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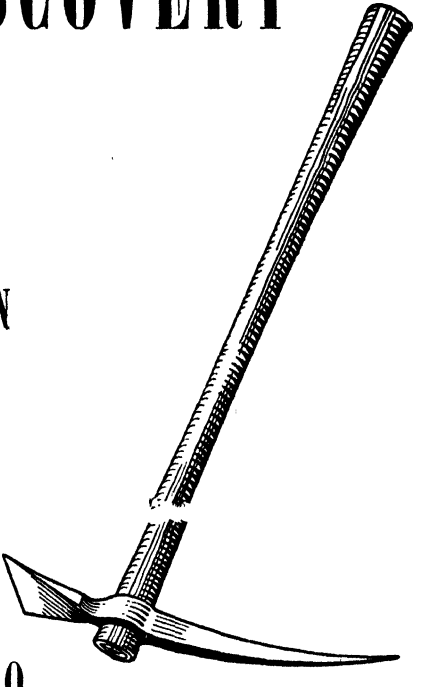
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THE STORY OF THE INQUIRY INTO HUMAN ORIGINS

THE DISCOVERY OF MAN

STANLEY CASSON



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PREFACE

In writing this book I had no intention of writing a history of the twin studies of Archaeology and Anthropology. That would only be possible in a work consisting of several large volumes. My intention rather was to sketch the outlines of a single story—the story of how Man has come to be studied objectively.

In all sciences there is a series of stages of development. First comes simple curiosity, stimulated sometimes by practical needs and demands. Then comes the organisation of the ways in which that vague curiosity is to be applied. Next appears the organisation of results, and finally the growth of a properly conducted method of inquiry.

What I have attempted to do is to illustrate those stages of development as they concern the two studies with which this book deals. Sometimes a scientific study or a branch of learning remains for a long time in an undeveloped stage of growth. Then some acute mind appears, some man of vision and brilliance, who by his contributions advances that study to a new and more developed condition. My purpose in writing this book has been to describe the growth of the two branches of learning with which it deals from this point of view only. I have emphasised the work done by certain particular men, and have necessarily omitted mention of the work of hundreds of other minor men whose contributions in the aggregate are important, but whose individual work has not necessarily advanced the subject. That is

why it has never been my intention to make a mere catalogue of achievement.

Instead I have given an outline of the growth of the subject as a whole and paused at those moments when really epoch-making contributions have been made by men of genius. More than that could not be done in one volume. History, as we are only too well aware in these days, is made by individuals. Science and learning and scholarship are also dependent on individual work. Men of the stature of Newton, Darwin, and Einstein have revolutionised the studies which they pursued. Without them the development of those studies would have followed a slower progress, or might even have remained static. Great scholars and scientists serve as a stimulus to countless others of less calibre. Without the greater men the less might not even exist.

The story of the slow realisation that Man is as suitable a subject for objective study as any other organism is a strange and fascinating tale. The conquering of his innate prejudices is one part of it, and his triumphant realisation of his origins is another. The discovery of how he succeeded in creating civilisation out of primitive chaos is a subsidiary tale the more exciting because its outlines have only so recently been told.

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INTRODUCTION

IT will remain always one of the strangest of all enigmas of human history that however proper may be the study of Mankind by Man, yet it is invariably the ultimate study in which he indulges. For millennia man has in fact taken peculiar pains to study almost anything but himself. He has avoided self-analysis and the study of human origins and developments as if they were the plague. In this he was moved, I think, by that curious but fundamental motive which is inherent in human nature, which inhibits a human being from self-examination lest he be charged by his fellows with a kind of morbid indecency. Man, to live and survive, must in the earliest stages of his existence be completely objective. He has to meet dangers from without and dissensions from within : he is always at the frontier posts facing extermination of individual or species. Who, as defender of his species, can afford to turn his eye inwards in self-contemplation, when his visible and tangible aid is needed by the community to which he belongs to combat the dangers that attend? The soldier in the front line is better employed devising a new engine of destruction, even in face of the enemy, than in wondering about his origins and his past.

Thus the practical inventor, the working scientist and the organiser pure and simple, all alike working for human advancement, have priority over any mere researcher into human faculties or origins. Curiosity into human matters *per se* belongs to a stage when society is more secure, more confident and more capable of recognising self-consciousness as a virtue

rather than as a dangerous luxury. For all inquiry into human relations and origins is a form of self-consciousness.

We still use the term 'self-conscious' as a term of reproach, 'self-analysis' as an occupation for the unstable and unworthy, and in all our curricula of education the hardest objectivity is encouraged in the young and considered an essential ingredient of the mature. 'Subjective', as a term, has none of the merits accorded to its opposite 'objective' : 'impersonal' has some quality superior to 'personal'.

Here, indeed, is a long-standing prejudice in the human race, born of the need for survival, bred in the hard school of selection. It accounts for a hundred strange aberrations of the mob, for a thousand minor aspects of persecution and repression. In the early stages of human history when the need for such self-consciousness or analysis becomes so evident that not all the reactions of established authority can subdue it, such activities are relegated to a particular place and sphere in social organisation. They are dealt with by medicine-men, by an organised priest-craft and by publicly appointed experts. Only so can they be canalised into safety and the explosive material that they represent be insulated and isolated.

As human progress recedes so does human curiosity, for as danger increases so luxuries must go by the board. During all those intervals in progress, when civilisation receded or collapsed, the status of the subjective man was degraded. In the Dark Ages of history artists, students of human custom and origins and those who speculated into the purpose of life itself vanished like mist in the general storm that beset humanity. The fall of the Greco-Roman world brought crashing with it all the art and research that Greeks and Romans alike had laboriously built up. For a thousand years man remained obdurately and

deliberately incurious of himself, and attempts to renew the achievements of the ancients were ruthlessly destroyed at birth.

Human history no more than Nature provides miracles. Man's persistent avoidance of the study of himself has thus the most rational explanation. Incuriosity has a survival value as long as the possibility of human destruction and the extermination of the race is before men's eyes.

To-day, when that grave possibility of the destruction or degradation of the race is again to the fore, we see a recrudescence of those same inhibitions, of those same repressions. Scientists are pressed to confine their labours to problems that promote human protection or human defence : even psychologists, those of scientists who are concerned with the most intimate aspects of man, are encouraged to devote their abilities and their actions to the detection of crime, the control of propaganda and the repair of war-scarred humanity. In fact their research should be devoted to matters far less concrete and far more revealing. But they have been degraded into the position almost of laboratory assistants to more practical men. International security alone can give scientific research its proper backing and the researchers a status which leaves them outside the tides of current affairs. Undoubtedly to-day we live in an age of recession. And such ages have occurred throughout the course of history—have occurred and been overcome. For human curiosity in human origins and development is a factor in society as well as in the individual which far outweighs human incuriosity. It invariably buds and grows again and is the hardiest plant of all. The curiosity of one man can infect a nation, and the determination of individuals to explore their own past overrides in all ages the power of society to suppress them. The history of the early Renaissance is illuminated by single stars which radiate their energy even

in the interstellar space of religious persecution. The last five hundred years of our history shows us how the single stars became groups and, in the end, constellations. If from time to time they were obscured by the passing mists of obscurantism and reaction, it was the mists that passed not the stars that were extinguished.

The strange fact remains that if one examines the records of the earliest civilisations, while every aspect of human curiosity of the objective kind can be more or less illustrated, human inquiry into man himself is almost entirely absent. The first civilised men were, I think, too close to the dangers from which their invention of society had saved them to afford the luxury of speculating into their own past. If we assume that Sumerians and Egyptians were the first to make those necessary social inventions required for the growth of civilisation and then examine their records after their structure of civilisation had been fully built up, we find almost no hint of anything which can be classified as a rational questioning of their own immediate past. For the early stages of society seem, almost in the manner of adolescents, to exhibit a kind of shame of their childhood. While Sumerians, under the pressure of the floods which periodically laid waste their land, established the basis of surveying and so of quantitative mathematics, and while the Egyptians, with the never-fluctuating Nile to aid them, invented the first and most scientific calendar: while Astronomy reached a stage in Sumer and Babylonia which was far advanced beyond Astrology, and while engineering reached in Egypt the pitch which made it possible to build the pyramids, the men who so laid the basis of human progress treated themselves as if they were newly born miracles sprung from the cleft skull of Zeus. Not even the hordes of strange peoples with totally distinct physiques and physiognomies, whom both Sumerians and

Egyptians encountered in their perpetual battles of defence against barbarism from without, led them to speculate on human differences and human aberrations. Unconsciously the artists of Egypt noted the differences of mankind and recorded for us in their paintings and relief sculptures types of humanity vastly different from their own. On the walls of the temples we can still see depicted the faces of peoples of Indo-European origin, of Hittites, Semites, Negroes and Arabian Beduin, as well as some whom we are unable to recognise anthropologically, migratory peoples who raided Egypt time and time again or served Egyptians or their enemies as mercenaries during the troubled period of 1500–1200 B.C. Here is the germ of racial discrimination in art. But it remains in the hands of the artists only, and artists, as befits them are not prone to speculation outside their own work. No non-artist at this time in Egypt was ever prompted to write a pamphlet on 'Ye Beastlie devices of ye Heathen' or on the 'Dark Races of Mankind'! The peculiar alien was accepted as a necessary evil or as a strange wild thing which was worth noting for the fleeting moment of an artist's hand and then relegated to the 'outside world', in which Egyptians and Sumerians alike were profoundly disinterested except in so far as it impinged on their own safety. But there was some small spark of curiosity, and it may conceivably have handed on its light later to inquiring Greeks, who, as we shall see, were interested in every strange tribe and every odd foreigner they met. The Egyptian and Sumerian alike preserved a lofty disdain in such matters; it suited their imperial outlook. They anticipated that view of 'natives' which has become a byword of comic-opera imperialism. They were as likely to inquire into the origin of the strange nomads and Negroes who infested their borders as a Southern landowner would have been to investigate

the folk-lore and primitive customs of his Negro slaves.

Assyrians, who succeeded Babylonians, and Persians who succeeded them, treated strange races as their proper cannon fodder. On the reliefs which depict the triumphs of their kings we catch a glimpse every now and then of strange types clustered in bonds beneath the Great King's throne. These are captives and nothing else. The passer-by might be tempted to a momentary curiosity by the sight, and gape like any yokel at a fair who is shown the freaks and dwarfs, but he never stopped longer to investigate. Conceivably here and there some intelligent man wondered why some men had slanting eyes, some black skins and others straight hair or fuzzy hair, but, if he wondered, his wonder never prompted him to write a thesis on the subject. At least no such thesis has survived for our instruction and amusement. Even the Persians, whose empire in the days of Darius reached from Turkestan on the north and to the Persian Gulf and Arabia on the south, and from Macedonia on the west to Baluchistan on the east, were never moved to reflection on the amazing variety of their subjects. Probably no empire in the history of the world has contained so many and so various types of humanity : nomadic peoples of Scythian origin and Turki strain, Mongols, Semites, Greeks, Indians and folk of ancient strain, survivors from pre-Sumerian times, all lived under their rule. It was left to Herodotus the Greek to make an inventory of them in his catalogue of the Persian army which invaded Europe under Xerxes. No Persian lifted a pen in their interest.

Strangely enough the domestication of wild animals, itself one of the greatest inventions of man, failed to suggest that the same selective and eugenic principles might be applied to mankind itself. Egyptians domesticated many animals such as the hyena and the

antelope which we can no longer, or no longer wish to domesticate. Even these strange experiments ended with the animals and no one came forward to suggest what sort of *homo sapiens* would result from a cross between a Mongol and a Negro! As far as we know there were no colour problems and no half-caste populations in Sumer, Babylon, or Egypt.

Man tended all the time in these early ages to consider himself as a final product which could dispense with his past. This led, soon enough, to the conception of himself as a special creation. For, once you cut yourself off from your past, you are soon convinced that you are a Prophet or a Messiah. Almost all the self-styled saviours of the world, apart from Jesus, have preferred that their past should remain in a decent veil of obscurity. Jettison the past and you can claim to be unique. Consider humanity from the same point of view and you can claim for it the astonishing gift of Special Creation. How far such mental and intellectual debauchery has led to the retardation of inquiry into human origins will be seen in later chapters.

THE DISCOVERY OF MAN

CHAPTER I

THE INQUIRY STARTS

Racial discrimination among ancient peoples. Egyptian delineation of different races. Travel enlarges knowledge of different racial types. Hanno the Carthaginian. Greek voyages. The Periplus. Greek cartography. The Ionian scientists. Their anthropological inquiries. Anaximander and Archelaus. The birth of Anthropology. Herodotus. His travels and his ethnological observations.

Of the two great sciences of humanity the study known as Archaeology implies a later development of outlook than that of Anthropology. Once human self-consciousness is aroused it takes the form of curiosity, it arouses an interest in the variety of types of human face and form actually seen and observed. When men have paused to look round them and to focus attention on themselves as such, they make discoveries. The prisoners they have taken in battle, the strange savages they detect in the forests, the wandering nomad peoples who come to beg at the walls of the first city—all these will excite speculation not merely for their unusual garb and their peculiar habits but for their physical appearance. The moment man has reached this stage of observation he has made it possible for comparisons to be made. And since all science is based on conclusions derived from comparisons, with the first realisation that there were various types of the human race,

there was taken the first step towards Anthropology.

The fullest definition of Anthropology can best be stated in the words of an anthropologist[1]. It consists of an answer to the following questions:

> 'What is man? What kinds of men are there? How and by what agencies are they formed and distributed over lands as we find them? How is human life propagated under parental sanction, maintained by social institutions and made tolerable by useful arts?'

This definition is but a fuller expansion of one of the first definitions made—that of Topinard in his *L'Anthropologie* in 1876, that 'Anthropology is the branch of natural history which treats of man and the races of man.'

The realisation of the differences to be detected in the types of man is, in the first instance, due to the recognition of similarities. A group of Neanderthal men knew each other by appearance and recognised other groups of the same species. As long as they met no other species the idea of the existence of other types could not enter their minds. But the moment that they came into conflict with another type they realised that their own appearance was a quality which belonged only to their tribe and to other tribes related to them. The appearance of a type new to them at once stimulated their gregarious instincts. The presence of men similar to ourselves always evokes a satisfaction, and that satisfaction is but an appeasement of the anxiety caused by the appearance of the unaccustomed. Legends of giants and ogres and one-eyed Cyclops reflect the fear caused by the unexpected appearance of types so unusual as to be terrifying. Even to-day the persecution of the un-

[1] J. L. Myres: *Anthropology and the Classics*, p. 126.

orthodox is merely a faint echo, atavistic perhaps, of those remote times when the tribe encountered for the first time a new and frightening specimen of humanity when they had believed that the world was peopled by replicas of themselves. The recorded instances of the terror produced when white men first reached the lands of coloured men give us some indication of that long forgotten moment when the first Negroid Palaeolithic man was seen by the white Palaeolithic races.

From such contacts emerges the recognition of unlikeness. Men long accustomed to identify likeness must of necessity recognise the opposite when it presents itself to their eyes. And so racial discrimination results.

How early racial discrimination developed it is hard to say. The notable inability or unwillingness of Palaeolithic man to delineate himself has left us no certain instances of variations of racial types in that remote age. There are instances of variation in armament and equipment in those rare scenes in late Palaeolithic rock-paintings where combats and tribes are shown. But the physical differences of the adversaries are not indicated.

It is in Egypt that we first detect a clear-cut and definite capacity for identifying alien types. Even as early as the Predynastic period and certainly in the early dynasties some differentiation of racial types is seen on the low relief carvings on the so-called 'palettes' of slate which are among the more interesting minor works of art of those times. But on the reliefs of the Royal Tombs of the nineteenth Dynasty we encounter the first real classification of races. Here we find the four main racial types of mankind as the Egyptians themselves classified them. Semites, who are painted yellow, and are supposed to represent the inhabitants of Asia: Negroes of Africa, painted black: Northerners or Europeans, shown white with blue eyes and fair beards, and the Egyptians themselves

who are painted red. The existence of the conventions of colour is itself a kind of primitive scientific classification. The fact that the fourfold division of mankind was made at all is a fact which harmonises with our knowledge of the accuracy and precision of Egyptian method, that method and scientific outlook which led to the growth of engineering and mathematics in Egypt.

The fourfold division in fact was a working hypothesis, however untrue it may have been. The Egyptians, whose enterprises outside their own land were few and limited, did not come into contact with any wide area of the ancient world. The Semites they knew well enough from their establishment of a frontier in Palestine against the Hittites. The Negroid peoples they encountered all around them in the Delta and on the desert, in Nubia and in the Sudan. But to represent the peoples of the North and West as typical Nordic-Alpines with blue eyes and fair hair was to omit almost the entire branch of the Mediterranean peoples. But the classification was in no way official—it was little more than an artist's attempt to portray the types which in daily life the Egyptian saw or talked about. That this fourfold division was not fixed or universal is illustrated by the fact that other types of mankind not covered by the four races also appear at intervals in Egyptian art. From the fourteenth century B.C. the Egyptian Delta had been raided by peoples from the sea, some from the Aegean, some from the Levant, of mixed types and races. With other peoples the Egyptians were in commercial and political relationships which were not hostile. A people known to them as the Keftiu appear on many tomb-reliefs. They are identifiable partly by their physical type and partly by the objects they carry, as Minoans, probably colonists who settled on the shores of Syria and were in some kind of tributary relationship with Egypt. Raiders on the

Delta, of the type immortalised by Homer in the story of the raid of Odysseus and its failure, were frequently taken prisoner and kept in Egypt. In the story of Odysseus he and his companions were kept there for many years. Contemporary illustration of the existence of such captives is found in the series of remarkable life-moulds from the actual faces of such captives, found at the capital of the heretic King Akhnaton at Tel-el-Amarna. The features of these people are so strikingly like those of any modern European from Central Europe that one is driven to the conclusion that here we have a racial type which was so fundamentally different from the Egyptian that the artist who made the moulds was enthralled by so alien a type. That the 'sitters' were most unwilling, is evident from the expression on their faces; and a life-mould made from the face must suggest a slightly unpleasant experience. To embed the features in plaster, if only for a few moments, is not a happy thing to endure. That it was done to these people suggests that they were indeed captives. Some of them seem to be women, perhaps captives employed as nurses. Women of northern stock seem in the Mediterranean always to have made good nurses. Spartan and Thracian nurses were famous in Greece in Classical times.

As time went on the Egyptians rapidly increased their repertoire of anthropological types, but without any conscious attempt to investigate mankind more scientifically. By the thirteenth century, when the Mediterranean was beset with pirates of every kind and raids increased both by land from Libya and from the sea, all manner of strange people appeared and are seen depicted on Egyptian monuments. Shardana, thought to be a Caucasian tribe who ultimately settled in Sardinia: Lukka, the Lycians of the Greeks: Pulesati, thought by some to be the Philistines, and even Greeks themselves masquerading under the

obscure title of Danauna (or Danai) and Akaiusha (or Achaeans) appear on the horizon. They are seen fighting from their ships on the tomb-reliefs of Senmut and Medinet Habu. They wear strange crested helmets and carry shields, enormous broadswords and long spears. Some of them have faces like Russians or Prussians, with small turned-up noses, broad square faces and round heads. Unfortunately their precise identification will never be certain.

Such were the early glimmerings of racial discrimination among the Egyptians. They saw and noted. But it was the artists and not the officials who were the primitive anthropologists. Consequently no further advance was made. For in Egypt as in Europe of the Middle Ages, too much interest in mankind as such was dangerous. It might lead to an increased interest in the serf population. That would be revolutionary. And Egypt, based on a rigid caste system and a feudal organisation, could not afford to make sociological experiments. It is only in lands where speculation is free and travel unrestricted that individuals can think in their leisure time over the facts that they have accumulated and draw the necessary conclusions and deductions. Only when such conditions exist can the foundations of Anthropology be properly laid down.

The prerequisite conditions for the growth of a really scientific study of man must be a wide experience of his different types, extensive travel and exploration by means of trade, individual travel for the purposes of pure research, for the opening up of new markets and new lands, and the control of these activities by men of untiring curiosity and indomitable endurance. The Semitic Phoenicians possessed all these qualities except the last two. They appear to have been a single-minded folk, intent on trade and gain, but uninterested in anything else and not so enduring and persistent as their successors, the

Greeks. Early Phoenician exploration of the Mediterranean and the Red Sea led their sailors to unheard of goals, to remote distances and to the wildest regions. From Gades and Carthage to Syria, from the Atlantic to the Red Sea and Arabia their ships coasted and traded. They circumnavigated Africa and they were intermediaries with the distant trade of India.[1] The solitary document which they have left us—the famous 'Pilot Book' of Hanno the Carthaginian—preserved to us in a Greek translation, is as meagre as it is disappointing. It mentions the coast of Morocco and the islands off West Africa, but of anthropological observations there is hardly a note. Beyond a mention of the wild people called 'Gorillae', from whom the anthropoid derives his name, we hear almost nothing of value. These Gorillae were probably merely a West African Negro tribe whom they encountered by chance and who were terrified by the strange white men. The description of them contrasts unhappily with any Greek description of a new people:

> 'Most of them were females, with bodies thick with hair; the interpreters told us they were called Gorillae. We pursued the males but were unable to catch them. They escaped us by climbing the crags and threw stones at us. But we captured three females who bit and scratched their captors. We killed them and brought their skins to Carthage.'

It was left to the Greeks to realise the variety of human types and to do their best to distinguish them. The extent of their travels and their prodigious enterprise it is not the purpose of this book to describe. Greek history, written both by themselves and by us, provides the answer. But it is interesting to see how a people of a fundamentally different race and outlook,

[1] *The Ancient Explorers*, H. Cary and E. H. Warmington, 1929, p. 57.

covering the same ground as that covered by Phoenicians, were prompted to a curiosity and a recording or memorising of what they found in a way which their Phoenician predecessors in the same regions had no thought of doing. It is to Greece that we must look for the foundations of anthropological study, in some cases unconscious and provoked simply by the inveterate Greek habit of always seeking human origins of al obscure things, in others deliberate and conscious. The Greek proverb, 'Man is the measure of all things', was bound to lead them towards a study of the habits of man and his variety of custom and behaviour.

. . . . . .

Greek enterprise, that scattered over the shores of the Mediterranean from Syria to Spain the various colonies, factories and small stations for trade that ultimately Hellenised almost the entire inland sea, and further Greek exploits that led them to the confines of India, to the African coast and even to circumnavigate Britain and brave the coasts of the Baltic—all this enterprise brought in its train a mass of curious folk who were not immediately concerned with the problems of navigation and the craft of shipping. On each ship that sailed was some adventurer, some mere *entrepreneur* who, as passenger, could observe, record and remember. Before the Greeks took to the sea and during that first century, the ninth B.C., when they were beginning to explore and spread their enterprise, the structure of society was fluid. There were many professions which were still nomadic and not yet fixed in the urban organisation of society. Homer, in a passage which describes the life of his own and his hearers' day (which cannot antedate 800 B.C.) speaks of

> 'the prophet, the architect, the doctor, and the bard'

as still itinerant, going by land and by sea. Society was as yet not rich enough to give them permanent

employment. To-day few nomadic trades survive except the tinker and the knife-grinder, though in America in the eighteenth and nineteenth centuries portrait-painters, carvers of sculpture in wood and stone, and many small luxury professions were still on the road.

Such nomad practitioners, each intelligent and skilled beyond the ordinary man, travelled the Mediterranean in those remote days, as passengers aboard ship. Idle until they reached port, they had time to note strange things and marvel at new things. It is to their observations that many of the elements of the mediaeval 'Mirabilia Mundi' were composed, for such 'Mirabilia' had existed in Greek and Roman times, and were the composite creations of generations of men. Such books of 'Signs and Wonders' are the raw material for the anthropologist of a later date.[1]

Homer himself travelled, certainly to Ithaka, probably to Thrace and Troy, and men of his calibre, less devoted to the muse of poetry and more to the facts of ordinary daily life, could well amass a vast quantity of strange details of alien peoples and unknown lands. Later, as we shall see, the best and greatest of all ancient observers, Herodotus, by a stroke of good fortune unparalleled in human history, travelled for years by sea and land and achieved the very objects here described. But it is his predecessors who are now in question. Herodotus was the end of a long story, not its beginning. He, the Father of Anthropology, was completing a work begun perhaps two centuries before by countless anonymous men.

As seaborne trade and commercial enterprise increased, which it did to a formidable extent during the eighth and seventh centuries B.C., both the citizen

[1] One of the most famous that goes by the name of *De mirabilibus Auscultationibus* and has been attributed to the authorship of Aristotle, is packed with unusual and exciting material, much of it showing great acumen.

passengers of intelligence and the captains and officers of ships combined and pooled their accumulations of knowledge. Primarily their information, so assiduously collected, was for their own benefit and that of the other seamen who followed in their trail. Like the information recorded in British Admiralty Charts and 'Pilots' of to-day, their knowledge was cumulative and subject to constant revision. Fortunately we can see in black and white exactly what they did, for there survive for us a long series of mariners' guide books, which the ancients called 'Coastal Sailings' or to which they gave formal titles such as *Guide Book to the Red Sea*. Land travellers compiled similar guide books for the use of merchants. The earliest text of any such book does not go back earlier than the sixth century B.C., but all, even those of Byzantine times, contain information which in many cases must be centuries older than the actual date of publication. These curious works have almost no literary merit, often none at all. Some are in doggerel verse, like the rhymes by which we force ourselves to remember receipts for food or the technicalities of Latin grammar. But the fact that they were in verse made them the easier to hand on to others by word of mouth and the easier to remember with exactness. Thus there grew up a volume of knowledge about foreign lands which was the equivalent of a map.

It may even be that these 'Sailings Round' were the written counterpart of existing maps. If one compares them with the mediaeval Portolani[1] of the Spanish and Portuguese and Italian mariners of the Middle Ages one can see that the written document might easily be the mere transcription into book form of an annotated sailing chart, or alternatively that the chart was a convenient compendium of the written document.

[1] See: *Portolan Charts* by E. L. Stevenson (Publication no. 82 of the Hispanic Society of America).

From these guide books and 'Sailings Round' emerged a mass of generally useful information about the peoples who inhabited the coasts described. Here was another type of raw material for the speculative anthropologist. References to the character of the people on the wild coasts of the Black Sea or in Illyria were both useful to mariners who wished to land for food or water, and stimulating to the curious-minded passenger on the boat or to the citizens ashore to whom the sailors and passengers alike recounted their adventures. One can imagine the excitement at any Greek seaport in Ionia or the mainland of Greece when a ship arrived from a long voyage and the sailormen crowded into the inns and cafés of the port. Sea-captains are proverbially yarn-spinners and townsfolk at ports good listeners. Here and there in the rich centres of Eastern Greece there must have been some potential cartographer and some latent anthropologist. The former would attempt to combine the various items of information into a map which could be improved by the additions given by each new venture. The latter would, in a more scientific way, classify and collect the information that interested him most. Both, being Greeks, would intend that their labours should serve an entirely practical purpose. And that, after all, is the genesis of science.

Speculation apart, we have certain evidence that maps were being constructed in Eastern Greece and Ionia in the seventh and sixth centuries B.C. The existence of the standard 'Periplus' or 'Sailing Round', whether in rough chart-form like the Portolano or in manuscript, would be to the Greek mind, especially in Ionia where the trend towards scientific research was stronger than anywhere else in the ancient world, stimulated perhaps in the first instance by the rudiments of Sumerian and Babylonian science which had reached Asia Minor, a natural step leading towards scientific cartography.

Babylonian and Sumerian maps, of a sort, indeed exist,[1] though for the most part they are purely schematic plans of cities, of private properties, of astronomical maps of the heavens and the world, mainly suppositious. But the Ionian Greeks made actual maps for use. A famous passage of Herodotus is evidence enough:[2] Aristagoras, tyrant of Miletus, the very hub and centre of Greek science, in the full flower of the Greek Renaissance of the period 600–500 B.C., visited the Spartan king Cleomenes, to seek military aid. Spartans were notoriously stupid and ill-informed about the world and about international affairs:

> 'At their interview Aristagoras produced a bronze tablet whereon the whole circuit of the world was engraved, with all its seas and rivers. Discourse began between the two . . . "The nations border one on another," said Aristagoras, "in the order which I will now explain. Next to these Ionians" (here he pointed with his finger to the map of the world, which was engraved on the tablet which he had brought with him) "these Lydians dwell: their soil is fertile and few people are so rich in silver. Next to them come these Phrygians who have more flocks and herds than any race I know and more plentiful harvests. On them border the Cappadocians . . . who extend all the way to the sea where Cyprus (the island you see here) lies." '

The bronze map is, in short, little more than a replica of the 'Sailings Round' of the seafarers. The very language of Aristagoras is that of the documents we already possess: a series of tribal areas and the names of the tribes, together with the economic basis of their existence. The severely practical Greek

[1] See *Antiquity*, Vol. IX, p. 311. E. Unger: *Ancient Babylonian Maps and Plans.*

[2] V. 49.

sailor or traveller would know whether to stop or not according to his necessities. If he wanted a cargo, then call on the coasts of the Lydians for silver: if he needed food, then stop and take on board sheep bred in Phrygia. And so on. The famous map of Aristagoras is but another instance of the age-old sailors' maps which we have already discussed. But the addition of all seas and rivers, the correct placing of islands, as in the case of Cyprus here mentioned, shows that it was a first-rate scientific map and not a mere working chart. Here we detect the existence of a properly organised school of cartographers at Miletus. The first known map ever to be made in the history of the world was thus the product of a long period of topographical research.

Such research, primarily in the interests of sailors and travellers, to guide and protect them and save them from dangers and starvation, implied also a thorough investigation of the peoples with whom such travellers would come in contact. And so, through cartography and the systematic organisation of information likely to be useful to travellers, we reach a stage when an embryo study of Anthropology was likely to emerge. That it was certain to result from such interest is to be inferred without hesitation from the fact that Greeks, once their security had been established, were always the first people to interest themselves in the habits and manners of men. Once the science of cartography had been organised for the salvation of the mariners who brought the wealth of the world to Miletus, the Milesians would indulge their own scientific interests on the material which had in fact originally been accumulated for quite other purposes. That was the Greek way always.

In Ionia, then, there grew up an inquiry into the origin and distribution of the races of man, how he lived, what he ate, his economy and his

defects. Tribe was contrasted with tribe, city with city.

If we wish to recapture some of the surprises which awaited the traveller as, in the ancient manner, he coasted round the shores of the Inland Sea, we should go ourselves, in the modern manner, on a pleasure cruise ship that tours the Mediterranean. It touches at many ports and sails close inland so that you can see the coastal scenery. Like its ancient predecessor it halts more or less where it wishes. You descend from the ship and investigate the customs and economy of the natives. You drift from port to port, from island to island. Fill your notebooks with observations on the various races you meet—many, if not most of them, probably new to you—and you will, in effect, be composing a comparative anthropological study. Bring together all the similar notebooks of similar intelligent observers and you will have the nucleus of a valuable anthropological compilation. You and I, in fact, know that such a compilation would be full of error and mainly amateur. But, if it concerns regions which were relatively or wholly unknown, it would provide the learned with a priceless store of first-hand material. It is from such material that Anthropology is built up and it was in that way that the Greeks made their first notes on the first maps and so gave to men more learned than their mariners and travellers a mass of priceless material. So emerged the first map of the world, of which the bronze tablet of Aristagoras was probably by no means the first edition. It presupposes in itself a long period of experimental map-making.

But the mere collection of data as to alien peoples and strange tribes is in itself the most elementary form of anthropological speculation. To know the distribution of man is indeed the first essential in his study. To examine his origins is a matter which must be handed over to men equipped with some kind

of philosophical training and with a deeply scientific outlook. That such men lived in Miletus and in the other Ionian cities at a time when they were rarities in the cities of mainland Greece is certain. The rich soil and admirable climate of the Ionian coast stands in vivid contrast to the poverty-stricken land of Old Greece and its sterner climate. Here were conditions in Ionia suitable for the growth of schools of philosophy. Rapidly accumulated wealth meant patronage and leisure for the learned. It was Aristagoras himself, the commercial head of Miletus, who used a map. It was the men he subsidised who had produced it. Men like him made the study of the sciences a living possibility.

And so, slowly but with certainty, the learned men of Ionia pushed back their inquiries further. They were not content merely to make lists of the people of the earth and to delineate, on some scientific system, the rivers and seas and islands of the world. They began to ask more fundamental questions.

And it is exactly at this point that for the first time in the history of humanity we encounter that great crux in human inquiry which has so often been left unsolved, and on whose solution depends the future of all scientific study. It is a vital test for mankind. If it is triumphantly overcome, human progress is possible. If man fails in the ordeal, all human speculation, all human invention, all human advancement will decline and man may degenerate into a mere unspeculative human animal.

The crucial problem to be solved involves a complete abnegation of pride and a complete rejection of prejudice. The Greeks had an immense pride in human achievement and were aware of the triumphs of human progress, so recent and so imposing. So runs the Hymn of Man in the *Antigone* of Sophocles:

Wonders are many, but there is no wonder
Wilder than Man—
Man who makes the winds of winter bear him
Through the trough of waves that tower about him
Across grey wastes of sea:
Man who wearies the Untiring, the Immortal
Earth, eldest of the gods as, year by year
His plough-teams come and go.[1]

Yet the Greeks, with their customary poise, were not led by this paean of human greatness to postulate for man such superiority over the animal world that he was to claim the particular privilege of a special creation. That was a claim launched when man had sullied his achievements by barbarism and degraded his status by untold cruelties!

The Greeks, uninfluenced by Theology, untied by any presuppositions about creation or by cosmological doctrines which were definite and fixed by theocratic rule, paused after their praise of human achievement was finished and in their dialectical way asked the simple question, 'Man is by far the most ingenious and noble of living things, as he is also sometimes the most stupid and ignoble. But harmony and contrast are the breath of life. Let us look at him objectively and dispassionately. What is he? Whence does he arise? Is he some miracle or else the logical outcome of processes of generations that have gone on in the past? If he is the latter then we must look into the past or into the lesser products of Nature and see if the genesis of this peculiar human can be traced.' That, in effect, was what they said.

And so the crucial test was passed triumphantly. They had avoided that fearful temptation which pride in humanity generates, that ditch into which the wheels of progress get stuck. They were not so proud of humanity that they thought that it was created by some divine dispensation. However monotheistic the

[1] Translated by F. L. Lucas.

early Greek philosophers were—and most of them were of that mode of thought—they never envisaged God as striving to create a special breed of men who reflected his own divinity and attributes. The thought never entered their heads. They looked on man simply and solely as a scientific phenomenon. The Early Ionian philosophers merely added him to their collection of problems. As such he had no privileges and no special status.

Had the pre-Socratic philosophers not dealt with man thus, it is probable that European civilisation as we know it to-day would have had no philosophy at all and it is certain that science would not yet have matured. Even if long periods of darkness obscured this early Greek triumph at a later date, yet the thoughts of these great men survived, and in the figure of Socrates the dispassionate method of inquiry into *all* origins and the objective solution of all difficulties was made an integral part of European thought, which survived even the decay of the later Roman world and the Dark Ages which followed after.

In brief what these philosophers did was this. They studied the partly legendary stories and the folk-lore which bore on human origins—for they knew that in any land not rigidly controlled by priestcraft the thoughts of the ordinary people, enshrined in tale and proverb, are often based on accurate observation. They then applied to their material their own powers of scientific analysis. Two of these philosophers, both citizens of Miletus, stand out for the boldness of their hypotheses and the brilliance of their anticipations. Anaximander and Archelaus, both in the sixth century B.C., postulated a biological theory of evolution quite explicitly and quite clearly.

> 'Man,' said Anaximander, 'was produced in the first instance from animals of a different sort . . . this is clear from the fact that the other animals soon get food

for themselves, while Man alone needs a long period of nursing. For this reason a creature of this sort could not possibly have survived.'

Elsewhere he remarks that

'Men were first produced within fishes and nourished like mudfish. When they were competent to fend for themselves, they were cast on shore and took to the land.

'Animals came into existence by a process of evaporation by the sun: but man came into existence in the likeness of another animal, in the first instance a fish.'

One wonders whether observation of the human-looking seals of the Mediterranean and Black Sea had not led Anaximander to conclude that at a certain point in his evolution man took to the land, as an amphibian and a mammal.

In any case here in these few priceless fragments of an otherwise totally lost work is a series of reflections which, had their author possessed a wider zoological knowledge, would certainly have led later philosophers like Aristotle to formulate a more specific evolutionary doctrine.

Archelaus, who was one of the actual instructors of Socrates, reflects much the same general scientific outlook as Anaximander.

'Concerning animals, he said that when the earth became warm in the beginning, in its lower part where the hot and cold were mixed, there came to light the rest of the animals, of many dissimilar kinds, but all with the same mode of life, subsisting on the slime; and they were short-lived. But afterwards inter-breeding occurred among them and men were separated off from the rest. . . . And reason is implanted in all animals alike: for each according to his bodily frame uses it, one more slowly, another more quickly.'

Substantially both philosophers reflect a current

scientific method at Miletus in which strict scientific observation of animal life and its comparison with human life were a part. The emphasis on the fact that man is merely one of the animals implies a freedom of thought and a depth of sincerity which was not equalled again until the nineteenth century A.D.

The tracing of man back to the invertebrates is an achievement which might well make us gasp, especially when we consider the paucity of information on which the hypothesis was founded. Yet in Ionia there seems little doubt that the observational sciences were far advanced. There is little enough to link up Aristotle and his brilliant biological studies with what had gone on in Ionia nearly two centuries earlier, but there seems no doubt at all that the works of these early scientists must have fallen into his hands and moulded much of his thought.

That the observational powers of the Greeks of the sixth century B.C. were astonishingly accurate is proved by the correctness of their drawings of animals. Even though they adopted certain artistic formulae and drew and painted formally and not naturalistically, yet the animals that they drew show the most careful adherence to facts. Lions, eagles, hares, horses and all animals that they actually encountered are rendered with a precision of detail that can be tested by any zoologist. For the Greeks had a greater power of observation than any other ancient people. A comparison of, say, the lions of Greek art with those of Hittite or Persian art, almost contemporary, will show how accurate the Greek was. All three peoples adapted their subject to artistic forms, as good artists always do, but the Greek contrived that the artistic forms that resulted should be the closest to nature.

In Ionian Greece it thus appears that the beginnings of science in the most modern sense of the term must be sought. If more material had survived from the philosophical and scientific writings of the Milesians

we should, no doubt, be in a position to assert with more certainty that there was a body of scientists at work there, organised more or less systematically to research into the mass of new information which the explorations of innumerable citizens had patiently accumulated. The pooling of knowledge for the general good was one of the most striking features of Greek society and there seems no reason to consider Miletus as an exception. It is known to have been the centre from which the knowledge of many aspects of social life was diffused throughout Greece. The methodical planning of cities which the Greeks termed the study of 'Land-measurement' began at Miletus and its greatest exponent, Hippodamus, served many Greek communities. The wider science, which the Greeks named 'Meteorology' and which was a close study of natural conditions prerequisite to the foundation of new colonies and towns, not a study of mere climate unrelated to human affairs, was a science which has no modern counterpart. It was allied both to medicine and to architecture and was one of the human sciences of which the Greeks can claim to be the sole exponents.

