourse was frequently had to the cantilever principle, *i.e.*, an inward overlapping of successive courses, until they met in the middle. This unsatisfactory expedient demanded supporting walls of great thickness, which severely limited the width of span (to less than twenty feet), and confined the structures (with very rare exceptions) to a single storey.

Notwithstanding a report to the contrary made more than a century ago by the veteran traveller A. von Humboldt, it has long been held that the Mayan pyramid merely acted as a solid base for the building erected on its summit, and that it was no part of its function to serve as a tomb. A discovery made recently at the Temple of the Inscriptions at Palenque by Alberto Ruz, of the Mexican National Institute of Anthropology and History, calls for a modification of this view. The temple comprises a sanctuary flanked by a pair of lateral cells, and during an examination of the premises, Ruz noticed that the floor of the central chamber consisted of large stone flags. He observed, moreover, that one of these slabs was bordered round its edges by a double row of holes which had been filled in with stone plugs, and on raising it, a series of steps were revealed, descending into the heart of the pyramid!

The stairway, however, was blocked with a filling of clay and stones, which required many months of work to remove. A flight of 45 steps was thus laid bare, leading to a landing and a further 21 steps, which gave access to a corridor. This passage terminated in a solid obstruction several yards in

thickness, and its demolition disclosed a triangular slab, set vertically so as to block an entrance. At its foot lay the skeletons of six young persons, and beyond was found a spacious crypt, its walls decorated with priestly figures modelled in stucco. Occupying almost the whole of the crypt was a large sarcophagus, the sculptured stone lid of which was with difficulty raised to reveal an admixture of bones and jewels, including a superlative face-mask of jade mosaic, the shell eyes of which boasted irises of obsidian and black pupils!

II

An almost complete absence of metal tools, and the finding of great quantities of greenstone and similar chisels at the various sites, would seem to indicate that the ancient masons and sculptors laboured only with the aid of implements of stone, even though a famous attempt by A. H. Verrill to duplicate the achievement ended in signal failure.* A lack of metals was also evident among Mayan weapons. These included bows and arrows, slings, flint-tipped spears (hurled by means of a special throwing device), and hardwood clubs and swords, set with blades of obsidian. The local equivalent of the hand grenade was the hornet's nest, which living missile was hurled into the ranks of the enemy, no doubt with spectacular effect. For defence against more conventional weapons, round or square shields made from deerskin or other material were carried, and in addition, bodily armour of thick cotton quilting was worn. One or two cities, *e.g.* Tulum, were surrounded by massive stone walls, but such protective works were exceptional.

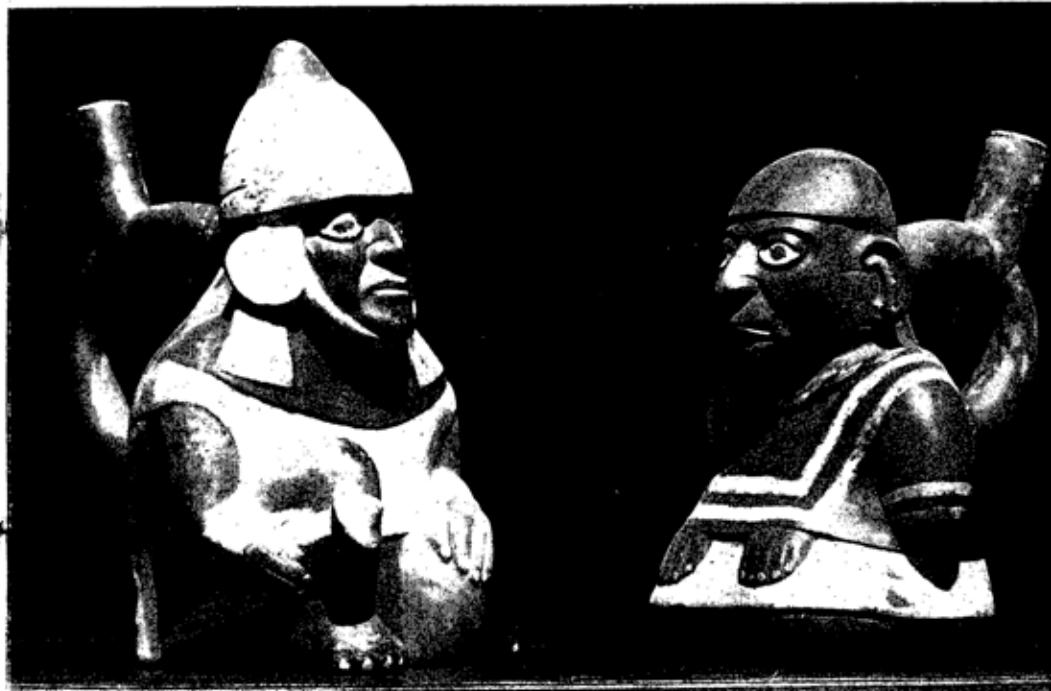
* The attempt is described in his *Old Civilisations of the New World* (The Bobbs-Merrill Company, Indianapolis, 1929). While investigating the ruins of a Coclé temple in the vicinity of Panama, Verrill provided a quartet of his Indian helpers with several hundred stone tools found at the site, and set them to work carving a simple scroll on a section of an already elaborately sculptured column. After a week of intensive effort, all the stone implements were either blunted or broken, and nothing in the way of a recognisable carving had been produced! On the other hand, experiments made at the National Museum in Washington (so Hiram Bingham reports) have demonstrated that perseverance, elbow grease, and fine sand will enable stone tools of various shapes to work miracles in dressing and polishing both granite and andesite.

Another unusual structure of archaeological interest is a great raised stone roadway, which runs across country from Coba in the direction of Chichen Itza. Inasmuch as the Mayas employed no beasts of burden, apparently knew nothing of the wheel, and presumably were unfamiliar with carts and other drawn vehicles, the reason for the building of this paved causeway had been the subject of considerable speculation. There are no swamps in the vicinity (it is limestone country), and perhaps the most likely explanation is that it was intended for use as a processional way to the sacred well at Chichen Itza. This chasm (and others like it) was formed by the collapse of the roof of an underground cavern. It is an oval opening which measures about 150 feet across at its widest point, and its sheer walls descend to a depth of 120 feet. It is half filled with water, the supply being maintained by a subterranean stream, and into this pool it was the custom to hurl offerings of precious stones and other valuables, including (so the Spanish chronicles record) relays of beautiful young virgins. The role of the last-named, at times of acute drought, was to satisfy the carnal appetite of one Chac, a long-nosed rain god. But this romantic story, alas, is reported to have received something of a set-back as a result of extensive dredging operations which were undertaken some years ago. Offerings to the gods were recovered in abundance—ornaments of jade, and copper and gold cups, plates, rings, bracelets, and the like, together with the skeletal remains of scores of human beings. But although nearly all the bones were unquestionably those of females, whose chastity it would be churlish to doubt, most of the beautiful young virgins turned out to have been middle-aged women!