Cartography, as we have seen, also a study pursued solely for the advantages it brought to practical man, to travellers and sailors, had its birth in this great city. Medicine itself developed mainly elsewhere, but there is little doubt that in Miletus it made great strides. The island of Cos, where medical studies were first concentrated, is a very short way distant from Miletus.

But it is probably in Miletus that we must look for the beginnings of the science with which we are mainly concerned—Anthropology. That the Milesians, or any Greeks, had actually isolated it as a specific science and made it into a formal study like Meteorology is most improbable. But that a study of the types and customs of mankind was active, in

however informal a way, seems an inference which we must inevitably make from the proved growth in Miletus of cartography. Some anthropological study was bound to have emerged from the topographical studies of the mercantile marine of the city. Indeed it was from the seaborne trade of Miletus that the bulk of all the Milesian scientific knowledge ultimately originated.

Miletus to-day stands far back in the alluvial plain of the Maeander river, now stranded high and dry several miles from the sea, separated from it by the deposits of many centuries of Maeander mud. Observant Milesian scientists may well have drawn inferences from their study of this alluvial soil and so arrived at some of their conclusions as to the fishy origin of the human race!

In such an atmosphere of quiet inquiry and unprejudiced research there must have been men who, learned in the *origins* of man from a purely scientific and philosophical point of view, started off on the comparative study of man and his customs. We know of no actual Milesian who made such a study, still less of any formal study of the kind. But in a society of curious men, entirely free from superstition or religious prejudice, there developed an atmosphere in which the study of mankind was possible. Unlike the Hebrews, the Ionian Greeks were not tied down to any religious formulae as to the genesis of man. Homer, himself an Ionian Greek of the very dawn of the Ionian renaissance, had by his poetry moulded the thoughts of Greeks into channels quite other than those of the Hebrews. Homer, by his completely unsuperstitious outlook on life, by his lack of reverence for the conventional deities of Greek religion and by his emphasis on the fundamental beauty of existence, had shaped a strange moral system which not only deeply appealed to the Greek mind but shaped its course. The ordinary Greek was as subject to the

superstitions of an immature people as any other, but the appearance of such a giant as Homer in an age when Greeks could hardly be said to be fully civilised, was a portent which had incomparable results for Greek thought as a whole. Homer swept aside superstition. It has been well said that you will find no trace of magic or mystery in his poems. And by stating simple human problems of life and death and suffering and happiness in their simplest forms he drew Greek thought aside from the darker things which might have engulfed it. Homer acted as a purge for all that was barbaric and retrogressive in a barely established society. Greeks, captivated by his beauty of verse and by his superb language, unconsciously moved away from the seductions of religious consolation and from the charms of magic. Homer rationalised a world that was waiting for philosophy. In doing that he laid the foundations of free thought and tolerance in Greece. In our admiration for his poems we forget the influence for good which he thus exercised on an adolescent world. In this way Homer was the forerunner of the Ionian scientists and of the Socratic method of thought.

Into this unfettered world of inquiry there was born Herodotus, truly and certainly the father of Anthropology and Comparative Ethnology. Here at last was an outstanding figure who studied with immense zeal and enthusiasm the habits and customs of mankind. More curious-minded than any other Greek of his age, more precise than any other ancient recorder, more devoted to the authenticity of his information than most modern historians, he compiled for Greeks a systematic survey of the ancient world together with a history, based largely on first-hand material and reliable documents which exactly suited the temperament of his hearers and the tendencies of the times. His work is quite clearly divided into two aspects—the main current of narrative history stated in his own

words as the intention of 'preserving from decay the remembrance of what men have done and of preventing the great and wonderful actions of the Greeks and Barbarians from losing their due meed of glory', and the incidental chapters and sections and virtual footnotes with which he explains the scene and elaborates the background. It is with the latter that we are concerned. And the amount of material which he produces in these incidental chapters is formidable. His hearers must have been enchanted by the tales of strange peoples, by the account of their habits and modes of life and, at times, seduced from the thread of the narrative so as almost to forget the great and wonderful deeds in the excitement of the unexpected and unusual. That, indeed, is the way in which the reading of Herodotus to-day affects many readers. One feels the lure of unexplored lands and the temptation to linger in the side-ways and lonely enclaves of the world, and to let the course of history go its way. Herodotus is the paradise of the curious-minded: his way of suspending his narrative to give the reader a vivid side-light on the people with whom he is at the moment dealing itself tends to emphasise how the interests of the writer himself are lured away from his own intentions. Herodotus is like one of those delightful conversationalists who periodically revert to their main story with the tag 'As I was saying—'. The term *excursus* usually given to the Herodotean interludes is a polite term for irrelevancy and anecdote. But it is the irrelevancy of the Chorus in a Greek drama; it brings relief or change as an interlude and is always relevant to the main issue, however inappropriate it may seem.

Herodotus has been said rightly to be the true founder, if not of Anthropology at least of Comparative Ethnology, though this is to deny him his full achievement. 'So far as Herodotus presents us with an ordered scheme of anthropological thought—with a

science of Anthropology, in fact, he is little, if at all, behind the best thought of our own day.'[1]

Herodotus crystallised the tendencies and reflections of his day and of a generation preceding him. He knew of the researches into mankind of the Milesians and of the slowly accumulating study of medicine at Cos. The home of Herodotus, Halicarnassos, lies within sight of Cos—a mere hour away—and a day's journey from Miletus. He was bred and born in the vital area. The world in which he was educated was a world simmering with new ambitions and echoing to the demands of new research. And, to an observant Greek, his own coasts were littered with the fragments of ancient peoples, relics of the vast disturbances which had concluded the Minoan-Mycenean world and heralded the settlement of the Hellenic people. In Cyprus there were, besides Achean Greeks, strange aboriginals who spoke an unknown tongue and even wrote it in Greek, when they were not writing in their own odd mode of script which had survived from Minoan times. A Greek, arriving at a Cypriot port would hear a strange babble that he could not identify. In Crete were remote townlets where surviving Minoans spoke Minoan. In the island of Lemnos were men who were neither Greek nor Minoan who spoke a language unlike that of anyone else and wrote it in Greek. In the remote vales of Arcadia you might see and hear almost anything and customs that were unlike anything to which Greeks were accustomed would shock or terrify the Greek stranger. In Caria on the Ionian coast was a strange language and the custom of matriarchy, unknown elsewhere in Greece after Homer.

You did not have to sail to Spain or the Caucasus to find material for your ethnological field-work. It was on your own doorstep. Heracleitus of Ephesus,

[1] *Anthropology and the Classics*, p. 135.

a philosopher of Ionia, whose metaphysical speculations were in harmony with the other tendencies of the time had remarked:

> 'All men have the capacity to understand themselves and so to be wise'

and in that stray fragment of philosophy we can see how clearly Socrates inherited the tradition of the Ionian scientists. Indeed he has been called the 'last of the pre-Socratics!' for here are the very words Socrates was always using, the famous text that hung in the temple of Apollo at Delphi, KNOW THYSELF.

Herodotus in his Histories attempts to illustrate in detail the injunction of the Ephesian philosopher that men should 'understand themselves'. He set out on his task methodically. As sources for his research he used the official documents and personal narratives of those most intimately concerned in the conduct of the great Persian Wars which it is his object to narrate. But for his notes and incidental discourses on men and their ways, on tribes and their kings and on customs and manners of life he clearly drew upon a totally distinct mass of material. First and most important is his own personal observation. He had travelled widely and evidently made copious notes on his travels. The actual area of his voyaging is still a matter of dispute, but from the character of his descriptions it is possible to isolate a certain number of his incidental descriptions as personal and authentic, based on first-hand information. He had certainly sailed along the whole of the rough north Aegean coastline from the Dardanelles to Thessaly and examined it in the closest detail, noting the habits of its peoples. He seems even to have travelled inland into central Macedonia. He knew most of Old Greece, and, naturally, all of Ionia. But his longest voyage seems to have been that which took him to the Black

Sea. Here he must have coasted round almost the entire sea, called at what is now Batum, and known the Crimea. He seems also to have voyaged inland right up into the then exceedingly wild land that is now upper Rumania and South Russia, for here his description of peoples is both extremely vivid and correct. On the other hand we cannot know for certain whether his knowledge of the Persian peoples is based on very exact personal inquiry, and his very detailed account of Egypt is almost certainly based on research among learned Egyptian information rather than on wide personal travel in that country. We know that he visited Egypt, like so many Greeks in the fifth and sixth centuries B.C.—indeed we have possibly preserved for us his actual autograph![1] But let us look at some of his anthropological descriptions of strange and unusual peoples. His own words best illustrate his methods and his outlook.

In Macedonia he seems to have visited one of the several marshy and malarial lakes which run east and west in a string between the river Struma and the river Vardar. He is describing how a Persian general sought to subdue the various peoples in these parts.

> 'He sought indeed to subdue the dwellers upon Lake Prasias, but could not effect his purpose. Their manner of living is the following. Platforms supported upon tall piles stand in the middle of the lake, which are approached from the land by a single narrow bridge . . . The men (in this settlement) all have many wives apiece and this is the way in which they live. Each has his own hut in which he dwells upon one of the

[1] Two potsherds found in excavation at Naukratis in the Delta preserve the name HERODOTUS. They may possibly be parts of vessels dedicated by the historian to commemorate his visit. The name is a rare one; the date of the vessels is that of Herodotus: they were found in the Hellenion sanctuary which he describes. Both sherds are in the Ashmolean Museum at Oxford. See A. W. Lawrence, Nonesuch Ed. of Herodotus (in translation) p. xxvi.

> platforms and each also has a trap-door giving access to the lake beneath: and their wont is to tie their baby children by the foot with a string to save them from rolling into the water. They feed their horses and their other beasts upon fish which abound in the lake to such a degree that a man has only to open his trap-door and to let down a basket by a rope into the water and then to wait a very short time, when he draws it up quite full of them.'

That is all, a mere footnote, but an extremely useful one. It is our only information of the survival right into the full historic period of men in Europe living in the manner of the lake-dwellers of Switzerland in the Bronze Age. Herodotus follows a clear system of noting certain salient facts in almost all his descriptions of peoples. He always observes the type of food they eat, their marriage customs and, if possible, the nature of their dwellings. This follows sound anthropological principles, for by such tests racial similarities can be discerned.

It is perhaps in the description of Scythia that Herodotus gives his most detailed and most brilliant anthropological descriptions. No ancient writer has approached him in method, accuracy or detail. He begins by a full and skilful geographical description, after a preface which is worth repeating, if only for its charm:

> 'The Black Sea has nations dwelling round it, with the one exception of the Scythians, more unpolished than those of any other region that we know of. For there is not within this region a single nation which can be put forward as having any claims to wisdom or which has produced a single person of high merit.'

The reader is thus prepared for an account of the wildest of folk and of the most paradoxical of customs.

Herodotus, incidentally telling us that he knows the

river Danube himself, then gives a coastwise account of all the rivers running from Rumania and Russia into the Black Sea. Here we detect at once his reliance on the ancient modes of description employed by the sailors' manuals. He gives us a coastal description obviously based on similar material to that which went to make the Periplus and the Portolano. He proceeds methodically:—'Their manners and customs come now to be described.' He begins with their religious practices and the gods they worship. He carefully gives the authentic names of the deities in the Scythian language, which is otherwise virtually unknown to us. He explains their mode of sacrifice, the way in which the flesh of the victims is boiled, in such detail as could only be given by one who had watched the process in person. 'Such' he concludes 'are the observances of the Scythians with respect to sacrifice. In what appertains to war their customs are the following.' Now comes a long discourse on their military habits. The Scythian drinks the blood of his first victim in battle: he is a head-hunter and makes his enemies' skulls into wine-cups: he collects scalps: he skins his dead enemy and uses his skin like leather.

He next describes Scythian divination and its methods, and the medicine men: modes of execution of criminals and next the methods of burial. His description of the Royal burials is one of his finest and most accurate descriptions. It has in recent times been checked and counterchecked by the discoveries of Archaeology and proved accurate. We thus possess not only the actual grave contents of Scythian kings but a contemporary account by one who had either seen or heard at second-hand the actual rites and customs on the occasion of the burial.

One might indeed say that there is hardly anywhere else recorded in writing such a detailed and complete description of a savage burial rite. The Royal tombs

in the Kuban and South Russia perfectly illustrate these prodigious and terrifying ceremonials. The Royal tombs at Ur also form an exact parallel, for the wholesale sacrifice of tomb victims, slaves, women, horses and animals, seems, although typically Scythian, to be Sumerian in origin.

He concludes with an account of one of the exceptional customs of the people—the use of hemp as a drug, for enjoyment.

In fact the whole account is almost as complete as any modern traveller's description of some remote tribe and its habits. To Greeks, who knew of their savage neighbours only in the most general terms, this startling record must have appeared as a new kind of research and inquiry. What they did not know was that here, perhaps unconsciously, Herodotus had laid the foundations of a science which was destined in fact to fall into neglect, even at the hands of Greeks, to remain ignored and side-tracked, mainly because the emphasis of research soon after the time of Herodotus, and even in his own lifetime, was to turn towards the inner nature of man, his personal and ethical problems, rather than towards an objective study of man as a species. How this was to happen we shall see later.

When Herodotus has dealt in full with the Scythians as a whole, he turns his attention to other minor peoples associated with or related to them. Here his information is often second-hand, though not always. He tells of the ferocious Neuri, who sacrifice all ship-wrecked mariners and all Greeks who put in to their harbours, as offerings to their Virgin Goddess. Here we see the hand of some startled sea-captain who had escaped by the skin of his teeth while attempting to shelter from a storm!

> 'The mode of sacrifice is this,' says our author, with cynical reserve, treating the *corpora vilia* of his countrymen like the raw meats of a sacrificial altar; 'After the

> preparatory ceremonies they strike the victim on the head with a club. Then, according to some accounts, they hurl the trunk from the precipice whereon the temple stands, and nail the head to a cross. The man who has taken a captive cuts off his head and carrying it to his home, fixes it on a tall pole which he elevates above his home. The reason that the heads are set up on high is in order that the whole house may be under their protection. These people live entirely by war and plundering.'

One can imagine the benign historian watching with a certain glee the instinctive shuddering of his audience, as though one man was saying to another 'There: what did I tell you. I always knew barbarians did that sort of thing!' For no people that ever lived was so conscious of its intrinsic civilisation as the Greeks. How much the readers of Herodotus must have rejoiced to know that the worst they had ever suspected was true! But the lowest depths of human degradation is not yet plumbed. Herodotus has still in reserve the Anthropophagi whose

> 'manners are more savage than those of any other race. They neither observe justice nor are governed by any laws. They are nomads and their dress is Scythian. But the language they speak is peculiar to themselves. Unlike any other nation in those parts they are cannibals.'

There is none of the 'Noble Savage' sentiment in a Greek. He wants the bald facts. Herodotus with the clearness of vision of a true scientist here notes the facts as he has established them and draws no conclusions. Modes of dress, he implies, are no criterion of race. Nor is language, for he does not conclude that they are either Scythian by race or non-Scythian. He merely notes their peculiarities. How few modern travellers would be content to leave the matter there.

They would have argued as to race and origin and affiliations on the slender basis of these bare facts. Herodotus gives the facts as bare as can be and leaves us with them.

Then we hear of the strange Budini, who have bright blue eyes and red hair and eat as their food lice.

Elsewhere Herodotus has much to say of the Thracians, one of the two peoples who constituted the main population of the Balkans and the Black Sea hinterland. He described their marriage customs, their practice of suttee, their marriage and family customs, their religion and their funeral and burial rites. Here again he can be closely checked by archaeological research. His facts again prove correct. Indeed, in every case where the results of excavation can be brought to bear on the more concrete facts he describes, he is shown to be meticulously accurate. For his descriptions are always given devoid of prepossessions or assumptions. And he is perfectly open-minded. In his own words 'Nothing is impossible if you allow time enough for it to happen.' Here again one detects that early training in evolutionary speculation which must have been one of the results of his residence in Ionia.

His account of the mighty army of Xerxes is also a rich ground for the anthropologist. He is virtually telling his readers (or hearers) that the armies they defeated were armies of races drawn from the ends of the earth. He undoubtedly used Persian army lists as his sources, rather than tales of travellers or personal inquiry. For his descriptions are mainly military. There is little talk of customs and manners. He tells mainly of the arms they bore and their equipment. Even so, it is diverting to hear of the 'Indians who wore cotton dresses and carried bows of cane and arrows of cane with iron tips', of the trousered Scythians, of whose customs he had elsewhere told us so much, of

the Ethiopians 'clad in the skins of leopards and lions, who had long bows made of the stem of the palm-leaf not less than four cubits in length'. Of the Arabs 'who wore the *zeira*, a flowing cloak, fastened about with a girdle and carried at their right hand long bows which, when unstrung, bent backwards'.

Since equipment is an essential part of any anthropological study, these notes on the peoples of the ancient world are of immense value to-day. Among other things they show how constant has been the dress of those races who have not vanished from the places where they lived in his day.

. . . . . .

Herodotus is largely impersonal. He rarely makes comments which give us his character. He does not even give himself away as easily as the author of a Baedeker. Unlike Baedeker, he is never for a moment dull. The spirit of his work is the spirit of disinterested investigation. While he never forgets the thread of his historical narrative, he never allows the reader to hurry over an interesting region where he might profit by some oddment of information. He never writes pure and unadulterated history. That is why one can never put his pages down.

It would be the hardest thing in the world to recreate the personality of Herodotus, and yet as you read you never forget him. In the background is always that kindly but cynical character, prompting you to racial pride at one moment, and laughing at you the next for indulging it: making savages human but never noble, commenting indirectly on the faults of civilisation by displaying for you the treacheries of the most civilised and the stupidities of the most cultured. Pride to a Greek was a form of intemperance. It was mankind's greatest vice. Herodotus always reminds his reader of that, however indirectly.

But in the main his work is a vindication of the Greek mode of life, as indeed it was bound to be.

Greeks were rarely racially conscious. It is doubtful if they ever had any conscious idea of race at all in our modern sense. They certainly had no feeling about colour, although they knew many coloured races. But they were culture-conscious to the highest degree, and to be culture-conscious is to be aware of your own achievements for civilisation without pride. The eternal contrast which Greeks made between barbarians and themselves is proof enough of that. But Herodotus was the first man in history to come forward and to say 'You may speak scornfully of the barbarians, and of all those savages who deserve your contempt for not possessing the culture which you have. But if you are to pose as really cultured it is your duty to examine those barbarians and make yourself acquainted with their habits. Then and then only will you deserve to have some pride in your own culture. So listen to what I have to say and profit by my researches. I am telling you what I have seen myself and what reliable men have told to me. What I give you are plain facts, not theories or assumptions. The world is a mosaic of strange peoples. All of them are human beings. We are told that man emerged from the animals and became just a better kind of animal than most. But Greeks are not the only men in the world. There are some who have not yet wholly emerged from the animal stage. It is our duty to look at the more backward examples so that we too may move forwards and not be surpassed by some other people who will soon look on us as we do on the savage Scythian or the murderous Anthropophagi.'

That in effect is the lesson of the *Histories of Herodotus*, a book whose inspiration is so deep that it is not obvious, whose pages hold the thought and researches of the first great investigator of the nature and customs of mankind.

CHAPTER II

THE DECLINE OF CURIOSITY

Hippocrates of Cos. Further anthropological research. The Sophists. Replacement of anthropological by ethical interests. Aristotle renews the inquiry into the origin of Man. His views on Biology. Darwin on Aristotle. The growth of Human Anatomy. Herophilus. Thucydides and the use of archaeological evidence. Greek archaeological discoveries. Roman research. Pliny the Elder. The decline of interest in the human sciences. Tacitus the first author of an ethnological treatise, the *Germania*. Ptolemy. Roman geographical discovery does not lead to renewed anthropological interests. Sidonius Apollinaris. The attitude of early Christianity to the human sciences. Isidore of Seville. Byzantine scholarship. The early Greek successes now forgotten.

HIPPOCRATES OF COS, the reputed father of Medical Science, was but another of the great Ionian scientists. Actually he was the most notable of a large group of scientists who were concerned with biological and medical studies in the widest sense. A large number of treatises on such subjects have been attributed to Hippocrates which are probably the common productions of the school as a whole. Hippocrates, like Herodotus, had travelled widely and his grave was shown in Thessaly. He knew the races of men and their habits. Like Herodotus he and his disciples, true to the tradition of Ionian rationalism, looked with suspicion on those philosophical hypotheses of the pure philosophers which were uncorrelated with human or scientific fact.

The Hippocratic work which seems most to combine the study of their own particular science of medicine

with the study of the races of man is the famous work known as *Airs, Waters and Places.* Actually it is a treatise designed to serve the purposes of the Milesian science of Town-planning. It starts on the assumption that environment affects physical development and alters the nature not only of the habits of man but also of his structure. It is the first attempt in the history of science to differentiate between environment and heredity by calling attention to the former as a fact which had hitherto escaped attention. The builders of new cities and colonies should examine in the closest detail the nature of the climate and the soil, of the prevalent winds and the humidity or aridity of the district. On their findings they could decide in the first instance whether the site was habitable at all, and secondly, if it were habitable, what kind of houses and what arrangement of streets they would be called upon to design. Here was the most scientific and skilled method of inquiry, the foundation of a wholly new ancillary science—that of securing such habitations for man as would produce the best type of human being and citizen. Hippodamus of Miletus, the first and last exponent of the science, has no modern equivalent. Town-planning to-day is a matter mainly for the architect.

The treatise *Airs, Waters and Places* is the contribution from the more specialised medical side towards the study. In it the author—who may or may not be Hippocrates himself—exhibits a similar knowledge, though not so full and authentic as that of Herodotus, of the varied races of men. He is particularly intrigued, as was also Herodotus, by an enigmatic folk who lived in the Caucasus, the Colchians, inhabitants of the district that lies behind the modern port of Batum at the foot of the Caucasian mountain ridge. He notes that the country is 'marshy and warm and well watered, thickly covered with vegetation and with a heavy rainfall at all seasons'. The inhabitants

live in marshes in lake dwellings not unlike those of the Macedonians of Lake Prasias so well described by Herodotus. The water they drink is stagnant and warm and their only river the Phasis is not swift-running. The fruits they eat are pulpy and unwholesome—plums, nectarines and apricots. The land is foggy and humid. In consequence the Colchians are different from people who live in drier and harder climates. They are tall but unduly broad: they are yellowish in complexion 'as if they had jaundice' and their voices are the 'deepest of all men's because their atmosphere is not clear but foggy and moist: and for bodily exertion they are naturally rather disinclined'.

Underlying these observations is the implicit suggestion that if you transfer your habitat from a healthy dry country to one like Colchis you will find that your descendants (and perhaps yourself) will undergo bodily changes and modifications that are due to causes other than inherited tendencies. Here is the germ of a completely fresh scientific study of man based on the careful observations of anthropologists. The debt of Socrates himself to these studies is clear from his view, so often expressed, that man is but another example of the domesticated animals, though the most domesticated of all. His nature and breed could be altered at will, as is that of the horse and the dog. By altering the environment in which he lived and the food he ate and, above all, the water he drank, you could produce different types of humanity. Eugenics was implicit in all Platonic and Socratic thought and Plato, in the Republic, makes it one of the main planks in his platform, reducing it at times almost to an absurdity.

Animal forms and animal species were closely analysed by the Hippocratean researchers. They established the first scientific classification in history. Some fifty animals are dealt with, and we meet for the

first time the distinction of mammals from others and a very detailed distinction is made in the types of fish, as one would expect from a people predominantly maritime.

Elsewhere comparisons are made between human anatomical conditions and similar conditions observed in animals related to man. We even find discussions of the survival of the stronger over the weaker and a theory of the inheritance of acquired characters.

What emerges as of prime importance is the fact that these workers realised that the main object of their research was to apply their knowledge directly to human needs and to the study of man.

But so far it seems that no experimental anatomy had been practised on the human body. We learn of the pulse in a treatise entitled *On nourishment*, for the first time in any medical literature, and the general physiological system outlined by the Hippocratic school lasted until the time of Harvey. A treatise *On the heart* describes the ventricles and valves of the heart and draws comparisons with the heart of other animals. Another treatise *On Generation* contains a most painstaking attempt to explain the processes of birth and the inheritance of qualities from parents. Considering that it is based mainly on observations made without true anatomical study it is a remarkable achievement. Throughout the Hippocratic writing man is never segregated and considered apart from the plants and the other animals.

Compared with Herodotus, Hippocrates and his disciples did not make contributions directly to the study of the races of man. Herodotus, devoid of any medical interest, classified the tribes of men geographically and gives us a coherent and ordered account of their customs. It was part of his main intention in order to make clear to his readers the problems that faced the Hellenic world. But behind both Hippocrates and Herodotus was that

contemporary movement that originated in the sixth century and imbued all the thinkers of the fifth century with its purposes, the movement to examine the varieties of mankind and to study them scientifically. That this movement never developed into an organised science is due largely to the fact that as Philosophia in the fullest sense developed, the sections of it that were concerned with the natural sciences became less popular than those which dealt with Ethics and Metaphysics (in the modern sense of that term). The explanation perhaps lies in the growth of itinerant philosophy and lecturing, that went by the name of Sophistry, in its ancient sense. The sophists were in the fifth century men who had studied seriously in the universities of Greece and set out to earn their livings by lecturing on current topics. That their main interests were in ethical problems is probably to be explained on the ground that they were itinerant, like the soothsayers and bards and doctors of the Homeric age. As such they were hardly likely to spend time working in the laboratories of the Hippocratic medical school, or in the classrooms of the Milesian scientists. Nor, like Herodotus, were they likely to travel among the savage peoples of the world, for their itineraries lay solely between Greek cities. They were in fact, men without any specialised knowledge, and, as such, they gravitated towards the kind of philosophy which has no need for any raw material other than the behaviour of men among themselves. Lecturer and hearer alike were thus on common ground. They discussed together the finer problems of human behaviour and backed their studies with a plentiful mass of illustrations from literature. Their contributions to the furtherance of science as such were probably nil.

The term 'sophist' became a term of abuse largely owing to the fact that Socrates took sophists as his butt, and because Plato was shocked by the amount of time

wasted by inadequate philosophical discussion. But the sophists certainly represented the general growth of a great intellectual movement which turned towards the mental processes of men. They did excellent work in provoking argument and discussion, and in raising problems of universal importance. But they did represent a movement away from the study of the natural sciences and towards the purer forms of philosophy. Their activities emphasised the ethical activities of man and his concern with justice and virtue, and showed no interest in man from a strictly scientific point of view. As such they represented a new and very vigorous movement which was destined to put the purely scientific interests of the old Ionian school into the shade, at least in the popular mind. Moreover the new philosophy that thus developed was a product chiefly of Old Greece, where scientific studies as such had never taken deep root. The predominance of Athens politically and socially and the difficulties that had beset the Ionian cities in consequence of the Ionian revolt against Persia in 500 B.C. and the subsequent hostilities in which they were engaged, which had resulted in the disastrous destruction of Miletus, all contributed towards the decay of empirical science as well as of the type of speculation for which Miletus had been famous. The centre of gravity of learning had moved to Athens and the revulsion of feeling against oriental peoples which had been one of the consequences of the Persian wars resulted in an abandonment of those studies which owed so much to the East in their origin. Ionian Greece was in the middle fifth century a cultural backwater, and there appear to have been no successors to the great men of the earlier part of the century. Socrates alone stands out as in the true line of descent but since we know nothing, or almost nothing about Socrates, except from the pages of Plato, we shall never be certain as to the extent to which his own outlook

corresponded with that of the Milesians. On the whole it probably did. Socrates is reputed to have learned from Archelaus of Miletus much that later was called Socratic. Archelaus, although a physicist, if indeed any Greek philosopher can be made to fit in to a modern classification, is said to have 'studied the philosophy of law-giving, of Goodness and of Justice' and in so far as he did that he led the way to the Socratic method. Indeed it would almost certainly be wrong to assume that the Milesian physicists were oblivious to the study of morals and ethics. The statement as to the interests of Archelaus is evidence enough.

In Athens during the late fifth century and the early fourth the study of science in general and of man as an object of scientific rather than philosophical research was in a heavy decline. Athenians and most other Greeks had become introspective and self-analytic. To some extent this may have been due to the incidence of the Peloponnesian war which, like all wars, limited the possibilities of genuine research and drove men into themselves. Science was for the time being overwhelmed.

But the immense figure of Aristotle whose life covered the period 384–322 brought science once more to the front. Again we seek for external causes, and we find them. The vast conquests of Alexander the Great, the pupil of Aristotle himself, opened up to exact inquiry the very world whose bare fringes Herodotus had examined. Even so, it was rather the study of Geography and Biology which profited from these Hellenic advances into the unknown east.

Nevertheless, to Aristotle must be given the title of the Father of Science. And it is due to his positive contributions to almost every branch of science that European research as a whole has been built up. Aristotle at the age of seventeen was the pupil of Plato, and in the Academy he passed through the

normal curriculum of ethical and metaphysical training. After Plato's death in 347 B.C. he went to live in Ionian Greece. It may not be fantastic to assume that here he was affected by the surviving schools of Ionian physics, for it is unlikely that the long tradition of Ionian science had completely vanished. Cities may be destroyed and their inhabitants decimated, but a tradition of learning dies hard. The University of Athens lasted nearly a thousand years and survived the Peloponnesian war, the violent sack of Athens by Philip V of Macedon, as well as the tumults that followed the death of Alexander the Great. It survived the Roman sack of Athens by Sulla and the savage and unexpected assault by a tribe of savage Thracians as late as A.D. 267. Universities may often be the first objective of warriors bent on destruction, but they are also among the first elements of civilisation to climb out of the rubble of fallen cities. So in Ionia, the relatively minor calamities of the Persian wars cannot wholly have extirpated a tendency for learning and research that was deep-rooted and of immense vigour. Aristotle in Ionia must have learned its traditions and methods. For his scientific studies follow more or less exactly on the lines of the Milesian scientists.

Aristotle put no bounds to his inquiries. One of his greatest works, the *History of Animals*, appears to have been composed in Ionia itself. For in it there are frequent references to Ionian places and regions. Since, after leaving Athens, he went first to Ionia, before his later migration to the court of Philip of Macedon to become tutor to Alexander the Great, and since his *History of Animals* is believed to be his earliest work, it is almost certain that it was composed in Ionian Greece.

To say that Aristotle was specifically interested in man in the truly anthropological sense would be incorrect. On the whole he is less interested in the

nature of man and in the varieties of mankind than Herodotus or the pre-Socratic philosophers of Ionia. He is more concerned with the things man has done, and with the psychological nature of man himself. That is why the *Politics* of Aristotle is an appendix to his *Ethics*. The first shows what man has made for himself in the way of laws and cities, the second what man is like in his actions. The two books form two aspects of man as he interested Aristotle. Among the works attributed to him there is none which comes under the heading of Comparative Ethnology or Anthropology, still less anything that could be considered as archaeological. At the same time, once a researcher has shown an interest in the behaviour of mankind in general and, as Aristotle did, made lists of his achievements—like the list of Olympic victors, or the list of political organisations which he compiled—that researcher is well on his way towards antiquarian study and so to a study of the material remains of man. But Aristotle can rank neither as the first archaeologist nor as the second anthropologist. His contribution to the study of man lies in the fact that he perpetuated and continued that healthy outlook of the Milesians which considered man as just another animal.

Aristotle's scientific works number about twenty-nine. They are divided into three groups Physical, Biological and Psychological. Indeed if Aristotle must be given any claim as an innovator in science he can rank as the first psychologist.

His works classified as Natural History are four in number: the *History of Animals*, *On the parts of animals*, *On the reproduction of animals*. It is mainly his physical works, with which we are not now concerned, which exerted so enormous an influence on European thought up to the Renaissance. But after the discoveries of Galileo they have become obsolete and are now little studied. His biological works, on the other hand, which were hardly noticed before the Renaissance,

have been closely studied by naturalists and universally admired. It is these works which justify us in placing Aristotle among the great thinkers of the past who have laid the foundations of a proper study of humanity, for his method of compiling his biological research upon a basis of innumerable first-hand observations of Nature set a standard of scientific work which is the standard current to-day. His main thesis is best stated in his own words.

> 'If any person thinks that the examination of the rest of the animal kingdom is an unworthy task he must hold in like dis-esteem the study of Man.
>
> 'We must not recoil with childish aversion from the examination of the humbler animals. Every realm of nature is marvellous. It is told of Heracleitus that when strangers found him warming himself at the kitchen fire, and hesitated to go in, he bade them enter, since even in the kitchen divinities were present. So should we venture on the study of every kind of animal without distaste, for each and all will reveal to us something beautiful and something natural.'

Perhaps his greatest contribution was to the classification of species. Neither he nor his successors saw the prime importance of species, but he did succeed in saying what a species was.

> 'The individuals comprised within a single species are the real existences: but inasmuch as these individuals possess one common specific form it will suffice to state the universal attributes of the species, that is, the attributes common to all its individuals once and for all.'

This is a true anticipation of the normal modern definition of species.

That Aristotle or his pupils actually carried out anatomical research and primitive genetical experiments is proved by his description of the interior of

the stomachs of ruminants, a famous passage in the *History of Animals*. He observed the reproductive processes of the Cephalopods, a fact unknown to scientists until the middle of last century. He also observed and experimented on the growth of chickens from the egg.

But it is certain that he never dissected the human body and his account of the internal human structure compares badly with that of the internal organs of other animals. Man was *not* his main objective, though all his researches in Natural History were carried out with the intention of using them to further the study of man himself. He knew that he was building a structure into which the study of man, as such, could ultimately be fitted. Indeed without Aristotle it is improbable that the Natural Sciences would have been organised and developed as fast as they have. And once the Natural Sciences are organised some other, with a mind as profound as that of Aristotle, is certain ultimately to concern himself with the human species. From Aristotle to Darwin is a long distance of time. But they can rank as perhaps the two greatest scientific brains that the soil of Europe, or for that matter the world itself, has ever produced. There have been mathematicians and, perhaps, philosophers as highly endowed, but among scientists these two tower head and shoulders above the rest, Aristotle by his immense and untiring industry and his superb organisation of method, Darwin by his astonishing capacity to interpret evidence and to build up a hypothesis. They are the beginning and the end of a great story.

The wonder of the ancient world at the researches of Aristotle are reflected in the stories that explained the magnitude of his research. The elder Pliny declares that

'Alexander the Great, fired by desire to know the

> natures of animals, entrusted the prosecution of this design to Aristotle. For this end he placed at his disposal some thousands of men in every part of Asia and Greece and among them hunters, fowlers, fishermen, park-keepers, herdsmen, bee-keepers, as well as keepers of fish-ponds and aviaries, in order that no creature might escape his notice. Through the information thus collected he was able to compose some fifty volumes.'

Another writer assures us that Aristotle was granted some £200,000 by Alexander to subsidise his work. Neither of these stories bears the imprint of falsity. The Greeks never stinted money on art or science. Payments made to artists were often on this scale.

That the contemporaries of Aristotle and his immediate successors wondered and marvelled at his achievement is a just measure of the capacity of Greeks to appreciate genius when they saw it. Modern scientists are the only scientists since those days to appreciate him in the same way. From the beginning of the nineteenth century biologists began to realise that Aristotle's discoveries were capable of exact verification and his reputation as a biologist has steadily increased since then. The science of genetics and the study of generation has caused men to read again the attempts of Aristotle to examine such matters. His early successes are, in consequence, the more appreciated. Darwin himself wrote in 1882 to the naturalist William Ogle:

> 'From quotations I had seen I had a high notion of Aristotle's merits, but I had not the most remote notion what a wonderful man he was. Linnaeus and Cuvier have been my two gods, though in very different ways, but they were mere schoolboys to old Aristotle.'

After Aristotle the study of the sciences became increasingly concerned with Natural Science pure and

simple, with some emphasis on plants and their distribution and character. But with the death of Theophrastus, the greatest of the Greek scientists after Aristotle, the biological sciences as such fall into a heavy decline from which they never recovered.

Aristotle is one of the few Greeks whose personality almost wholly evades one. His reader is conscious of a brain of enormous fertility and of great synoptic power. As a clear dispassionate intellect, capable of handling enormous masses of information and digesting them, Aristotle stands out clear and shining, one of the highest peaks in the history of human thought. Beyond the bare details of his life he escapes us almost completely. Plato has left us poetry, from which it is clear enough that had he never taken to Philosophy he would have been a great poet. Of Aristotle we know almost nothing personal. He is as intangible as the Aflatun and Aristu of the Moslem legends, those strange wraiths of the great thinkers, who, in eastern legends had become mere wonder-workers and the contrivers of strange engines and engineering feats. We hardly even learn Aristotle's prejudices, so calm and dispassionate are his writings. Many hold that almost all the Aristotelian writings are in fact but the notes on his lectures preserved by his pupils. But it would be remarkable indeed that while almost the complete works of Plato have come down to us more or less intact, nothing at all from the hand of Aristotle survived. The fact that no difference in style in his various works can be detected, argues more for his authorship of his works than for their being mere notebooks. For some work of his must have survived, so making a contrast in style possible to detect.

That the Greeks had long made a close and accurate study of human anatomy is clear even in the early fifth century from a study of their art. At first it was mere observation of the human form in action, based on the athletic exercises of the gymnasium. The

visible muscles of the body, its sinews and tendons were studied with a brilliance of observation which puts the attempts of Babylonians, Assyrians and Egyptians into the shade. No people before the Greeks fully or correctly understood the structure of the human body as such. Egyptian artists produce miraculous versions of the human form: they know its general build and formation, but they never seem to appreciate it. They know without understanding. Those who carved the bulk of Egyptian figure-sculptures, most of them intended to stand facing the spectator, with a temple wall or a mastaba wall behind them, did not even trouble to render the back at all. Indeed, in the interests of ease of carving and safety, they usually carve a vertical bar, for strengthening purposes, right down the back of the figure, which precludes completely any attempt to display muscles or flesh surfaces.

The Greeks in their very earliest sculptures, while following the Egyptian formulae of sculpture in so far as attitude and stance were concerned, never adopted this particular convention. They were, on the contrary, entranced by the *pattern* of the human muscular system, particularly on the back, and almost as soon as they had begun to carve they began also to study the human body. By the middle of the fifth century B.C. there was almost nothing about the main anatomical structure that they did not know. In their vase-painting also, so correct, anatomically speaking, is their delineation of the human form in two dimensions that, if an expert anatomist fills in, as if by an X-ray view, the internal muscles and bones, the actual structure of the body conforms in almost all cases exactly to the portrayed structure. This implies an extraordinary power of assimilation and accurate observation and does not necessarily suggest any anatomical knowledge based on dissection of the human body. There is indeed no evidence at all that, even in the fourth century B.C. dissection had

been practised. Artists of that century actually exhibit a certain decay of anatomical knowledge. The sciences were becoming studies designed for practical application. There is a spirit in all the scientific pursuits of that century which reflects a certain recession of interest in learning as such. Speculation, yes: philosophy, too, progressed enormously; but science in the way in which it was interpreted by the old Milesians of the sixth and fifth centuries existed no longer. The interest in man as such had somehow given way to an interest in his soul, in his psychology, in his ethical endowments. Art, which always reflects the thought of its day, exhibits precisely the changes that one would expect from a decreased interest in man himself. The superb minor art of vase-painting, which is for us so happily illustrated by so many thousand instances, suddenly and almost inexplicably dies, and dies completely, never to be revived. By about 430 B.C. there are virtually no more artists in this branch of art who are capable of delineating the human figure at all. From that date to the end of the fourth century artists seem to have lost their grip, to have forgotten all the careful knowledge they had accumulated concerning the human figure. Although Aristotle's treatises laid the very foundations of modern Biology he had a much vaster knowledge of biological processes than of human anatomy. We are told that[1]

> 'he never dissected the human body; he had only the roughest idea of the course of the vessels, and his description of the vascular system is so difficult and confused that a considerable literature has been written on its interpretation.'

This seems proof enough that there had been no proper anatomical study in the fifth century and the

[1] C. Singer: *Greek Biology and Greek Medicine*, p. 52.

fourth, and that the artists of the sculptures and paintings we possess knew the human body only from the outside. But that they achieved the correctness they did without the knowledge derivable from dissection is a testimony to their overwhelming interest in human shapes. What is astonishing is that the step, which one would have thought so easy and so quick, from external to internal examination of the body was in fact not yet taken. How we are to explain this it is hard to say. Probably the vague taboo that still prevented the cutting up of the human body for scientific purposes retained some operative power. The deliberate cutting of a human body was always to Greeks held in abhorrence. Their very devotion to its shape and character helped to strengthen the taboo. Greeks looked with horror on that rare and barbaric habit known as *maschalismos*, the cutting up by some particularly ferocious or superstitious warrior of his enemy, to prevent him from haunting his murderer or 'walking'. Its occasional practice is illustrated both in art and literature, but always with condemnation. Anatomical dissection no doubt came under the same ban.

But after Aristotle the Alexandrian School of Medicine was founded by Herophilus of Chalcedon, who was a pupil of the physician of Cos, Praxagoras. Herophilus founded an empirical and practical school and made researches into the anatomy of the eye, the liver, the genital organs and the brain. He can only have done this as he did with the aid of some dissectional experience.

The art, mainly sculptural, of the period seems to bear this assumption out. The Alexandrian and Pergamene schools of sculpture show the human body with a prodigious emphasis on the musculature often inartistic, always pronounced. The figures on the Great Altar of Pergamum, now in Berlin, seem to exhibit a greatly increased anatomical knowledge. It

may or may not be based on dissectional knowledge. No one is competent to make such a judgment from the artistic evidence alone. But the contemporaneous appearance of the researches of Herophilus gives some ground for assuming that the new anatomical emphasis in art can be correlated with that of the medical research-workers.

But what had happened to the study of science was virtually that the desire to know by itself, the passion for explaining facts by means of the widest hypotheses, however provisional, had died. Science had become an applied study. This was in keeping with all the teaching of the age. Even the immense geographical fields laid open by the campaigns of Alexander the Great had resulted in little if any new ethnographical interest. Certainly no stimulus was given to any kind of anthropological study. No writing or record of a writing is preserved that suggests any extension of the interests of Herodotus. The mind of man is still curious, but its attention had drifted elsewhere. The intense human curiosity of Herodotus has changed to a dispassionate interest in things that were of human advantage but not actually concerned with man as such. Severely practical as always, the Greeks were, rather like us to-day in our mechanical age, devoting themselves to the material facts of existence other than those that most intimately concerned man. And so neither the study of man nor of the history of his inventions interest Greeks any longer. Anthropology is the study of the variety of man, Archaeology the study of the things he made and the way in which he lived. We have seen how the former has its roots deep in Greek soil. The latter, as an organised study has not yet even made its appearance in the ancient world. Thucydides was aware of the importance of studying the artefacts of man and seeing how to tell the history of his activities by examining what he had made, by the objects found in tombs, by the difference

in the objects used in one area from those used in another. Thucydides, in writing his history of the Peloponnesian war, prefaced his history with a brief but cogent account of the prehistory of the Greeks. In it occurs a passage concerning an ancient people—the Carians. This passage stands as the first attempt in any age to use archaeological evidence for the purposes of history. It is so important that it deserves quotation in full:

> 'The Islanders were Carians and Phoenicians by whom most of the islands were colonised, as was proved by the following fact. During the purification of Delos by Athens in this war all the graves in the island were taken up, and it was found that half their inmates were Carians: they were identified by the fashion of the arms buried with them, and by the method of interment which was the same as the Carians still follow.'

But with this one preliminary attempt at archaeological research, the ancient world abandoned the method of inquiry and ceased to trouble itself about the history of human inventions and manufactures. Curiosity, it is true, was aroused from time to time in the unexpected discovery of the relics of past ages. In late Greek times a tomb was opened by chance at Haliartus in Central Greece, and its discoverers were astonished to find inside it a bronze tablet on which were engraved signs which no Greek could transliterate or recognise. The local wiseacres, who believed the tomb to be that of Alcmena, mother of Hercules, sent the tablet to Egypt for a report upon its origin and meaning. For Egypt, throughout Greek history, was looked upon as the repository of all antique lore and all knowledge of human origins. The supposedly wise priests of the temples of Egypt had impressed the Greeks with their learning, as we can see from the pages of Herodotus where he describes his visit to Egypt and his conversations with priests.

How mistaken the Greeks were in the case of this bronze tablet can be seen from their reply. The 'Society of Antiquaries' of Egypt sent its report. They replied in the words of Plutarch, in whose work entitled *The Genius of Socrates* the story is preserved, that the writing belonged to the time of King Proteus and contained a general exhortation to the Greeks to found a contest in honour of the Muses and 'Setting arms aside to devote themselves to the peaceful rivalry of letters and philosophy'.

Intelligent commentators can infer from the reply that the priest who composed it knew less than nothing about the tablet and was quite unable to decipher the inscribed signs. But, like all members of learned unions who are faced with a problem which they are unable to solve, he burked the issue and hid his ignorance. Knowing what we do to-day of the archaeology of this region, it seems likely that the tomb and the tablet were Minoan and that the writing was the as yet undeciphered script of Crete. Neither Egyptian nor Greek in this age knew anything about Cretans of the prehistoric age and their culture, so that the evasion of the Egyptian priest, if unpardonable, is comprehensible to those who have a tendency to compromise.

Another similar archaeological discovery is recorded in Roman times. Peasants and shepherds guarding their sheep on the site of Cnossos, found one day the remains of a tomb, gaping open as the result of an earthquake. In it were tablets which the finders described as being of 'grey birch bark' bearing inscriptions in an unknown writing. Again the pundits were summoned. Again they refused to admit ignorance. They maintained that the writing was Phoenician and that the tablets contained the work of a lost writer, known as Dictys of Crete, who was reputed to have composed a work on the Trojan war. The Phoenician text was translated into Greek and presented to the Emperor Nero at Rome.

Here was more humbug and more chicanery. The tablets of 'grey birch bark' seem to resemble most clearly the grey clay tablets found at Cnossos by Sir Arthur Evans in the great Palace. Modern archaeological discovery seems to have been anticipated once again, but without results comparable to the importance of the discoveries. For many apples fell on many heads before that which fell on the head of Newton!

And so the later Greek period merged into that of Greco-Roman life without any fuller development of the study of the two great human sciences.

About 20 B.C. a certain Celsus wrote a treatise on medicine but shows no anatomical advance in knowledge. On the other hand in the next century another scientist, Rufus of Ephesus, experimented in the dissection of apes and other animals.

The Romans, who had inherited the bulk of Greek learning, culture and science, showed little disposition to investigate further the racial and human studies which the Greeks down to 300 B.C. had advanced. The Roman nature indeed seems to have been almost devoid of that curiosity essential to such progress. Considering how, in the formation of the Roman Empire, knowledge of immense new regions was opened up, and reflecting on the enterprise which took Roman trade to the confines of the Far East and southwards to the Equator, it remains a paradox of human nature that no single Roman was prompted to take on the studies of Aristotle and Herodotus where they were left and to promote still further both the biological and the ethnological study of man.

The Elder Pliny, indeed, who flourished between 23 and 79 A.D., compiled the first encyclopaedia in history, the title of which is the *Natural History*, a work which contains a prodigious mass of fact, fiction and theory. But it has almost nothing to do with natural history in the sense in which that term was

used by the Greeks or is used to-day. Almost all his information is second-hand, derived from books. He was an intelligent and well-meaning country-gentleman who had suddenly been seized with a desire both for learning and for imparting it to others. He must be praised for his intentions, but not for the manner in which he carried them out. He has no spark of the essential scientific outlook, no knowledge of how to discriminate between fact and fiction, nothing to recommend him save an insatiable interest and a mania for collecting. He is the father of all card-index makers, but far less efficient than many of his modern descendants.

Pliny's vast work as science is contemptible. It is written in a Latin so peculiar and so involved that few since have ever had the courage to attempt a proper translation of the whole work into literary language. His pages contain passages which defy comprehension, written in a language the involved nature of which is not so much due to an honest if misguided search for style, as to simple mental confusion. Many of his obscurities are due to the fact that he was translating from Greek books: and Pliny was unable to translate Greek. Imagine then the pitfalls that beset the modern translator of a Latin which is itself often a garbled version of misunderstood Greek! Pliny will always remain in the history of literature as an author who, inspired by an admirable ideal, had neither the pen nor the brains with which to carry it out.

His *Natural History*, however, probably because of its lack of order and ignorance of scientific criticism, appealed to the scholars of the Dark Ages that succeeded the fall of the Roman Empire and to those of the Middle Ages, and was read continuously for centuries. To a large extent it was the one channel, in the darkest periods, through which the wealth of knowledge and learning came through to an

intellectually impoverished world. It was as if, after the breakdown of modern civilisation, the heritage of nineteenth- and twentieth-century Europe was handed down through the medium of a cheap Children's Encyclopaedia. For by early Greek standards, or by the most rigid standards of scientific judgment to-day, it was of no higher value.

Pliny drew from every source of information, good and bad. He had no powers of discrimination, no critical sense and no solid understanding of the meaning of the more serious works from which he drew. In his miscalled *Natural History* he includes a History of Greek Art, much ill-digested geographical knowledge, historical anecdotes, biographies and a confused mass of quasi-learned botany and much semi-magical information about minerals and rare stones. Some technical information of value is embedded in his pages and we learn of Greek and Roman mechanical and other inventions. But of man and his origins, of the races of man and of human history there is hardly a trace. His apparent learning impressed his illiterate readers of a later age and the information he provided was of that curious and intriguing nature which never fails to appeal to the ill-informed. Like a Sunday newspaper, he saved his readers the trouble of acquiring information first-hand by serving it up hot but second-hand, with a naïve garnish of comment. His extracts from earlier scientific works were sufficient to help and not bad enough to kill. Of Pliny, a scholar has said that[1]

> 'Read throughout the ages, alike in the darkest as in the more enlightened periods, copied and recopied, translated, commented on, extracted and abridged, a large part of Pliny's work has gradually passed into folk-keeping so that through its agency the gipsy fortune-teller of to-day is still reciting garbled versions of

[1] Singer: *Greek Biology and Greek Medicine*, p. 63.

the formulae of Aristotle and Hippocrates of two and a half millennia ago.'

Pliny, however, finds his place in our story if only through the virtues of his defects. It was his card-index attitude to scientific knowledge that was handed down the centuries in place of the critical and philosophical attitude of the early Greeks. He helped to make things easy for stupid people and his lack of discrimination fitted the temper of the times which read him. So that from a negative point of view Pliny contributed largely towards that swift decline in interest in human studies which marks the thought of the Roman Empire and the Age of Ignorance which followed it. That the great explorations that accompanied the extension of the Roman Empire should not have resulted in any advance of ethnological study, or almost none, is one of the paradoxes of the Roman world. Romans then, as to-day, were accustomed to doing what they were told without asking the reason. No Greek would ever have been the hero of the legend of the sentry at Pompeii during the eruption of Vesuvius. Similarly Romans liked believing what they read, if one can judge from the popularity of Pliny's work. Other pseudo-scientific authors, such as the geographer Pomponius Mela, epitomised the knowledge of the day without contributing to its advance. A German scholar[1] has said of the Romans in this context that

'With their narrow, rustic horizon, their short-sighted practical sobriety they had always in their heart of hearts that mixture of suspicion and contempt for pure science which is still the mark of the half-educated—and they sometimes bragged of it. Cicero, the arch-dilettante, boasts that his countrymen, God be thanked, are not as these Greeks are, but restrict the study of

[1] J. L. Heiberg: *Mathematics and Physical Science in Classical Antiquity.*

> mathematics to what is useful and practically applicable. So the Romans have produced no original work in these fields.'

Perhaps to the historian Tacitus can alone be given some small credit for an attempt to compose a work which in intention and achievement was an entirely anthropological treatise. Tacitus, who died in A.D. 98, was in no sense a scientist. He had not even that avid mania for collecting facts which distinguishes Pliny the Elder. Tacitus was a man-about-town in Rome, of aristocratic stock and with a legal and forensic education. He is not known to have had any first-hand knowledge of distant foreign lands nor to have travelled extensively. His main ambition seems to have been to achieve the reputation of a first-rate stylist and historian. That he succeeded in the former is more evident than that he ever was recognised as the latter. As a stylist he stands apart from all other writers, though we must always remember that a 'stylist' is not necessarily the same thing as a 'good stylist'. Tacitus certainly bequeathed to posterity works which, for their richness in unnecessary epigram and their addiction to flourishes and purple patches of style, have no equal in ancient literature. Wherever he could avoid the simple purity of direct statement and replace it by a baroque periphrasis he did so. Where he could play with words he played with extreme skill. Where he could prevent the even flow of sonorous Latin from flowing, he rejoiced. And, when all is said and done, he produced a style which everyone can enjoy and no one wishes to emulate. At times he reminds us of Aldous Huxley, at others of Gibbon, and, all through, he has a flavour of what can best be described as undergraduate or collegiate sophistication. Tacitus is not a great writer but he writes well and entertainingly, and holds his reader.

For some reason which it is hard to descry he decided to compose a treatise on the Germans. For geographical sources he seems to have resorted to nothing better than Pomponius Mela and Pliny, those standard dishes of fashionable Rome. But he may also have used a lost work by Pliny on the Roman wars with Germany, which may well have contained much useful information. Personal contact in Rome with officers and soldiers from the German frontier obviously provided a mass of material at good second-hand which was of the utmost importance. Tacitus was shrewd and had an eye for essential information. He obviously had no kind of scientific training and little critical power. But he knew how to seize on essential facts, which is more than many Roman writers of his day knew. It was certainly not Pliny's strong point!

The purpose of this treatise on the Germans has been disputed. It has been suggested that it was an attempt to excite the jaded interest of Imperial Roman society by an account of the Noble Savage of the day; to contrast the luxuries and vices of civilisation with the simple pieties and purities of the untutored and uncouth German of the European forests. An alternative suggestion is that by describing the fortitude and bravery of a people who had already inflicted on the Romans a complete military defeat, his treatise might deter Roman military leaders from further attempts to subjugate an intractable and dangerous people.

At the time the treatise was composed Roman arms were very active on the German border and the great boundary between Germany and the Roman provinces was being further strengthened and established. Germans were no doubt a fashionable subject in Rome, and actual Germans were probably often to be seen in Roman streets—envoys or prisoners or members of subjugated or friendly tribes, just as to-day one can see in the streets of Paris Moroccans and Berbers.

Tacitus was determined to get a reputation as a

learned man by informing the intelligentsia of Rome of the mode of life of these strange people. And in this he certainly succeeded. For, whether he intended it or not, his *Germania* is the first isolated treatise written in antiquity which can claim to be an ethnological and to some extent an anthropological study. It is well composed and arranged, and its reader acquires a remarkably full account of the Germans. Indeed, the work stands to-day as our only source of knowledge of the tribes of Germany in ancient times. Tacitus is ignorant of much that would to-day be thought essential for such a work. He also has many serious omissions. But as a whole the treatise is as informing and interesting to us to-day as it must have been to the public for whom it was originally composed. What is most important is that the composition of the treatise is of a type new in ancient literature, in so far as we can judge from what survives. Tacitus may, indeed, have modelled his work on a pre-existing type of treatise, on some Greek or Roman ethnological work. But this is mere conjecture, for none such survives, nor have we any record that suggests that it existed.

The *Germania* is carefully and methodically arranged. It begins with a geographical description of Germany and its boundaries and proceeds to a brief account of the people and their own legends of their origin. He notes the racial type common to all the inhabitants, their 'hard blue eyes, curly blond hair and great stature'. He then, after this short introduction, proceeds to give an account of their customs and institutions, their arms and modes of warfare, their kings and aristocracy. 'Their kings' he says, 'do not wield unlimited power and their princes rule rather by merit than by force.' He lists their gods and notes, with a cynical eye on Rome, that their deities are not 'confined to the walls of temples' nor represented in human form: 'they give the names of

deities to that mysterious idea which they see by faith alone.' Here is a dig at the agnostic aristocracy of the capital, as well as at the priest-ridden believers. Tacitus is certainly exaggerating for effect, for the Germans at this date are not likely to have exhibited such spiritual and religious development as he describes. Here is one of the occasions when the Noble Savage appears in all his grand absurdity.

Methods of divination are next discussed, showing a use of first-hand observation, probably the account of some Roman officer whom Tacitus had met. He proceeds to describe their general warlike nature and the methods by which they create a warlike caste. The German village life, the absence of cities or towns and the clothing worn are fully described, and one detects here the germ of what might almost be called archaeological method. Tacitus is the first writer since Thucydides to realise the importance of describing material objects indicative of a particular culture. Marriage rites and home life are discussed. 'Each mother suckles her own offspring and does not hand them over to nurses and servants'—another hit at the effete Roman aristocracy! 'The young men indulge in the pleasures of love at an advanced age and in consequence their virility is unimpaired.' The Germans drink hard and often quarrel in their cups, and they decide the issues of peace and war at a drinking party, confirming the next day (or otherwise) the decisions made when they were in their cups. 'They thus come to decisions when they cannot be misled, but verify them when they are no longer in a condition to make mistakes.' Here one detects the faint scorn of the Mediterranean for the hard-drinker, the scorn which any traveller to-day can observe in Greece or Italy when the native Greek or Italian watches the heavy drinking of the northern European visitor. Drunkenness has never been popular in the Central Sea.

This description of the popular rally at which decisions of war and peace are taken bears close comparison to the now annual Nuremburg Congress of the Nazi party. There seems little doubt, indeed, that Herr Hitler and his associates have modelled many of their institutions upon those described by Tacitus, whose treatise has always been popular in modern Germany.

It is interesting to remember that the two great revolts of Germans against Roman invading forces were organised at such drinking parties and popular rallies. That of Civilis in A.D. 69 and that, the most famous, of the Germans against Quintilius Varus in A.D. 9 were both so arranged. The latter was the greatest reverse to Roman arms in Roman Imperial history. It is still commemorated in Germany by a students' drinking song called 'Quintilius Varus, where are your legions?' and by many war-memorials in the Rhineland to the German leaders of this two-thousand-year-old victory!

The German cuisine, food and diversions are next discussed. The high standard of living of slaves and their relative freedom are noted—no doubt in contrast to what obtained at Rome. He also observes that lending money out at interest is a practice unknown in Germany and that agriculture is on the communal system. Farmers move to new fields as soon as the old are exhausted. This indicates a very primitive type of agriculture consonant with our knowledge that the Germans were only recently settled from the nomad state. Their funeral customs are too briefly described, without that first-hand knowledge which distinguished his account of divination. He notes that they, as Noble Savages should, despise vast monuments and are content with a simple cremation and a turf tomb. They need no mausoleums and family tombs such as adorn the sad and dismal Appian Way. Here, he says, in effect, are simple folk who don't waste money

on display. 'Their women bemoan the dead, as is fitting: the men are content to bear them in their memories.' What a saving of space in crowded Rome it would be if Romans did the same!

Our author then proceeds to a regional description of tribes. His treatise is thus most conveniently composed. We have learnt of the people and their habits, of their peculiar and normal customs, we have contrasted them with those of Romans and now we will look at the individual Germans themselves and study them piecemeal.

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Taken as a whole the treatise is one of the most remarkable that has come down to us from ancient times. The scholars of the Renaissance rightly named it a 'Golden Book' for it gave them information about European life in antiquity which could not otherwise be obtained. Indeed its value to anthropologists and ethnologists to-day lies in the fact that it is a plain statement of life in a large area of Europe where at that time were developing many of the customs and institutions which are characteristic of western Europe as a whole to-day. There is nothing specifically German about the land-tenure, the petty kingdoms, the organisation of knights and companions to kings, and of the general social organisation which Tacitus describes. France, Britain and Germany throughout the Middle Ages retained a large number of the institutions here described. The German village system hardly differs from that prevalent everywhere in the west. Even the American village system and the Public Meetings of New England towns are the lineal descendants of the moots and the hamlets described by Tacitus. Ancient Germany differed from ancient Gaul or Britain mainly in the greater independence of the individual German and the smaller size of the administrative unit. The German kings were small fry compared with the kings of Gaul or Celtic Britain.

These were real magnates. But the system remains much the same in all areas. The tribal organisations which Imperial Rome partly broke down and partly absorbed and utilised in the provinces which she ruled are seen in their pure state in the Germany of Tacitus. That is one of the great merits of the book, that it preserves a contemporary account of the kind of European culture which had prevailed in European lands before the Roman rule came. To modern sociologists it provides precisely the information required if one is to judge historically of the difference between a modern land which never experienced full Roman rule and one which inherited the organisation and civilisation of the Roman Empire. Germany to-day has many qualities which seem, on reading Tacitus, to have come in unbroken descent from Roman times and contrasts strongly with France or Britain where those qualities have been replaced by traditions and customs derivative from Greco-Roman culture. Those who detect a marked difference between the countries which have inherited from the Classical world and those which have no such inheritance find their justification in the pages of the *Germania*.

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The century in which Tacitus wrote was one of enterprise and research. But apart from the casual interest of which the *Germania* is a symptom, the human sciences were not in the forefront. Geographical exploration was both encouraged and carried out. An official expedition was sent from Rome in the time of Nero to explore the Nile above Assuan. Suetonius Paulinus, who later subdued revolt in Britain, explored north-west Africa beyond Mount Atlas. He made some brief record of the peoples he encountered, mentioning among others a tribe called the Canarii. Another Roman explored the great Amber Route in Central Europe from the Danube to

the Baltic Sea, probably by way of the Elbe, a trip of some five hundred miles. He returned with a great prize of amber. But his aim seems to have been mainly commercial. He left no account of what he saw. A certain Hippalus sailed across sea from Cape Fartaq in south-eastern Arabia to India and noted the recurrence of the monsoon. That Hippalus was a Greek, and in him we see the old adventurous spirit emerging again, and the old Greek capacity for making scientific observations. He discovered the geography of India, that it was a peninsula jutting out into the Erythraean Sea, and knew the position of most of the Indian ports. He found that between May and October a south-western wind blew steadily across the sea, and that from November to March it blew from the north-east with equal steadiness. He left land at Aden, relying on these winds, and reached the mouth of the Indus. This was one of the most daring open-sea voyages in antiquity. Hippalus had revived the splendour of Greek exploration. His name was given to the south-west monsoon, to an African cape and to part of the Arabian sea. He opened the Far East to the Roman world.

The world was indeed opening to Rome and yet of all the studies and sciences now made possible by new ventures those that concerned man languished most. Geography indeed advanced enormously. One of the greatest geographers of all time, the great Ptolemy (another Greek), compiled his standard geography in the first half of the second century B.C. His treatise marks the summit of geographical knowledge reached by the ancient world. He knows the Far East as far even as Annam and Malaya, acquiring his knowledge as he says, in the manner of Herodotus, 'from those that had sailed from there and had spent much time travelling in those parts'. What vast fields for the ethnologist and the anthropologist were opened up, and how little was done to acquire all that human

knowledge waiting to be acquired! But, to quote the words of Dr. Alexis Carrel[1]

> 'We feel a kind of repugnance in attacking such a complex problem as that of the constitution of living beings and of man. The intellect, as Bergson wrote, is characterised by a natural inability to comprehend life.'

It was this perpetual inhibition, this constant aversion from human studies which seems in Roman times, when so much might have been achieved, to have prevented Roman thinkers from ever turning their attention in the true scientific manner to the study of human origins and comparative human inquiries.

Ptolemy represents the epitome of almost all the knowledge that the Roman travellers gleaned, but remarkably little of it will help the anthropologist. After Ptolemy there is a steady and obvious decline. For this we must seek political causes. The Empire was shrinking and large regions of it were lost to investigation. Between A.D. 300 and A.D. 500 Rome had become a mere phantom of its former greatness. But still another and more profound cause was at work. The newly organised Christian church was not an organisation likely to foster independent inquiry as to the nature of the material universe. The hypothesis of a spherical earth, proved and accepted by the Greeks, and the Ptolemaic system that depended on it, were hardly to be reconciled with the Book of Genesis and the Mosaic Cosmogony. St. Basil, one of the more learned of the Early Fathers, deliberately contrasts the views of the scientists with those which it is his duty to teach. 'There is no reason' he says, 'why I should call our cosmography less valuable because Moses, the servant of God, has said nothing about the

[1] *Man, the Unknown*. p. 21.

shape of the earth, and because he has not stated that the earth's circumference is 180,000 stades!' (This estimate was that of a Greek scientist.)

There was among the Christian thinkers perhaps no overt hostility either to the Greek scientists as such or to the generally accepted scientific views as to the size and nature of the earth. But they loftily and openly ignored them, which amounted in the end to much the same thing. Such an attitude on the part of the leaders of current thought was not calculated to promote research and curiosity among ordinary people. It was like a kindly and persuasive censorship which said, in effect, 'Don't worry about what these old and respected scientists say: we have a system and a hypothesis which is based on other considerations altogether.' It was the first appearance in history of that dangerous and seductive sentiment which appeals to intellectual indolence and encourages lethargy among people naturally curious. Here were convenient slogans that explained the complexities of Nature. You need not worry over the controversies of science. Revelation is more important and curiosity as to the material world distracts you from the contemplation of the divine.

With civilisation in the Roman Empire crumbling round them, learned men whether Christian or Pagan, saw little reason to carry on those great researches which the Greeks had initiated. The most cultured man of the fifth century A.D. of whom we have knowledge, Sidonius Apollinaris, a Latinised Gaul of southern France, has left us a long series of profoundly interesting letters which describe the thoughts of a cultivated gentleman who can observe with a detached eye the world that was collapsing around him. He tells us much of absorbing interest, but at the same time it is what he does not tell us which is important. He sees strange Teutonic barbarians entering upon the heritage of Rome, he sees strange Saxons from the

northern seas, Burgundians strutting in resplendent uniforms, many races and unusual types. But he has an incurious eye. He sees but he does not observe. Absorbed in his literary Roman studies, writing bad Latin verses for the entertainment of his fellow country-gentlemen, he seems almost deliberately to try to close his eyes to the approach of those disturbances which heralded a new and barbaric world. We long to hear from him of the language and habits of the barbarians he sees. We would welcome even the dilettante touch of a Tacitus. What we get is the scornful and incidental comments of a man who has lost interest in the world and who is striving to seal himself hermetically in his own study and to enclose his curiosity in the closed chamber of introspection. He expresses his surprise that one of his friends had gone so far as to learn a Teutonic language, and none at himself for not wanting to. He speaks with scorn of the strange tribal chieftains whom he sees, just as the unobservant and unsympathetic 'Empire builder' of to-day lumps all natives as 'niggers' and takes no interest in their mode of life, their language or their customs. Sidonius, almost the last cultured Roman, is our despair, yet he is symptomatic of his age. A cloud of ignorance and incuriosity was descending upon a once Greco-Roman world, where the search for knowledge was the prerogative of every human being.

Characteristic of this century is a treatise which bears the grandiloquent title *A Description of the Whole World and its Races*. It survives in two Latin versions of which one was worked over by a Christian writer. The Christian editor has omitted certain too pagan elements, such as a description of Egyptian religion, which appears in the unedited edition. It is perhaps the last of all the old 'Travellers' Manuals' of the type started by the Greeks, and, as such, is the last flicker of intelligent commentary on foreign lands and strange

peoples. But the information it gives is so full of marvel and miracle, and so contaminated with excerpts from the Old Testament, that it has almost no value as an anthropological study, despite its attractive title. Just as it is the last of the 'Travellers' Manuals', so it is the first of the 'Books of Miracles and Wonders' which soon became the stock-in-trade of the Early Middle Ages. The passage from learning to fable is one that is easily crossed.

The shrinking of the Empire was thus inevitably followed by the general diminishing of knowledge. It is not coincidence that Procopius, a Byzantine historian of the fifth century, knows no more of Britain than that it was a legendary island inhabited by the spirits of the dead, or that the famous Cosmas, known as 'The traveller to India', wrote a 'Christian Topography' in the middle of the sixth century, the purpose of which, according to Gibbon was[1] 'to confute the impious heresy of those who maintained that the earth is a globe and not a flat oblong table as it is represented in the Scriptures'. So restricted is information that in many writers of the sixth century there is continuous identification of Ethiopia with India!

As knowledge decayed so the demand for information was met by the creation of compendious encyclopaedias. Men wanted knowledge easily and quickly. The value attached to Authority, that resulted from the supremacy of the Bible gave an added value to any other authoritative work, especially if it originated from the Church. The scholar Isidore of Seville met the new demand for easily acquired knowledge by a vast work in twenty sections which was the first popular encyclopaedia known to history. It was intended to provide such information as would equip any ordinary intelligent man with all that

[1] Cosmas, all the same, was a notable traveller and was the only ancient explorer to maintain that eastwards of China was the Ocean.

anyone would require to know. Just as the Bible provided all that a man needed for his spiritual life, so the work of Isidore gave him all other knowledge that he required. If, earlier, the works of Pliny the Elder had foreshadowed the type of book which would equip the moderately incurious with ready-made learning, so Isidore perfected the type. Here, at last, was 'tabloid' learning.

The works of Isidore had an enormous life, almost as long as those of Pliny. They were used by every monk and priest throughout the Middle Ages. They served as the storehouse for the pupil and the *vade mecum* of the master. And the type of work initiated by Isidore was imitated largely during the Byzantine Empire. Chronographers, writers of *Mirabilia*, lexicographers and encyclopaedists represented the new learning that began to flourish about the time of the Emperor Justinian. Side by side with a true and learned study of the great classics of Greece and Rome flourished this industrious pursuit of learning viewed as compilation. Smaller men who had no aspirations to be scholars took to the making of books which were not intended in any way to be original works, but which were for the general instruction of mankind. Their writers ranged far and wide among the ancient authors and read countless books which have long perished. Their compilations thus often contain priceless fragments from lost authors, and are a mine of research for the learned. Books like that of Stephanus of Byzantium *Concerning Cities* are full of excerpts from forgotten Greek authors and also of much information the origin of which is unknown. Stephanus actually described not only cities but also peoples and tribes and distant lands. His descriptions are in a few lines only and in no sense give us more than a hint of what we want to know. But here and there small items of ethnological lore emerge, though Stephanus himself is a pure grammarian, more

interested in the forms of words and names than of the knowledge they conceal.

Another Byzantine scholar of this type was Malalas, who compiled a work entitled *A Calendar of the history of Mankind from the birth of Adam.* The study of Man had by now indeed become bibliocentric. The long centuries from Justinian to Constantine Palaeologue, last Emperor of Byzantium produced no single person who set out courageously to investigate the origins of man. Human curiosity had been diverted into other channels. Even the lowliest citizen of Byzantium was deeply intrigued by the problems of Theology. The spirit that had moved Socrates to talk in the market-place of Athens was still alive in the Byzantine Greek: the same curious and penetrating mind was there, with its love of paradox, of hair-splitting and of argument. But the Church had monopolised thought and fed the natural Greek curiosity on the fascinating pabulum of theological controversy. It will always be to the credit of Byzantium that it was there and there alone in the world that curiosity as such survived. True it was a desiccated and dehumanised curiosity, but as an 'activity of the mind according to the mind's proper function'—in the words of Aristotle—it was an essentially human quality. Directly contrasting with the natural curiosity of the Byzantine Greek, the true heir of ancient philosophy, was the authoritarian attitude of the Roman Church. Here even theological curiosity was stifled, and the outlines of speculation were laid down by Papal command, as they are to-day. Rome did not encourage or want theological speculation. Byzantium did. That lies at the bottom of the bitter dissension between the two churches. Neither tolerated heresy, but Byzantium disliked authoritative statements of doctrine and preferred free discussion within the limits of accepted belief. It was this small seed of free thought which ultimately kindled the Renaissance in

Italy itself, the citadel of authority. Every Italian who promoted the cause of research and science came up against the authority of the Roman Church. And every Italian who fought that authority and persisted, was doing so because he had inherited from Byzantium the great Greek tradition of independence of thought and inquiry. Byzantium was thus the true background to the Renaissance, not in the accepted sense that she handed down the mere literature of Greeks, but in the profounder sense that she handed on the Greek mode of inquiry and the Greek outlook on life. Vesalius, Copernicus and Galileo were all men of the type of Anaximander or Socrates, who defied authority in the interests of knowledge; they were Europeans imbued with the true Greek spirit, fighting against that permanent tendency so often perceptible in western Europe, especially to-day, to substitute for freedom of thought the rule and tyranny of authority. That conflict is an undying one. In the long run it is always the Greek way of thought that emerges.

CHAPTER III

NEW WORLDS TO SEARCH

The Middle Ages. Cyriac of Ancona. His archaeological researches. His travels. St. Augustine and the effect of his attitude. The Renaissance sees a revival of the Greek outlook. Opposition of the Church to inquiries into human origins. Leonardo da Vinci. Andreas Vesalius founds the study of human anatomy. His fate. The discovery of America. Its consequences to research into human origins. Ethnological studies on American natives. Garcilasso de la Vega. His admirable work. Isaac de la Peyrère. His views on Preadamite man. His book. His fate. John Scheffer. His treatise on the Lapplanders. Ghiselin de Busbecq and the Goths. Early collections of antiquities. The Earl of Arundel. The Duke of Buckingham. King Charles I. John Tradescant and his 'Closet of Curiosities'. Elias Ashmole. The slow growth of Archaeology. William Stukeley. His field-work in Archaeology. Edward Tyson.

FOR the reasons given in the last chapter it is clear that the Middle Ages provide us with no single instance of an advance of the humanistic studies. It was impossible for any man to question the Biblical dogma which was universally maintained as to a single and special creation of mankind. Although the works of Aristotle were extensively studied, those of them which concerned biological studies were completely ignored. Mankind had reverted once more to the ancient prejudice that inhibited and prevented that salutary reflection on man himself as a study. For Man in his pride has always refused to contemplate those origins which tend, by their humble nature, to diminish his ever-budding feelings of self-admiration. A study of origins invariably promotes a feeling of

humility, and humility is a quality which is all too rarely cultivated.

But by a strange chance, when the mists of the Middle Ages were just beginning to be stirred by the winds of the dawn of the Renaissance, one of the first inquirers to set forth once more upon the study of mankind was a certain Italian, Cyriac de Pizzicolli, usually known as Cyriac of Ancona.

He was born in 1391 at Ancona and may well be considered as the father of all Archaeology. His life and doings are all too little known and no one has yet compiled his biography. What we know of him can only be collected from a variety of scattered sources.

He can be called the true father of Archaeology in that he was the first to systematise the collection of data. Travellers like Pausanias, who wrote a *Handbook to Greece* in the second century A.D. were merely observers. Pausanias travelled Greece like a Baedeker and recorded all he saw and all he learnt about the art and history of Greece. His book is a priceless summary of knowledge which is a storehouse for scholars to-day. But he did not set out to reconstruct the past from its fragments, to repiece the mosaic or to interpret what it was. He called attention to certain things—indeed in one respect, in the account he gives of Greek Archaic art, he called attention to what was a widely neglected field—but he did no more than indicate. Consequently he can no more rank as an archaeologist than Baedeker. Here and there he noted an interesting inscription or called attention to a half-forgotten custom. But he did not accumulate facts for the purpose of drawing conclusions from them, nor did he collect material with the certain knowledge that, by the very collection of it, he was preserving it for posterity.

Cyriac of Ancona on the other hand is in particular the father of Greek Archaeology, and all his methods suggest that he was the first of all true and genuine archaeologists.

Cyriac, like Schliemann, was a merchant. But he decided to visit Greece as an archaeologist. While Italian scholars were beginning to decipher Greek manuscripts and to learn the intricacies of Greek Philology, Cyriac decided to learn of Greece by going to Greece. He was the first learned man of his age to do this. Having acquired his scholarly knowledge in the tradition of the philologists of Italy, he turned his attention to the study of ancient Greek inscriptions. His work in consequence classifies him as the founder of the study of Epigraphy. But what really took him to Greece was a desire to see Greece coupled with a passion for ancient things. He collected coins, works of art and books, and he enshrined the results of his travels and studies in what he called his *Commentaries*. His travels were most extensive and lasted for some twenty-five years. His first trip took him to Egypt in the year 1412, whence he visited Rhodes and Asia Minor. He returned to Rome where he taught himself the technique of copying inscriptions by working on the monuments of that city. At length in 1435 he took ship for Greece. He went first to the island of Corfu and thence across the Adriatic to Epirus, then, as now, one of the wildest parts of Europe. He visited the ruins of the forgotten oracle of Dodona and so came through Aetolia to Patras. He next visited the oracle of Delphi and can claim the distinction of being the first European to copy inscriptions among the ruins of that shrine. From Delphi he took the lovely overland route to Thebes and Euboea, by way of the narcissus meadows of upper Boeotia. He copied inscriptions in the towns of Lebadeia, Orchomenos, and Thebes, and was the first antiquary ever to visit those places. In 1436 he reached Athens.

Mainland Greece was at this time under the rule of the Frankish princes, and Athens was governed by Florentines. Cyriac found himself at home in the small and little-visited mediaeval townlet of Athens.

He stayed with a certain Antonelli Balduini and was far too excited by the antiquities of the city to find time to pay his respects to the Duke of Athens, who then was Nerio Acciajuoli of Florence. He visited the ruins of Eleusis and of Piraeus and noted at the latter place the immense marble lion, erected long in the past by visiting Norsemen, from which Piraeus acquired its mediaeval name of Portoleone. He went from Athens to Megara and Corinth and thence back again to Corfu and so to Italy.

In 1447 he visited Athens again. This time he called on the Duke whom he describes in a letter as 'that most humane, liberal minded and devoted patron of literature'. From this and other hints we learn that the Florentine Dukes made good use of their pro-consulships to further the cause of art and learning. They collected manuscripts from the Greek monasteries and sent them to Italy. Much of the learning of the Renaissance was indebted to the enterprise of these learned governors. Not all the manuscripts that delighted the Renaissance scholars came from Constantinople or were the consequence of the fall of Constantinople in 1453. The flow of books from Greece to Italy had begun long before, and the men responsible for the beginnings of Renaissance scholarships were to a large extent these forgotten Dukes, princelets and governors, who, like consuls to-day, adopted learned hobbies and pursuits. Among the treasures that reached the west in this way was a manuscript of Plato's *Republic*, believed to have been purchased in Athens about this time, written in the tenth century, and one of the finest manuscripts, certainly the first to reach Italy. The Acciajuoli actually built a library in their small palace which stood on the Acropolis itself. Cyriac was foremost in this search for manuscripts and among many that he obtained was a priceless copy of the Histories of Herodotus which he obtained from a Greek

antiquary in the remote Arcadian town of Kalavryta.