That the high gods of the Mayas were represented terrestrially by a large and influential priesthood, whose members were charged with the responsible and delicate task of interpreting the whims and wishes of their divine overlords, it need hardly be said. And that their intercessory efforts were directed towards the confounding of enemies, the curing of dyspepsia, the promoting of fertility, the making of rain, and other such time-honoured ecclesiastical practices, it goes without saying.



PLATE 18. (a) The Hayden Planetarium replica, executed in mosaic, of the Aztec Calendar Stone. The original has a diameter of twelve feet, and is three feet thick. The inner circle contains the twenty day signs of a calendar which, with its ceremonial and solar years whose dates coincided at intervals of fifty-two years, closely resembled that of the Mayas. Photo: *The American Museum of Natural History, New York.* (b) Chimu portrait jugs. Photo: *The Grace Line.*



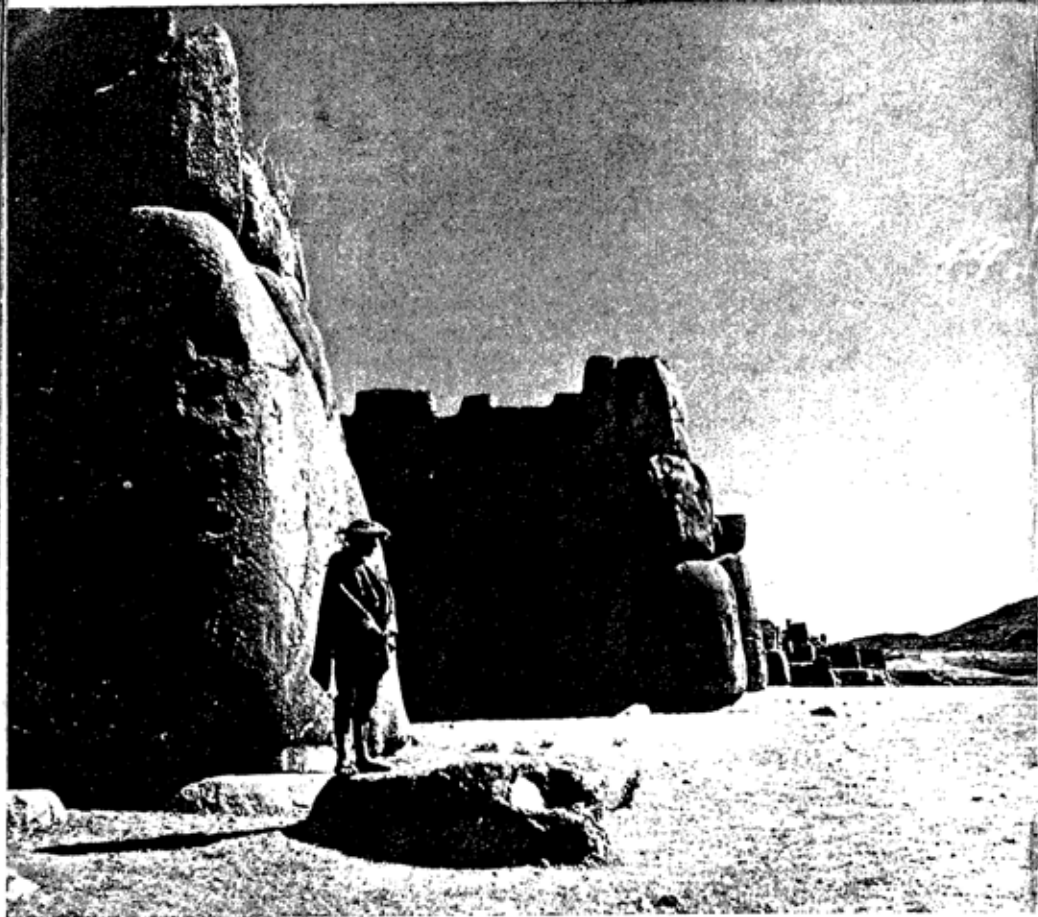
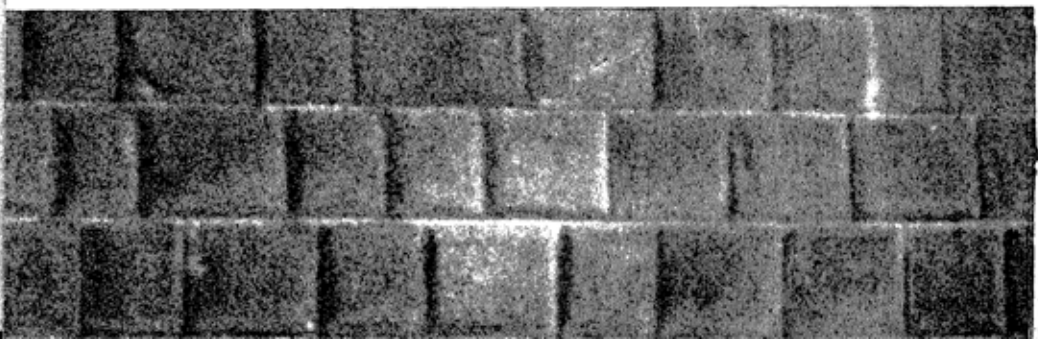


PLATE 19. (a) The megalithic ramparts of the Fortress of Saesahuaman, overlooking Cuzco. (b) A section of an Incan Wall to be seen in Cuzco itself. Photos: *The Grace Line*.



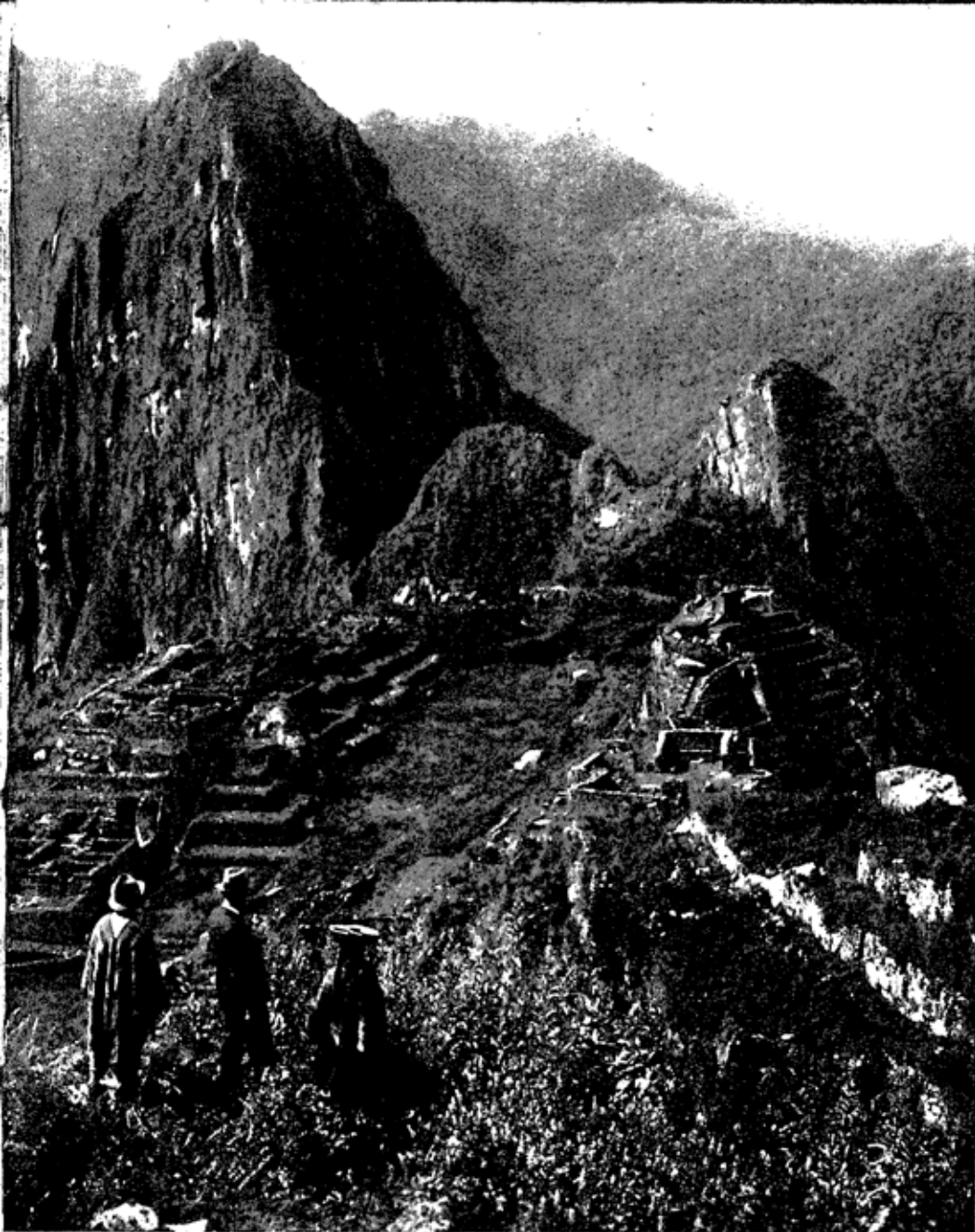


PLATE 20. Machu Picchu, the recently discovered mountain stronghold of the Incas. Photo: *The Grace Line*.

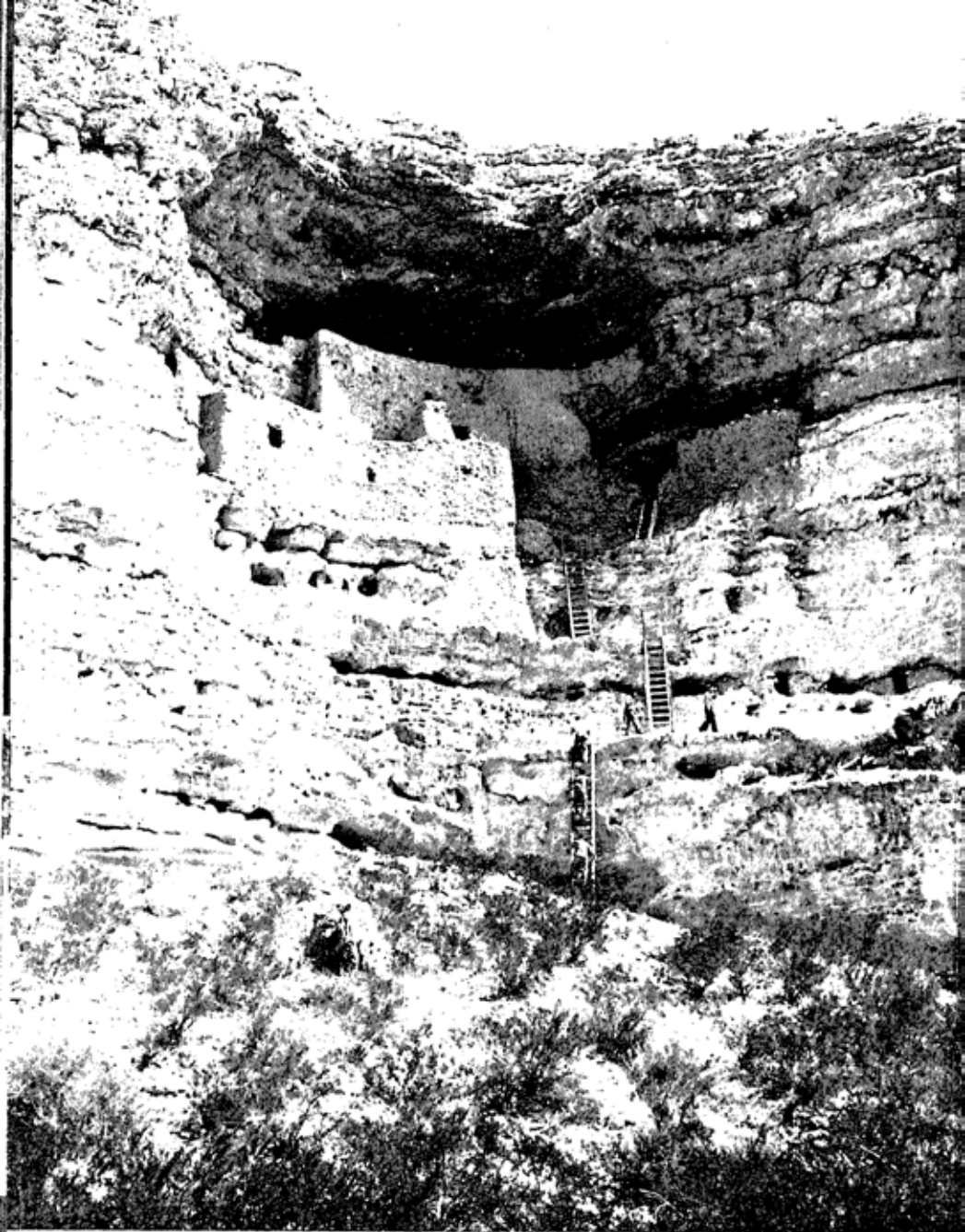


PLATE 21. American Indian cliff dwellings, the so-called Montezuma Castle, located 55 miles from Prescott, Arizona. Photo: *Santa Fe Railway*.