The character of Cyriac is hard to recapture. He seems to have been the typical studious Renaissance scholar, but lit with an unusual and ardent desire to preserve not merely the relics of antiquity but those aspects of it which were represented by its public inscriptions. Cyriac was the first of a long and distinguished line of travelling scholars, a type of man new to European scholarship. Neither Greece nor Rome had produced the scholar-gipsy. Nor did many emerge even during the high days of the full Renaissance. Cyriac was more the modern type—which even to-day is still a rare type—of the true scholar, fully equipped with all the apparatus of learning, who has also the passion for travel and exploration.

He was certainly the best educated and most scholarly man who visited Athens in this century—probably the most learned man who had come there since Athens ceased to be the university city of the ancient world and had become a mere Byzantine provincial town. It was probably largely owing to the visit of Cyriac to Athens that the beauties and antiquities of that city at last began to interest the learned men of the western world.

Cyriac, as soon as he became known to the Venetian and Genoese master of the Greek mainland and islands, was received with that generous welcome which even to-day is accorded to the disinterested scholar whose one objective is the pursuit of knowledge. He became a traveller well-known, if one can interpret the evidence, to the Italians in the Aegean. For he brought to them the wider knowledge and learning of the Italian universities, which was inevitably a lure to any educated Italian. Cyriac was as welcome as would be the classical scholar and archaeologist to-day who visited the lonely consuls of the Aegean. Such men, still remembering their classical education, intrigued by

the remains of antiquity which they see around them but do not wholly understand, are delighted to find someone who will tell them about the place in which they live and give them material on which to browse during their leisure hours. Few archaeologists to-day have, I imagine, not encountered some one of their countrymen, living isolated and out of touch with the world in some remote town of the Aegean and Levant, and had the pleasure of receiving from him knowledge which they could not otherwise have obtained, and giving in return information which was warmly welcomed. Such was Cyriac. He was welcomed wherever he went. In Lesbos the Genoese governor helped him in an exploration of the whole island. The governor had considerable leisure and together they examined the 'remains of the Temple of Diana' and the 'Baths of Jove'. In the lovely island of Thasos he spent Christmas day and composed a poem in honour of his hosts. In his poem he expressed the hope that the 'yule log thrown on the fire in the turreted castle' might be a good omen and that the barbaric rule of the Turks might soon be removed from the land of Thrace which lies facing Thasos. (That Turkish yoke was not in fact removed until 1912!) With his learned friends he roamed over the mighty Hellenic walls of Thasos. Further along the Thracian coast he visited the Genoese outpost fortress of Enos (a name famous in Balkan political frontier demarcation as one end of the 'Enos-Midia line'). There he stayed in the great castle, which still stands almost intact. I visited this remote town in 1922 and found it almost as well preserved as it must have been in Cyriac's day. I saw the great prehistoric mound outside the city which Cyriac was taken to see and which then was called the 'Tomb of Polydor, son of Priam'. Cyriac admired the sculptured reliefs of 'fauns and animals' near there and copied an inscription from the marble base of a statue. These had

vanished when I was there but I found others to admire and, like another Cyriac, I incorporated them in my notebook.

He was received by the Holy Republic of Athos, whose independence has at all times been respected by Turk, Italian and Greek, even down to to-day. From there he visited the remote island of Samothrace, also under Genoese control. Samothrace, the most beautiful and grandiose of all Greek islands, is even to-day the most difficult of access. Few modern scholars have been there, but nothing would deter Cyriac, who saw there 'ancient walls and remains of a marble temple of Neptune, fragments of huge columns, epistylia and bases, doorposts, adorned with the crowned heads of bulls and other figures'. Near a tower he saw 'several ancient marbles with dances sculptured of Nymphs and inscriptions in Latin and Greek'. These reliefs are now in the Louvre.

When Cyriac went to the island of Chios, then one of the most wealthy and prosperous and accessible of all the Genoese possessions, he found living there a character after his own heart—a certain Andriolo Banca Giustiniani who had composed a poem on the Venetian siege of Chios. This curious poet had built a villa near the site in Chios traditionally known as the 'School of Homer', in a forest near a spring. Here he was visited by Cyriac who remained his regular correspondent. The meeting of the two, the antiquary and the local historian and poet, must have been entertaining, and Cyriac must have derived an intense pleasure from prowling round the library of 2,000 manuscripts which Giustiniani had accumulated. A greater traveller, curiously enough, visited the poet's son in 1474. Then a modest ship's captain, a certain Christopher Columbus, was his guest at the villa.

The record of Cyriac's life is full of incident and deep interest, but as befits a scholar who has no political interests, devoid of adventure. Cyriac was

in Aegean waters at a time when the Turkish menace was becoming acute. He saw and described a world which was on the point of passing from a phase of culture and relative prosperity into a bleak barbarism. From that barbarism it did not emerge until recent times. Indeed, many regions that he visited, such as the north Aegean islands and coastal plains, are still more barbarous than when he was there. Turkish domination fell like a fog over the bright and sunny islands where cultured and intelligent Italian nobles made a gallant attempt to revive the civilisation which had once flourished there. Travellers after Cyriac record a declining world, a world rapidly impoverished and depopulated. They collect and note as Cyriac did, but their travellings were more difficult and they could no longer be assured of a welcome such as was given to Cyriac. A phase of Aegean life had passed.

The fall of Constantinople in 1453 ended the possibility of learned perambulations such as those of Cyriac. Vast areas of the ancient world were closed and sealed. The seas were unsafe for curious travellers and enterprising merchants. The first hopes of Renaissance scholars were dashed. The newly discovered science of systematic Archaeology was halted. Cyriac had no successors for a long age.

The temper of the age was perhaps attuned to a blameless study of that respectable Antiquity in the bright light of which even mediaeval learning had of necessity developed. As long as scholars researched into the material remains of the past in the places where scholars knew that the great men of the past had lived and flourished, no harm could be done. To collect inscriptions that concerned the life and history of the Pagans was a harmless pursuit, for the Pagans were long discredited and outmoded by the teachings of a highly organised universal Christianity. To delve into their records, whether in manuscript or in

inscription served indeed to improve that scholarship which made it possible to renew researches into the vital contributions of life and religion of the Early Fathers and of all Patristic literature. There was hardly likely to be any opposition to the work of men who were interested in such things. The controlling powers of the Papacy left them alone. The early archaeologists were working in a limited sphere where their activities did not encroach upon the ground reserved for religion. They were not in the least interested in Man in the abstract, still less did they attempt to rival the Church in any venture which might result in the problem of the origin of man being discussed. It is not often realised how profound was the control of opinion maintained by the Church. Ever since the Council of Nicaea in 325 State and Church had established a joint condominium over human opinion. What was heretical consequently became a matter for the State to deal with as sedition. The suppression of Hypatia was but one step in the long process of enforcing upon mankind the traditional views of the Mosaic Cosmogony. No greater protagonist of this attitude of mind could have appeared in these early days than the forbidding and formidable figure of St. Augustine. His was the most important contribution of all who were working to establish a fixed and certain outline of belief in origins which all mankind could adopt. For it is an ever-recurring failing of the human mind to demand that a cut and dried scheme of existence, past, present and future, shall be presented, verified and counter-stamped by Authority. St. Augustine met this demand of human frailty admirably. With his forcible style and impeccable logic he fortified the general belief in the Mosaic account of mankind and his origins—the monogenist view that derives all men from one special creation. Any hint that there might have been several origins of man—the polygenist view—was sternly

suppressed. The theory of Antipodal man, which the Greek proof of the spherical nature of the Earth had generated, was derided with the heavy sarcasm of the best Augustinian prose. So the mere suggestion that the history of the world went back to an almost irrecoverable past was derided as sheer lunacy.

In the fifteenth century these views prevailed and had been reinforced by the kudos and strength given them by almost a thousand years of acceptance. That no one had arisen to criticise them seemed to all men proof that they were fundamentally true. Tradition had won its first great victory in its age-long battle with Criticism.

But the revival of a critical outlook in human affairs, which is the new phenomenon to which at this period we give the name of Renaissance, began at last to challenge the victor in his very citadel. That indestructible spirit of free speculation which Greece had handed down as its perpetual gift was alive still. The Greek world had vanished with the fall of Constantinople and Rome had passed into oblivion, but the main contribution of Greece to human history could not be stamped out.

The intensity of research in Italy into history, culture and all other aspects of human activity, led more practical men to recommence research into the nature of man himself. As practical men, they began with the human body, whose beauty the artists of the early Renaissance had at last begun to realise; just as in Greece an increased knowledge of the human form acquired by artists led to an increased curiosity on the part of medical men, so now the Italian doctors and medical students turned at last to the nature of the human body. Hitherto all medical studies had been based entirely upon the works of Galen. Of this Greek medical man, who lived in the second century A.D., there survives an enormous mass of material. The works of Galen constitute almost half

the surviving texts of Greek medical writers. In the standard printed editions they form twenty-two volumes. As a writer Galen is verbose and obscure. Galen's works have almost the sole merit of preserving a certain amount of traditional medical knowledge which would otherwise have been lost. Galen has been described as 'an ingenious physiologist, a born experimenter, an excellent anatomist eager to improve . . . equipped with all the learning of the schools of Pergamon, Smyrna and Alexandria and rich with the experience of a vast practice at Rome'.[1]

The works of Galen served the Western world as its sole repository of medical knowledge until the fifteenth century. But any sign of actual progress in anatomy between his time and that later date is imperceptible. For the Middle Ages, content always to accept written word, were more than content to accept the enormous mass of *ipsissima verba* upon a subject in which experiment and research was discouraged by religious scruples. Galen had his merits, and his work was so detailed and profuse as to serve the principal needs of mediaeval medicine, which, owing to its poor equipment, was necessarily primitive.

The anatomical scholars of the early Renaissance undoubtedly based their views almost exclusively on the outlines of anatomy derived from Galen. Since no less than 80 out of a total of 150 of the works of Galen survive to-day, and were known then, it is clear that students had much material to work upon. Galen was known to have worked as a surgeon to a gladiators' school. He had also dissected apes and carried out a certain amount of vivisection. But he had certainly not dissected the human body.

Men of the stature of Leonardo da Vinci undoubtedly studied the works of Galen, and Leonardo may be considered as one of the first to attempt to know

[1] Singer: *Greek Biology and Greek Medicine*, p. 123.

more of human anatomy. Leonardo has left us no published work on such a topic, but his notebooks and drawings are testimony enough. Again we find a more exact study of art leading to a closer research into human anatomical problems. Leonardo lived between 1452 and 1518. Just before his death there was born at Brussels a certain Fleming, Andreas Vesalius, in 1514. He studied medicine at the university of Louvain and is known to have been trained on the principles laid down in the works of Galen. He went in his early youth, after concluding his studies in Belgium, to Italy. There his particular merits were rapidly detected, and at the surprisingly early age of twenty-two he was appointed as public demonstrator in anatomy at Padua, and was invited both to Bologna and to Pisa to lecture. He was later appointed as physician to both Charles V and Philip II. In 1542 he published a book entitled *De humani corporis fabrica* ('On the construction of the human body') in which he made a clear break with medical tradition. He pointed out that Galen had composed his human anatomy by making inferential conclusions from the anatomy of apes, and that he had no first-hand knowledge. The work enshrined in his book was based on original anatomical research upon the human body. His conclusions finally outmoded those of Galen and so constituted the first great advance in human anatomy since the Roman Imperial period, or perhaps even since the days of Hippocrates.

Typical of the Renaissance in his boldness and determination, Vesalius found that he had left out of account the powers and penalties of the Church. He was accused before the Inquisition of having dissected a human body. He had in fact worked upon the body of a certain Spanish grandee, with the consent and agreement of the relatives. But nothing could make the fact tolerable to the Church. For here was a scientist deliberately laying hands on God's

handiwork in order to lay its secrets bare! Vesalius was condemned to death, but the sentence was commuted to one of banishment to the Holy Land. He set out for Jerusalem on a Venetian ship, and stopped at Cyprus en route. Almost as soon as he had reached Jerusalem he heard news of a possible pardon from friends in Italy, and he received there also the offer of a Professorship at Padua. So he set out on the return journey. But, after crossing the Aegean, his ship was wrecked off the island of Zante and he was drowned.

His recall suggests that the conflict between the Papacy and the new learning of the Renaissance often came to a head, and that the views of the religious authorities were not always accepted, or ratified. It has been suggested that the arrest and condemnation of Vesalius was largely due to the intrigues of enemies, and that he was in fact charged with dissecting a *living* human body. This may well have been part of the charge, but the main fact that he had used a human body for anatomical purposes was a sufficient charge in itself in the eyes of the Inquisition.

But the work of Vesalius remained, and he has been compared, for his services to anatomy, with Galileo and Copernicus for their contributions to the science of Astronomy. There is no doubt at all that Vesalius advanced the knowledge of human anatomy to a position from which all the advances that have been made since could begin. The work of Galen was virtually sterile. It had led to nothing and produced no advance. The work of Vesalius had at least shown that the body of man must not be sacrosanct from scientific investigation, that the fact that it may be held to be one of the direct creations of the Almighty is an insufficient reason for screening it off from the learned eyes of researchers.

The study of Human Anatomy may serve mainly medical interests, but the steady improvement of the anatomical knowledge derived from the dissection of

the human body was bound in the long run to assist other branches of science. As Comparative Anatomy progressed it became evident that anatomy could reveal the differences between the various human types and races. When some four centuries later the great discovery of Fossil Man was made, then the services of the human anatomist were of profound importance. The classification of Fossil Man into different types and classes was only possible by means of close anatomical study of the surviving bones. And that anatomical knowledge was accessible solely because the study of Human Anatomy had been built up on the solid and scientific bases laid down by Andreas Vesalius. Human Palaeontology is thus the science which combines a study of the actual remains of prehistoric man with their geological setting. Anatomy classifies the human type, Geology dates it. Archaeology has provided the evidence in the first instance. The archaeologist knows where to look for the fossil remains; the geologist tells him when those remains were deposited, and the human anatomist shows to what human type the remains belong.

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In the sixteenth century tremendous events were accumulating which were all to assist in the advancement of the human sciences. Leonardo and Vesalius had brought back the attention of men to the beauties and the structure of the human form. Man was at last a centre of interest in and by himself. The 'special creation' of God was being submitted to the microscope and studied on the model's throne. The aloof self-satisfaction of the Middle Ages was gone. Now the very belief in a monogenist origin for mankind—an origin in one place and at one time—was challenged by the startling discovery of a vast new continent. The comfortable doctrine that all men were descended from Shem, Ham and Japhet, which made all men descendants from Adam, tottered in

the face of the discovery of a continent inhabited by vast numbers of the human species who did not apparently differ in general appearance from those of the other hemisphere. The Papacy, to its credit, was early in the field with a declaration issued in 1512 that these new races were indeed also descendants from Adam and Eve, forgotten and lost to view through the passage of time. But this did not suffice to save the American natives from the massacres of Cortes and Pizarro in 1519 and 1530. For these adventurers assumed for their own convenience that the new races of America must, *ex hypothesi*, be outside those areas of the world subject to the grace of God. They were therefore immune from the usual protection which Heaven should afford the descendants of Adam and Eve.

One Catholic monk, even when the horrors of Spanish massacre were at their worst, boldly attacked this brutal and savage policy. In a work entitled *Las Obras: Brevissima Relacione de la Destruycion de las Indias* the monk, Las Casas by name, of the Dominican order, drew a terrible picture of the cruelties of the Spaniards and published his book at Barcelona in 1646. To his outspoken revelations can be attributed the revulsion against the Spanish activities which spread over Europe about this time. Las Casas was a pious and gentle man who had spent many years in America and devoted his energies to a study of American customs and antiquities.

The discovery of America shook the foundations of traditional beliefs far more seriously than is usually imagined. The revelation that innumerable men and women had lived unknown and unaffected by the benefits of Christian doctrine was sufficiently startling. Columbus had given almost the precise proof necessary to overthrow the Augustine denial of the existence of 'Antipodal Man'. But it was left to Magellan to dispose finally of the belief held by the Early Fathers

and sedulously preserved by the Church that the earth was not a sphere. Magellan's superb enterprise brought his ship round the globe. The docking of the *San Vittoria* at Seville in 1522 made any further attempt to deny the sphericity of the earth merely ridiculous. No reasonable man could any longer hold the ancient views. To brand the evidence of one's eyes as heresy merely stimulated doubt in the minds of ordinary people. One by one the pillars of the vast structure built up by an ancient priestcraft and given an authority by subsequent hierarchies were falling. The Papal authorities must have had a hard and invidious task trying to make their pronunciamentos keep pace with discovery. Slowly, but too slowly, they accommodated their views to the facts. Quick and agile minds of speculative Renaissance scholars watched the battle and drew the conclusions that seemed obvious. Public opinion in Italy must have been stirred by the combat, and moved to develop its own intrinsic critical powers. Out of the very recalcitrance of the Church came the opposition to its own decrees.

The very discovery of a new continent led the minds of intelligent men to conceive of the possibility, not so much of different types of men originating separately from wholly independent stocks—the true meaning of the 'Polygenic' hypothesis in its logical sense—but rather that mankind had been widely distributed at a remote age in a way which the traditional Mosaic story of creation was incapable of explaining. If man was found fully developed in America, then somehow he had reached there, not necessarily from a Garden of Eden in the oldest region of the old world, but rather from some centre of dispersal the identity of which no one knew. If the world were a globe, obviously the Mosaic conception was too limited, too narrow. If the theory of the dispersal from the Garden of Eden did not envisage the existence of a

world far to the west of Europe, then that theory was inadequately conceived. Authority was not so deeply respected in the days of the Renaissance as to prevent men from wondering if the ancient Hebraic conception were adequate to the new facts. Men of average intelligence and reasonable outlook, even if devoutly religious and profoundly sincere, did not necessarily become atheists or agnostics by allowing such thoughts to enter their heads. They were merely ruminating, as is the manner of men to do in an age of enlightenment, when all doctrines were subject to discussion and inquiry.

An informal kind of anthropological research grew up. America produced its first ethnologists early. Garcilasso de la Vega whose mother was a Peruvian, published a book entitled *Comentarios reales que tratan del origen de los Yncas* at Lisbon in 1617. The Church, through the medium of its highly trained and intelligent Jesuit priests got to grips at once with the new recruits to the Christian world. Between 1610 and 1791 seventy-three volumes of Jesuit researches were published.

Garcilasso's book caused a widespread interest in the history of the native peoples of Peru and South America. It was the first authoritative work on the subject, and the Old World was for the first time able to refer to a body of information concerning the strange new body of recruits to humanity, at whose existence it had wondered, at whose customs it had stood amazed and whose highly organised mode of life, independently developed, had caused a surprise beyond anything previously experienced. For the complacency of the Old World was shaken to find that whole dynasties of kings and princes, whole cities with walls and palaces, had grown up without that guiding hand which the Old World invariably thinks is essential for any real development of the other half of the globe.

In Garcilasso they found an authority who could

tell them authentic facts, for his Peruvian origin was a sure passport to his acceptance, and his royal blood, through his mother's ancestry, made him into a man of respectability and importance. For he was no sea-captain relating his adventures and composing his amateur account of a country barely explored. He was no charlatan, like John Lithgow, a rascally bankrupt Scot who, in his *Rare Adventures* published in 1632, had told more lies and pretended to more travels than any scoundrel of his age. Garcilasso's work was translated into English by that most learned and most respectable of gentlemen, Sir Paul Rycaut, in 1679—a considerable time after its first appearance. It was entitled *The Royal Commentaries of Peru* and it 'treated of the Original of their Yncas or Kings: of their Idolatry, of their laws and Government both in peace and war: of the reigns and Conquests of the Yncas'.

The work is divided into two parts, the latter concerning itself with the Spanish Conquest. The first part, consequently, is the principal source of all our anthropological information.

The author, Garcilasso, so the translator tells us, was what was called a *Meztizo*, or half-caste. His mother was the daughter of Inca Haullpa Topac who came from a royal line. Garcilasso apparently delighted to called himself 'Garcilasso Inca', but at the same time he was almost equally anxious to emphasise his Spanish origin.

Rycaut explains that the purpose of the author was to show

> 'in what manner that Salvage People was civilised and instructed in the Laws of Humane Nature and to live in Political Society, by Manco Capac, their first King'.

The author, he continues, used traditions that were 'commonly believed among the People of the better

degree which may contain divers Truths mixed with abundance of Fictions and foolish Inventions'.

There is little doubt that Garcilasso drew from both written and unwritten Inca sources. As a Peruvian he knew his own national traditions and, as a man of influence and position, he clearly had access to documents and records not available to all. He has a good eye for observation of native customs which he described in great detail, and a very modern capacity for selecting the most desirable kinds of information and arranging them systematically.

He explains with an almost Herodotean simplicity how:—

> 'born a natural Indian and educated in Arms, I have little or no abilitie or strength of my own and therefore have need of the favour and assistance of the Candid Reader'.

He was educated as an Indian among Indians and at the age of twenty-three

> 'became informed of all the particulars concerning which I write, for in my youth they related these stories to me, as Nurses doe tales, or fables to their children. They instructed me also in their idolatrous ceremonies and sacrifices. . . . I have been an eye witness for the most part of their idolatrous worship, feasts and other superstitious customs which until the 12th or 13th year of my age were not wholly abolished among them. I was born eight years after the Spaniards became masters of my country and I was educated among the Indians until I was twenty years old.'

He explains how methodical was his work, how careful his search. His achievement belies his modesty. He instructed his friends among the Indians to

> 'search into the archives and registers of their countries and to send me the various success of them'.

He concludes a chapter in which he is thus explaining his sources and their origin by saying:

> 'Having sucked in a sincerity with my milk, I shall give a true account of all that I heard and received from my parents.'

Garcilasso is, indeed, one of the most interesting of all the writers on Indian America. He is the brilliant instance of the truth that a half-caste does not always inherit only the inferior qualities of two races, and he is, in a sense, a justification of the widespread Spanish policy of the time of encouraging intermarriage. He had the instincts of a scholar and the necessary qualities of thoroughness for carrying out what was in effect a really massive work of research. Although the bulk of his book is taken up with the actual history of Inca kings and their political activities, he nevertheless devotes many chapters to purely anthropological and ethnological matters, always with a bias in favour of the Indians and always willing to explain the real truth of some 'idolatrous custom'. He gives particularly full accounts of the Peruvian skill at Astronomy and Mathematics and even records their capacities for primitive map-making.

Garcilasso is not blind to the requirements of the student of languages, and quotes instances of Peruvian poetry in the original, with a translation into Latin. The verse employed is of the most primitive type, each line containing two stresses only. Here is a religious chant, dedicated to the Virgin goddess whom the Peruvians believed to inhabit the sky. Furnished with a large vessel she produced the rain, snow and hail. Her brother, on occasions, struck the vessel, so producing the sounds of thunder and the flashes of lightning, which were held to be too violent a form of exercise for the weaker sex.

This is the translation of the poem:

Fair Nymph/Thy brother/Strikes now,/Thine Urn:/Whose blow
Is Thunder/And Lightning/That Thou Nymph/Pouring forth/
Thy water/
Droppest Rain/And again/Sendest Hail/Or snow./The Master of
the world/
Hath committed/And encharged this/ Office unto Thee.

Sir Paul Rycaut, the translator of Garcilasso, incidentally makes a most interesting criticism as to the origin of the Incas and the natives of America, which suggests that in his day at the close of the seventeenth century ethnological speculation was advancing on very sound lines. Trained minds were thinking not in terms of Atlantis or the Lost Ten Tribes, but on correct presuppositions. 'Various' says Rycaut, 'have been the opinions amongst Historians concerning the Original of these people. They proceeded from the Race of the Northern Tartar, whom they resemble in the shape and air of their features and in their barbarous way of living: but then we must fancie, as some Geographers do, that the West side of America is continent with Tartary or at least disjoyned from there by some narrow strait of which I am well persuaded we have no certain knowledge.'

Here is early and conjectural Geography joining hands with early and conjectural Ethnology, and both arriving at conclusions which are on the whole correct, and identical with the accepted views of to-day. The Asiatic origin of the American Indians and their transit at the northern end of the continent by the narrow Behring Strait is too widely accepted a belief to be seriously challenged, and has behind it the force of extensive research and inquiry. At the close of the seventeenth century men were wisely avoiding wild conjecture and forming hypotheses on what facts they had. Such conclusions as those of Rycaut are a proof of the correct scientific outlook of his day. They redound to the credit of the learned men who then studied world problems as wide and important as those in question.

Garcilasso stands out as one of the first people to inform his own and later generations about the American natives of the southern half of the continent at a time when they were about to be submerged by the flood of Spanish culture and Spanish religion. He appears just at the crucial moment to salve the relics of a culture that was just about to vanish for ever.

The influence of his work and of similar studies on contemporary thought was enormous. Simple and religious-minded men were still puzzled and perplexed by the discovery of the New World. It is difficult for us to-day to recapture precisely that feeling of astonished wonder that the discovery generated. After so many centuries of comfortable belief in things as they were it must have been almost impossible for intelligent men to adapt their views to so novel a situation. It is impossible for us to put ourselves in their place, for there are no new worlds for discovery. Only the establishment of contact with an inhabited planet would promote such a ferment of speculation, such a realignment of outlook. Even so, we know a good deal about the Universe and should not have to reshape our views fundamentally. But when you and your ancestors for many generations, over several centuries, have become accustomed to thinking of the world as flat or oval, of the non-existence, certified by the Early Fathers, of any troublesome antipodal relatives, of the whole of mankind as one happy family descended indubitably from one convenient Adam, you get an inevitable start of shock and surprise when you hear of some sturdy mariner who has started sailing westward in a straight line and has, at the end of that straight line, found, not the edge of the earth, but the very port from which he started! You may rush to your priests for comfort and consolation; you will be disappointed at their evasive answers. The priests themselves, honest enough in intention, will be as disappointed to

discover how feeble any explanations they can give must be.

Typical of the average intelligent man, worried by the problems set to devout Christians by the implications of the new discoveries in east and west, was a certain Frenchman, Isaac de la Peyrère, a Calvinist of Bordeaux. Peyrère was not a specialist. The fact that almost nothing about his personal life is known indicates that he was not a prominent person, a well-known scholar or a person of position. He was just an ordinary middle-class Frenchman with a normal education, mainly religious. He was honest, sincere and obviously deeply worried. He is representative of the average intelligent middle class of his day, the middle class whose representatives were daily coming into contact, in the course of business and commerce, with the remarkable discoveries of mariners, and hearing daily of fresh lands and new peoples.

In 1655 Peyrère published a book, in Amsterdam, his first and last. In it all his doubts and hesitations come at last to the boil. He writes intimately, as though for his friends. But he also writes in fear, for his work is anonymous and he is deeply worried by the theological inferences that may be drawn from his pages. But in him breathes the same unsubduable spirit of inquiry, the same determination to reject tradition if it did not explain the new facts, which was the inalienable inheritance from the Greeks.

His work, originally published in Latin under the title of *Systema Theologicum ex Praeadamitarum hypothesi*, was translated immediately in England in 1655. Its title in English is *A Theological Systeme upon that presupposition that Men were before Adam.* It was printed in London and in the same year a second and inferior version appeared.

In his disarming preface he states that 'Although I am my own greatest friend, yet truth is more dear to me, which I only profess. My name I do not mention

for modestie's sake, not as conscious of any evil action. It is a natural suspition that the beginning of the world is not to be received according to that common beginning which is pictured as Adam influent in all men who have but an ordinary knowledge in things. For that beginning seems enquirable at a far greater distance and from ages past very long before, both by the ancient accounts of the Chaldaeans and also by the most ancient records of the Egyptians, Aethiopeans and Scythians, and by parts of the frame of the world newly discovered, as also from those unknown countries to which the Hollanders have sayled of late, the men of which it is probable did not descend from Adam. I had this suspition being a child when I heard or read the History of Genesis.'

Here, indeed, is a forerunner of Darwin and Huxley, frankly telling us his doubts in the early seventeenth century.

His book is a curious mixture of obscure and rather trivial theological commentary interlarded with acute observations and interspersed with sudden conundrums and problems. His main thesis is that 'Adam was the first and father of the Jews, not of all men.' That is his evasion of his fundamental difficulty. It is a neat, if casuistic solution of the problem and, actually, a direct denial of the postulates of Genesis. But it serves. 'The framing of Adam' he continues 'was altogether different from the creation of the first man.' These other men are the Gentiles, who are 'proved different from the Jews out of the monuments of the Gentiles'. Our author is, in fact, an elementary archaeologist. He has studied at length the records of Egyptians and Assyrians preserved in the historical works then available. He is profoundly impressed by the fact that these ancient peoples claimed an antiquity of prodigious extent, that covered periods of time not allowed for in the current Christian estimates of the antiquity of man. He approaches

the problem in a truly realistic way and would have revelled in the study of the actual monuments, in the information now in our possession about Babylonia and Sumer, Assyria and Egypt. He is acute enough to realise that such records were to be found if someone would search for them. He is the spiritual ancestor of Champollion. In modern times Peyrère would certainly have been a distinguished archaeologist. As it was, he had to be content with being a discontented theologian.

His most significant passage runs as follows:

> 'I would that St. Augustine and Lactantius were now alive, who scoffed at the Antipodes. Truly they would pity themselves if they should hear and see those things which are discovered in the east and west in this clear-sighted age, as also a great many other countries full of men : to which it is certain none of Adam's posterity ever arrived.'

It is remarkable that anyone in those days could so valiantly state their doubts and their criticisms of tradition. Peyrère, mediocre man though he was, moderate in intelligence and learning, but determined to solve his problems, if possible within the limits of theological belief, set a standard of criticism and scepticism which was characteristic of his age. He was a by-product of the Italian Renaissance, and a humble contributor to the long line of learned rebels who were determined to solve the stupendous problems that beset intelligent laymen.

But the enemy struck back. The most violent opposition was raised to his views and his book and himself were seized by the Inquisition. His book was publicly burnt by the authorities in Paris and the author was forced to recant his heresy as well as to abandon his Calvinism. He died in a convent in 1676. But his book had had a wide popularity in western Europe. His semi-theological mode of

argument suited the temper of the age and the intelligence of the average man, whose logical methods of thought were still largely conditioned by the outlook and phraseology of theological argument.

Some light on Peyrère is given us by a contemporary letter which reads as follows:

> 'I know Peyrère the author of the book on Praeadamites. Eight years ago he showed the book to a good many persons, but all advised him not to publish it, because in it were put forward and maintained opinions not only unknown to all Christians, but diametrically opposed to the Christian faith. He was, however, so delighted with this conception of his genius that he preferred to cherish it and bring it to light rather than conceal it.'

Opponents of his views were merciless. Fabricius, writing in 1732, says:

> 'The profane and impious book ought to have been put out of the way in eternal night. Now, printed in three ways, it has scarcely seen the light but in a moment has flown over the Christian world.'

Peyrère may have written a mediocre book. His intelligence may have been moderate. But his determination was outstanding and his voicing of the doubts that were in every man's mind was most salutary. In his humble way he made a great and important contribution to the advancement of knowledge and to the free discussion of imminent problems. His potential archaeological outlook was not the least of his contributions. He had, as we have seen, suggested that the 'records of the Egyptians, Aethiopians and Scythians' might hold the clue to the antiquity of man. And he was one of the first to think that the various prehistoric implements usually designated as 'thunderbolts' were in fact the artefacts of a

primitive and ancient pre-Adamitic human. Peyrère spoke out and stated his case boldly. Like many others who had ventured to do this he paid for it with his life, for there is little doubt that the retaliation of the orthodox ended his learned career and hastened his death. Peyrère is interesting, more than most, for he was not one of the great formative minds of his age. He was one of the little men who were more easily understood by the mass of the people.

The standard of inquiry set by Garcilasso's work had set a high example. Scholars of the old world were challenged to study the Ethnology of their own people. It is perhaps no coincidence that one of the most admirable European ethnological studies was published at Oxford in the year 1674—the *History of Lappland* by John Scheffer, Professor of Law and Rhetoric at the ancient university of Upsala in Sweden. It had first been published in Frankfurt in 1673. It was later issued again in Paris in 1678.

The work was carried out by the order of the Swedish government and with the assistance, presumably financial, of the Chancellor of Sweden. It is one of the earliest instances of what might be called a Government White Book, or State Publication on the backward peoples under the control of that Government or State. 'Here indeed' says the preface, 'rather than in America we have a new World discovered: and those extravagant falsehoods, which have commonly past in the narratives of these Northern Countries, are not so inexcusable for their being lies, that they were told without temptation: the real truth being equally entertaining and incredible.'

The sub-title of the treatise declares that the author will deal with 'The original manners, habits, marriages conjurations etc.' of the Lapplanders. It is a strictly scientific work and devoid of any propagandist tendencies or intentions. It can rank as the first objective

study of a people who lived a distinct and peculiar mode of life of their own in the confines of Europe to be published since the *Germania* of Tacitus.

The book is arranged on a strictly scientific plan. First there is given an excellent map of Lappland, or Lapponia as it was then widely called. A geographical chapter follows, together with a study of the climate and the soil. This commencement differs in no way from the most precise and scientific of modern treatises. There follows an account of the Lapplanders 'in reference to the inclinations, temper and habit of their minds and bodies'. Then an important study of their origins. He concludes that they are of the same race as the Finns, both for linguistic reasons and from their general habits and appearance. He rejects the view, apparently held by others, that they derive from Tartars.

Their religion is next examined. Their pre-Christian paganism is first dealt with and then their conversion to Christianity. A most important chapter deals with the survivals of paganism in the author's day and of the continuance of sacred pagan places of worship, of which he lists some thirty. Some diverting woodcut illustrations show Lapp worshippers at pagan shrines. This section is, for modern anthropologists, one of the most important in the book, because it contains first-hand information now no longer available. He gives a full account of their magic, with a special study of the peculiar magic drums used in their ceremonies. He gives several detailed and probably accurate drawings of these instruments, and the way in which they were used. There is also an account of the strange balls known as *tyres*, made of hair, which the Lapps used as talismans and spell-binders for the purpose of destroying their enemies—'it is sold by the Lapplanders so that he who buies it may hurt whom he pleases. . . . It goes like a whirlewind, and is as swift as an arrow.

and destroies the first man or beast that it lights on, so that it often makes mistakes.'

He then turns to their mode of government, administration of law and to the organisation of their fairs and their modes of commerce. He devotes a section to their language and discusses at length their portable dwellings, giving accurate illustrations. Their clothing, their food and their hunting methods are next discussed, their weapons, their trades and handicrafts. Their sports and entertainments follow, and then comes a most interesting chapter on their marriage customs. The period of courtship apparently lasts several years. 'In this interval the bridegroom ever and anon makes a visit to his Mistress, to whom, while he is travelling he solaces himself with a Love Song, and diverts the wearisomness of his journy.' He gives, in the original language, two of these songs which were communicated to him by a Lapplander. I quote verses from one of them, to illustrate not only the charm of the language and thought, but also as an unusually delightful specimen of English seventeenth-century verse.

With brightest beams let the sun shine
  On Orra Moor,
  Could I be sure,
That from the top o'th lofty pine
I Orra Moor might see,
I to his highest bow would climb,
And with industrious labour try
  Thence to descry
My Mistress, if that there she be.

Could I but know amidst what flowers
  Or in what shade she staies,
  The gaudy Bowers
With all their verdant pride,
Their blossoms and their spraies,
  Which make my Mistress disappear,
  And her in envious darkness hide,
I from the roots and bed of earth would tear.

Upon the raft of clouds I'de ride
Which unto Orra fly,
O'th ravens I would borrow wings
And all the feathered inmates of the sky:
But wings alas are me denied,
The stork and swan their pinions will not lend,
There's none who unto Orra brings
Or will by that kind conduct me befriend.

A study of their education, of their illnesses and their burial customs follows. Their domestic and wild animals, plants, minerals and stones are studied and the book concludes with a brief account of their rivers and mountains. They have pearls from rivers, topaz, amethyst and rock-crystal.

Scheffer's book is the most complete study of a single people to be compiled before the science of Anthropology has been systematised in modern times. From occasional mentions of Tacitus which he makes in the earlier part of the book it is clear that the learned Professor has deliberately modelled himself on the *Germania* of that author. The resemblance is not fortuitous but intended. Scheffer has set out with the double intention of imitating the method of the Roman writer, the more so since Tacitus dealt with a northern people on the confines of civilisation. Scheffer is also attempting to rival the writers of those books on the races of the New World, but to rival them by adopting a method which had been established in antiquity. The rather scornful reference in the English preface to the New World of America, and the inference that its attractions had diverted Europeans from a proper study, on the same lines, of their own *terra incognita* justifies us in assuming that the discovery of America had given just the kind of fillip that was required to make the scholars of the Old World re-examine the backward races among whom they lived.

Scheffer's book, printed by the University at Oxford, went into several editions. This is some indication

of the great increase of interest at the close of the seventeenth century in studies of this kind. The revival of interest in the variety of mankind is significant. Once you admit the possibility of pre-Adamites you are well on the way to discovering the larger secrets of prehistoric man. Once you examine the habits and peculiar customs of backward peoples you are already far on the road to a systematised Anthropology. Scheffer's book can stand comparison with any modern treatise on a primitive people. If its language were modernised and it were published for the first time to-day few anthropologists would realise that it had not just been composed. It can rank as the first model treatise of recent times to contribute extensively to the study of Comparative Ethnology, folk-lore and Anthropology.

It is worth while looking at a rather similar attempt that was made a little over a century earlier to record the habits of another northern people. The comparison is worth making because it shows how much can be lost by an ignorance of the importance of the subject and by an inability to systematise knowledge. A certain Ogier Ghiselin de Busbecq was born in 1522 at Comines in Flanders. Busbecq was a learned and well educated man, versed in the classics and educated at Louvain. After the battle of Mohacs in 1526 the Turks were firmly lodged in Europe. Busbecq was sent as ambassador to the Sultan in 1554, his mission to restrain by diplomatic methods the further inroad of Turks into Hungary. He fulfilled his mission admirably and was well received and much appreciated by the Turks. He wrote, as ambassador, four letters in Latin to a friend Nicholas Michault, who had been a fellow student in Italy and who was also later an ambassador like Busbecq. These letters were never intended for publication but were in fact published by the Elzevir Press in 1633. An English translation was issued by a London printer in 1694.