But the priestly energies were not devoted entirely to these routine activities. Down through the years, the result of centuries of painstaking observation and mental effort, there had also been evolved an agricultural calendar of such accuracy that at the time of the arrival of the Spaniards, it was unsurpassed anywhere in the world.

Modern appreciation of the full measure of this achievement goes back to 1863, in which year a forgotten work by Bishop Landa, *Relacion de las Cosas de Yucatan*, written nearly three centuries earlier, unexpectedly came to light. It provided a partial answer to the problem presented by the undecipherable glyphs of the Mayas, all knowledge of which had been lost. Apparently, however, the Bishop had been led to believe that the Maya inscriptions were alphabetic, a mistaken notion which at first merely served to add to the existing confusion. Brasseur de Bourbourg, following this false trail, and aided by an unbridled imagination, reached the remarkable conclusion that the Dresden Codex contained the accounts of a catastrophic inundation of the fabled land of Mu (Mû), *alias* Atlantis! It was subsequently recognised, however, that the glyphs were mainly ideographic, and although it is still possible satisfactorily to identify calendrical signs only, this in effect means not less than half of all the material that is available.

III

The Mayas employed a dual system of reckoning, based on the *Tzolkin*, a sacred interval of 260 days, which ran concurrently with the *Haab*, a secular year of 365 days.* The *Tzolkin* was a combination of 20 days (ranging from Imix to Ahau—*vide infra*) and the numbers 1-13, in which the day 1-Imix was in due course followed by 8-Imix, 2-Imix, 9-Imix, and so on. The essentials of the arrangement will at once be evident from a

* The term *Haab* appears to have been reserved for a 360-day interval to which five intercalary days were added, so as to make up the full year. As for the *Tzolkin* (the *Tonalamatl* of the Aztecs), the authenticity of this designation has been questioned, and it would seem that it may, or may not, have been the name given by the Mayas to their ceremonial year.

consideration of the effect achieved by numbering the seven days of our week from, say, 1-4:

- 1—Sunday
- 2—Monday
- 3—Tuesday
- 4—Wednesday
- 1—Thursday
- 2—Friday
- 3—Saturday
- 4—Sunday
- 1—Monday
- etc.

It will be seen that $4 \times 7 = 28$ days will need to pass before 1-Sunday is repeated, and in the same way, 1-Imix occurred once during the $13 \times 20 = 260$ days of the *Tzolkin*.

The *Haab* comprised 18 periods, named (Yucatecan version) Pop, Uo, Zip, Zotz, Tzec, Xul, Yaxkin, Mol, Chen, Yax, Zac, Ceh, Mac, Mankin, Muan, Pax, Kayab, and Cumhu, each consisting of the aforementioned 20 days. To this total of 360 days (the *Haab* proper), there was added a short nineteenth period called Uayeb, containing 5 unnamed (and hence exceedingly unlucky) days, making 365 days in all.

As all the 18 periods (unlike our 12 months) contained an identical number of days, it followed that throughout any given year, each such period began with the same day name. The terminal Uayeb then absorbed five of the 20 names, which thus fell back this number of places, an ordered retrogression which ensured a return to the original starting name every $20/5 = 4$ years. Moreover, during this 4-year interval, each day name could occupy no more than 4 positions, indicated below. (As the Mayas reckoned only in terms of *elapsed* time, the numbering of the various positions was not from 1-20, but from 0-19):

Day name				Position in 20-day period			
Imix	Cimi	Chuen	Cib	4	9	14	19
Ik	Manik	Eb	Caban	5	10	15	0
Akbal	Lamat	Ben	Eznab	1	6	11	16
Kan	Muluc	Ix	Cauac	2	7	12	17
Chicchan	Oc	Men	Ahau	3	8	13	18

But while the day names thus occupied the same relative positions every 4 years, the thirteen *Tzolkin* numbers associated with them did not. Thirteen divides 365 twenty-eight times, leaving a remainder of one, so that the day number which began a year would also be the day number which ended it. In effect, each succeeding year would begin with a number higher by one than that of its predecessor, a process which would lead back to the starting point every 13 years.

Two distinct cycles were thus involved, which together gave rise to the so-called Calendar Round, an interval of $4 \times 13 = 52$ years during which the same combination of day number, day name, period number, and period name could occur only once. In other words, no less than 18,980 consecutive days were individually distinguishable, one from the other!

IV

But this was by no means all. The Mayas regarded their era as having begun on a certain day, 4 Ahau 8 Cumhu, which supposedly witnessed the re-birth of the world, an imaginary creational event which they back-dated several thousand years. From this arbitrary and prehistoric starting point, there was calculated the number of days which had elapsed to the date of any event of importance which it was desired to commemorate by the erection of a stele. This reckoning, known as the Long Count, was conducted in a (predominantly) vigesimal system of numeration in which the day (Kim) was used in conjunction with a series of less cumbersome units:

Kims	Uinals	Tuns	Katuns	Baktuns	Pictuns
20	1				
360	18	1			
7,200	360	20	1		
144,000	7,200	400	20	1	
2,880,000	144,000	8,000	400	20	1

Just as the position of any particular day in the 52-year Calendar Round was determined by its two numbers and names, so its position in the Long Count was shown by a so-called Initial Series date, such as 9.10.19.13.0.—i.e., 9 Baktuns, 10 Katuns, 19 Tuns, 13 Uinals, 0 Kims, indicating that

1,375,100 days had elapsed since the inaugural 4 Ahau 8 Cumhu. And as a check, the Calendar Round reference was included, thus:

9.10.19.13.0. 3 Ahau 8 Yaxkin.

And as if this were not enough, there was also recorded a lunar time count, an outcome of one of the compensatory devices used to offset the inadequacies of the 365-day year. Although the Mayas do not appear to have made use of fractions, they were evidently aware that the *Haab* was no more than an approximation which tended to gain on the actual year. Moreover, the lunar check (itself subject to slight error) was supplemented by careful observations of the planets. While we have no knowledge of any contrivances which the astronomer-priests may have employed, apart from tower observatories such as the Caracul at Chichen Itza, and while it may be regarded as highly improbable that there was any appreciation of the mechanics of the solar system, the Mayas nevertheless correctly determined the synodic period of Venus to be very nearly 584 days, and were seemingly aware of the fact that this estimation was slightly on the high side.* By the omission of 4 days at the end of every 61 of their so-called Venus-years, and 8 days at the end of 301 such periods, the amount of error was reduced to less than one day in 1,000 years.