Busbecq, like Scheffer, is a devoted admirer of Tacitus and models his Latin style on that of the Roman. The letters concern every subject and incident, and are invaluable for throwing much light on the habits of the Turks of that time. Historically also they are of prime importance. But Busbecq makes no attempt of any kind to claim any special knowledge of or interest in the races and peoples whom he encounters. But in one instance he finds himself in contact with an unusual people—the Goths. He introduces them almost casually into a letter, and is clearly unaware of the fact that what he has set down is the solitary record of a branch of the Gothic people who have since then completely vanished. These Goths at that time inhabited the Crimea. They were the survivors of a large body of Central European or Northern Goths who had migrated to the shores of the Black Sea about the time of the collapse of the Roman Empire. They had travelled over those flatlands which stretch without intermission from the coast of Holland to the Ural mountains. They were one movement in a continuous shifting of peoples which has gone on over those flatlands from time immemorial. The connection, even as late as the Middle Ages, of Scandinavian countries with Central Asia must be traced to movements over these plains. The European Goths and Teutonic peoples of the Dark Ages acquired their peculiar mode of decoration and ornament through the medium of contacts with the Middle East such as that presupposed by settlements of tribes of the type known to Busbecq on the Black Sea coast. These wandering tribes conveyed the essentials to the north and west of what developed into Danish art and into the art of the Teutonic peoples, which all art-historians know derives much of its inspiration from the art of the Scythians, Sarmatians and Bactrians. Europe and the Middle East were more closely in contact

between A.D. 500 and A.D. 1200 than is generally known.

Busbecq is a typical Renaissance scholar, with a literary bent, but he had heard of these strange people isolated far away on the Crimean cliffs.

> 'I must not forget to tell you' he writes 'what I learned about a tribe which still inhabits the Crimea and which I had often been told showed traces of German origin in speech and habits and even in bodily and facial appearance. I had therefore long been anxious to see a member of this tribe and to procure if possible something written in that language. Hitherto, however, I had been unsuccessful. Chance at last satisfied some of my desires. Two delegates had been sent from that district to submit some kind of complaint to the Sultan in the name of the tribe. My interpreters happened to meet them and, remembering what I had told them to do if such a chance occurred, brought them to dine at my house.'

Here was the anthropologist in action, but merely doing it as a hobby, and entirely unaware of the importance of what he was recording. It is to him the pleasant after-dinner entertainment of a scholar. His outlook is that of Sidonius rather than of Tacitus. He is merely collecting scraps of information by the wayside.

One of his guests, he says, was 'rather tall and had a certain ingenuous simplicity of expression, and might have passed for a Fleming or Batavian'. The other was short and dark, and was a Greek not a Goth. But the true Goth had forgotten his own language and spoke only Greek while the Greek had, by long trading experience, learned Gothic. They must have been a curious couple. Busbecq was told that the tribe was warlike and under the suzerainty of the Tartar prince of the Crimea. The guests, not in the least interested in themselves and their own tribe, spoke mainly of the Tartars whom they considered

profoundly barbarous. The main town of the Goths seems to have been Perekop, but Busbecq learned little of their habits, and clearly did not know the sort of questions to put to them. But he did succeed in collecting a short vocabulary of their language amounting to eighty-six words, which are all direct descendants from words found in Wulfila's Gothic Bible. He notes that *knauen tag* is the Gothic for 'Good day' and gives their numerals as *ita, tua, tria, fyder, fyuf, seis, sevene* 'just as we Flemings do'. He adds a short song which, actually, is not Gothic at all but in a Turkish dialect. There are also traces of a certain contamination of the Gothic vocabulary with Turki words, obviously taken from the Tartar.

He is puzzled by the tribe. 'I cannot decide,' he says, 'whether these men are Goths or Saxons. If they are Saxons, I think they must have been brought here in the time of Charles the Great who scattered that race over various regions of the earth. There are, for example, cities in Transylvania still inhabited by Saxons. Possibly it was thought best that the most savage amongst them should be removed to a still greater distance and settled in the Crimea. If they are Goths I am of opinion that they inhabited this district adjoining the Getae from an early period.'

His second opinion was the right one, for the Transylvanian Saxons were not settled there until the eleventh century. But there his information ends. He has in fact done a priceless service to scholars, for he records, in his vocabulary of Crim-Gothic, the latest evidence we possess about the language. For philologists his information is vital, as showing how a language has developed. But for all other purposes he has missed a great opportunity. He is merely a curious scholar anxious to pick up stray information and pass it on as learned gossip. That is not the way in which the study of human origins is advanced. His dinner-party researches are diverting, but they leave us

appalled by the amount of knowledge which he might have obtained. His material was not ideal. A rather stupid Teuton who had forgotten his own language and a highly intelligent Greek who had acquired it are not perfect witnesses. But the Greek could certainly have informed him as to the customs and manners of the Goths. Perhaps both considered such cross-examination as an unfriendly act, and as a sign of poor hospitality. And so the conversation gravitated to the topic of the Tartars whom both Goth and Greek despised. Busbecq, good diplomat though he was, seems to have been unable to extract information without letting the informers know what they were giving away. Or, more probably, he was just not interested in more than the Gothic language. The passion for knowing about obscure peoples had not yet reached him. He was not of an inquiring mind like Scheffer, or Garcilasso. He was a traditional scholar more of the Byzantine type whose devoted interests were in philology.

But, all the same, Busbecq is the only man who ever came into contact with Goths and spoke with them in a time when the Dark Ages and the Wanderings of Peoples had long been forgotten.

The organised method in the application of curiosity seen in a work of the calibre of Scheffer's *Lappland*, finds a counterpart in the tendency apparent early in the seventeenth century to form collections of 'curios'. One of the earliest collections of ancient remains to be made in Great Britain was that formed by Thomas Howard, Earl of Arundel, who was born in 1585. Before his time the great potentates of Europe had begun collecting ancient works of art, under the stimulus of the Renaissance. In the sixteenth century Francis I of France, Philip II of Spain and Rudolf II of Germany all started to collect works of art for the adornment of their palaces. They were fired by the

discovery in Italy from time to time of statues and other works of art, which stimulated research into the artistic activities of Greece and Rome. But, for the most part, this collecting was merely organised on the basis of an occasional purchase. There was no system and nothing as yet which could rank as a picture gallery in the proper sense, for the purpose of public enlightenment and education. Collecting was in the hands of the rich, who collected for their own amusement. But their activities are worth examining, for, out of them, arose the museum of modern times.

The Earl of Arundel who held the hereditary post of Earl Marshal of England is the first great British collector, and in some ways more advanced in his methods than any of the continental collectors. For reasons of health he visited Italy about the year 1612 and in the following years. He travelled *en prince*, taking with him, among many others, no less a person than Inigo Jones. The Earl was the first and perhaps the best of the Grand Tourists, whose journeys lasted even down to the early nineteenth century. When in Italy, he is said to have obtained permission to excavate near Rome itself and to have acquired certain works of art in that way. He also made vast purchases of works of art, some of which he was unable to export from Italy. In many ways he closely resembles Lord Elgin at a later date. The Earl Marshal can at least claim to have been the first to organise, in however a perfunctory way, a search for ancient works of art in Greece itself and not to have been content with what Italy could provide. His method was as simple as it was characteristic of highly-placed collectors. He obtained the collaboration of a certain Sir Thomas Roe, the Ambassador to the Porte from James I.

Sir Thomas expressed his willingness to use his official position in order to further the causes of the

Earl Marshal. The Earl wanted statues and works of art from Greece: Sir Thomas was able and willing to try to get them. An agent of the Earl's, called William Petty, arrived in 1624 to assist the ambassador. The general plan of Sir Thomas Roe was to find out, by means of the facilities afforded to the Embassy, the most likely spots in which to search, and to recommend that Petty should go to the places indicated and look. What was found could then be sent to England through the auspices of the Embassy, who would negotiate with the Porte.

William Petty seems to have been a man competent to rival the most astute art-dealer's agent to-day. He set about collecting for his employer with a zest and skill that was remarkable. He roamed the Archipelago, the coast of Asia Minor, and went to Angora in the interior. He visited Alexandria, Samos, Ephesus and Salonika. Roe describes him as follows:

> 'There never was man so fitted to an employment, that encounters all accident with so unwearied patience, eates with Greeks on their worst days, lies with fishermen on their planks at the best, is all things to all men that he may obtain his ends, which are your lordship's service.'

Again Roe refers to Petty's indefatigable enterprise:

> 'Mr. Petty hath aduised me that, retorning from Samos, where he had gotten many things, going to Ephesus by sea, he made shippwrack in a great storme upon the coast of Asia : and sauing his owne life, lost both all his collection of that voiadge, and his commands and letters by mee procured ; desiring me to send him others, or else, that he can proceed no further. Hee was put in prison for a spy, having lost in the sea all his testymonies : but was released by the witness of Turks that knew him. From thence he recovered Scio, where he furnished himself againe, and is gone to the place where he left his boate to fish for the marbles in hope to find them.'

Evidently this admirable servant was not easily daunted.

Sir Thomas Roe must have had a difficult time. For the example of the noble Earl prompted others to use Roe's services. The newly created Duke of Buckingham entered the art-collecting arena. He wrote to Roe asking for his collaboration. The English collectors rapidly discovered that in Turkey they had at their disposal a sort of collector's Klondyke, from which it was possible to export works of art without any difficulty at a cost which was infinitesimal compared with the cost of purchasing them in Italy itself. Buckingham the upstart tried to rush in to the field already held by the Earl Marshal, the twenty-first to hold his title. The Earl refused to co-operate with such an insignificant rival and poor Sir Thomas Roe was left to solve his problems, which, for an otherwise busy ambassador who did not wish to give offence to influential politicians, must have been most disconcerting. Arundel had first claims on Roe and maintained his monopoly. Buckingham had to do as best he could with a share of the leavings of what was collected for Arundel.

The subsequent history of the two collections made by the two noblemen is interesting. Collecting as such is a contributory element in the growth of the idea of a museum. A museum may in the first instance be a merely personal affair for the entertainment of its owner. It may also be organised for the instruction of a wider public. These early collections were, obviously, in the first instance, solely made for the pleasure of their makers. But they are the germ from which the larger idea developed. In that respect they deserve notice in this survey, for they contributed, however indirectly, towards an increased study of man. If you collect his works of art you may soon find yourself collecting also his other works. This happened quickly, because poorer men

who could not afford imposing pictures and statues, began, under the impetus of the collecting urge, to gather smaller curios. Among them, the Tradescant Collection (which will be presently discussed), stands out as the first to devote a section to ethnological objects.

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The Arundel collection waxed under the attentions of the indefatigable Petty. Never was a man so misnamed. Petty had the largest ideas and the longest vision. Nothing seems to have escaped him. Among his numerous hauls was an already formed collection of Greek and Roman inscriptions. It had been made at Smyrna by a certain Samson, who himself had been commissioned by a Provençal scholar called Pieresc. Samson had got into trouble and was in prison when Petty arrived. Petty gathered the already scattered collection together again and acquired it, at a high price. Among these stones was one, now one of the prized possessions of the Ashmolean Museum at Oxford, known as the *Marmor Parium*. It is that very unusual thing, a formal Greek chronology, compiled from ancient sources by Greek university or school authorities for the instruction of their pupils in the third century B.C. Since the chronology which it records covers the period 1580 B.C. to 298 B.C. it is obvious that it must contain a good deal of otherwise unrecorded Greek tradition for the prehistoric period. For Greek historians it is still a document of prime importance.

In 1626 Sir Thomas Roe writes to Arundel that 'Mr. Petty has raked together two hundred pieces, all broken, or a few entire; what they will prove, I cannot judge'.

The collection as a whole arrived at Arundel House in 1627, in London. They became at once a centre of interest. The *Marmor Parium*—the 'Parian Marble' was at once seized on by scholars. The famous John Selden published in the very next year what is perhaps

the first catalogue of an archaeological collection, his *Marmora Arundelliana*. The collection and its owner acquired international fame. The scholars of Italy were envious.

The finest testimonial that could be paid to the Earl of Arundel was that written by Henry Peacham, of Trinity College, Cambridge, who, in the *Compleat Gentleman* of 1634, remarked:

> 'I cannot but with much reverence mention the every way Right Honourable Thomas Howard, Lord High Marshall of England, as great for his noble patronage of the Arts and ancient learnings, as for his birth and place. To whose liberall charges and magnificence this angle of the world oweth the first sight of Greeke and Romane Statues, with whose admired presence he began to honour the Gardens and Galleries of Arundel House about twentie years agoe, and hath ever since continued to transplant old Greece into England.'

Petty, in England, was still working for the Earl and a steady addition was made to the collections. It is recorded that Sir Francis Bacon 'coming into the Earl of Arundel's garden, where were a great number of ancient statues of naked men and women, made a stand, and as astonished, cried out "The Resurrection".'

In all, the collection is said to have consisted of thirty-seven statues, one hundred and twenty-eight busts, and two hundred and fifty inscribed stones exclusive of sarcophagi, altars and fragments. In addition there was a collection of gems and coins of great value.

The Civil War began the first of the vicissitudes of the Arundel collection. The Earl Marshal left England for ever in 1641. He took the gems with him to Holland but naturally left the statues and inscriptions at Arundel House. Some appear to have been dispersed. The property of the Arundel family was

laid under an 'attachment' by the Government. But still the main collection seems to have remained where it was, and only to have suffered from neglect. After the Restoration the Earl's second son Henry Howard took over the collections together with the family property. Evelyn in his diary records how the collections were forgotten and neglected, those pieces in the gardens suffered from exposure, some were destroyed and some actually stolen.

But in 1667 the heir was persuaded by Evelyn to present to the University of Oxford 'all those stones, coins, altars etc., and whatever had inscriptions on them that were not statues'. Oxford took over one hundred and thirty-six inscribed stones out of the original total of two hundred and fifty. The remainder appear to have been lost! The gift to Oxford was commemorated by the giving of academic honours to Evelyn and Howard. But the stones themselves were not given the honours that belonged to them. They were built up in the long wall that flanks the Sheldonian Theatre on the west side. But the University did in fact publish them all anew. Long after they were removed to their present home in the nineteenth-century Ashmolean Museum.

The fate of the statues was worse. In 1678 Arundel House was pulled down and the sculptures were divided up. Some were sold and others were huddled into a surviving corner of the garden. The bulk of these was later sold for a mere £300, as the then Duke was very poor. A few broken fragments were actually given away to a servant to adorn a pleasure resort known as Cupid's Gardens, in Lambeth. The remainder was removed to Kennington where they vanished in a rubbish heap. These latter were later re-excavated by Lord Burlington, the connoisseur, and brought to Chiswick. He found no less than six torsos of statues, some of colossal size.

Thus was dispersed the first collection of Greek and

Roman works of art ever made in Great Britain. It is a sad story and one which is poor argument for those who could maintain that the private collector is the greatest benefactor of the public.

Those that survived the dispersal were collected again by another nobleman, the Earl of Pomfret. At his death poverty and debt compelled the family to sell even this small collection. It was bought, to her eternal credit, by the dowager Countess Pomfret, who thereupon presented them to the University of Oxford in 1755. There they have remained until this day and form the bulk of the not unworthy sculpture collections of the Ashmolean. However ill-treated the inscriptions and the statues of the original Arundel collection may have been by the University authorities, at least they were guarded faithfully and saved. A public or semi-public institution like a University appears to be a better guardian than a family. Family fortunes may vary. A poor heir may be forced to sell what a rich testator bequeaths. A son may have no interest in the collections made by a father. Private enterprise cannot justify itself completely as the benefactor of the humanities and of learning. There are too many uncertain factors operative. Oxford may have built the Arundel inscriptions into her walls and left the Arundel statues lying in dank basements. But she saw that they were not sold, dispersed or destroyed.

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The Buckingham collection was not to be compared in size with that of Arundel. When William Petty left the Levant, Sir Thomas Roe was able to devote his attention more to the Duke of Buckingham. This he was the more willing to do since the Duke was the private adviser to the King, and a man of great influence. Roe now regularly reports to Buckingham on discoveries and employs the services of his consuls, even in very remote towns like Sinope on the Black

Sea, to report on finds of antiquities. Troy and Pergamum were also searched. In 1628 Roe is at Smyrna and reports that a shipload of antiques is being sent to England. But when they arrived the Duke had already been assassinated. He never saw his treasures. They at once attracted the envious attention of Arundel who tried to obtain them. But by now there were other collectors on the scene, among them the Earl of Montgomery and the famous Lucy, Countess of Bedford, who was a well-known collector of ancient coins.

The ultimate fate of Buckingham's collection is not known. Probably it was quickly disposed of by his heirs.

King Charles I himself seems to have been inspired by Arundel's zeal to collect antiques as well as pictures. He did not, like so many of the noblemen, press on the poor pestered Sir Thomas Roe, which he well might have done, but he employed one of his admirals, Sir Kenelm Digby, to collect for him in the Archipelago. The admiral seems to have been one of the many nautical visitors who ransacked the open ruins of the stony island of Delos, where the vast heaps of broken columns then, as now, attract the curious-minded sailor who puts into the safe harbourage of Delos in stormy weather. But King Charles could never seriously rank as a competitor with Arundel.

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The rise of the collecting spirit in England among the nobility had several important results. It laid the foundation of serious studies by more learned men. The fact that John Selden published the Arundel inscriptions so quickly, and the fact that the task was allotted to so distinguished a scholar, was perhaps the most creditable sequel to the formation of the collection. Equally promising for the future was the fact that not long afterwards the bulk of the material

was handed over to a University, as the most competent interpreter and the most reliable guardian. These were good signs for the future. For out of these noble collections made by private men arose learned societies and semi-learned associations like the Society of Dilettanti in the eighteenth century, who sent expeditions not to loot and collect but to note and to conserve. That much good evolved in the course of time from private enterprise.

The noble collectors also stimulated other and more proletarian collectors. There is all too little evidence surviving, but the knowledge of the existence of collections such as that of the Earl of Arundel must have stimulated humbler men to accumulate humbler antiques. And it would not be only antiques that were collected, but mere curios as such. And once you start collecting what you call 'curios' anything may happen. The long list of noblemen from the Earl Marshal to Lord Elgin is a list of progressively more accomplished collectors.

The humbler collector seems to have been encouraged to turn to the curios of his own country by the labours of that admirable historian of Britain, William Camden. He was the first to systematise English history by the publication of his *Britannia* in 1607. His *Remaines Concerning Britain* which appeared in 1636 is one of the first books in which some attempt is made to collect British folk-lore. The latter book covers a large ground and includes much literary and non-antiquarian matter. But it is, in effect, a kind of collection of oddments of philological interest, of traditional value, which serves as an appendix to his larger work. Most of it is now of little value, but its interest for us is that it exhibits the same collector's outlook which is now the vogue among writers and art-lovers.

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Early in the seventeenth century collecting established

a class distinction which has survived down to modern times. The Earl Marshal and King Charles I set the standard for the aristocracy which is to-day followed by the plutocracy. The immense and valuable collections of the Oil and Press magnates are the modern equivalent. On the other hand the same tendency to form collections among the bourgeoisie manifested itself at the time when ambassadors were pestered by earls and dukes, and admirals were cruising on the behalf of kings.

An obscure person of the name of John Tradescant was in his own humble way laying the foundations of the public museum to-day. Tradescant was apparently Head Gardener, or at least a gardener in the employ of Queen Henrietta Maria. Little is known about his private life, but it is recorded that in 1637 he visited Virginia for the purpose, perhaps incidental, of 'gathering flowers, plants and shells'. In one way and another he accumulated a remarkable collection of oddities which he called his 'Closet of Curiosities'. He published a catalogue and account of it entitled *Museum Tradescantianum, or a Collection of rarities at South Lambeth*, which appeared in 1656. It was dedicated to the College of Physicians. The purpose of the collection was clearly in the first instance scientific, and the collection itself was intended to be part of the famous botanical gardens at South Lambeth which Tradescant's father had founded, and which the son had continued. The collection itself consisted in the main of botanical and Natural History specimens. But the natural curiosity of the collector, influenced perhaps by the larger enterprises which he had observed in the Royal Court, caused him to branch out into other fields. The Closet of Curiosities—which was popularly known as 'Tradescant's Ark'—also contained what was entitled 'Mechanick artificiall works in carvings, turnings, sowings, and paintings' and a section of 'warlike instruments'.

The latter section comprises what is actually the very first ethnological collection ever to have been made. As such it is of the very highest interest and importance.

The history of this collection can be followed almost as closely as that of the Arundel marbles, though its fate was happier. Tradescant's 'Closet' must rank as the parent of all those peculiar minor museums that are found in the provincial towns of Great Britain and of most other countries, into which have gravitated by gift or minor purchase the most heterogeneous accumulation of oddments. The traditional 'stuffed alligator' type of small museum, where curiosity rather than education seem the main motive, owes its inception to Tradescant. But the large public museum, well organised and endowed, is the true descendant. The survival of the two types in most countries is an interesting example of evolution, comparable to the parallel development of the lower anthropoids and of *Homo Sapiens*.

Tradescant's collection aroused widespread interest. Nothing like it had ever been made accessible to the public before. Unlike the lordly collections of the aristocracy, the 'Closet of Curiosities' could be seen by every citizen.

One of Tradescant's friends was Elias Ashmole, a cunning and acute student of all that was curious and interesting. In 1659 Tradescant decided to settle his famous collection by deed of gift on Ashmole. Some suspicion must have been generated in his mind soon after, for two years later he altered his will and left the collection to his own wife with a clause instructing her to leave them to the University of Oxford, or to Cambridge, whichever seemed best.

But whatever suspicions he may have held of Ashmole were unfounded, for Ashmole fought the will and obtained possession of the collection, but immediately offered them to Oxford on condition that a building

should be erected to contain them. Unfortunately, a year later, some part of the collection was destroyed by fire, which broke out in Ashmole's house in the Temple, where the objects were temporarily housed. However, the bulk of the collection reached Oxford and in 1679 the foundations of the exquisite building in Broad Street were laid. The Old Ashmolean Museum, which is one of the most perfect buildings in Oxford, was built. In 1683 it was finished and the Museum opened to the public by James Duke of York who was afterwards James II. The Museum was much more than a collection of curiosities. It contained a chemical laboratory and was essentially a scientific institution, the first of its kind in the country. Later in the nineteenth century the contents were transferred to the new Ashmolean Museum and the lovely older building remained more or less derelict, being used mainly for the work of those researchers who were compiling the Oxford Dictionary. But for nearly two centuries the original Ashmolean Museum remained the focus of all scientific studies in Oxford. It has recently been given a new lease of life and converted into a Museum of the History of Science, thus reverting more to its ancient usage. To-day, well equipped and admirably organised, it continues the purpose of its first founder, Elias Ashmole.

Before the Old Museum was thus reorganised the surviving objects from the Tradescant collection were transferred to the New Ashmolean, where they are now. The type of objects collected by Tradescant can be examined in detail. They can be roughly classified into types. There are simple ornaments, like bead and amber necklaces, Venetian beads and glass objects. There are carnelian rings from Turkey and a variety of objects of the type still to-day purchased by tourists in the Mediterranean. But the really important exhibits are ethnological. Among these are some of outstanding importance. There is the famous Mantle

of Powhattan, King of Virginia, made of deerskin and embroidered with shells, probably the same as that given in 1608 to Captain Newport, companion of the notorious Captain John Smith, by the father of Pocahontas. This is not only one of the first specimens of North American Indian culture brought to Europe, but probably one of the oldest in existence.

There are, in addition, canoe-paddles from Polynesia and, perhaps most interesting of all, two ivory spoons from the Congo, decorated with carved human figures, of very high quality. These spoons were clearly acquired by their original purchaser almost as soon as they were manufactured by their African artist, for they show no signs of use and are as fresh as when they were first carved. The fact that they can be given an approximate date in the seventeenth century serves to aid the chronology of African art, for very few pieces of native African carving can be dated.

By modern standards the Tradescant collection, as it survives, is of no more importance than the collection of oddities which can be found in any tenth-rate small country town in England to-day. But as the first British Museum it has an interest far transcending its contents. Among the other objects belonging to it are a portrait of Thomas Parr, the famous man reputed to have lived to the ripe age of a hundred and fifty-two years (1483-1635)! In the original collection was also a stuffed Dodo, from the West Indies. Altogether it must have excited, in its day, the very highest interest. Tradescant was a true collector, with an eye for the advancement of science and the assistance of education. His 'Closet' in the end developed into the present Ashmolean Museum, which can rank as one of the most important of the smaller European Museums to-day. In contrast the aristocratic collection, made by a distinguished family, is bound to suffer from the vicissitudes of fortune. The ups and

downs of family fortune may lead to the dispersal of an entire collection. The privacy which is a characteristic of the rich man, may deter him from allowing public access, even for serious study, to his collection. Even to-day objects of incalculable importance remain hermetically sealed behind the doors of some plutocratic home and the advancement of knowledge is to that extent hindered.

The original collection of Tradescant, by virtue of being known as a collection, led to accretions. Other people wished to be associated with so distinguished a nucleus. The present Ashmolean Museum is the consequence of Tradescant's activity, and Elias Ashmole, by his public spirit and determination to keep the collection intact, created the background of a well-organised museum. Gradually objects of importance, interest and beauty gravitated to Ashmole's collection. He also added to the original Tradescant group of objects. After Ashmole's death his collection of manuscripts, together with those of Antony Wood, the historian of Oxford, and of John Aubrey, were added. In 1690 the first Keeper of the Museum, Dr. Robert Plot, was appointed by the University. Objects of great value and historical importance began to arrive. The famous and beautiful Jewel of King Alfred, one of the most remarkable of all Saxon objects, reached the museum in 1716. Towards the end of the eighteenth century various donors began to offer money for the purpose of the better housing of the Arundel marbles, and inscriptions which had been left in a state of comparative neglect in the buildings then occupied by the School of Moral Philosophy and the School of Logic—not unworthy repositories for relics of Greece and Rome! In 1845 the present New Ashmolean building was erected and these outlying antiquities were at last concentrated in one place. There they remain to-day.

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The inquiring and curious spirit of the seventeenth

century, with its intense interest in mankind and the origins of human society, exhibited itself also in another important way. The ethnologist in the main held the field, for the vast body of information about savage peoples provided by the innumerable travellers of the sixteenth and succeeding centuries gave a tremendous impetus to comparative studies of the habits and nature of obscure peoples. But, so far, no one had carried the same intensive research into the history of those vanished peoples of the past, savage or at least uncivilised, whose relics were the sole testimony to their existence. The wealthy collectors took no interest except in the remains of known peoples like the Greeks and Romans. They confined themselves, as is the manner of the rich, to periods and peoples whose existence was certified by competent and accepted historians, and whose repute as civilised people was above reproach. Their choice of objects collected was strictly regulated by the traditional taste established by the scholars of the Italian Renaissance. For the wealthy are always slightly afraid of investigating any period or people which had no properly authenticated pedigree. They have their social and personal reputation to consider. One consequence of this strict adherence to traditional taste on the part of the seventeenth- and eighteenth-century collectors was that the type of works of art they collected was strictly limited. They chose only what conformed to the known canons of 'The Antique' and those known canons were based upon the judgments of Pliny and the Italian scholars who followed him. Consequently even though brilliant and enterprising agents like William Petty visited places in Greece where they could have collected admirable examples of Archaic and Primitive Greek art, even specimens of that age of masterpieces, the early fifth century B.C., they in fact selected only those pieces which conformed to the collector's canons of the day. The surviving examples

of the Arundel and Pomfret marbles are in fact, for the most part, but feeble instances of very poor periods, of uninspired Hellenistic art at best, of miserable Roman copies at worst. There is no single specimen among them of work of the fifth or sixth centuries B.C., the high ages of Greek art. There is hardly even anything that can be attributed to the fourth century. Search the great collections of the Grand Tourists and you will find nothing but a clutter of inferior late Roman sarcophagi and posturing Greco-Roman copies of the feeblest kind. Collections like that of Holkham Hall, contain several hundred works and only one masterpiece. The famous Hope and Lansdowne collections have, from the point of view of artistic merit, almost no value. Even in the early nineteenth century the Royal Commission which sat to decide on the purchase or refusal of the Elgin collection, hesitated long to decide to purchase, because the Parthenon marbles did not conform to the standards of taste established by the Renaissance. The Commission asked the witnesses who appeared before it to judge of the merits of the Pheidian masterpieces by asking whether they were as good as, better than or worse than the accepted canons of the Renaissance, the Apollo Belvedere, the Torso Belvedere and the Venus dei Medici, all now known to be vastly inferior to the works of art with which it was proposed to compare them.

When, in addition, it was proposed to purchase the Aeginetan marbles, works of the early fifth century B.C., the Commissioners refused even the very low price asked because in their opinion 'they were valuable in point of remote antiquity and curious in that respect, but of no distinguished merit as specimens of Sculpture.'

The wealthy collectors thus missed a prodigious opportunity for adding to our knowledge because they were nervous of entering a field which was not properly

documented by literature and certified by experts as worthy of their inspection.

From their activities, therefore, it was improbable that the true study of Archaeology could emerge. For Archaeology advances its knowledge by deliberately setting out to examine *all* the evidence, by searching all periods and places, irrespective of their merits. Archaeology further does not allow its researches to be bound down by the dictates of written history and by the canons of an accepted order. Its purposes are essentially untrammelled and unconfined—or should be. The archaeologist deals with those races and peoples of the past about whom there survives nothing but the tangible evidence of their artefacts. The ethnologist is more concerned with living peoples and with peoples of the past only in so far as their actual human remains survive.

But the stimulus which travel had given to Ethnology in the sixteenth and seventeenth centuries led to the growth of another type of learned student of the humanities—the antiquarian. In the main the antiquarian was drawn from the leisured classes, but not from the richer strata. The country vicar and curate and canon, with time to spare, began to look around him at the relics of the past. William Camden had shown him how to find the more obvious remains of the Roman in Britain. But in the process he encountered strange hill forts, camps, stone circles, mounds, tumuli and cromlechs. He wondered what they were and whether some forgotten peoples besides the Romans had ever inhabited Britain. He had read of Druids and Ancient Britons, and of Oriental Phoenicians, and such. Soon he began to wonder if there were not even earlier people still. Flint arrowheads and 'thunder stones' caused him to think: his curiosity was aroused by peculiar bronze hatchets and spearheads which seemed too primitive to be of the Roman Age. And so, gradually, divorced from the traditional

learning of the day, uncontrolled by University authority, minor men began to search the English countryside. Here the genesis of true Archaeology began. Men like Cyriac of Ancona were endowed with sound archaeological method: men like the Earl of Arundel were fired by the desire to recreate the glories of one of the great artistic ages of history. But neither was inspired by the true methodical spirit which collects irrespective of prejudices, for the purpose, when the collecting is done, of drawing inferences and founding hypotheses. This the early antiquarians did. Their inferences are often fantastic, their arguments futile, their interpretation of facts inexact and misguided; but their method was right and their intentions honourable. They started out to solve unsolved problems and to find out what peoples in these islands were responsible for such astounding creations as Stonehenge and Avebury Circle. They were determined to see that, somehow, such remarkable remains should be fitted into a coherent history of their land. They were sufficiently acquainted with the rules and habits of organised science to know that you must explain all your evidence and not merely pick out what is convenient and soluble.

William Camden was probably the first to examine the surviving remains of Roman Britain. But he did no more. He cannot rank as one of these early antiquarians who founded the substructure of archaeological studies. The most outstanding figure among this little-known class of antiquarians is that indefatigable man the Reverend William Stukeley, M.D. who was born in 1687 at Holbeach in Lincolnshire. He lived and worked in the eighteenth century but his outlook was that of the seventeenth. In 1700 he was apprenticed in his father's office, but soon he persuaded his family to send him to Cambridge to study medicine. There he studied also botany and chemistry,

in the manner of all those seventeenth-century learned men, like Tradescant, who were stirred by the beginnings of organised scientific research which the foundation of the Royal Society had made prominent in the public eye. He collected botanical material in the countryside, and it is probably due to such activities that he began to be aware of the various surface antiquities which can be found by the enterprising scientist, who, as befits field-workers, keeps his eyes on the ground. He began to acquire, he tells us, 'a passionate Love for Antiquitys'. He has left us a diverting description of his rooms at Corpus Christi College:

> 'which had a very strange appearance with my furniture in it; the wall was generally hung round with guts, stomachs, bladders, preparations of parts and drawings. I had sand-furnaces, calots, glasses and all sorts of chemical implements. . . . Here I and my Associates often dined upon the same table as our dogs lay upon. I often prepared the pulvis fulminans and sometimes surprised the whole college with a sudden explosion. I cur'd a lad once of an ague with it by a fright'.[1]

Here at any rate was the true scientific spirit in embryo! not perhaps well regulated, still, we imagine, in what might be called the 'stuffed alligator' stage of development, but authentic. Tradescant and his like with their 'Closets of Curiosities' had laid a seed which was germinating.

In 1709 Stukeley went to study at St. Thomas' Hospital in London and so became a doctor. Some time before this he had visited friends in Northamptonshire. There he accompanied his host's daughter Martha on rambles round the countryside.

[1] I am indebted for these quotations to Mr. Stuart Piggott's publication in *Antiquity*, 1935, p. 22.

She

> 'accompanyd me in several of my rambles in that Country to view Antiquitys, Roman camps and the like . . . she held my ink horn and paper and was very serviceable and assistant in taking my designs and all without reserve or immodesty : nor could any aged Philosophers have conversed together with more innocent familiarity or less guilt even in thought or intention . . . and when we returned home my young disciple could entertain the family with so very curious a relation of the curiositys we had seen, that it would be difficult to say whether so nice a taste in the Remains of Ancient Time most recommended a young Lady, or the refined study became more lovely and delightful for her sake.'

Evidently there were compensations in the laborious task of the field antiquary. Later we hear with a certain regret that 'She is since marryd to a Gentleman in Wales'.

In 1720 Stukeley was elected a Fellow of the College of Physicians after achieving the supreme distinction in 1717 of becoming a Fellow of the Royal Society.

The antiquarian tendency of the day is indicated by the fact that a number of friends of like mind had acquired the habit of meeting at the Mitre Tavern in Fleet Street to discuss antiquarian matters.

The club, if it can be so called, had existed before he joined it and he refers to it as the 'Antiquarian Society' of the 'Society of Antiquaries'. It took on a formal existence later on and so evolved into the London Society of Antiquaries of to-day. Stukeley was the first secretary.

The year after he came to London he began his serious and scientific researches on Avebury Circle and Stonehenge which are his first great contribution to the study of Archaeology, which was now at last being organised. Without Stukeley's studies on those two megalithic monuments we should be poorly equipped

to understand them. His researches on these monuments lasted from 1718 to 1725. It is for Avebury that his work is most important, for, since he studied it, the great circle was almost destroyed, at least severely damaged and denuded of its stones by local farmers and peasants.

Stukeley, we must remember, was a properly trained scientist. His medical education must have been as good as any scientific training of those days. For the study of medicine, always well organised even in the Middle Ages, had benefited enormously from the study of other collateral sciences. Chemistry and Astronomy had both set standards of accuracy which medicine could now adopt. The Royal Society was a society of men whose outlook on method and research was correct and sound. Stukeley was well equipped to enter an entirely new field of research.

Avebury Circle had already been examined by John Aubrey in the preceding century, and his work was known to Stukeley. Stukeley, taught no doubt in his scientific training to be a good draughtsman, made in 1719 his first 'rude general sketch', as he calls it, of the Avebury circles and the adjoining Kennet avenues of standing stones. He visited Avebury almost yearly and his main work in these years seems to have been that of simple recording. He can rank as the first really scientific field-worker in the study of Archaeology. For he was the first to realise that before any theoretical or historical work is done the first thing is to establish the main facts of the matter studied.

His methods were precise and accurate. After each annual visit to Avebury he had his drawings engraved on copper plate and each year he corrected and made additions. His two major works are *Stonehenge* published in 1740 and *Abury* in 1743. So accurate were his observations that by a careful study of his plan of Stonehenge, on which he recorded a long since vanished avenue of stones leading from the circle

to the river Avon, it was possible in 1921 to fix its position and plan it anew with the aid of air photography from aeroplanes. This was one of the earliest and most dramatic of all the discoveries achieved by this new arm of research. It proved the value and accuracy of Stukeley's powers of observation two centuries before.

But Stukeley was an imaginative man. All his scientific training had not taught him how to curb the more ambitious flights of the mind. And ingrained in him was both a profound attachment to religion and a certain strain of mysticism. In 1721 he became a Freemason and began to develop a passionate interest in Druids and all things Druidic. He even built a 'Druidical Grove and temple' in his garden in the country and in 1728 he carried out a ceremony of his own invention there. He buried a stillborn child

> 'under the high altar in the chappel of my hermitage vineyard' in the presence of 'my wive's mother and aunt, with ceremonys proper to the occasion'.

The following year he wrote to his friend Dr. Wake, Archbishop of Canterbury, to ask about the possibility of being ordained into the Church. The pagan ceremony which he had carried out in his Druidical Grove did not, it seems, appear incongruous with a cure of souls in the Christian Church! A friend, writing to him, seems alarmed at this curious amalgam of paganism and orthodox belief. He is doubtful about this reconciliation of the 'Druid and Christian Religion'. But Stukeley apparently believed that every Pagan religion, especially the Druidic, was a forerunner of Christianity, a belief which, one imagines, would hardly have been popular with the authorities. However, in 1729 he was ordained and given the living of All Saints, Stamford.

From this moment onwards he ceases to be the

impartial antiquary. All the information he collects is for the purpose of furthering his views. His scientific training has gone to the winds. His views on Avebury and Stonehenge swing over from Druidical theories to Christian explanations. As an archaeologist, for all practical purposes, he ceases to exist.

Stukeley is a curious instance of an almost dual personality. He is the Reverend William Stukeley, parson in the Church of England and Dr. William Stukeley, Fellow of the Royal Society. In him the two violently contrasting currents of the day run side by side and in the same stream. He is the true type of the religious man, whose scientific training and outlook forms a totally distinct section of his mind. In some men the contrast leads to a conflict, and the religious inheritance is rejected. In others compromise emerges and the conflict is resolved. Scientists with religious tendencies can do one of two things only: they can equate their religious beliefs with their scientific knowledge, or they can abandon either science or religion. Examples of the compromisers can be seen in the ranks of our distinguished astrophysicists of to-day. Those who abandon their religious tendencies can be classified with men of the stature of Thomas Huxley and Ray Lankester.

Stukeley attempted the compromise. The way in which he effected it can serve for all time as the *reductio ad absurdum* of the process. He decided, after taking orders, to utilise the results of his admirable field work in Archaeology to serve as material for the furtherance of his mystical religion. Firmly within the bounds of the Church of England he proceeded to outline a creed in which Avebury, Stonehenge and all the monuments of ancient Britain were to illustrate the new gospel of Christianity which he expounded. His two great works on those stone circles are an amazing hotch-potch of admirable archaeological observations and fantastic religious conjecture.

> 'The form' he writes 'of that stupendous work (Avebury) is the picture of the Deity, more particularly of the Trinity. . . . A snake proceeding from a circle is the eternal procession of the son from the first cause. . . . My main motive in pursuing this subject is to combat the Deists from an unexpected quarter, and to preserve so noble a monument of our ancestors' piety, I may add orthodoxy.'

After the publication of *Stonehenge* he announced that it and the ensuing *Abury* were to be considered as parts of a larger enterprise the title of which was to be '*Patriarchal Christianity, or a Chronological History of the Origin and Progress of true Religion and of Idolatry*'.

His career as an archaeologist can be said to close with the publication of *Abury*. He dies in 1765 aged seventy-eight, then holding a living in London. He was the first and the finest of all British field workers in Archaeology and the virtual founder of that mode of work. But it was long before his example was followed by others. Indeed the revival of truly scientific field work can be dated to as late as 1920. Much field work was done in the generation before 1920, but none so accurate as that done since. Between, say, 1890 and the time of Stukeley, field work was desultory and perfunctory in comparison with the standards set by Stukeley.

But it was the Reverend William Stukeley who prevailed over the Doctor and Fellow of the Royal Society. Just as Dr. Stukeley can be said to be the patron saint of field work in Archaeology, so can the Rev. William be held to be the evil genius who presides over all crack-brained amateurs whose excess of enthusiasm is only balanced by their ignorance of method. Those who believe that Mexico is Atlantis, the Maya the Lost Ten Tribes, who maintain that Britain was an Egyptian colony and that the Pyramids of Egypt are a kind of Old Moore's Almanac of prophecies—all these are the spiritual children of the

Reverend William. And they are all with us to-day, for, just as the scientific methods of the learned Doctor have survived for our advantage, so the lunacies of his later years have continued to exist to encourage the credulous and to assist the slovenly-minded. As a recent critic puts it:

> 'he was instrumental in propagating theories the very imbecility of which seems to have endeared them forever to the public mind.'[1]

And, all the time, Stukeley was a very great man, for he was the first to show students that accurate survey is the first preliminary to any further examination, and that faithful recording is worth a library full of conjecture. Stukeley is a true product of seventeenth-century thought. In him we can see the power of traditional religious belief battling with the new modes of thinking and the new scientific outlook. But the importance of Stukeley is that he was the first to see that the collection of facts is a matter which, when it is left at that stage, need not bring up to the surface the conflict between authority and free research. To tabulate the surface antiquities of his land was an innocuous pursuit. To speculate mildly on their meaning was harmless. But to leave them unexplained by the usual canons of religion seemed to him impossible. Isaac de Peyrère had been struck by certain startling facts. He had a whole continent of new peoples to explain and a vast space of time in history and prehistory to dispose of. He was alarmed to discover that neither problem could be adequately solved by reference to religion. And so he plunged into the battle with a passionate desire to explain the problems before he had collected his facts. By making a frontal attack and by attempting, with an ingenuity and casuistry which would alarm the most

[1] Stuart Piggott: *Antiquity*, 1935, p. 32.

competent Jesuit, he opened the battle without ammunition and was miserably defeated. Stukeley, as his work progressed, must have realised that the more he discovered the more difficult it became to find any adequate Biblical explanation of his discoveries. And so Stukeley, unlike Peyrère, who was fortified by the solid determination of a Calvinist upbringing, seeing the conflict before him, deserted immediately to the enemy. He might too easily have maintained the position that his archaeological researches were a sphere of interest quite outside religion, and have pursued both his hobbies undisturbed. But unfortunately he lived in an age when it was thought that *all* knowledge, even that most recently acquired, must be accepted and judged by the standards previously set by Biblical authority. After all, does not the sixth Article of the Thirty-Nine Articles tell us that

> 'Holy Scripture containeth all things necessary to salvation : so that whatsoever is not read therein, nor may be proved thereby is not to be required of any man, that it should be believed as an article of Faith, or be thought requisite or necessary to Salvation.'

Thus early in its history membership of the Royal Society was apt to emphasise the conflict between the traditional reference of all new knowledge to the canons of religion and the acquisition of new knowledge for its own sake irrespective of any conflict with tradition that might arise. Peyrère in another country had attempted compromise. Hag-ridden by his own rigid religious upbringing, he had neither broken loose from the bonds nor boldly asserted his claim for freedom of knowledge. He had tried to make the oil and water mix into a single fluid. He failed and was beaten to the ground. Stukeley made a similar compromise, and succeeded because he was dishonest enough to squeeze his evidence to fit the terms of

reference. But his compromise ended by branding him as an imbecile.

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Another member of the Royal Society was persuaded to survey one of the more intriguing problems of Anthropology in another sphere. Edward Tyson, a Cambridge man like Stukeley, took a degree in Medicine. He was an anatomist of distinction and eminence. What excited his interest was the evidence which increased exploration of strange lands had accumulated to indicate the existence of pygmy races of mankind. Unlike Stukeley, Tyson was of a profoundly sceptical turn of mind. As a well-trained scientist he distrusted assertions not illustrated by facts. A belief in pygmy races was widespread. He did not believe it. He had never seen an actual pygmy that was not a mere freak, and he had failed to obtain any skeleton of a pygmy. In 1699 he published a book entitled *Orang-Outang, sive Homo Sylvestris: or the Anatomy of a Pygmie compared with that of a Monkey an Ape and a Man.* He concluded that the pygmy was an intermediate animal between men and monkeys. What he called a pygmy was in fact a chimpanzee, and the skeleton of the specimen he examined is still preserved at the Natural History Museum in South Kensington. He concludes that

> 'there were such animals as Pygmies and that they were not a Race of men, but Apes'.

All the alleged instances of embalmed and mummified pygmies such as appear to have been exhibited to the public gaze were in fact merely the bodies of apes.

Tyson's great contribution to anthropological studies was not so much his analysis of the pygmy problem as his actual researches in human and anthropoid morphology. This branch of science he considerably advanced. His is one of those rare and unusual cases where a man of truly scientific outlook tackles a

problem on sound scientific lines and comes to a conclusion which is in fact wrong, but which was the only conceivable conclusion at which to arrive in view of the evidence available. It is better to be right in method and wrong in the conclusion you draw than to jump to a correct conclusion on utterly insufficient data. The cause of learning is advanced by the former, retarded by the latter method. Perhaps the most notable instance is that of Boucher de Perthes who arrived by deduction at the conclusion that the remains of Fossil Man would in time be found, and then proved his conclusion by a discovery which was rapidly seen to be false. His hypothesis was correct, his evidence wrong; and his hypothesis was later completely verified by others as reliable evidence accumulated.

Tyson accumulated correct and reliable evidence and came to a hypothesis that was in fact rendered untenable by subsequent discovery. For, since he wrote, pygmy races have become a commonplace and their habits and morphology standard knowledge. Tyson suspected that all the pygmies produced as evidence were in fact apes. By examining the evidence impartially he proved this to be true. His misfortune was that he had not seen any of the genuine evidence.

If any moral can be drawn it is that as long as a research worker follows strictly the correct principles of science and applies the most rigid laws of thought and classification, what he does is bound in the end to result in some contributions to knowledge, even if they are not in fact the contributions which he intended to make. Stukeley and Tyson, because of their training, were bound to leave to posterity something of value and importance. The first, by pandering to tradition, almost destroyed the value of his contribution. The second, by excessive scepticism, rejected an assumption which was in fact true. Both by their inflexible pursuit of knowledge enriched the humane studies and the cause of science.

CHAPTER IV

THE AGE OF REASON

Linnaeus and Buffon. New currents of thought in the eighteenth century. The opening up of the world by new voyages. Captain Cook. Lord Monboddo and Dr. Samuel Johnson. The force of tradition and conservatism opposes the new views. The discovery of the material remains of prehistoric man. John Frere and the first Palaeolithic implements. Cave man. The discoveries at Kent's Cavern. The hypothesis of Fossil Man. The discoveries of Boucher de Perthes. His theory as to the antiquity of man. The episode of the fraudulent skull. The importance of the discoveries of Boucher de Perthes for the Darwinian hypothesis. The growth of Prehistoric Archaeology and Geology. 'Polygenists' and 'Monogenists'. Charles Darwin. The effect of his hypothesis on the human sciences. Pitt-Rivers and his ethnological work. Growth of Archaeology.

IT WOULD be a paradox to assert that the seventeenth century lasted well into the eighteenth. But it is sufficiently evident from the preceding chapter that what we consider to be the characteristic outlook of the seventeenth century persisted well into the next century and overlapped that entirely new outlook on knowledge which is typical of eighteenth-century thought.

In the year 1707 were born two men who each in a different way contributed to the growth of the study of Anthropology, Linnaeus the son of a poor Swedish parson and Georges Louis Leclerc, Comte de Buffon, a Burgundian Frenchman.

In 1735 Linnaeus published his *Systema Naturae*. Between then and 1760 it ran into twelve editions. For the first time since the proposition was first set

forth by Aristotle *Homo sapiens* was classified as one of the animals. The popularity among learned men of the work of Linnaeus is proof enough that the dispassionate methods of science, which had begun to establish themselves at the close of the preceding century, were now taking a hold of speculative thought. The spirit of the eighteenth century in this, as in so many other respects, was approximating itself to that of ancient Greece. The thin thread of free speculation which had been broken by the advent of authoritative religion, that firmly implanted instinct to encourage freedom in learning and to promote unfettered research which was inherent in European thought, had been picked up again. It is astonishing to reflect that the entirely revolutionary proposition of Linnaeus was followed by almost no attack on the part of Authority.

For Linnaeus was perfectly dogmatic. In his first edition Man appears among the Quadrupeds together with the ape and the sloth. In the tenth edition the Primates include Man, apes, lemurs and bats. Man himself is classified under the headings of *homo sapiens*, *homo ferus*, *homo americanus*, *homo asiaticus*, *homo afer and homo monstrosus*. Here was a shock indeed to those who believed him to be a special creation, cast in the image of the godhead.

Substantially this classification of Linnaeus still holds, though it has been amended in regard to the various animals classified under Primates. Linnaeus was not in any sense a specialised anthropologist, but his new classification fundamentally affected that study. Linnaeus was primarily a Natural Historian and one with a specialisation in botany. But his greatest contribution to learning was his exact and faithful method of classification. Linnaeus renewed the spirit of Aristotle, whose biological work had led him to just such an attempt at classification.

To-day we accept Linnaeus as a natural outcome of

the normal development of scientific thought. But when we compare the reception which his work received with the fate that befell Isaac de Peyrère, or Vesalius, it is evident that the currents of European thought are flowing in a new direction. There was stirring a general spirit of freedom in thought as well as in daily life which was soon to have its political counterpart in revolution. The days of Authority seemed limited. It is difficult at this distance to assign the cause for this new Renaissance spirit that was abroad. Ultimately it was probably brought about by the discovery of the New World. The effects of that discovery were deep and only emerged slowly. Nothing in the long run is so revolutionary as a concrete fact or group of facts which by their very existence challenge an existing order.

Buffon, unlike Linnaeus, was a man of substance and position. He travelled widely and published as his main work *L'Histoire naturelle des animaux*. Unlike Linnaeus he did not believe in classifying rigidly into species, but like Linnaeus he did place man among the animals, in the true Aristotelian tradition. Both together can be said to have laid the foundations on which Darwin was to build. Buffon maintained that it was possible that for horse and ass, ape and man there was a common ancestor.

Buffon was in type a man of the seventeenth century, Linnaeus of the eighteenth. Buffon was not such a clear-minded and determined scientist. And he encountered in Paris the same official opposition as that which had disposed of Peyrère. In 1751 he was forced by the Sorbonne to recant some of his heresies. He did so in these words 'I declare that I had no intention of contradicting the text of Scripture: that I most firmly believe all therein related about the Creation, both as to order of time and matter of fact'. Perhaps the same would have happened to Linnaeus if he had lived in France.

But such suppression as this was becoming rarer. The forces of tradition were weakening, at least in the amount of power they could wield. The world was beginning to become a little safer for the scientist.

Slowly the two opposing armies were ranging their forces. It was clear that the traditional army who believed in the fixity of species, and that each species was the result of a miraculous creation, the party which accepted unchallenged the complete cosmogony of the ancient Hebrews, was being forced to state its own creed so clearly that its very weakness and rigidity would become the more obvious the more it was open to inspection. Hitherto the religious traditionalists had held the field and had been so generally accepted as the masters of all doctrine, religious or scientific, that they had had no need or occasion to state their own case. But now when their case, by necessity of stating it, became exceedingly clear, it also began to appear to the ordinary critic as exceedingly sterile. In England Archbishop Usher in the sixteenth century had stated the case for the Mosaic Cosmogony with extreme clarity. He laid down the Mosaic Chronology with care and precision. Later again, in the same century, Dr. Lightfoot, Vice-chancellor of the University of Cambridge, had stated it again with greater exactness. In his opinion 'Man was created by the Trinity on October 23rd, 4004 B.C.' These periodic restatements of the problem of Creation with an increasing exactitude were a sign that all was not well. For, opposing the traditionalist army, was another army to whose ranks fresh volunteers were continually arriving. The view of this body of opponents was that any special creation was scientifically untenable and that all species were in the last resort derived from other species. The weakness of this gallant army was that they were unable to explain by what law of nature such transmutation from species to species could have taken place. And so the eighteenth century saw the slow development of a battle in

which each side was ill-equipped. The traditionalists were encased in armour which was so heavy that it retarded movement, and their opponents were armed with guns which would not go off.

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But the impetus to new speculation is always new discovery. No rigid system that proposes to explain the origin of man can withstand the shock of fresh accumulations of knowledge which render that system inadequate or sterile. Not only had the discovery of the vast new continent of America, with its enormous population, thrown into the melting pot most of the accepted ideas of the nature of the inhabited world, but it had brought into high relief the inadequacies of the Augustinian scheme of things. That alone was sufficient to provoke a sceptical outlook and to cause intelligent men to ask difficult questions. But the discovery of almost equally large new territories in the East produced the same results. The explorations of the Dutch navigators in the early seventeenth century were soon productive. In 1611 Hendrik Brouwer was among the first to revive the notion of a *Terra Australis*. Magellan's famous voyage in 1520 had at last made acceptable once again the Greek view, so long abandoned, that the earth was a globe. It soon was conjectured that some vast southern continent was to be found due south of the Straits of Magellan as well as south of the Cape of Good Hope. It is probable that the Portuguese in the latter part of the sixteenth century had become acquainted with a large part of the Australian coastline as they voyaged to the East Indies. The Spanish, too, had been on the same quest. In 1567 an expedition from Peru discovered the Solomon islands and thought they had found the coast of the great southern continent. The Marquesas islands were found about the same time by a similar expedition. Ten years later Luis de Torres actually sighted Australia but thought it just another island of

small dimensions. Brouwer in 1611 found that if, after doubling the Cape of Good Hope, he sailed due east for three thousand miles and then turned north he could shorten the voyage to Batavia by five months. Thus shipping was passing near Western Australia. Slowly portions of the Australian coast were sighted and charted. The next step was taken by Antonio van Diemen, governor-general of the East Indies. The famous voyage of 1642 fixed the position of Tasmania. Abel Tasman was the most competent navigator available, and he was employed by Van Diemen. In 1644 he was sent out with the object of:

> 'the further and more exact discovery, and of clearly ascertaining whether the coast of Nova Guinea and the unknown South-Land are connected together, or are divided from each other by channels: of deciding whether or not the newly discovered Van Diemen's Land forms one whole with the two great lands just mentioned or with either of them'.

These were the precise orders given by the 'Council of India' to him. But he mistook the Torres Strait for a gulf and so perpetuated the belief that New Guinea and Australia were one unit. After Van Diemen's death further exploration was neglected. The sterility of the Western Australian coastline deterred adventure. After Tasman had left the East, Australia was forgotten for nearly a century and a half. But in 1688 William Dampier, a gentleman pirate, uses the north-west coast for his own convenience of escaping notice. But the British Admiralty, never unwilling to employ pirates, sent him out officially. Again he confined his attention to the undesirable north-west coast and examined a thousand miles of it. His report naturally failed to inspire further ventures. It was left to Captain James Cook to rediscover the great continent.

Cook was born in 1728 in Yorkshire. He ran away to sea as a boy and later joined the navy. He soon

showed his ability, and at the age of thirty was in command of a ship at the siege of Quebec. He was soon seen to be a man of remarkable skill with a genius for charting coastlines and cartography. His first famous voyage of 1768–71 was to the Pacific. His scientific accuracy in observation was soon apparent. For an entirely self-educated man his work on this voyage was a remarkable achievement. In 1772 he set out on his voyage which was 'to complete the discovery of the Southern Hemisphere and in particular to explore the Antarctic'.

He rounded the Cape of Good Hope and sailed south until he was stopped by impenetrable ice. He returned to New Zealand for three months to refit. In 1774 he discovered the Sandwich Islands, New Caledonia and other parts of the Polynesian archipelago. Georgia was also discovered. By the next year he had circumnavigated the globe by way of the Antarctic.

Captain Cook's contributions to the study of Anthropology are best seen in his own reports. His observations on the habits and customs of the natives both of New Zealand and of Australia are of the most accurate and competent kind. Not only does he record the natural history of the places he visits but aspects of local life in the greatest detail. Burial customs, religious rites and ceremonials are meticulously observed. He is himself a true ethnologist. Nor did he confine his attentions only to observations. He made a most adequate collection of objects representing all activities of native life. There survives to-day a large part of the collection he made, preserved in the Pitt-Rivers Museum at Oxford. In it are ethnographical specimens from the Society Islands, from the Sandwich Islands, from the Marquesas, Tahiti, Tonga, New Zealand and New Caledonia. In 1787 appeared a catalogue of one specialised branch of his collections: it was entitled:

'A Catalogue of the different specimens of cloth collected in the three voyages of Captain Cook in the Southern Hemisphere'.

In 1771 there appeared in Paris the *Voyage au tour du Monde* of De Bougainville, whose explorations were of almost equal importance to the anthropologists.

In short the main features of the world as we know it were now taking shape and a multitude of new peoples and races were presented to a world which had now become accustomed to the extension of its boundaries.

The variety of Man was now almost a commonplace. The various types were intensively studied. The average European of intelligence had begun to realise that existing mankind was a subject of study for its own sake. A revived Herodotean curiosity was abroad. The eighteenth century had renewed the spirit that was first born in Greece in the sixth and fifth centuries before Christ.

But the one aspect of the nature of man which had, somehow, escaped all intensive study was his antiquity. Historians had noted that in Egypt and the Middle East mankind had an ancient pedigree. Even in Europe itself the vestiges of prehistoric man that collectors had not failed to notice suggested an almost equal antiquity. Yet they failed to provoke further inquiry and as yet there was no reason to push the antiquity of the human species farther back than the date fixed so immutably by the Church and set forth with such precision by Archbishop Usher and Dr. Lightfoot. For once the conflict of science and religious dogmas had not become apparent in this vital problem. For, as yet, no one had suggested any remote date for the origin of man. Skeletons of early Britons of just before the Roman Age were discovered; Roman, Greek and Egyptian human remains were a commonplace. But no discoveries had been made which would indicate the ultimate antiquity of the

human species. The two studies of Anthropology and Archaeology were pursuing two parallel courses and there seemed no likelihood of the two parallels ever meeting. Those who examined the remains of existing primitive races and those who collected the relics of the past saw no reason why the lines on which they were working should converge, or, if they converged, at what point they would meet. Some new factor was required, some new hypothesis which would correlate the fact that man was a developed form of animal life, related, however vaguely, to all other forms, with the fact that he was also an animal whose ancestry could be traced.

The evidence was already there, but it had not been recognised. The proof that man had himself evolved from a more primitive and animal state was evident enough to those explorers who had seen the barbaric Tasmanians and the inhabitants of Patagonia. But the advance of certain recent types towards civilisation was thought to be a comparatively recent affair, and it was assumed that people like the Australian aborigines and the Tasmanians would, in contact with more advanced peoples, soon pull forward in the march of progress. It was not quite understood that such savage peoples were still in a stage of development physically and culturally in which the most civilised Europeans had themselves once been. No single scientist had as yet asked the simple question 'How old is mankind?' 'What are the most primitive forms of humanity in the past?' Egyptians and Babylonians, as far as they were known, appeared to be almost the equals of modern men in their culture and appearance. The farther back you went the less change you noticed. Most of the barbarians and savages in the Old World seem for the most part to belong to later historical times and to represent merely a kind of peripheric mass of uncultured folk who surrounded the main centres of culture.

The problem of the antiquity of man would never have been solved without the aid of the archaeologists, and Archaeology, as we have seen, lagged far behind the growing study of Anthropology. Surface field work was hardly likely to do more than suggest that at some time, which could not be dated, but might be quite recent, savages had inhabited Europe in the same way as they now inhabited America and Australia. They might indeed, as in Britain, be of quite recent origin. If primitive Tasmanians could exist in the eighteenth century, surely primitive Britons could have existed in the first century B.C. The chronology of Usher and the Church was in no danger of being challenged. Their conceptions of the sphericity of the earth had gone by the board: their views on the origin of man in Eden were highly suspect and their hypothesis of a Special Creation was gravely shaken, but there seemed little wrong with their dates. Indeed they had given a generous margin of time for the emergence of modern man.

One of the few men in the eighteenth century to attempt to correlate the new ethnographical knowledge with the problem of the antiquity of man was that strange character Lord James Burnett Monboddo, a Scotchman. Monboddo was described by a contemporary, in a brilliant phrase, as 'an Elzevir edition of Samuel Johnson', a description which must have enraged the learned doctor who held Monboddo in the greatest contempt.

Monboddo has the reputation of being an eccentric character, probably little deserved. His eccentricity lay mainly in the fact that nobody accepted his views and that he was constantly attacked by Johnson. In the conflict of the two it is possible to detect, clearly exhibited, the conflict between the traditionalist and the new knowledge. The reactions of Johnson to Monboddo's theories and beliefs are typical of the age, typical also of the same conflict as it reappeared in

Darwin's time. There is only the difference that Johnson represented the traditional views with more acumen, and stated his beliefs with more intelligence than his later counterparts.

Monboddo was primarily a student of the origins of language, a study of which, despite Johnson's harsh criticism, he was undoubtedly an able exponent. But Monboddo's other studies were more important. His methods were sound and his observations highly intelligent. He studied man as one of the animals, following the same line of thought as that suggested by the classification of Linnaeus. He was for all practical purposes a complete amateur, since by profession he was a Judge, but he had a hard and scientific outlook and clearly was much impressed by all the new ethnological information which was accumulating. Johnson, with all his taunts, liked Monboddo, even when he laughed at him. He represented the essentially conservative outlook of the Englishman brought up to accept uncritically the general scheme of things as explained by religion and to scoff at any new line of thought that was likely to suggest revolutionary views. 'It is a pity' said Johnson, 'to see Lord Monboddo publish such notions as he has done: a man of sense, and of so much elegant learning. There would be little in a fool doing it; we should only laugh: but when a wise man does it we are sorry. Other people have strange notions; but they conceal them. If they have tails, they hide them; Lord Monboddo is as jealous of his tail as a squirrel.'[1]

Johnson's attitude is worth noting because it represented the attitude of a majority of educated men. Johnson differed from them in being able to make his prejudices amusing and phrasing them in a way which made it hard for his opponents to reply. Elsewhere in Boswell's *Life of Johnson* we find the Doctor stating firmly on the subject of Monboddo's views:

[1] *Journal of a Tour to the Hebrides*, 1924 ed., p. 230.

> 'Sir, it is all conjecture about a thing useless, even if it were known to be true. Knowledge of all kinds is good. Conjecture, as to things useful, is good. But conjecture as to what would be useless to know, such as whether men went upon all four, is very idle.'

Monboddo can be classed among those intelligent workers who had jumped to a conclusion without having sufficient evidence. He is one of the pre-Darwinian evolutionists. But, as such, he cannot claim as much merit as, for instance, Tyson, who after an exhaustive examination of evidence came to a wrong conclusion. What survives of Tyson's work is his survey of the anatomical evidence for the relation of men and monkeys. What survives of Monboddo's is merely a happy guess based on a cursory survey. We can have no hesitation in estimating the superior value of Tyson's contribution. But we must give to Monboddo the credit for possessing a quick mind and for using imagination with restraint. Those two qualities are all too rare in scientists. And compared with Dr. Johnson, Lord Monboddo is a true scientist, Johnson a mere scoffer who had no alternative views to offer. And Johnson cuts the poorer figure, since Monboddo proved to be right. Johnson indeed, in the matter of such studies as Archaeology and Anthropology, seemed to exhibit none of that curiosity which was so typical of him. He was too hidebound by literary or religious tradition. His prime defect appears to have been that he was never in advance of his age. History to Johnson was recorded history. He could not see farther back than the written word. For to him the written word had the value of Holy Writ. History for him began with the first written object. 'All that is really known' he asserted, 'of the ancient state of Britain is contained in a few pages. We can know no more than what old writers have told us.'

Archaeology, as we have seen, had a mere shadow

existence. Relics of the past were collected: surface antiquities were examined and surveyed but no correlation was made between the two. Anything before the historic periods, before the time of written history and records, was in a limbo. Learned men seemed to find it impossible to provide any coherent explanation of either the relics of the past found by chance in the surface soil, or of the surface monuments which were standing for all men to see. Occasionally it was noted that the flint arrowheads—the 'fairy darts' of the peasant—were identical in appearance with those manufactured by still living American Indians. And such comparisons did not encourage anyone to postulate any great antiquity for such objects. Formulating theories about Druids, like that propounded by William Stukeley, was hardly better than to assign them to 'elves' and 'fairies' in the manner of the simple countryman. Despite the identity of British Neolithic stone axes with similar axes from Polynesia, nobody could do more than note the resemblance and leave it unexplained. The great advances made in ethnological studies found no counterpart in the archaeological. Plain curiosity, without any general principles to guide it, is a poor substitute for organised research. Such curiosity in regard to the remains of prehistoric man is a constant feature of a highly developed culture. As early as the fifth century B.C. a Hellenised Thracian princess, whose tomb was opened in Bulgaria a few years ago, had made a small collection of Neolithic stone axes gathered from neighbouring prehistoric sites. This collection was buried with her and found by modern archaeologists together with her rich gold necklaces and ear-rings in her tomb. But the making of that collection did not constitute her an archaeologist. Greeks, Romans and early Christians preserved similar Neolithic objects as charms. But no one offered a reasoned explanation. So, too, with the early

discovery of fossils. Herodotus alone, in noting the fossil shells in the stones of which the Egyptian pyramids were built, propounded a notable theory to explain them. Give a Greek a fact and it will not be long before he explains it by a theory. But archaeological objects attracted little attention. Thucydides alone utilised archaeological evidence to explain primitive Greek history.

In the Middle Ages such objects were usually branded as the work of the Devil, as was everything else that could not be explained, and the names 'Devil's Dyke' and 'Devil's Quoit' are attached to almost every earth-work or megalithic monument in Europe. But slowly the evidence was accumulating. One by one the fragments were ready to be pieced together into a single pattern. The first man, on record, to have decided that the traditional 'thunder-bolt stones' were in fact the armaments of a primitive people unacquainted with the use of metals, was Mercati, physician to Clement VIII towards the end of the sixteenth century. About the same time Sir William Dugdale, in his *History of Warwickshire* noted that stone axes, found by peasants, were 'weapons used by the Britons before the art of making arms of brass or iron was known'. Peyrère, to his eternal credit, had also stated it as his belief they were of human manufacture. Buffon also had held the same view. Bishop Lyttelton, in a communication to the Society of Antiquaries in 1766, remarked that 'There is not the least doubt of these stone instruments having been fabricated in the earliest times and by barbarous people, before the use of iron or other metals was known, and from the same cause spears and arrows were headed with flint and other hard stones.' On the other hand no traces of man himself of any such antiquity had been found. Cuvier, accepting the traditional and orthodox age of the earth, refused to believe that anything so preposterous as a fossilised

man could be found. Up to as late as 1832, when he died, his belief had not been shaken by any discovery. And yet all the time the evidence was still accumulating. Palaeolithic flint implements were found in Suffolk in 1797 twelve feet below the surface of the soil and identified as of human manufacture by John Frere, a typical antiquary of the type of Stukeley, but a man of sound scientific outlook. At Cannstadt in Germany was found part of a human skull in 1700 which remained in the Stuttgart Museum unnoticed for a hundred and thirty-five years, and the Suffolk palaeolithic axes were not again discussed for more than half a century after their discovery. To John Frere must remain the undying credit of not merely framing a hypothesis correctly but also of having identified his facts truly and using them scientifically. For his hypothesis did not extend beyond his evidence. In brief, the hypothesis that was slowly taking shape was that at some very remote age a primitive race of people had inhabited Britain and that they were of considerable antiquity. No historical records mentioned them and their date could not be fixed. Frere had a remarkably scientific outlook. His publication of his flint implements to the Society of Antiquaries in June 22, 1797, is a model of brevity and precision:[1]

> 'I take the liberty' he says, 'to request you to lay before the Society some flints found in the parish of Hoxne, in the county of Suffolk, which, if not particularly objects of curiosity in themselves, must, I think, be considered in that light, from the situation in which they were found.'

Note how he emphasises that the context in which they were found is the most important aspect of their discovery. He is here anticipating the normal,

[1] *Archaeologia*, Vol. XIII., p. 204.

scientific methods of correct archaeological procedure which is still all too often neglected by excavators.

> 'They are,' he continues, 'I think, evidently weapons of war fabricated and used by a people who had not the use of metals. They lay in great numbers at the depth of about twelve feet in a stratified soil, which was dug for the purpose of raising clay for bricks.'

He then describes the strata in order. The flints were found at the rate of five or six to the square yard. With them were 'some extraordinary bones, particularly a jaw-bone of enormous size of some unknown animal with teeth remaining in it'.

> 'The situation in which these weapons were found may tempt us,' he continues, 'to refer them to a very remote period indeed: even beyond that of the present world'.

He goes on to point out that the manner in which the implements lay suggested that they were found in their place of manufacture. In this he was almost certainly correct. The workmen told him that, before they realised their importance they had thrown away basketfuls of them or used them as road metal. He calls attention to the fact that the finds were made on high ground, so that the antiquity of the deposit must have been very great. He accompanies his publication with admirably executed and accurate engraved plates of the implements. (See Plate.) Brief though it is, this short contribution to the learned Society is of prime importance. Frere can rank as the first antiquary to state a reasoned case for the real antiquity of such implements. He sees that the nature of the soil in which they were found pointed to an immense antiquity. He finds it hard to envisage how remote that antiquity is, but with a commendable brevity he suggests that it must be 'beyond that of this present world', a very significant phrase

indeed. He also seems to hint at a belief that the bones of the unidentified animals found with the implements must be contemporary with the makers of the implements. Here in brief are all the components for the formation of a hypothesis as to the existence of Fossil Man. It looks as if Frere had himself actually formulated some such theory. But he never pressed it, and no further notice was taken of his remarkable discovery. It is to the credit of the Society of Antiquaries that they published the paper and illustrated it so well. Such a publication amply justifies the existence of such a body. Through its medium any and every discovery, whether explained and understood or not, can be set forth for inspection. That, after all, is the main purpose of learned societies. They are the recipients of knowledge. They may or may not be able to explain new facts so presented to them. That does not matter. If they cannot, some other scientists at a later time may be able to do so. Frere's discovery, in its way, was as important as the geographical discovery of a New World. But just as America was touched before Columbus, and as Australia was reached and actually charted in part before Captain Cook, so now that fundamental discovery—the existence of Fossil Man—was made long before its importance as a discovery was even faintly realised. Frere was like Monboddo in that he and Monboddo both anticipated great theories, and utilised facts to suggest a hypothesis.

Thus for the first time, unrecognised, and with his prodigious antiquity only faintly guessed at, the remote ancestor of man makes his appearance on the stage. With him are dark mysterious monsters whose bones cause amazement. It is not as yet fully grasped that man in that distant age lived in a land and among animals which were fundamentally different from any of the present day. Slowly the curtain was being drawn and intelligent men were beginning to guess

at the vastness of time and at the remote recession of centuries behind which man in his more primitive forms was to be found. Nothing in the history of all the human studies is more impressive and more awe-inspiring than to watch the slow process by which the antiquity of man is pushed back, first a few thousand years, then by leaps and bounds far into the distant landscape of geological time, where millennia are small hours in the progression of the ages, and tens of thousands of years mere days in the vast story of the emergence of the human species.

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John Frere, in effect, did in 1797 what Boucher de Perthes did between 1838 and 1858. Frere stated a case for the antiquity of man which none of those learned men who had declared flint implements to be the work of men living in a stone age had attempted. It is astonishing, in view of the number of men who had remarked on the barbarism of the peoples who were responsible for such stone implements, how few ever considered the implications involved. Not one of Frere's predecessors had attempted an estimate of the age of the period to which such relics were assigned. Nor did Frere himself do so. But by his phrase 'a remote period even beyond that of this present world' he was hinting at an antiquity which he felt unable to estimate, but which he considered to be immense.

Of Frere as a personality we know nothing. He was but one of many intelligent country antiquaries of the type of William Stukeley.

The history of all branches of science appears to prove that before a fundamental hypothesis can be elaborated there has to be a long period during which the requisite knowledge is steadily accumulating. As it accumulates first one intelligent person, then another, gets a flash of inspiration and interprets the evidence partially to the public. Those who search for the evidence seem to be subconsciously aware of its full

implications, and yet unable to make their beliefs explicit.

Such is the history of the discovery of Fossil Man, itself the greatest of all contributions to human studies. For the revelation that the antiquity of man could be established by the quite external and unbiassed evidence of the geologist, through the medium of what is, in effect, one of the more exact of the exact sciences, was a revelation which illuminated all the obscurities which had hitherto screened the history of mankind from a proper inquiry. You can assume that man was ancient, very ancient if you wish. You can even see him far back into the remote ages of Egypt and Mesopotamia. Yet the six thousand years during which man has evolved in the Nile valley, and produced a clearly marked type, is still a mere fragment of time of little account. Indeed anthropologists have noted how slow is the process of evolution, for the Egyptian of to-day differs very slightly indeed from the Egyptian who lived six thousand years earlier.

But place the antiquity of man into the keeping of the geologist and you can trace him back into the remotest vistas of imaginable time.

Frere's chance discoveries were one fact tabulated. Elsewhere a hint of the same antiquity to be ascribed to such implements was provided by discoveries in caves in Hungary and Franconia. Just as to-day the Chinese peasant buys at extravagant prices the horn of the rhinoceros, for medical purposes of his own, so, until recent times, European peasants searched the soil of caves to find what was called *ebur fossile* and often considered as 'unicorn's horn'. That material was, throughout the Middle Ages and during the Renaissance, always held to be a panacea of many ills and an antidote to poison. As the science of Geology advanced, which it did at the close of the eighteenth century, it was discovered by the learned that many of the bones which were extracted were

those of extinct species. The prepossession that man naturally was not in the picture probably led to the destruction and loss of any evidence concerning him. Fossil Man, contemporary with such animals, was not imaginable. Consequently his implements and remains were not identified. But at one cave a closer examination than most showed the co-existence of human relics with these extinct species. At the same time no particular importance was given to the discovery.

But the matter was at last brought into the full light of day by the careful exploration of a large and impressive cave known as Kent's Cavern, near Torquay in Devon. In 1825 a Catholic Priest, named MacEnery, had carried out careful excavations in the cave. He found the tooth of a rhinoceros associated with a flint weapon. Here was, if not man himself, at least the unimpeachable handiwork of man. It is to the eternal credit of Father MacEnery that he persisted courageously in his researches. To him can be assigned the first certain proof of the association of man with animals whose antiquity was certified as immense by any competent geologist. Here at last was some idea of the age when man lived, the beginnings of a vast chronology.

The stage was set: the drama was preparing. The characters were appearing one by one and the scenery was ready. Only the Prince of Denmark himself was absent. Much work had still to be done before the play was ready for presentation to the public.

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The various discoveries both in the Franconian caves and elsewhere, and finds such as those of John Frere, had suggested a vast antiquity. But the force of tradition still made it unthinkable that man, the noble, man the perfect and final creation, could really have lived in an age when the whole face of the earth was different, when rhinoceros and sabre-toothed tiger

walked the land. Dean Buckland, a more learned antiquary than most, himself examined the Franconian caves and also explored caves in Britain. He published in 1823 a book entitled *Reliquiae Diluvianae* in which he equated the discoveries with what was then the accepted geological view. This view presupposed a universal deluge, according to the Mosaic account of the history of the world. So strong still was Biblical tradition. Buckland, in every other respect a man of unfettered outlook, still could not see the conclusions that should rightly have been drawn from the evidence. He rejected Father MacEnery's theory on which that far-sighted man explained the conjunction of human artefacts and rhinoceros bones in the Torquay cave, Kent's Cavern. Buckland explained it by a theory that early Britons had excavated holes in the floor of the cavern and so by chance deposited their properties. This view he held in blank disregard of the precise evidence of stratification given by MacEnery. Buckland and those who agreed with him, had, at all costs, to explain away any evidence which might suggest that man had lived at a date which was fantastically earlier than any date conceivably assignable to the Biblical narrative of the Creation.

MacEnery, oddly enough, was swayed by no such prejudices. He obtained the collaboration of another learned local antiquary, a Cornishman, William Pengelly, a schoolmaster of Torquay. These two, as the only people who were quite certain of their facts in this great controversy, held to their guns and insisted that the cave held indisputable evidence for the antiquity of man. In 1846 the Torquay Natural History Society—one of those admirable provincial institutions to which the world of science owes so much—held an inquiry to ascertain the truth. Pengelly made out his case to their satisfaction. 'The scientific world,' said Pengelly, 'told us that our

statements were impossible and we simply responded with the remark that we had not said they were possible, only that they were true.'

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About the same time in France a simple official, a customs officer, named Boucher de Perthes, but the son of a distinguished botanist, carried out researches in caves and found similar remains. Still, as he and others felt, the geological evidence of cave stratification is not so easy to interpret as would be the evidence from properly deposited large-scale strata, as clear to understand as the strata of sedimentary rocks, gravels, clays and sands. Between 1810 and 1838 Boucher de Perthes examined the cuttings made for industrial and military purposes near Abbéville in northern France. Here he found *in situ* in the river gravels large numbers of implements of approximately the same type as those found in the caves explored by him and others. Actually he had found precisely the same type of implements and in the same context as those found in 1797 by Frere. But Boucher de Perthes was prepared to found a hypothesis on his evidence. He saw clearly enough that the gravels in which the flint implements lay had been deposited by a river which had since cut a much deeper valley into the surface of the earth and left its gravel banks and terraces high above its present level. Here at last, he saw, was an opportunity for the geologist to produce at least an approximate dating. From the present progress of the river and its present rate of erosion it would be possible to give a rough calculation of the date at which the river gravels in which the implements had been found were laid down. Here at last was a putative chronology against which in general terms no objection could conceivably be lodged. Any competent geologist—and in those days geology was a rapidly advancing science—could at least tell you that such gravels must go back to a period far beyond the calculations of any

historical or accepted scheme of chronology. Here was the Antiquity of Man at last proved, the first great step in the now intensive study of man as a subject for the prehistoric archaeologist. In 1838 Boucher de Perthes propounded his first hypothesis to the *Société d'Émulation* of Abbéville, of which he was the president. Such small provincial societies were the counterpart of institutions such as that of Torquay to which MacEnery and Pengelly had stated their views.

In 1839 he propounded the same views before the Institut at Paris. In 1847 he first made them public in print. In 1855 another French archaeologist, M. Rigollot, published a series of similar finds from near Amiens in a paper which was equally historic—*Mémoire sur des instruments en silex trouvés à St. Acheul près Amiens*. The two lines of approach converged towards the same point, and the two larger researches, those of the river gravels and those of the caves, also led to the same conclusion. But of the two the evidence from the river gravels was more reliable and more capable of geological verification.