Yet despite such convincing evidence of computational skill, not a few mistakes are to be found engraved upon Mayan monuments—minor and quite obvious slips such as incorrect addition, or the wrong numbering of a day. Archæologists are inclined to regard such lapses as the unwitting errors of uncomprehending sculptors, though it has been suggested that occasional errors may have been introduced by the priests deliberately, thereby to avoid that perfection of achievement reserved for the high gods alone.

A comparison of the earliest and latest datings to be found in the Old Empire cities provides interesting information about

* The synodic period (the interval between two successive conjunctions) of Venus actually amounts to some 583.92 days. This, the so-called Venus-year, is not to be confused with the planet's real year, *i.e.*, the time it requires to circle the sun, a matter of 225 terrestrial days.

minimum periods of occupation—at Copan, more than 300 years; at Tikal, some 400 years; and so on. It also reveals a significant absence of datings after 10.3.0.0.0., a dearth which has been interpreted in terms of a mass exodus at about this time from the cities of the Old Empire to those of the New, for reasons unknown, though not unguessed at—the suggestions range from epidemics and military aggression to climatic changes, earthquakes, and soil exhaustion.

The vexed and crucial question of the correlation of the Mayan chronology with that of our own has likewise long been unsettled and in dispute. Although it can be deduced from the inscriptions with the utmost precision that at Uaxactun, for example, Stele 9 was erected, 1,256,675 and Stele 12, 1,461,600 days after 4 Ahau 8 Cumhu, and that some 561 years thus separate the two events which they commemorate, this eminently satisfactory state of affairs does not apply to the all-important introductory date itself. It is by no means certain, indeed, that the ubiquitous 4 Ahau 8 Cumhu which is so consistently obtained by counting back from the dates of the Initial Series, is always the one and the same day, having regard for the fact that the Calendar Round (and hence 4 Ahau 8 Cumhu) repeats itself every 52 years. But that it actually is the same day may be accepted as a not unreasonable assumption. For one thing, a multiplicity of inaugural dates, all bearing the same name, would be as confusing as it would be pointless. And for another, first and final datings found at the various sites are indicative of periods of occupation which, while they vary considerably from one location to another, contain no suggestion of downright improbability, even when coupled with the possibility that prior or subsequent datings may have been destroyed, or still remain undiscovered, or that the first or last inhabitants of this or that place were not disposed to undertake the dating of monuments at all. However this may be, the cessation of monument dating at or about 10.3.0.0.0. coincided with the abandonment of the Long Count, a so-called Katun Count being introduced in its stead. This modification, which among other things dispensed with the Baktun, in effect introduced an extended Calendar Round of some 250 years,

thus adding greatly to the difficulties of establishing a satisfactory chronological link between the Old Empire and the New.

The experts, meanwhile, have differed not a little in their readings of the elusive and arbitrary 4 Ahau 8 Cumhu, their estimations varying by almost 1,000 years, from Lehmann's 2849 B.C. and Thompson and Goodman's 3113 B.C. to Spinden's 3373 B.C. and the 3641 B.C. favoured by Bowditch, Joyce, and Long. This conflict of opinion was eventually reduced to the making of a choice between the intermediate correlations advocated by Spinden on the one hand, and by Thompson and Goodman on the other, and recently the radio-carbon method has been called upon to decide between them. In 1951, a preliminary result, based on a single reading, was published by J. L. Kulp. It concerned a piece of wood taken from a carved lintel at Tikal, bearing the Mayan date 9.15.10.0.0—30th June, A.D. 741, according to Thompson and Goodman, and 30th October, A.D. 481, in the view of Spinden. The carbon atoms gave a date of A.D. 481 \pm 120 years, and two further tests subsequently undertaken by W. F. Libby, also on material from Tikal dated 9.15.10.0.0. gave a similar result. The correctness of the Spinden correlation has thus been confirmed.

III

Bones of Contention

I

A QUESTION which greatly exercised the agile minds of the clerics who followed in the wake of the Spanish conquerors of the New World, was how the peopling of the Americas was to be accounted for within the limits of divine revelation. And as may readily be imagined, some of the fanciful notions which were advanced by the leading theologians of the day now make highly entertaining reading. After an official declaration by Pope Julius II in 1512 that the recent additions to the human race were unquestionably to be regarded as having descended from Adam and Eve, there was much speculation as to whether it was Noah in person, or one of his immediate descendants, who led the original expedition overseas—it being generally agreed that only someone closely associated with the Deluge could possibly have possessed the necessary maritime knowledge and navigational experience.

The hopeful proponents of a rival theory favoured a land route (with good reason, as will be seen), and viewed the Americans as offshoots of the Lost Tribes of Israel, missing since the time of the Babylonian captivity. As late as the 19th century, much time, energy, and money was expended by Lord Kingsborough and others in a determined effort to prove that the ten vanished Hebrew contingents had made their way to the Americas, and had thereafter proceeded to populate the entire continent. The worth of this singular thesis may best be judged, perhaps, from the explanation offered to account for the inconvenient fact that many different tongues were spoken by the peoples of the New World, none of them Hebrew, an explanation which involved the dubiety of Satanic machina-

tions, aimed at hindering a subsequent conversion of the immigrants to the Christian faith!

The investigations of John Ranking, on the other hand, led him to suggest that in all probability the first of the Incas was a son of Kublai Khan,* while the Abbé Brasseur de Bourbourg, as already noted, persuaded himself that the forbears of the Mayas were to be found among Plato's elusive Atlanteans. The redoubtable Augustine le Plongeon, of Chichen Itza fame, so developed this highly colourful theme that he ended (if I have interpreted aright his *Queen Mòo and the Egyptian Sphinx*) by crediting the remote ancestors of the inhabitants of Yucatan with having civilised the ancient world in its entirety, not excluding Mesopotamia and the Nile valley!