Meantime a third line of approach, that exemplified by the work of Darwin, was beginning to bear fruit. But, at the moment, it was a wholly independent and much more fundamental mode of research.

Boucher de Perthes can rank for all time as the father of all prehistoric Archaeology and of the special study of Human Palaeontology. For he had wider vision than any of his predecessors, and was capable of formulating a comprehensive hypothesis based on the proved facts. He knew that his flint implements were human. He knew approximately their age, not in terms of years and centuries, but in geological phases represented by the changes in the strata. But he was left with one thing lacking. Everything was there to prove his hypothesis to be a true explanation except *direct* evidence for the existence of man himself. For mere implements indicate only that man had lived

at a certain time and in a certain region. Find the remains of man himself and your theory is complete. And so, despite the fact that hidden away and forgotten in odd European museums, there already existed human remains of the type wanted, Boucher de Perthes set out to look for remains of man contemporary with his flints. And here begins one of the most remarkable tragi-comedies in the history of Archaeology.

Boucher held persistently to his views despite the opposition of geologists of the school of Cuvier and Buckland. Cuvier had actually stated 'there is no such thing as Fossil Man'. His disciples went further and declared 'there can be no such thing'. In 1856 a discovery was made at a site in a ravine of the river Dussel in Rhenish Prussia called Neanderthal. A human cranium and some other fragments were found. The great authority of the time on human skeletal remains, Professor Virchow, declared that it was the skull of an idiot, a pathological case, for its human character was as indisputable as its simian qualities were evident.

The leading character in the drama was persistently prevented from appearing on the stage. Human prejudices were still too strong, if latent, to admit of such ancestors. Human pride is such that men will incontinently reject any evidence of their humble origin. It is this pride and prejudice, even more than the religious background against which it grows up, that retards the advance of human history more than any other factor. Religion largely authorises the pride of man, but it does not create it. Pride in achievement is, after all, the mainspring of human progress. Progressing man dislikes looking back at his failures, at his obscure and disreputable ancestry and at his dark and savage past.

And so the first example of that strange race of men, the Neanderthal, at its first appearance was rejected.

Man, in a fit of comprehensible repugnance denied his own ancestry.

Boucher de Perthes kept at his task with indomitable persistence. He found as his assistants and enthusiastic helpers the workmen of the gravel pits in which he found his implements. 'At the very mention of the words "axe" and "diluvium",' he declared to his local society at Abbéville, in 1860, 'I observe a smile on the face of those to whom I speak. It is the workmen who help me, not the geologists.'

He continued to hope. He was convinced that, since animal remains of various kinds had been found associated with human artefacts, it was only a question of time before human remains were also found. In a special gravel pit known as the Moulin-Quignon pit, he had actually found certain bones which he believed were human. But the experts to whom he submitted them refused to accept his view. They maintained that the bones were in not sufficiently good a state of preservation to allow a diagnosis. And they were probably right.

Boucher had always rewarded his friends, the workmen, with a small gift of money for the axes which they found in the gravels. He now came forward with a more substantial offer of a reward of two hundred francs for the first fossil remains of man which could be found. This compared with the paltry two francs given for an axe was indeed a reward likely to stimulate the workers to more careful watch and to increased vigilance. But it also stimulated some of them to activities a little less admirable. It appears that already his offer of small rewards for axes had created a minor industry of forgers among his friends the workmen. An old lady resident of Abbéville tells the story that, one day, observing a workman seated striking flints in front of his door, she asked him what he was doing. The workman replied 'I am making Celtic axes for M. Boucher de Perthes!' In his

collection not a few of his axes have been recognised as forgeries.

Boucher was too trusting, his workmen too avaricious. The inevitable happened, and at the pit of Moulin-Quignon in due course the long-desired discovery was made. On the 23rd of March 1863, as Boucher tells us:

> 'One of the workmen brought to me, covered with a mass of sand, two flint axes found at a depth of 4.50 metres. Fifteen centimetres deeper down in the same sand was an object which he took for a shell and which he described to me as such but which, after cleaning, I recognised as a human tooth. Half an hour later I was at the pit of Moulin-Quignon: I saw there the spot whence the two axes and the tooth had been removed and the workman's statement was confirmed by the other gravelmen. From the discovery of the tooth I concluded that there might be others. I had the place opened up and found a third axe. Night suspended operations.'

He continued the work during the following days. Later a workman came to him to announce that another tooth and a fragment of bone had appeared. Soon Boucher was on the spot and supervised the removal of a complete jawbone. Another axe was found near it. He was struck by the fact that the jawbone seemed to differ from the normal human type. (This distinction was in fact illusory: it was what he had expected to see!) He summoned friends to confirm the facts of the discovery. 'All of them agreed that the fossilised condition of the fragment could not be doubted. . . . In a word, the certainty of the find was absolute. Everyone congratulated me.' At last Boucher's theory was proved. The logical Gallic mind was satisfied. Facts, incontrovertible and certain, had led him to assume that if the implements of man are found in a strata where

everything organic is fossilised, human remains can also be found, also in that state. Here at last were the human remains *in actual association with* human artefacts. His case was proved to the hilt.

The discovery was promptly announced in all the papers. Visitors came flocking to the gravel pit. The most distinguished French professor of Anthropology, M. Quatrefages, and members of the British Royal Society, came over to see the find.

Quatrefages communicated to the Institut a learned paper in which he accepted the authenticity of the jawbone. The battle had begun and the public, eager to watch a spectacle in which the opposing armies were those of tradition and prejudice, against the new science whose aim was to establish that man had lived at an age far beyond that in which any universal Deluge could have occurred, awaited the outcome of events with excitement well blended with the pleasures of anticipation.

The controversy moved across the Channel. It opened out in the column of the London *Times*, and of the weekly review, the *Athenaeum*. Finally, with the agreement of Boucher, an English archaeologist, then of an established reputation, John Evans, came over in person to inspect the pit. He obtained the permission of Boucher to send over a specialist of the name of Keeping who had excavated caves in England, notably that of Brixham, in company with Pengelly, of Kent's Cavern fame. Boucher, by this time a trifle angry at the controversy, slightly annoyed that his word had not been accepted without demur, nevertheless received Keeping generously. He describes the envoy of Evans as 'a little man with a frank open manner, and with an appearance whose placidity indicates his honesty'.

Keeping decided to have the workmen temporarily dismissed and proceeded alone to examine the gravel pit. He worked for eight days there, and found five

axes during his excavations. Keeping spoke no French and Boucher no English. Boucher noted that, as Keeping worked, he merely expressed his feelings by ejaculating from time to time the words 'Good! Good!' This caused Boucher to believe that they were both in complete agreement. He was to be bitterly disappointed. For Keeping announced before his departure that Boucher had been 'swindled by his workmen and that the axes were false'. Keeping's report to Evans was brief and to the point. In the *Athenaeum* for July 4, 1863 John Evans announced that the series of discoveries were completely fraudulent. No blame was cast on Boucher de Perthes. He was the victim. But the axes found by Keeping all proved to be of modern fabric. Their patination was proof enough for that. They had been 'salted' by the avaricious workmen in the gravel in order to create the necessary context for the jawbone. Why the workmen had not in fact used real genuine axes, of which there were any number available, is hard to explain except on the assumption that they were too greedy even to sacrifice the few francs involved in their loss. Keeping proved beyond doubt that these axes had been thrust into the soil of the *sides* of the pit. He noted, as a careful archaeologist should, the disturbance to the strata involved in this process. The jawbone was ultimately traced to a site not far from Abbéville. A workman had found it and brought it to the Moulin-Quignon pit, where it also had been inserted in the gravel, ready to be discovered. It was an ancient jawbone, but not a fossil, and of a period probably not even prehistoric. It was Gallo-Roman or Celtic.

There the matter ended. It was removed, as Evans said, 'from the realm of opinion to that of fact'. Poor Boucher had been grossly deceived. The controversy lingered on, as such controversies do. Boucher remained wholly unconvinced. But the world in

general accepted Evans's decision. So here was a pathetic situation. The greatest of prehistoric archaeologists, who after nearly forty years of effort, had at last persuaded the learned world to accept without demur his hypothesis of the existence of man in the early Quaternary Age. His arguments based on his numerous finds in reputable circumstances of implements in river gravel now received universal acceptance. But the first proof he provided for *direct* evidence of prehistoric man in the flesh, or bone, was shown to be a fraud. To declare the truth is one thing, to prove it by false evidence is a paradox. And so Fossil Man, in so far as the Abbéville evidence was concerned, retreated once again into obscurity. Yet, all the time elsewhere in Europe the evidence was already at hand. But no one had, as yet, been able to correlate it either with the evidence of the caves or with that of the river gravels. Nor did the anthropologists yet envisage any general theory by which they could state from the standpoint of human development the probability of Fossil Man's existence or the dates at which he developed. Geologists, anthropologists and archaeologists were all at variance, and were not collaborating, because they did not know how to collaborate. There was no fundamental hypothesis on which they could work together. There was also the additional complication that the extant human remains, like those of Neanderthal, belonged to man of the Cave Period not to man of the much more ancient river gravels. And it was to be a very long time before human remains of the same age as the implements found by Frere and de Perthes would be identified. Everyone was at cross-purposes.

But Boucher de Perthes will remain always as a very great scientist, who was the first to establish firmly, and without any doubt, that Fossil Man would be found; the gravels in which he had found his implements compelled prehistorians to assume an

extremely remote antiquity for the men who made them, an antiquity which could, even then, be more or less accurately guessed at, an antiquity which made the accepted chronology of the orthodox churchmen look merely ridiculous. That this result should have been arrived at with the collaboration of a Catholic priest in England, and indirectly by the evidence of a human jawbone which proved to have been fraudulent, is an indication that the acquisition of truth is sometimes achieved by devious ways! But to Boucher de Perthes and his close and scientific studies of the river gravels must be assigned a place of high honour and importance in the study of ancient Man. His arguments were sound and his inferences correct. The conclusions at which he arrived constituted one of the greatest discoveries that concern man's history that have ever been made. Without a certainty that Fossil Man could be found, without the incontrovertible testimony of the flint instruments we might still be unable to give concrete backing to the vastly more significant hypothesis of Charles Darwin, that Man had developed from other and simpler modes of life, and that the various links in the chain of man from the first vertebrate to the last anthropoid could ultimately be found. De Perthes gave to man precisely that geological antiquity which was essential to fill up one section of the vast accumulation of evidence assembled by Darwin. Darwin had reached his conclusions largely, in the first instance, on a study of fossil types. Without specimens of Fossil Man there would have been a weakness in the evidence. Not a fatal weakness, but just a sufficiently loose place in the armour to permit opponents of the Darwinian hypothesis to shoot their arrows. With Fossil Man established and certified, the Darwinian hypothesis was impregnable in its main outlines. It was the work of Boucher de Perthes that made it possible for others to search for Fossil

Man and to achieve scientifically what Boucher had attempted in haste. The tragedy of Boucher was that he did at the time succeed in widely converting his opponents by the very evidence of his fraudulent jawbone. The piquant situation resulted that adherents of the traditional views of human chronology were persuaded to believe in the antiquity of man and to abandon their own chronology, on the basis of what was soon proved to be spurious evidence. While those who needed no conversion, like John Evans, were forced to suspend their judgment by a realisation that the evidence offered them was inacceptable.

It is important to realise that the discovery of the antiquity of man and the subsidiary proof of that antiquity by the revelation that the earliest remains of the human skeleton would, when found, of necessity be fossil remains, was largely due to the enormous strides made in the last quarter of the eighteenth and the beginnings of the nineteenth centuries by the science of Geology. It is no part of the purpose of this book to investigate the history of that science. But as the background against which the study of the antiquity of man could be pursued its importance is evident and paramount. Two factors contributed to the advancement of Geology at this period. One was the increased exploration of the crust of the earth in the more developed European countries brought about by the Industrial Revolution. One of the pioneers of geological studies in England was William Smith, a civil engineer who, when in charge of the cutting of canals, had informed himself as to the nature of the different strata of the earth up to the depth revealed by such cuttings. This interest, hardly perhaps more than a hobby, induced Smith to produce the first recorded coloured geological map, in the year 1815. The cutting of canals was followed immediately by the building of railways, and the making

of large harbours. Coal mines and iron mines were opened in large numbers about the same time. The stratification of sedimentary and other rocks so revealed led to the study of their general nature and of their particular characteristics. Incidentally, it now became possible for enthusiasts to collect fossils on a large scale and classify them according to these clearly identified stratifications. Geology was thus by way of becoming an exact science.

A new profession arose, that of the consulting geologist, who could advise in the construction of these new and vast industrial enterprises.

The second factor was of almost equal importance and explains why in Great Britain Geology made swifter strides than elsewhere. This factor was not at first fully realised; it was that in Great Britain, by good fortune, there is more geological diversity in the strata of the rocks than in any other European country, except France. In France Geology made almost equally rapid advances. From the south-east to the north-west in Great Britain the progression of almost all geological strata can be examined. The nomenclature of Geology illustrates the preponderant British nature of the first studies upon which it was based.

It was inevitable that among the curious-minded geologists who studied the raw material of this relatively new science many turned their attention to the light which their researches might reveal on the antiquity of man. Boucher de Perthes was one, as we have seen. Sir William Boyd Dawkins, one of the most notable British antiquaries, was another. He was the founder of specialised British Archaeology, and he started life as a private consulting geologist.

A sequel to the conditions which so favoured geological and elementary archaeological research was that the Industrial Revolution implied that there was a general increase of wealth, at least of capital, and that a leisured class was developing. Among this leisured

class were men who became the cultured antiquaries of the period. Just as in the seventeenth and early eighteenth centuries the antiquaries of the time were drawn from the class of country gentlemen, or cultured classes whose wealth and leisure were dependent upon an agricultural or small-town mode of life, so now their numbers were increased by the addition of similar men of leisure drawn from the classes enriched by the great industrial activities of the age.

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With all the facts at our disposal, and with the concurrent lines of research so clearly ascertained, we can pause and observe from a distance to which time adds a certain clarity, the events which were about to culminate in the greatest synthesis of knowledge of human origins which has ever taken place in the history of the world.

The study of Geology had shown that types of living organisms can be traced back to more primitive forms. Fossil plants, birds, fish and animals of various kinds were seen to have developed, to have become extinct or to have remained relatively static. Lamarck had, at the close of the eighteenth century and at the beginning of the nineteenth, stated a case for the mutability of species. He maintained that the more complex forms of life were developed from pre-existent simpler forms. Geology illustrated his thesis in every detail. He maintained that individual changes caused by environment were transmitted by heredity. He even held that man himself was the slow development of a type originally simian.

Opposed to such Lamarckian views was the still strongly held traditional belief that maintained that species were immutable, that each species was the result of a special creation, and that it was unbelievable that one species could be derived from another.

The persistence with which the traditional views were held can be explained not only on grounds of

religious bias, but also, and perhaps at this period mainly, by that inherent human pride to which I have made frequent reference. Even the best scientists were not immune from this insidious tendency. Virchow, as we have seen, was the first to dispose of the earliest instance of human fossil remains, the Neanderthal skull, by the explanation that it was pathological—the skull of an idiot. That view is still held to-day by people to whom the value of evidence is unperceived. I have actually heard it stated in recent years by a learned theologian. Though how such an explanation can be made to account for whole families of Neanderthal folk, and of instances of their skeletons found in widely separated regions, it is hard to imagine.

Even to-day the same pride and prejudice hampers studies like the most recently organised study of Ecology, which concerns itself with animal populations, their distribution, habits and development. The application of the study of populations to the human sphere, in the same scientific way, with the same principles of Ecology employed, is still in its infancy and still regarded as a misapplication of a study which should primarily be concerned only with the lower animals. Such is human conceit.

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The year 1859 marks the greatest event in all the long story of the inquiry into the history and origin of man. Up to then the manner in which man was to be classified in the world of Biology was in grave dispute. The old traditionalists who had maintained that man was a single and unique species were countered by the 'Polygenists'. In 1857 J. C. Nott and G. R. Gliddon in America in a work entitled *The Indigenous Races of the Earth* had maintained that there were many different species, and that for one species to have developed from other and less complex types was an untenable theory. Gliddon was an

Egyptologist, and like all Egyptologists he was evidently struck by the fact that the native Egyptian type over a period of many thousand years shows almost no evolutionary change. Nott was a physician. Their work counters the 'Monogeny' of the traditionalists, but falls between that extreme view and the new views now coming to birth.

In 1859 Charles Darwin published the *Origin of Species*. Time has dimmed the splendour of that achievement by rendering Darwin's hypothesis a commonplace of universal thought. But at the time, in that confused and inquiring world of groping scientists, Darwin produced in a form which was comprehensible to any but the illiterate an exposition of the slow evolution of man from previous and simpler forms of life, which had a grandeur and a simplicity which had never been equalled in the setting forth of a vast and all-inclusive hypothesis. Aristotle's dry brevity and his almost incidental classification of man among the animals was a footnote to science in comparison, even if Aristotle's achievement was equally revolutionary. For Darwin had formulated in clear and precise language the unknown law which explained the whole course of biological development.

In a moment of time the discerning noted that the scattered strands of research into the history of man were being joined together in one thread. Man, like every other living organism, could be shown to have ancestors who were not necessarily human. Like many other organisms his ancestry could be found and looked at in the fossil state. Thus the antiquity of man, which had already virtually been established, was now a necessity of the Darwinian hypothesis. Darwin would require evidence as to man's antiquity, and the evidence was already there to hand. The flints of the Somme Valley and the bones of the caves, the odd crania and bone fragments from river drifts now all fell into their place. There was space on the

great Darwinian chart for them all. Darwin had left blank areas in his great human map that could all be filled. And so the patient work of Boucher de Perthes and the rest was now seen to be not the mere collecting of data for archaeologists, but also as the essential for the illustration of the great hypothesis itself.

So with the anthropologists pure and simple. The vast amount of ethnological data collected by countless travellers now showed that man had spread by diffusion from various centres, but that ultimately there must be one centre where the human stem had branched off from the purely simian. The 'Monogenists' were hopelessly wrong in believing that man appeared perfected and complete, a species distinct from all others: the 'Polygenists' were wrong if they insisted that man emerged in several places in several forms all equally distinct. Darwin gave to the world a new 'Monogenist' view which disposed of miraculous 'creation' and made the old 'Monogeny' look infantile. But it also made the 'Polygenist' view completely untenable. For here, at last, was man, proved beyond serious dispute to be the ultimate product of a long and incalculable process of steady differentiation.

The Darwinian hypothesis attacked nobody and opposed no accepted view except that of unreflecting believers in the Mosaic story of life.

It did not even attack that except by inference. The situation before 1859 and the change after that date is best set forth by that other great Evolutionist, Alfred Russel Wallace:

> 'Before Darwin's work appeared' he says, 'the great majority of naturalists, and almost without exception the whole literary and scientific world, held firmly to the belief that species were realities and had not been derived from other species by any process accessible to us. . . . Now all this is changed. . . . This vast, this totally unprecedented change in public opinion has

been the result of the work of one man, and was brought about in the short space of twenty years.'

It is no part of the purpose of this book to describe the infuriated controversies that immediately ensued on the publication of the *Origin of Species*. Most of them are unworthy even of brief record. Many of them illustrate to perfection the appalling prejudice of ordinary men when they are compelled to look backwards at their origin. Most people would agree with Paul Broca who, in accepting Darwin's views, declared

'je dirais que j'aimerais mieux être un singe perfectionné qu'un Adam dégénéré'.

Darwin in constructing his hypothesis assumed no causes to be at work except those which could be proved and demonstrated. That was his great strength and the background of the conviction which his work carried to all scientists. The modifications which have since been made to Darwin's views by subsequent research do not affect in the least the main and fundamental view that he expressed—that man was the result of a long development and improvement from a primitive form of life which was to be illustrated by a series of connected species, each of which merged into the other.

Anthropologists had at last obtained a pattern on which to work, a map of human history into which they could fit all the varying and undeveloped races which they had discovered. Tasmanian aboriginals, oriental Ainu, primitive Bushmen, and all the backward races, could now be correlated with earlier types of man and compared to some extent with the various early skeletal remains which the archaeologists had collected. Archaeology and Anthropology, where the antiquity of man was concerned, could hardly be separated. Both sciences were pursuing one aim.

For Archaeology, as yet, had almost entirely confined itself to the study of man before Civilisation properly so called had appeared. Early historic times had been studies. Rome, Greece, Egypt and now Mesopotamia, were beginning to be explored fitfully, but mainly by pure antiquarians who were interested more in the objects found than by any desire to complete the whole story of the history and prehistory of Man. But the student of the antiquity of man before civilised times was working on more advanced scientific lines. He had as his assistants the anatomists, the geologists, the biologists and the meteorologists. He was able to study skeletal changes and evolutions, stratifications of soil, fauna comparable to the human, and the evidence for vast climatic changes in the past. He was indeed well-equipped. The study of prehistoric man in the remotest periods was a study which forged ahead far in advance of any other branch of anthropological or archaeological research. The reasons I have already explained. Good fortune and the appearance of men of high integrity and open mind had, on a purely archaeological basis at first, laid the foundations for the building up of a great study. The hazards of fortune had resulted in the earliest chapters of the story of man being composed first. Things do not always begin so happily. In the history of science a story often begins at the wrong end, or in the middle, or may even end at the title-page!

The study of Anthropology thus, at last, acquired a background, while that of Archaeology was seen to be correlative. Hitherto the anthropologist had been little more than an ethnologist who was concerned only with the history of races and their classification, his data mainly living peoples. The archaeologist had, in effect, been a student of vanished races of the past who were identified only by their material remains—their artefacts or their skeletons.

Now, at last, both studies were united and it was possible to study man from his earliest stages, when he was barely able to make things, down to his complex and most modern developments. The idea of evolution had transformed the whole outlook on the origin of human activities. There was no possible excuse any longer to confine the study of humanity only to recorded history, no reason for believing man to be so special a kind of creature that his habits and origins could not be examined on the same basis as any other animal.

One sequel to the promulgation of the Darwinian hypothesis was that there was a brisk growth of local societies of the type which had in antiquarian matters done so much in the past to further such studies. Just as the local learned society at Torquay or at Abbéville had contributed towards the fundamental discoveries of MacEnery and Boucher de Perthes, so in the cities of Europe similar societies grew up on a larger scale and in larger numbers. Anthropological societies pure and simple were founded. But it was a little time before Governments began to assist. One of the earliest and most admirable was the foundation in 1879 at Washington of the Bureau of American Ethnology. Here, for the first time, a great country organised a means of examining its own native peoples. This foundation was largely due to Major John Wesley Powell, who was the first director of the Bureau. He had come into contact with Indian tribes and studied them in detail when engaged on a geological survey. The foundation of this official and Government-controlled institution was a step far ahead of its time, and a foundation of inestimable importance. In 1866 at Berlin was founded the Museum für Völkerkunde.

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Another line of approach was also conceived about this time. In England a Colonel Lane Fox, who

later took the name of Pitt-Rivers, had made an ethnological collection of importance. His method of selection was based on an entirely new principle. Consciously or unconsciously, he perceived that all instruments manufactured by humans pass through a process of evolution from less practical to more practical forms, from simple to complex, or from complex to simple: that human artefacts are liable to degeneration and to extinction, that all crafts are subject to the laws which seem also to operate in those who practise them. In a word he was collecting in order to illustrate the process of evolution that is perceptible in ordinary man-made objects. Compared with collections like that of Tradescant, the Pitt-Rivers collection was as different as a book on grammar is from a mere dictionary. Pitt-Rivers had begun his collections in 1852, and instead of selecting merely fine specimens, or merely beautiful or curious objects, he had accumulated objects irrespective of their intrinsic worth, which fitted into a series and gave a coherent account of development. Thus at last in a museum it was possible to study the origin of, say the bow and arrow, and see the various types that had developed in different parts of the globe. Even the humblest instruments were so exhibited. The museum which he so organised was first housed at Bethnal Green, then moved to South Kensington, and finally transferred in 1884 to the Science Museum at Oxford, where it is housed to-day. It has, since his death, been considerably added to and improved.

Behind the method of collection thus illustrated lie several fundamental principles of great importance. Still to-day one of the most fundamental problems that face the archaeologist and the anthropologist is how to explain the appearance in two widely separated parts of the world of objects of human manufacture of identical appearance and use. There can only be two answers. Either knowledge of the

object and how to make it reached the one place from the other by a process of diffusion of knowledge and culture, or else the human mind is so constructed that human beings can devise the same thing on two separate occasions in two disconnected places by the same processes of thought. The Diffusionist school and the school of Independent Invention will always be with us, because both explanations of the facts are always possible, at least until the possibility of one or the other being true has been exhausted. Either theory can be, and often is, grossly exaggerated: sometimes both may be true. A certain type of weapon, for instance, with a peculiar and distinctive shape, may be found in North America and also in Central Europe. Diffusion of knowledge from Europe to Asia and from Asia across to the American continent may explain the similarity. On the other hand, precisely the same environment may produce a mental and psychological reaction in two widely separated peoples which will in both cases be the same. There is the further possibility that the general knowledge of the type of weapon may have been conveyed by a diffusion of culture round the globe, while the particular form it takes may be dictated by the actual effect of a similar environment. The similarity of the processes which gave birth to human instruments resembles that which gave birth to the various types and branches of the human family. Pitt-Rivers saw that the products of human industry can be classified into species and genera, and that the hybridisation of species in industry was a reasonable possibility. In other words, the same processes at work in human Biology were also apparently operative in the work of human hands. The fusion of types, the conveyance of ideas, the adaptation of the work of others to suit different environment—all these processes are visible in the comparative study of human artefacts which was the Colonel's (or General as he later became)

method of collection. No modern Marxist could fail to be satisfied and delighted with the illustration of Dialectic Materialism which such a collection provides! Here could be studied the actions and reactions of humanity to its instruments and of the instruments to humanity.

The theories of Pitt-Rivers were a consequence of the modes of thought which were latent in the first quarter of the nineteenth century, and which culminated in Darwin. Few great scientists or philosophers have been ahead of their age. Darwin gave words to the tendencies of his age, though it was our good fortune that it was a man of the calibre of Darwin and not some lesser scientist who was the mouthpiece of the final statement which revolutionised all human studies.

What Boucher de Perthes had done for the oldest of human artefacts Pitt-Rivers did for the latest. There still remained that vast period of several thousand years during which civilisation as we know it had been developed. This had, as yet, hardly been studied. It was the perquisite of the archaeologists. And the archaeologists had hitherto only advanced on the high road of research in the earliest phases of human history. Here was the next gap to be filled.

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So far the early Archaeology of man had not really taken into consideration the innumerable remains of what we now call the Neolithic period. The stone hatchets and polished axes, the exquisitely chipped lances and arrows of the first great period of human endeavour which was marked by the invention of agriculture were, as yet, not clearly fixed in the time-chart. These remains still lingered in that dim half-world in which Druids, Elves, Pixies and the Devil were considered as the main authors of these peculiar objects. Yet their very quantity began to attract attention to them and to necessitate a scientific explanation.

For the Neolithic period, coincident with the dawn of an age when agriculture implied an increase of comfort and leisure and the organisation in the first time in human history of a surplus of food, had resulted in a vast increase of population wherever those first advantages of culture were evident. For the first time man himself began to increase beyond all calculation and expectation. And, as the population increased, far beyond the meagre numbers of the wandering families and tribes of cave men who had hitherto represented man on the earth, so the quantity of instruments manufactured increased in proportion. Even to-day no one can walk the downlands of Britain and France or the dunes of Scandinavia without picking up every now and then some instrument manufactured by this population of farmers and stock-breeders. They lie on the surface, for they were made by people who lived in relatively recent times when the surface of the earth held its present shape. Eight or nine thousand years is the greatest age assignable to such remains anywhere in Europe or Asia.

In 1806 a Commission was appointed in Denmark to make a scientific survey of the geology and natural history of the country. Denmark happens to be richer in Neolithic remains than almost any other part of Europe. The Commission duly recorded the dolmens and shell-middens of the shores of the Danish islands and peninsula. One collection of implements made by Professor Nyerup in 1810 was the nucleus of what is now the superb prehistoric museum—the Royal Danish Museum of Antiquities at Copenhagen. From 1816 to 1865 Councillor Christian Jurgensen Thomsen, as curator, made the first scientific classification of the various prehistoric objects so accumulated into those of the Stone Age, the Bronze Age and the Iron Age. Further classifications ensued and thus early, before Darwin had stated his hypothesis, the existence of recent man in

Europe was well on the way towards explanation. Gradually some kind of cultural background began to take shape to explain the vast stone monuments, circles, graves and standing stones, which were found along the coasts of Britain, in Scandinavia and southwards in Spain and Portugal. Curiously, the same culture in the Mediterranean countries was not detected for some little time.

But Archaeology, working solely on the surviving remains of man, had proved the existence of a very primitive but cultured immediate ancestor for the races of western Europe. Here was no question of prognathous and semi-simian ancestors. Here were simply primitive people who were the first inhabitants in geologically recent times of the countries we inhabit. They could be compared, as their instruments showed, with savage peoples of Polynesia and America and Africa who also lived a primitive agricultural life and employed similar axes, hatchets and arrowheads and pottery. These people gradually learned the arts of metallurgy and so advanced in culture, using bronze and later iron for their instruments. But no visible link was seen between these peoples and the much more ancient men whose implements lay buried deep beneath river gravels, the deposit of which had involved the passage of countless millennia. The Palaeolithic and the Neolithic were still two entirely separate worlds. The former was a world geologically quite unrecognisable with the world of to-day: rivers, seas and continents had changed out of all belief. The Palaeolithic hunters roamed a world which at times was frozen by intruding ice sheets from the poles, at times scorched by an almost tropical heat. But the Neolithic people, did they return to-day, would recognise the main outlines of the lands in which they had lived. It was to be many years before archaeologists filled this gap of time and took up once more the thread of human descent.

These Danish discoveries and researches were so well and impartially carried out that this early period of human history was, as a result, as clearly mapped and understood as any period examined on archaeological methods has ever been at a subsequent date.

By the date of Darwin's first book the earlier phases of humanity were thus adequately studied. Both provided evidence which augmented the importance of his hypothesis and gave strength to the general theory of evolution. The new method of examining the instruments of savage contemporary peoples set forth by Pitt-Rivers could now be further illustrated by the remains of savage peoples or partly cultured peoples of the past.

The stage was set for a still wider research into the earlier phases of civilised and cultured humanity.

The term civilisation is hard to define. As good a definition as any would be that civilisation begins when culture is possible. Culture can be of the mind and of the soil. When both forms of culture are achieved, then man has ceased to be savage. As soon as education and leisure are organised civilisation is beginning to flourish. But, strictly speaking, no civilisation is possible until communities are organised. The earliest communities are the villages of the agricultural Neolithic Age, so that in some degree, according to our definition, man began to be civilised as soon as he became a farmer and a villager—proto-civilisation if you like, or at least the beginning of that urban society which we enjoy to-day. Pre-agricultural man cannot rank as possessing even a proto-civilisation. He lives on what he can find, and consequently has little leisure: he lives from hand to mouth, quite literally, and so has no surplus of food which will allow him time in which to speculate. And from speculation comes education, however rudimentary, and invention.

The early European archaeologists had established

the clear difference between the primitive and savage men of the remote Palaeolithic Age to whom not even the rudiments of civilisation can be assigned, and these later men who were forging the outlines of modern life. But neither could as yet rank as civilised in the full sense. Only when cities and towns were built could civilisation be said to have emerged complete and triumphant.

Such was the state of affairs and the condition of research in the early years of the nineteenth century. Thus slowly had the main outlines been drawn and the ancestry of man established. So far, virtually none of the known centres of ancient civilisation had been either scientifically or systematically explored. Greece had been raked for its antiquities, and Italy looted for its works of art from the fourteenth century A.D. But no proper science of Archaeology had emerged. The excavations at Pompeii and Herculaneum had startled the world at the close of the eighteenth century, but they resulted in no more than the creation of the artistic and architectural delights of the Adams period in England. As Archaeology, they hardly linked up at all with the other European discoveries. They fell rather into the sphere of art—connoisseurs and experts, and were firmly sequestrated from any scientific inquiry by the Classical scholars, whose perquisite their results were declared to be.

But the two main branches of human inquiry were now converging. The ancestry of man had excited such attention and speculation, and was now so fully illustrated by innumerable discoveries, that various scholars and learned men now began to look for regions where the ancestry of civilisation could be illustrated more fully than hitherto. The older branch of inquiry which had been born at the Italian Renaissance sought to investigate the earliest phases of art and literature. It was now seen that such investigations should be carried out on more systematic lines.

And so the old Renaissance tradition of which men like Cyriac of Ancona were the first exponents, and of which William Petty and Sir Thomas Roe had been the dutiful servants, revived in a healthier form.

CHAPTER V

GREAT DISCOVERIES

The Society of Dilettanti. The value of their work. Greek Independence and its effect on Archaeology in that country. Discoveries of Greek remains outside Greece. Egypt and the Middle East. Champollion. Layard and Rawlinson in Mesopotamia. Discoveries of early cultures in Europe. The Etruscans. Lack of method in archaeological excavations. Heinrich Schliemann. His campaigns and methods. His contributions to Archaeology. Mycenae and Troy. Adverse criticism of his work. Edward Burnett Tylor. His contributions to Anthropology similar to those of Schliemann to Archaeology. Andrew Lang. James George Frazer. The alliance of scholarship and science. John Evans and his son Arthur Evans. The discovery of the Minoan civilisation.

ONE of the worthiest of the heirs of the Renaissance was the Society of Dilettanti. This group of educated and humane gentlemen was formed in the eighteenth century largely to study the remains of Greece and Rome. One of their really important contributions to knowledge consisted of publications, on a lavish and admirable scale, of the results of researches carried out at their instigation and expense in Greece and Turkey. They were the true heirs of the wealthy and prominent men who had first formed the habit of sending to Greece to collect works of art. But the Society was, unlike its ancestors, determined that its work should be of advantage to the public. What they did was made accessible to everybody.

One of their most important undertakings was an expedition sent to Asia Minor—in those days a region most unsuitable for travellers—to examine and record

the remains of ancient Greece in the coastal towns of Ionia. In 1769 was published the *Antiquities of Ionia*, by R. Chandler, a member of the now vigorous Society of Antiquaries, and N. Revett, an architect. This massive work, far larger than folio size, was dedicated to George IV and lavishly illustrated with views, plans, architectural details and elevations of the buildings which the members of the expedition had examined.

It remains to-day, in many respects, a standard work on the places which it illustrates. The buildings described have since then suffered damage, and in some cases destruction, and the great work serves as a record of the most important Greek works of art and architecture.

Curiously enough, this particular publication of the Society may be said to have had precisely the same effect on taste, art and architecture in North America as did the discovery of Pompeii and Herculaneum in Great Britain. The Hellenic style of the Colonial architecture of New England and the Southern States can largely be attributed to a widespread study of this book. The Greek tendencies of education at the time of the Revolution, which are seen in the attention paid to Demosthenes in the study of Rhetoric and in the elaboration of all forms of Athenian democratic theory, were naturally far more marked in a country which was just on the point of fighting for its freedom. The work of Chandler and Revett came at a time when it was most welcome. And so the Ionian porticoes of State Buildings, the Doric temple-façades of New England houses, and the exquisite proportions of most of American architecture of the last quarter of the eighteenth century and the early years of the nineteenth, all testify to the widespread influence of this admirable publication of the British Society of Dilettanti.

Other volumes of research followed, and the architectural glories of Athens were examined and set forth.

The style of the brothers Adam in England and Scotland was totally different. A rich and Roman mode of decoration harmonised with the more ruthless and less democratic tendencies of the age. The French Revolution was too uncomfortably near for English country gentlemen to indulge in the delights of Athenian democracy. And so architecture and decoration in the two countries followed two totally distinct courses.

The activities of the Society of Dilettanti were concerned with the advancement of culture rather than of science: they had little to do with the growth of the study of Archaeology as such. But they stimulated interest in archaeological matters and showed how important was the actual preservation of antiquities in ancient lands. As such, the work of the Society, did, in fact, further the cause of Archaeology, even if it did not advance its methods. By the accuracy of the architectural plans and drawings published, it set a standard which later archaeologists, in the full sense of the term, have not failed to follow.

The Dilettanti were the descendants of Renaissance scholars, but they had acquired something of the accuracy in detail and close observation of antiquaries like Stukeley, who had set a high standard. Their objectives, as set forth in their own words, both indicate their line of descent from the travellers and scholars of the sixteenth and seventeenth centuries, and show how they were determined to improve on the methods and purposes of their predecessors.

> 'In the year 1734' runs their own declaration of faith, 'some Gentlemen who had travelled in Italy, desirous of encouraging, *at home*, a Taste for those objects which had contributed so much to their Entertainment *abroad*, formed themselves into a Society, under the name of the DILETTANTI, and agreed upon such Regulations as they thought necessary to keep up the Spirit of their Scheme.'

There are still with us to-day in all lands spiritual descendants of the Dilettanti, and they still further the cause of taste and the promotion of the arts. But their labours are more substantially assisted by the now highly systematised study of Archaeology, than they would have been a century ago.

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Greece was, perhaps, the first country where an ancient civilisation had risen, declined and fallen, which was subjected to the organised activities of archaeologists. For the world of scholarship had always sent its envoys to Greek waters, and the wealth of antiquities awaiting the explorer was widely known. The year 1831 was a turning point in Greek archaeological studies, for it was then at last that Greece obtained her independence from Turkish dominion. One of the first acts of the new Greek Government was to clear the Acropolis of Athens of the encumbering Turkish buildings. A Harem enclosed the Erechtheum; the Parthenon was a mosque. In a few years there had been revealed most of the main parts of the great fifth-century buildings on the fortress, and Greeks were at last able to see the superb marble temples of their ancestors. In 1835 three foreigners, Ross, Schaubert and Hansen, were permitted to excavate among the ruins to search for fragments of sculpture belonging to the temple of Wingless Victory, the Erechtheum and the Parthenon. Much else was found at the same time, and countless inscriptions of first-rate importance were brought to light. It is noteworthy too that at the same period there was published one of the earliest purely archaeological journals in Europe, the Greek *Ephemeris*, which has continued as the principal Greek archaeological learned journal ever since.

Institutes of Archaeology began to spring up, just as Institutes and Societies of Anthropology had done. The German Institute was founded in Berlin in 1829 and the

activities of the Greek Government gave it further impetus.

By a curious coincidence the earliest discoveries of Greek works of art and antiquities outside Greece and Italy was made in 1830 in South Russia in the Crimea. The finds of Kul Oba and Kertch, and other sites, showed what historical records illustrated only fitfully, that Greece had extended its settlements to the distant shores of the remote and savage Pontic coast. These early finds in Russia led to a series of extensive archaeological researches which illustrated in full detail the enthralling chapters of Herodotus which described the Scythians and their ways. Here at last was archaeological evidence to confirm in every fact the statements of Herodotus, and to illustrate some of his more important anthropological descriptions. The finds were set forth by the Imperial Archaeological Commission of St. Petersburg in 1866 and finally published by Salomon Reinach and others in one volume in 1891.