From this welter of confused, conflicting, and exceedingly improbable ideas, there has gradually emerged a picture, the background at any rate of which no longer gives rise to serious dispute: that the peoples of the New World emanated from the Old in geologically recent times. There is even a fair measure of agreement concerning the main route that was taken, in that this has been identified as the Bering Strait. Although there is another school of thought which argues in favour of invasion from Polynesia, Melanesia, and elsewhere in Oceania, it now seems reasonably well established that the original excursionists were Siberian Mongoloids (the round-heads), early joined, perhaps, by small numbers of migrant Europeans (the long-heads), who contrived to reach America by way of Greenland. These converging movements of mankind are believed to have begun anything up to 25,000 years ago, and thereafter to have continued as a series of unpremeditated wanderings over an extensive period of time. There is thus envisaged the arrival in America of successive waves of immigrants, whose descendants, in the course of centuries,

* Ranking's findings were embalmed in print in London, in 1827, under a title which almost constitutes a monograph in itself: *Historic Researches on the Conquest of Peru, Mexico, Bogota, Natchez, and Talomeco, in the thirteenth century, by the Moguls, accompanied with elephants, and the local agreement of history and tradition, with the remains of elephants and mastodontes, found in the New World . . .*

gradually made their way in isolated groups to all parts of the continent.*

This view, though now widely adopted, has been accepted with reluctance by some American ethnologists, who do not appear to take kindly to the notion that their homeland was populated, as it were, at second hand. Even in recent years, a forlorn rearguard action has been carried on in support of the idea that the acknowledged experts may, after all, happily be wrong. Thus Hiram Bingham, after conceding as irrefutable the anthropological evidence which links the American so-called Indian with the peoples of North East Asia, goes on to suggest that this no more proves that there was once a migration to America from Asia, that it demonstrates that the present inhabitants of Asia originally came from America!

A. H. Verrill is likewise disposed to argue the point. After noting the circumstance that each hemisphere contains species of plants and animals which are peculiar to it, and other species which are common to them both, he asks whether it is to be supposed that all had the same origin, or whether the unique forms of life are to be regarded as having evolved separately in the seclusion of their present environment? Acceptance of the theory of common origin would necessarily entail recognition of the view that man reached America from other lands. But if the idea of a common origin be rejected, then it can be maintained that *Homo sapiens* may well have developed independently in the New World.

One of the weaknesses of these arguments is that they are not supported by archæological evidence. Such primitive tools and weapons as have been found in the Americas have given no satisfactory testimony of the one-time presence there of Palæolithic man, and the implication thus is that the human species was verging on the Neolithic stage when an appearance in the New World was ultimately made. This is not to say, of course, that at some future date convincing evidence to the contrary may not be forthcoming. But in the meantime, though

* Material regarded as valuable in determining the time of arrival of man at the tip of South America was discovered in the Palliaike Cave, in Chile. Human remains were found in association with burned animal bones, shown by their carbon 14 content to be some 9,000 years old.

the unearthing of such indications has often been claimed in the past, with equal frequency a critical examination has invariably revealed, either that the discoverer had succeeded in deceiving himself, or that he was intent upon deceiving others.

Moreover, and most significantly, no fossil remains of an anthropoidal nature have yet been found in America, and this fact, coupled with the absence there of any of the higher primates, clearly suggests that the evolution of man must have occurred elsewhere. In acknowledging the force of this reasoning, Verrill (writing, it is true, in the Dark and still somewhat anti-Darwinian Age of A.D. 1929) nevertheless seeks a possible way of escape from its implications by pointing out that for those who profess no belief in the theory of organic evolution, man may equally well have been created in one place as in another, or even in a dozen or more favoured localities. But this is surely a despairing clutching at imaginary straws.

II

Although it is now generally agreed that man is not autochthonous in America, over the question of his subsequent development on arrival there, a sharp divergence of opinion has long been evident between those who claim that all native accomplishments were contrived without assistance from the outside world, and those who contend that evidence of foreign influence is clearly to be seen.

There are, of course, numerous legendary tales about epic voyages to the Americas in pre-Columbian times, many of which seem likely enough in the light of the journey of Thor Heyerdahl and his companions from Peru to Polynesia on the balsa raft *Kon-Tiki* in 1947. Undoubtedly there were not a few crossings of both the Pacific and the Atlantic Oceans long before the dawning of the 15th century—on the one hand by representatives of the Chinese, Japanese, and other Asiatic peoples, and on the other, if not (as has been claimed) by the Sumerians and the Carthaginians, then most certainly by such adventurous Norsemen as the descendants of Erik the Red. At all events, when the Spaniards finally arrived upon the scene,

they encountered a persistent and widespread tradition, shared by Aztecs, Mayas, and Incans alike, which told of the advent, long ago, of mysterious white strangers (known also as 'the bearded ones') who came over the water from both east and west, and set about instructing their hosts in agriculture and metallurgy, and some of whom, after they had introduced new forms of religious worship, were themselves deified for their pains.

The Aztec god Quetzalcoatl, the Feathered Serpent (*alias* Kukulcan of the Mayas and Gucumatz of the Quiches) was such a personage. He arrived, it is said, in a ship from the east, and landed on the coast of Mexico. With him, he brought such benefits as the calendar, the art of numeration, and the seeds of democracy. He lived a simple and abstemious life, and spent much of his time doing penance for the sins of others. With his name are associated sundry myths which tell of conflict between him and the representatives of local gods, and it is no doubt significant that in the end, the disturber of vested priestly interests was forced to leave. The accounts of the manner of his going vary, but it seems to be agreed that on the eve of his departure, he predicted the coming of other bearded strangers from across the seas, and was rash enough to promise that one day, he might even return himself. Not without reason, it has been suggested that the subsequent military successes of Pizarro, Cortes, and Company, achieved despite the overwhelming odds against them, were assisted to no small extent by a belief on the part of the natives that the gods had arrived at last, in fulfilment of the ancient prophecies, and that to show them resistance would be as useless as it would be unwise.

That early visitors from the outside world, assuming them to have reached American shores, had any appreciable influence upon native cultures, this suggestion the isolationists strenuously deny — and point, among other things, to the alleged lack of any knowledge of the wheel. Apparent similarities between aspects of Old World civilisations and those of pre-Columbian America, it is insisted, are purely coincidental, no more than proof that given virtually identical sets of conditions, human minds tend to react in a uniform manner. Thus,

in the phraseology of P. A. Means, pits cannot have more than a certain number of shapes, doorways cannot have more than a certain number of forms, and headdresses cannot display more than a certain number of variations, be it in Peru or Egypt, in Mexico or China, in Yucatan or Africa.

To this, the anti-isolationists reply, in effect, that if it were merely a matter of pits, doorways, and headdresses, they might be inclined to concede the point. But, it is claimed, there are so many varied and unmistakable correspondences between American and non-American cultures, that to dismiss them merely as coincidences would be to stretch credulity beyond the bounds of reason. Thus, there is the familiar Egyptian winged disc representation of the sun god, in evidence in many parts of the world, including America; there is the year of 360 days, with its additional five unlucky days, encountered in Asia, in Africa, and in America alike; there is the obvious relationship between the Mexican game of *patoli* and the Indian (Asian) game of *pachisi*; there is the unmistakable resemblance which the Mexican god Tlaloc bears to the Hindu deity Indra; there is the remarkable similarity, amounting to almost complete identity, between the portrayals of the trials and tribulations of the souls of the deceased on their journey to the land of the dead, as depicted on Japanese temple scrolls and in Aztec picture writing;* and there is the matter of American representations of that conspicuous and unmistakable animal, the elephant.

III

The upper section of a Mayan monument known as Stele B, at Copan, is adorned with a pair of carvings which were long ago depicted as a couple of curling trunks, attached to the characteristically flattened heads of two Indian elephants, each com-

* In both versions, the errant soul first encounters a river; after this hazard has been safely crossed, it has to make its way between two mountains, which periodically clash together; there follows the climbing of a mountain, the sides of which are set with a multiplicity of sharp knives; and finally, there has to be faced a strong wind, which causes yet more knives to fly through the air. The Aztec rendering, a faithful interpretation of the Buddhist original, is to be found in the Vatican Codex, and attention was drawn to the resemblance by Professor E. B. Tylor as long ago as 1894.

plete with turbaned attendants, one of them a squatting mahout. The American explorer J. L. Stephens, when he first saw this anomalous ornamentation, was at once moved to describe it as having the appearance of elephants, a view which was subsequently upheld by W. Stempell, who sought innocuously to account for the phenomenon by advancing the ingenious theory that the carvings had been inspired by a sight of the Pleistocene *Elephas columbi*, a prehistoric animal supposedly extinct long before the first representatives of the human race set foot in the New World.* But other Americanists, conscious of the imprudence of such an admission, particularly when coupled with so improbable an explanation, sought to retrieve the situation by professing to see the carvings as snakes, as ant-eaters, as tapirs, as alligators—as almost anything, that is to say, except as elephants.

In November 1915, G. Elliot Smith, in a determined attempt to demonstrate that the early civilisations of the Americas had indeed been inspired by immigrants from overseas, published the first of a series of letters in *Nature*, wherein he raised the question of the Stele B carvings.† His reason for choosing this particular subject was that it seemed to him that it provided a clear-cut issue, in which by no conceivable stretching of the imagination could it be argued that representations of an Indian elephant, accompanied by turbaned attendants, were to be attributed to alleged similarities of the working of the human mind—to be regarded, that is to say, as having been independently evolved by someone who had never seen or heard of an elephant.

Among other points, this opening letter dealt with an objection which had been voiced earlier by A. P. Maudslay (an advocate of the tapir) and E. Seler (who favoured the tortoise),

* There have been recent reports of the finding in Mexico and elsewhere of stone projectile points in intimate contact with the remains of mammoths, estimated to have died 10,000 years ago.

† The correspondence, which appeared under the general heading of 'Pre-Columbian Representations of the Elephant in America' is to be found in the issues of *Nature* for 25th November, 1915 (G. E. Smith), 16th December, 1915 (G. E. Smith), and 27th January, 1916 (A. M. Tozzer, H. J. Spinden, and G. E. Smith).

that in the figures of the supposed elephants, the eye had been mistaken for the nostril, and the auditory passage for the eye, while what purported to be tusks and trunk had also been dealt with in a careless and conventionalised manner. These imperfections, argued Smith, showed by their very existence that the sculptor of the monument had been unfamiliar with the actual animal he had set out to portray, and that he had been forced to rely upon a model or drawing provided by someone else. As for the notion that the elephantoid outlines could have resulted from an attempt to reproduce the animal favoured by Dr. Maudslay, if this were the case, it was surely a most remarkable coincidence that in making such a bad job of depicting a tapir, the sculptor had managed to produce in so unmistakable a fashion the likeness of an Indian elephant! Moreover, if the tapir, an animal still to be found in the neighbourhood (as its advocate had been careful to point out) had served as the model, it still left unexplained, and indeed rendered more inexplicable than before, the sculptor's mistaking of the eye for the nostril, and the auditory meatus for the eye!

G. E. Smith's second letter notes the fact that a number of American ethnologists continue to cling to the suggestion, earlier put forward by Parry (1893), Gordon (1909), Tozzer and Allen (1910), and Spinden (1913), that the Copan reliefs were intended to represent blue macaws. This notion, Smith allowed, ludicrous though it of course was, at any rate had one or two points in its favour, in that it helped to explain the position of the nostril and eye, and accounted, if only vaguely, for the presence and shape of the trunk. That the carvings were, nevertheless, not intended to be macaws, however, was clearly indicated by the fact that there also existed at Copan a realistic portrayal of the bird in question, beside which the Stele B carvings appeared as mere caricatures. In other words, the very excellence of the one representation provided a telling argument against the proposed identification of the other. Again, since when had the macaw become an outsize beast of burden, to be depicted with a miniature driver sitting at its head?

IV

In replies to G. E. Smith's first letter, both A. M. Tozzer and H. J. Spinden reiterated their belief in the blue macaw theory. At the same time, Dr. Tozzer sought to dispose of the alleged elephant pipes of Iowa, which he declared to be fakes intended to deceive unsuspecting archaeologists (such as Professor Smith), and the so-called elephant mound of Wisconsin, which he dismissed as the outline of a bear, or some other local animal, to which a bogus trunk had been added.

Thus baffled by the refusal of his opponents to admit the existence of elephantine representations in the Americas, G. E. Smith replied with a scathing reference to an ethnological 'Monroe Doctrine' which demanded that 'everything American belongs to America, and must have been wholly invented there', and concluded with a devastating attack upon an earlier declaration, made by Dr. Spinden in a monograph on Maya Art, that 'he did not care to dignify by refutation the numerous empty theories of ethnic connections between Central America and the Old World'. This betrayed an attitude of mind, Smith declared, 'not of the scientific investigator, but of the medieval theologian appealing to the emotions in defence of some dogma which is indefensible by reason'.

So matters rested until 1924, when Smith published a detailed re-examination of the whole vexed question. But these arguments, it has since transpired, at least in so far as they concern Stele B, can no longer be upheld. Apparently their author placed undue reliance upon the accuracy of a drawing which, though it clearly and unmistakably depicts the head of an Indian elephant, in fact owes overmuch to the imagination of the artist. At all events, the unemotional eye of the camera has suggested the substitution of a toucan accompanied by demons for the supposed elephant and its turbaned attendants!

It was also in 1924, however, that A. H. Verrill, while investigating the ruins of a temple in Panama, unearthed another portrayal of a pachyderm. This, a carving atop a stone column, was so strikingly elephantine in appearance that it was not to be explained away by any suggestion that it was intended to be a representation of some other animal. As a photograph

of it which he published clearly shows, in addition to possessing what was unquestionably a trunk, the figure exhibited the large ears and forward-bending knees which are peculiar to elephants, and the creature, moreover, had a load or burden strapped upon its back. The conclusion, in fact, was inescapable, and despite the opprobrium which such an expression of heresy in an American was at that time bound to entail, Verrill, greatly to his credit, did not hesitate to state it in the plainest of terms in his *Old Civilisations of the New World*:

'To my mind there is no doubt that the people who built this temple, and reached such heights of culture in Panama in prehistoric times, had either seen elephants, had domesticated some species of mastodon, or were in direct and frequent communication with the Orient, and had heard descriptions of elephants from visitors from Asia.'

And as if this were not enough, he also made mention of finding huge stone wheels buried beneath the pre-Inca ruins of Tiahuanco!

In a more recent work,* the still unrepentant Verrill remarks upon the ridicule which his earlier pronouncements earned for him, notes that it is at last becoming fashionable to admit that the wheel was known in pre-Columbian America (with the proviso that little or no use appears to have been made of it), and claims that in the past there has been a conspiracy of silence among North American scientists over the fact that numerous specimens of wheeled toys of ancient Mexican origin have for long been on view in the *Museo Nacional*. This discreet silence, he suggests, was presumably maintained by the die-hards in order to support their obstinate denial of any Old-World contacts, a view no longer tenable, and one which has now been openly discarded by converts such as Dr. G. F. Ekholm, Associate Curator of Archaeology at the American Museum of Natural History.

On the other hand, in the recent words of the late G. C.

* *America's Ancient Civilisations*, with R. Verrill (G. P. Putnam's Sons, New York, 1953).



PLATE 22. (a) Ruins of an Indian Pueblo in Choco Canyon, New Mexico. Photo: *Santa Fe Railway*. (b) El Caracol, at Chichen Itza, believed to have been used by the Mayas as an observatory. Photo: *Pan American World Airways System*.





PLATE 23. El Castillo, the Mayan pyramid at Chichen Itza. The structure, surmounted by a temple, is 90 feet high, and is built on top of an earlier pyramid. Photo: *Pan American World Airways System.*

Vaillant, erstwhile Director of the University Museum, at the University of Pennsylvania:

'The existing evidence gives no valid reason for assuming any source for the high civilisation of Middle America except the inventiveness of the local population.'*

The debate, in short, continues

* *Aztecs of Mexico* (Doubleday and Co. Inc., Garden City, New York, 1953).

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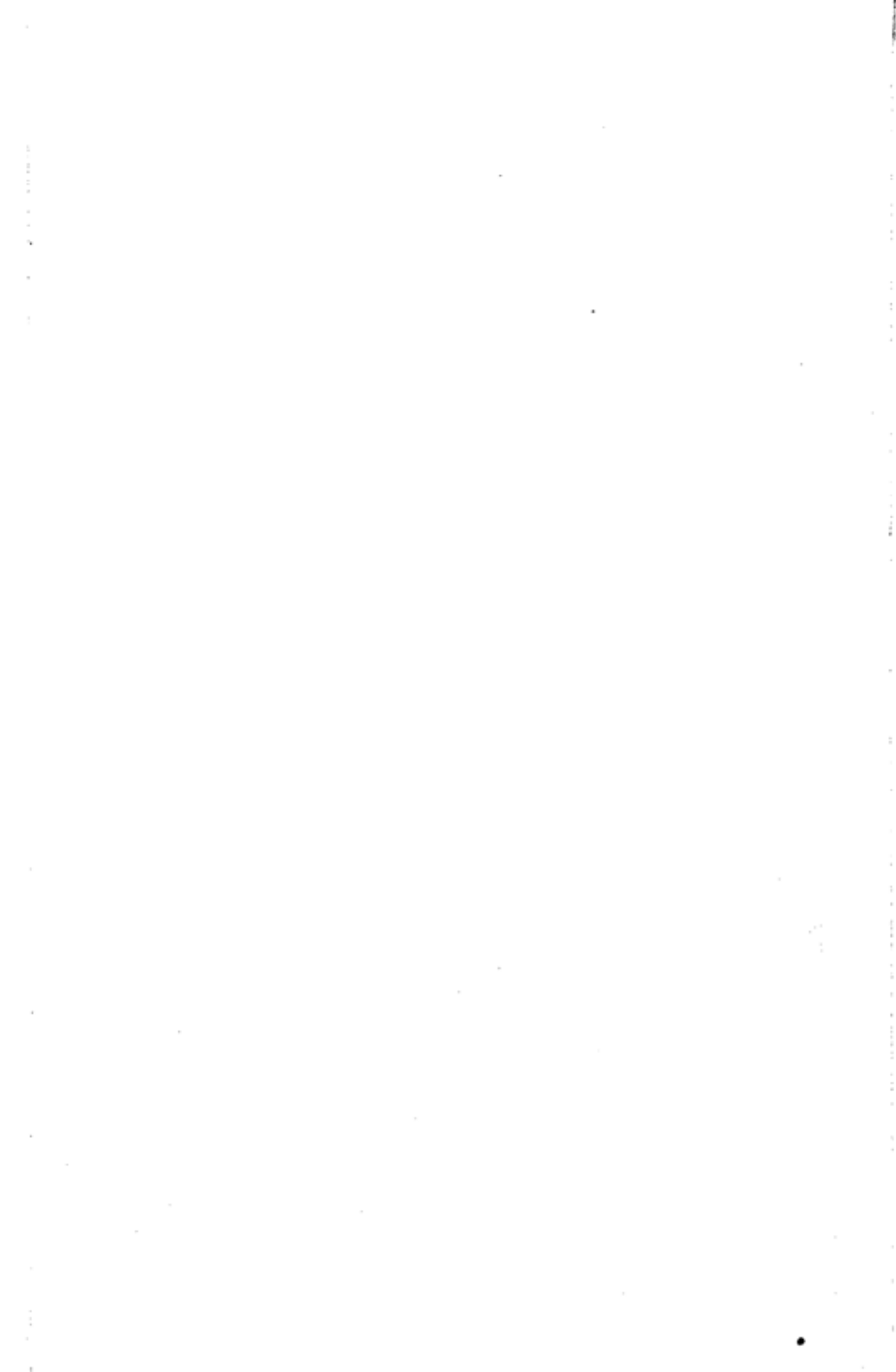
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