Meantime the vast collections of Scythian gold work which had been accumulated in the first instance by Peter the Great, and subsequently added to, so that now the collection is the glory of the Leningrad museum, illustrated the purely Scythian side of the story. The Czar Peter, with astonishing forethought, had ordained, as his armies advanced slowly towards the conquest of Siberia, that every gold object found was to be sent to Moscow and St. Petersburg, under pain of death. Tyrants are often good patrons of art, and the work of the Czar resulted in a vast increase later to our knowledge, when these Scythian works of art were finally studied and classified.

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Greece was thus early on the scenes as a potential field for the archaeologist. By a strange turn of fortune it was also one of the first European countries whose most primitive state was subjected to examina-

tion. George Finlay, that dour and determined historian of the War of Independence and of the new Greek Republic, lived in Athens in the first twenty years of the Republic. He had learned of the Danish work on the Stone Age in Denmark, probably from the numerous Danes who were in Athens, and he had observed that on Greek soil precisely similar stone polished axes and hatchets were found as the Danish soil produced. In the course of his travels in Greece and by circularising Greek schoolmasters in the provinces he accumulated a small collection of objects of Neolithic and Bronze Age manufacture which is still in Athens. He was the first scholar to adumbrate the possibility of a Stone Age and a Bronze Age in Greece. But, like most tentative hypotheses, it passed unnoticed, and it was nearly sixty years before a Neolithic Age in Greece was even mentioned by archaeologists, while it was not till after 1880 that the Bronze Age was fully understood.

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Hitherto Archaeology had concerned itself with the uncivilised. Now it turns to the records of civilisation. The revival of the scholarly interest in ancient remains which the independence of Greece produced stimulated most of the literary and learned world. It seemed as if the patient antiquaries who had grubbed in the shell-middens of Denmark and who had sifted the gravels of Abbéville and dug up the floors of ancient caves, had stolen a march on the scholars. Darwin and the pre-Darwinian theorists had distracted attention from the study of man in his character of *sapiens* and had concentrated on his position in the world as a mere *homo*. The scholars felt that the emphasis was misplaced. To the side of scholarship and literary interest there gravitated, imperceptibly, the bulk of those religious-minded traditionalists who were alarmed at the tendency of the times. And so, while the Darwinian hypothesis was germinating in

the mind of its author there arose a movement to investigate the great civilisation of the Middle East. Research in this region had been further encouraged by the brilliant decipherment of the hitherto totally incomprehensible Egyptian hieroglyphics. An English doctor, Dr. Thomas Young, had unravelled some proper names. But the main discovery was reserved for a young Frenchman, Jean François Champollion. After years of unavailing attempts he at last, following Young's clue, worked on an obelisk which bore an inscription in Greek indicating that it had been dedicated by a King Ptolemy and his queen Cleopatra. The obelisk bore two cartouches which he assumed also to bear in hieroglyphics the same names. By careful comparison of the Egyptian signs with the Greek names which he assumed they represented, he found that the hieroglyphic signs exactly corresponded, and moreover that the hieroglyphs were in fact alphabetic, and not merely signs representing syllables or ideas. He then was in a position to turn his attention to the famous Rosetta Stone. He had already communicated his first discoveries to the French Academy in 1822 and ten years later, after completely deciphering the Rosetta Stone, he published a small grammar of Egyptian and a dictionary. In the decipherment of unknown scripts the identification of a proper name which is previously known is always one of the major clues.

Champollion, by his discoveries, gave to the world a lost chapter of ancient history, a new language from the past and a clue to the examination of all the methods and modes of life of ancient Egypt. Such were the advantages of reading unknown languages. The world of scholarship was revivified and renewed by this great contribution of a pure scholar. And, thus revived, scholars turned to the new pastures that opened invitingly before them in the Middle East.

Two men of exceptional interest and ability

appeared who, like Champollion, were to revolutionise our knowledge of other ancient civilisations. The first was Sir Austen Henry Layard who was born in 1817. Layard, originally destined for a legal career, had embedded in him the instincts of a travelling scholar. He was a typical well-to-do Englishman of his age and able to mould the lines of his own future. After a brief attempt to confine his interests to the Law, he abandoned it completely, and set off on a lonely voyage of land-travel through Mesopotamia. Gaining much experience in this way, he was offered the post of honorary attaché at the Embassy at Constantinople, that Embassy which had already in the past served so many investigators of Antiquity, from the Earl Marshal of England down to Lord Elgin. Layard's two main voyages to Mesopotamia were in 1847 and 1849. Such were Layard's discoveries in this region that he at once aroused the interest of the British Museum. He found also as a friendly rival Paul Botta, the French consul at Mosul, who had actually excavated the mounds which represented the site of Nineveh in 1843 and subsequent years. Layard and Botta worked partly together, and partly as rivals, in order to obtain for the British Museum and the Louvre respectively as many of the vast and impressive Assyrian sculptures as could be garnered. The story of the incredible difficulties which were overcome in the transport of the Assyrian sculptures to Europe deserves a volume in itself. In those days Mesopotamia was wild, and public security was rarely in evidence. The hazards of collectors of works of art which weighed sometimes twenty or thirty tons apiece were apt to be considerable. We hear of repeated accidents, for the equipment with which the removal of these vast masses of stone was carried out was primitive in the extreme. The first consignment of sculptures to be got out of the country was shipped from the port of

Basra to Bombay, there to be reshipped to England. But at Bombay the boxes containing the antiquities were opened unofficially by local wiseacres, who spread their contents on the quay and organised brief public lectures and sight-seeing tours for the inhabitants. The mighty Assyrian bulls and delicately carved Assyrian reliefs had never before been submitted to such an indignity. The resulting damage and confusion caused by the excessive curiosity of the British at Bombay was considerable.

Fearful hazards accompanied the voyage of the two enormous lions from Nimrud, now in the British Museum. They were deliberately defaced by Arabs and twice submerged in unexpected floods as they were carried down the river to Basra on rafts made of bladders. Other raft-loads of sculpture were attacked by Bedouin, of whom no fewer than twenty-three were killed in one unusually violent assault. On another occasion the Bedouin succeeded in their attack and hurled the carefully collected contents of fifteen packing cases into the river. One very large consignment was sent to the Louvre by Botta, but it sank in the Tigris during the course of another accident and was never recovered. This was the greatest disaster of all and helps to explain why the Louvre is relatively deficient in Assyrian works of art in stone.

In the end the British Museum obtained the major share of the spoil. The cost of each season's work was borne by the British Treasury. Even certain commercial interests were involved. One part of the finds was allotted to the Crystal Palace. It subsequently went to Berlin.

Layard's indefatigable work was continued by another man, similar in type, equally persistent and industrious, Henry Creswicke Rawlinson. Layard left Mesopotamia for good, became a member of Parliament in 1852 and, for a short period, was Under-Secretary for Foreign Affairs.

Henry Rawlinson came from the same class as Layard and was a similar type. He was born in 1810 and joined the military forces of the East India Company. He served through the Afghan War and was sent to Persia. While in Persia he explored extensively and was profoundly interested in the remains of the ancient Persians and in the Assyrian remains which he saw, both in the Tigris valley and in the hills of the Persian Plateau. His main tour of Persia took place in 1836. In 1844 he left the Indian service and was appointed consul at Baghdad. There he had time to work at the discovery which interested him most—the great inscription of King Darius carved on the native rock at Behistun in Persia. This enormous inscription, in which Darius had set forth the extent and power of his empire after he had crushed all internal revolts, measures 150 by 100 feet and is written in three languages—Persian, Babylonian and Elamite. Rawlinson spent the years between 1835, when he first visited Persia, and 1846 in deciphering this vitally important and unique document. It was situated high up on a cliff face and demanded the highest courage and physical endurance in its decipherer. In 1846 he published not only the text and a translation, but also full notes, in the Journal of the Royal Asiatic Society. The Behistun inscription remains the most important single inscription in Mesopotamia, and probably the longest and fullest inscription ever set up by a great monarch for the instruction of posterity. Layard and Rawlinson had both, during the course of their excavations, carefully preserved all the clay tablets inscribed in cuneiform that were found. His principal discovery was that of the royal library of Ashurbanipal, in the ruins of his palace at Kuyunjik.

Another collaborator in this pioneer work of translating the Mesopotamian languages and understanding the cuneiform script employed for writing

them was George Smith who went out as the representative of the *Daily Telegraph*. What primarily started him on his linguistic studies was a tablet in the British Museum which appeared to describe a great deluge, and so was thought to throw light on the Biblical story of the Flood.

Indeed, behind most of these activities in the Middle East at this time was a certain enterprise on the part of those who felt that Biblical records were bound to find some confirmation in the records of the peoples of the Middle East who were contemporary with events described in the Old Testament. Here, at last, was the counter-attack by the traditionalists. The march of events and the advancement of learned methods in other fields had shown to Biblical scholars that their subject-matter too might well be illustrated by archaeological evidence. This was the genesis of research in the Middle East, helped on by the desire of great museums, like the British Museum and the Louvre, to obtain specimens of a new and exciting fashion of sculptural art and by the great interest aroused in the unknown scripts and languages of the East by the great discovery of Champollion. It was a minor renaissance of letters. It gave a great impetus in general to the now growing study of Archaeology and was the first great step in the investigation of civilised man and his history, who had hitherto been neglected in preference for the study of uncivilised man and prehistory.

Further discoveries in Europe itself revealed the existence of people of recent date of whom little record was preserved in history. At Villanova, a hamlet near Bologna in Italy, a certain Count Giovanni Gossadini discovered in 1853 an extensive cemetery on his property. He published the results in 1855. He identified the people responsible for the cemetery as the Etruscans, but it was later seen that they were the Indo-European people of Italy of the Iron Age

immediately preceding recorded history, the ancestors, in effect, of the Romans themselves.

Between 1847 and 1864 excavations at a site in Austria known as Hallstatt, in the Salzkammergut, revealed an extensive civilisation also based on the use of iron and exhibiting a transition from a Bronze Age to an Iron Age. It covered the last years of the second millennium B.C. and the early centuries of the first millennium. It appeared that the use of iron in Europe originated in this district, and that the Danubian iron ores were the first to lead to the transformation of Europeans into iron-users. But it was an isolated centre, and its relations to other centres was not then identified, nor, until recently, have the connections of Hallstatt with Greece and Italy been understood. Slowly the various lands of Europe were seen to contain records of prehistoric peoples of whom no mention could be found in the accepted histories. Piece by piece a strange mosaic was being built up on which no pattern was as yet discernible.

Another people whose remains received identification about this time was the Etruscans. But here was a people known by name in the Roman histories. In the eighteenth and early nineteenth centuries in the districts in which lie Orvieto, Perugia, Cortona and Arezzo, at Cervetri and Corneto, and at countless other sites, objects of art were continually discovered. A general style called 'the Etruscan' was known to collectors, but it was not clearly distinguishable from Greek. Tombs of great beauty whose walls were covered with frescoes brilliantly painted in bright colours were opened from time to time. In the 40's and 50's of the nineteenth century such tombs were cleared on a commercial basis. Concessions were purchased, and the dealers of Rome arranged for the excavation. Quantities of antiquities of great value and beauty flooded the market. The Greek vases that

adorned many of these tombs were at first assumed to be the work of Etruscans, and for many years the term 'Etruscan vases' covered not only some of the finest Greek workmanship but also the vastly inferior vase painting of the actual Etruscans. Actually the Etruscans, as a people, had taken over wholesale the general features of Greek art and had imported in vast quantities some of the finest products of the vase studios of Athens, Corinth and Ionia. It was many years before a scientific study of the Greek vases was made possible. But meantime the museums of Europe filled up with the loot of Etruscan tombs.

In the tombs and on the sites of Etruscan towns innumerable inscriptions were found in an alphabet which was clearly derivative from the Greek. Scholars collected the inscriptions and attempted to transcribe them, but no such success awaited their efforts as had attended those who had dealt with cuneiform and hieroglyphics. Even though the very words could be read, the actual structure of the language defied analysis. And to-day we know little more of the Etruscan language than was known then. Almost alone among the languages of the inhabitants of Europe it defies translation. As far as is known, Etruscan has close Oriental affinities, and the Oriental origin—probably Asianic—of these people, in which the ancients themselves firmly believed, is now certified. They were a strange intrusive race who reached Italy in the tenth or ninth century and settled among the peoples of the Iron Age whose remains were found first in the region of Bologna. But they remained distinct from the Latin peoples and were foreigners to their environment from start to finish. A more scientific study of Etruscans, amounting almost to a separate study of Etruscology comparable to that of Egyptology, has only developed during the last generation.

But they formed one more ancient civilised people

to be added to the now growing list. The pattern of the patchwork mosaic was not yet clear, but every new addition of a portion of the design was tending to make the whole picture perceptible.

But there remained enormous blank areas where nothing at all was known. In the Mediterranean, where the oldest forms of essentially European civilisation had developed, almost nothing was known except the early phases of classical Greece, of the Etruscans and early Latins, and a smattering of knowledge of the outlying Greek world, illustrated by unexpected finds like those of South Russia, and Asia Minor (which had not so far been examined since the expedition of the Society of Dilettanti).

Archaeology was still unsystematised and still without a scientific method. The archaeologists who had examined the river gravels in search of flint implements had been guided from the very first by the careful methods of their collaborators the geologists. Frere was the first to point out the importance of stratifications. The Danish archaeologist of the Neolithic Age who had made the first scientific examination of remains of a post-Palaeolithic age had noted the stratifications of the peat deposits in which so many of the remains they sought were to be found. Scientific method existed. But for the archaeologists of the various phases of civilised man there were no scientific collaborators. Indeed the prejudice against the collaboration of scientists with those who excavate historic or recent sites is still persistent. It is only in very recent years that the geologist and the botanist, the soil expert and the geochronologist have been summoned to assist those who excavate the earth that covers the remains of Greeks and Romans. This divorce of science from Archaeology, in so far as the later phases of civilisation were concerned, was largely due to the fact that historical sites fell automatically under the control of literary men. The necessity of

the presence of scholars and literary men to assist the excavators of sites such as Pompeii or the Acropolis at Athens was evident enough to all. But it should not have obscured the fact that the scientist is equally necessary.

The result of this absence of scientific help resulted in great damage being done to sites and to grave loss of valuable evidence. Scholars considered that a literary equipment was sufficient to justify them in undertaking the most elaborate excavations. They thought that the main object of an excavation was to *find objects*. They ignored the prime rule of sound excavation that the context in which objects are found is as important in some cases as the objects themselves. They failed to realise that a site can be irretrievably damaged or even totally destroyed if you merely search for *things*. Most archaeologists of these early days selected only what they wanted from the sites they dug. They threw away ruthlessly the things they did not want. They had no conception of the main principle that everything found must be examined on its merits and that, even if certain things cannot be kept, everything must be recorded. This stage of development in the technique of excavation was slow in developing. The damage done was pitiful. As an instance one can quote the case of Etruscan Archaeology. Here our present ignorance of Etruscan history and language is largely due to the fact that the cities and cemeteries so thoroughly explored were looted shamefully and almost no record taken of what was done and found.

After the first clearance of the Acropolis at Athens, which had resulted in much careful publication and the accumulation of a large collection of antiquities and inscriptions, Greek Archaeology paused. To the Greeks themselves must be given the full credit for organising their own research before any other European country. The first twenty years' work at Athens was a model of its kind. No other country had

done so much. But as foreigners came on the scenes and began small excavations in various parts of Greece, the same standard of excellence was not maintained. And little in fact was done.

Various expeditions had done something to open up different areas. But they had mostly merely noted, in the manner of the Dilettanti, and collected what antiquities they could. In 1876 a French survey of more than usual competence made an interesting voyage to Macedonia and Thessaly, and their work remains a useful piece of pioneer exploration. But it in no way advanced on the methods of the eighteenth century.

There was, furthermore, a certain dislike among scholars of the kind of evidence provided by the archaeologist. Inscriptions, yes. They are always grist to the scholarly mill. But what they called (and often still call) 'pots and pans' were considered to be outside the dignity of literary men. And so between 1840 and 1870 the study of Archaeology in Greek and Roman lands languished.

Into this world of scholars who were content with the surface discoveries of the Acropolis at Athens and with the various monuments that still betokened an antiquity that could be recognised in the pages of Thucydides and Herodotus, came a strange and unusual man—Heinrich Schliemann. Here at last was a portent, a man who was destined to lay the solid foundations of a proper archaeological method which could be followed in any land.

In the French language there is a word *ambience* which can be used in French to indicate the setting, background and atmosphere, all combined, in which an event takes place. There is no English equivalent.

The *ambience* of the work of Schliemann consisted of many elements. First there was a universal interest in ancient sites of forgotten cities: then there was a profound feeling in the minds of intelligent scholars

that the soil of Greece contained many answers to many riddles. Furthermore the bitter controversies that had raged ever since the beginning of the nineteenth century as to the nature of the Homeric poems, had ended in complete stalemate. Scholars were deeply divided into two camps, that which saw in the poems merely a réchauffée of old folk-tales made into a whole, presumably by a school of minstrels, and that which saw one great poetic genius at work, inventing and creating. Both alike agreed on only one point, that Homer was a weaver of fairy-stories and the maker of a world which existed only in his own imagination. No single scholar had even dreamed of going to look for the sites of Troy or Mycenae, or to identify Ithaka. They sat, dumb and satisfied in their studies, content to read and re-read the text of Homer and make of it whatever they wished. Even though the Acropolis at Athens had been cleared and brought into a condition which resembled that of its former glory, it never occurred to them to go and look for the places which are so vividly described in the Homeric texts. For the long tradition, older even than the Renaissance, that made it requisite that scholars should sit in their studies and consume their midnight oil, controlled all their activities. It never occurred to them that a scholar can go out with his text book in his hand and see what is therein described.

Learned men had got tied to their desks. They had decided that they could not see what was not before their noses. Worse still, they came to the conclusion that nothing else mattered. In brief, classical scholarship was keeping its fire alight with the old and rotten branches of the once flourishing tree of Research.

All this, I think, was an unhealthy legacy from the days of the Renaissance. But then, scholars studied texts because new texts of forgotten authors of ancient times had unexpectedly flooded into a world in which everyone was curious and inquiring. They had no

time for more widely extended research. The reading of ancient authors was a novelty. The limited repertoire of ancient writings prescribed by the Scholastics of the Middle Ages was replaced by a bewildering richness of choice. All the ancient world was revealed to them at last. The excitement of new literary discoveries was high. It was a world of research and discovery in literature. And we cannot blame the scholars of the Renaissance for not pursuing discovery further.

But by the end of the eighteenth century there were no more literary discoveries. Scholars had to confine themselves to the re-reading and re-correction of known texts. They fed by chewing their own cud.

And behind them, to add to the authority in Classical Learning which they claimed, was the immense prestige which is given to those who concern themselves with the written word. In a world in which the invention of writing was barely a few thousand years old, and in a Europe in which the knowledge of writing had only spread among the general public for two hundred years, the prestige of those who studied the *minutiae* of the writings of others was immense. To-day that prestige has not diminished.

But the Classical scholars were not the whole world of learning and research. Already the discoveries of the prehistoric archaeologists and the general acceptance of the Darwinian hypothesis had shown that those who go out and look for new knowledge will find it in the soil of the earth.

Here were two sharply divided sections of researchers. Those who stayed at home and maintained that scholarship is best improved in the home, and those who took the whole world as their study and looked either to Nature direct or to the remains left by Man to tell them more and to illumine the dark pages of the ill-written history of mankind. Prehistoric Archaeology had, by 1870, with the aid of Geology, written

firmly and clearly the outline of the archaic history of humanity. It had demolished once and for all the credo of the scholars which made the world but 6,000 years old. It had pushed back the antiquity of Man to a remote and unbelievable age when the land-forms of the world were totally different, where the great ice-sheet advanced and receded in alternating changes of climate. Man roamed the primaeval world in company with monsters whose very memory had long faded from the pages of recorded history. The upstart anthropologists and pre-historians had been segregated in public opinion rigidly from the scholars and the theologians. Theologians had shown themselves reactionary in the face of the new discoveries and had only finally been defeated in their antagonism by the overwhelming certainty of the Darwinian hypothesis and by the entertaining polemics of Thomas Huxley. Darwinism, which, in the words of Huxley had been 'a startling proposition' in 1860, was universally recognised among intelligent men as truth within a few years and 'a fact that no rational man could dispute' twenty years later.

With the theologians were associated in the popular mind the scholars. For indeed the two were often identical. The man who revised and criticised the text of the New Testament was hardly distinguishable from the man who revised and criticised the text of Euripides. Both used the same methods and the same criteria. Both believed in the supremacy of the pen and the study for the discovery of new truths. Here, in brief, was a division in the learned world into Progressives and Conservatives.

Here, then, was the *ambience*, the setting into which Heinrich Schliemann was suddenly and, it seemed catastrophically, propelled. The moment he appeared upon the scene he was suspect, partly because of his intentions and partly because of his mode of expressing them. The 'Conservatives' jeered when

they did not laugh and even the 'Liberals' were slightly alarmed because Schliemann made every effort to alienate their sympathy by brandishing his not very profound equipment of scholarship and posing as a 'Conservative' who was adopting the methods of a 'Liberal'. He made things just as difficult for himself as he could. But, that, as we shall see, was precisely what so forcible an individualist as Schliemann was bound to do. Even when he had begun on his most important and exciting excavation at Mycenae, the results of which were to revolutionise our knowledge of the Homeric world, he was still so far under the influence and control of traditional scholarship and of the written word, that, having discovered five of the famous Royal burials in the Shaft Graves at Mycenae, he looked for no more simply because the ancient writer Pausanias had stated that there were only five. In fact, *malgré lui*, he discovered a sixth!

Schliemann, whose methods of excavation and archaeological work constituted an innovation of the first order of importance in the study of the antiquity of Man by archaeological methods, whose meticulous care in examining the stratifications of an ancient site, and whose equally meticulous care in recording what he found laid the very foundations of all subsequent archaeological excavation, had the least possible claims to be a scholar, a scientist or an archaeologist.

He was born in 1822 at Mecklenburg in Germany. A brief and formal education equipped him for a business life and he was never faced with the dilemma that faces so many young men of genius—to decide whether to devote their energies to making money in commerce or whether to concentrate on what they most want to do, irrespective of gain. Schliemann, despite an early passion for languages and literature, and in particular an urgent desire to learn Greek, gave himself up whole-heartedly to the pursuit of commerce. His early apprenticeship was served as an assistant in

a grocer's shop at Furstenburg. From there he tried his fortunes at Hamburg and later at Amsterdam. Gradually his assiduity and carefulness obtained for him such a reputation as an agent that he entered the mercantile firm of B. H. Schroeder & Co. at Amsterdam. At last he saw an opportunity for combining his literary and commercial interests by the study of languages. By the time he was twenty years of age he had mastered Dutch, Spanish, Italian and Portuguese. This enabled him ultimately to be sent as Schroeder's agent to Russia, where he speedily added Russian to his collection. Indeed he seems to have had an unusual and almost uncanny facility for languages of all sorts. After a short time in Russia he writes, 'In the meanwhile I had learnt Slovenian, Danish, Swedish, Norwegian, Polish, Latin and Greek,(both ancient and modern) and thus can speak fifteen languages in all.' There is here, perhaps, a little pardonable boasting. After all Danish, Swedish and Norwegian can hardly be considered as separate languages! but of all these languages ancient Greek was the one that he admired most, which excited him most by its beauty, its delicacy and its fluidity. It was to him the perfect language.

His career as a successful merchant is almost a fairy-story. In 1850, after amassing a fortune in Russia he went to America and at once saw that a further fortune was to be collected in the Far West. He went straight to California, where as a self-styled banker he bought gold-dust, lent money and engaged in banking generally, working sixteen hours a day and rapidly accumulating a further fortune. Wherever he saw an opportunity in the New World or the Old, he seized it. Wherever there was a prospect of money to be made from some particular situation that had arisen, political, commercial or natural, he was there on the spot.

At last in 1864 he decided to see the world for pleasure and travelled extensively. He had firmly

repressed his desire for culture until he had amassed all the money he needed—and a surplus. He had not pursued his Greek further for, as he wrote, 'the powerful spell of this noble language might take too great a hold upon me and endanger my commercial interests'.

At last, at the age of forty-six, he closed his career as a merchant. The call of Greek and Greece was upon him. In 1868 he visits Greek waters for the first time as a tourist. He goes to Ithaka, climbs the ancient hill of Aëtos, whereon perhaps (as even the most modern critics and archaeologists are prepared to admit) Homer had himself stood, as he devised the story of Telemachus returning from the Peloponnese and avoiding the ambush of the Suitors, and fitted in the saga with the scenery. He next visits Mycenae and Tiryns and after that the plain of Troy. 'I confess' he writes, 'that I could hardly control my emotion when I saw before me the immense plain of Troy, whose image had hovered before me even in dreams of my earliest childhood.'

By now he knew Homer almost by heart. He had acquired the veneer of a scholar if not scholarship itself. The sight of the exquisite landscape of Greece and in particular of Ithaka—perhaps the loveliest island in the world—and of Troy, the wildest scenery in Greece, had fired his ambitions and his enthusiasm to find out more. His early experience in commerce had given him a training in exactitude and method which were of immense use to him. Professional scholars worked by their own limited and narrow canons. Schliemann had been bred in a world where exact description and complete accuracy were essential. It was no use being a grocer's assistant unless he knew how to keep accurate accounts, how to add without error, how to keep ledgers and how to write precise invoices. It was no use being a merchant unless he insisted on all these qualities being faithfully exhibited by his employees. It was

not profitable to be a banker unless he had complete mastery and control of every detail of a complicated business. In brief, Schliemann brought to the study of Archaeology the method and precision which were entirely lacking in those half-hearted archaeologists who had hitherto conducted the lamentably inaccurate and unscientific excavations which had up to then been attempted. To an excavator the elegance of literary equipment and the graces of prose and poetry are not only unnecessary but deleterious, at least during the excavation. An ancient site is an accumulation of oddments on a rubbish heap that must be disinterred and disentangled with care and precision. The grocer who unpacks crates is better equipped to unpack the middens of antiquity than the polite scholar who has never seen the inside of his own dustbin. Excavation requires first of all pure common sense, before literary equipment. But pure common sense alone is inadequate to make an excavator. He must know the history and the culture and the language (if it is knowable) of the owners of the ancient midden. Where many excavators have had all qualifications but the first, Schliemann had all the qualifications. But the innate snobbery of the world of scholars refused to credit Schliemann with even a modicum of learning, because they knew that all his life up to middle age had been spent in what the Greeks contemptuously termed 'banausic' pursuits. He was a tradesman and a grocer. They were scholars and gentlemen.

But Schliemann was not to be deterred by any such scorn. He went ahead single-mindedly at his task. He determined to associate himself as closely as possible with Greece. His previous marriage having been dissolved, he procured a Greek wife, the still living Sophie Schliemann, now an old lady of grace and distinction. With her he set out on his first enterprise. Homer was his guiding star. He felt in his

bones that Homer described a real world. He was realist enough himself to know that you cannot dismiss a whole epic as pure fairy-story, as the scholars did. Although he set out, like any traditional scholar, to see if the written word could be proved true by the spade, yet in the back of his mind was the certainty that there was an ancient world to be found for the asking—or the digging. And there he shows himself as the true founder of archaeological method. For he had put his finger on the tell-tale spot. He knew that once you have identified Ithaka, found Mycenae and stood upon Troy, that there in the soil will be something to illustrate Homeric legend and literature.

Although the ramparts of Mycenae, the 'Gate of the Lionesses' itself, and the mighty Tombs of the Kings and Princes had stood open for all the world to see; although the vast mound that was Troy, with its walls crumbling out of the turf, had been visited by a thousand travellers for centuries, no scholar had even considered what might happen were he to put pick and shovel into the soil. Human curiosity is not part of the equipment of the traditional scholar. The ancient fortresses still held their secrets while scholars still wrangled as to the authenticity of this passage and that in the Homeric poems, as to the probability of the whole affair of the Sack of Troy being purely imaginative and Troy a pure figment.

Schliemann, like the grocer that he was, just went out to find out for himself. After prolonged negotiations, which as a business man he was eminently qualified to carry out, he obtained permission to excavate on what he was convinced was the site of Troy—the Turkish mound of Hissarlik.

Those who know the rigours and discomforts of excavation in a half-barbarous region will understand what Schliemann and his wife endured. They will equally sympathise with him in his rage at the

attacks which were launched by the armchair scholars when his results were first published. The opposition was in many cases quite fantastic. The scholars still held to those beliefs which secretly justified them in remaining in their studies and avoiding the rigours of exploration and Archaeology. Max Muller wrote 'I am convinced that the Trojan War is not to be distinguished from the wars of the Mahabharata and the Shahnama, or from that of the Nibelungs'. Homer, said the professors openly, was a mere work of imagination: consequently what Schliemann had found could not conceivably be Homeric. It was all profoundly interesting, indeed, almost worthwhile. But that it should illustrate Homer was, of course, a ridiculous idea. Why, all he had found was stone axes and broken potsherds.

Professional archaeologists to-day re-read Schliemann's reports with profound respect. They see that, as an excavator, he had introduced methods and procedure which none of the professional archaeologists who were his contemporaries had dreamed of doing. Those who care to study his detailed reports and photographs, or to examine the Schliemann collection now in Berlin, see at once that it was the first business-like and scholarly excavation ever made. Schliemann dug on simple but precise principles. As he removed each stratum, from the top downwards, he recorded the level of every object found, however trivial. The vast débris of the nine cities of Troy was thus disentangled. His innovations were as follows:

(1) He preserved *everything* found so as to obtain a picture of the whole culture at any given date.

(2) He noted the level at which each object was found so that the objects representative of the culture of a given period could be subsequently reassembled for study at leisure, whether in a museum or on the site.

(3) He had every object of importance either photographed or drawn as soon as it was found.

(4) By detecting the morphological change of types from level to level, he was able to distinguish the principal periods of occupation and their characteristics. Thus and thus only was it possible later to divide the prehistoric cities into six, all of the Bronze Age, and the historic into three, all of the Iron Age, the last two being the historic Greek. His first classification was into six cities only, of which he at first thought the second to be the city of Priam. The fuller classification was due to the scholarship of his assistant Doerpfeld, who worked at first with him and later after his death.

But in effect Schliemann had founded the science of methodic excavation. He had shown scholars that you must not dig to find what you want and that when you dig you must not throw away what you do not like. You must simply face the facts. And, above all, he made it possible to lay down with perfect clearness what an archaeological fact is.

The story of his discoveries at Troy is too well known to describe here—his laborious trenching through the whole site to establish his relative chronology: his final discovery (on the last day of the excavation) of the astonishing Treasure of Priam, as he called it: his subsequent dispute with the ever-irritating Turkish authorities which resulted in his secret smuggling of the whole collection out of Turkey into Greece.

The discovery of the so-called 'Treasure of Priam' is best described in the rather excitable prose of the excavator himself.

> 'In excavating this wall further and directly by the side of the Palace of King Priam, I came upon a large copper article of the most remarkable form, which attracted my attention all the more as I thought I saw gold behind it. . . . In order to withdraw the Treasure from the

greed of my workmen, and to save it for Archaeology, I had to be most expeditious, and although it was not yet time for breakfast, I immediately had *paidos* called (the call for "cease work"). While the men were eating and resting, I cut out the Treasure with a large knife, which it was impossible to do without the very greatest exertion and the most fearful risk of my life, for the great fortification wall, beneath which I had to dig, threatened every moment to fall down on me. But the sight of so many objects, every one of which is of inestimable value to Archaeology, made me foolhardy, and I never thought of danger. It would, however, have been impossible for me to have removed the Treasure without the help of my dear wife, who stood by me ready to pack the things which I cut out in her shawl and to carry them away.

'The first thing I found was a large copper shield. . . . The second object which I got out was a copper caldron with two horizontal handles. . . . The third object was a copper plate. . . . The fourth article I brought out was a copper vase. . . . Thereupon followed a globular bottle of the purest gold weighing 403 grammes (6,220 grains or above 1 lb. troy). It is nearly 6 inches high and five and a half in diameter. . . . Then came a cup, likewise of the purest gold weighing 226 grammes (seven and a quarter oz. troy). . . . Next came another cup of the purest gold weighing exactly 600 grammes (about 1 lb. 6 oz. troy). . . . The Treasure further contained a small cup of gold alloyed with 20% of silver, that is, a mixed metal called *electrum*. . . . I also found in the Treasure six pieces of the purest silver in the form of large knife-blades. . . . I also found in the Treasure three great silver vases the largest of which is above eight and a quarter inches high and nearly eight inches in diameter.'

This recital illustrates only a part of the Treasure, but describes the most valuable and the most striking. The excitement at the time of the discovery must have been great. But the objects found could not compare in splendour with those massed gold ornaments discovered at Mycenae. The unusual thing about the

Trojan treasure was the high proportion of objects made of silver. For silver is rare on other sites in the Aegean.

Then came his permission to excavate at Mycenae: the troublesome and superior attitude of the Greek Archaeological Society under whose auspices he was to dig: his continuous quarrels with the hostile and superior official representative of the Society, M. Stamatakis, and its repercussions.

But Schliemann was not only the most methodical of archaeologists but the most fortunate. His excavation of Mycenae resulted in the discovery of the Treasure of the Shaft Graves which far outshone the more barbaric Treasure of Priam. What he found now glitters in the innumerable cases of one enormous hall of the Athens Museum. Masses of gold cups, swords, ornaments of all sorts, were found in those graves piled in the confusion of immense wealth. But hardly had they been found before everyone was claiming the right to possess them. The little city of Nauplia, in whose parish the site of Mycenae stood, claimed them for its local museum. The Greek Government claimed them for the State, and the Archaeological Society claimed them as the property of the Society. Schliemann alone could not claim them as he had claimed the treasures of Troy, for his permit to dig had been only on the assumption that what he found belonged only to Greece.

The envy of the world of scholars pursued him. The Greek Archaeological Society, when Schliemann complained that they were publishing information about his finds, when such rights of publication were reserved exclusively by the agreement to the excavator, replied that 'what we are publishing will in no way diminish the honour due to him; on the contrary it will give his discoveries a more scientific character'. This was a bitter taunt and one wholly unjustified. Those who have studied the work of the Greek

Archaeological Society up to that time will appreciate how deep was the insult to one who was the founder of scientific methods in Archaeology.

The most learned scholars, especially in Germany, poured ridicule or, which was worse, the faintest of faint praise, on his achievements. Professor Conze, in all other respects one of the leading European archaeologists, considered that the finds at Troy all belonged to a Greek colony of the historic period. This was the wildest of conjectures which bore no conceivable relation to the facts. Professor Curtius, equally learned, thought that one of the gold masks from Mycenae was of the Byzantine period and a portrait of Christ! Others thought that the finds from Mycenae were Gothic, Celtic or even Oriental.

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So profound was the ignorance even of professional archaeologists in other countries that they just would not envisage the possibility of the discovery of a whole period of Greek history, of which the world had remained in ignorance, until Schliemann's vigour revealed it. The world of scholarship was as content with its dogmas as had been the world of Theology in the face of the early discoveries of the prehistorians of Fossil Man. New hypotheses were rejected merely because they did not conform to known facts. It never occurred to the scholars that the known facts were few and the possibilities of new facts unlimited.

In Germany Schliemann's discoveries at Mycenae were almost universally assailed as either bogus or misunderstood or both. His books were derided as hasty and erroneous, his errors noted and his reputation ridiculed.

In fact Schliemann had, by the impetuosity of his work and statement of his finds, done exactly the right thing. His book on *Mycenae* was written in eight weeks! and for that posterity is profoundly grateful, for by writing it rapidly he was able to give to

subsequent scholars his impressions and views as they came to him. He wrote, in effect, a running commentary on his excavation. Had he waited until he got home to write his book, he would have suppressed much that seemed trivial, which was really of profound importance and would have failed to give us that first-hand report which is so vital to the reader of professional records of excavation. To-day the excavator is compelled to keep what he calls a 'day-book' of his excavations in order to record things and impressions *as they occur*. Any other method savours of 'cooking the accounts'. The keeping of archaeological records is similar, or should be, to the keeping of a grocer's ledger. The excavator is a kind of inverted dustman. He must first note down what he picks up and then think about it afterwards. The grocer only calculates his profit after he has examined his ledger. The important thing is to get the ledger into order first.

Schliemann learned his archaeology as he excavated. And that is, in fact, what every archaeologist does. For no one site is like another. Each place you dig differs from every other because no two human habitations are really in the least alike. That is why you cannot standardise completely the methods of excavation. You can lay down certain fixed rules and establish certain desirable methods. But you must adapt them all to the site you work on. And that is precisely what the learned scholars who opposed Schliemann could not understand. They worked by rule of thumb and by flashes of intuition eked out by rigid methodology.

His main support came from England. After his Mycenae excavations were concluded he gave a series of lectures in London, was lionised wherever he went, and was accepted seriously by all scholars of repute. His finds had created real excitement in the learned world. He was given honours and

invited to receptions and, finally, won the sympathy of that very fine Homeric scholar W. E. Gladstone, the statesman. Gladstone neither condescended nor patronised. With charm and learning he wrote the preface to Schliemann's book on Mycenae. Schliemann considered this as the highest honour of all. Gladstone was as much a man of the world as Schliemann, and he saw that the carping of the scholars was waste of time, when they were faced by a whole mass of evidence that needed explanation rather than criticism. Gladstone set about the humblest task of helping Schliemann to explain his facts. In that the statesman did a service to Homeric scholarship which no Homeric scholar to-day would deny him. And Gladstone followed Schliemann's work in every detail, helping, with suggestions and offering criticisms where they were needed. Schliemann responded to this kind and friendly assistance with all the warmth of his heart. There survive letters of the greatest interest which passed between the two Homeric enthusiasts.

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What, in effect, are the results of Schliemann's work? This is not a hard question to answer.

Firstly he revealed to archaeologists the whole of the Greek Bronze Age of which they had previously been almost wholly ignorant.

Secondly he proved that the bulk of the stories in Homer belong to that Bronze Age and have a solid foundation in fact.

Thirdly he suggested to others that there was an earlier history to that brilliant Mycenaean Bronze Age, and so led to the investigations which culminated in Evans's work in Crete. (The fact that Schliemann had himself later contemplated the excavation of Cnossos, shows how truly he was following up the results of his own earlier work.)

Fourthly he showed to archaeologists that their duty is to record everything found, and that the circum-

stances of the finding is of more importance in many cases than the objects found. This was a reform in method very badly needed, for hitherto archaeologists had laid more stress on the nature of the objects found than on the circumstances of their finding. This had led to the wholesale destruction of clues and to a tendency to select only the most striking objects. The consequent loss of knowledge was incalculable. Schliemann taught diggers that the most valuable evidence is of the kind best understood by the police detective, the tell-tale cigarette-end, the finger-print and the abandoned match-end! The least obvious was often the most important. Thus in Schliemann's own records we see how he concluded that the Treasure of Priam was originally concealed in a wooden chest, locked and hidden in a niche of the town wall of Troy, at the time of its sack. Only highly scientific observation could have recorded this. Other diggers would have remained content at having found the Treasure and left it at that. So in his excavations of the Shaft Graves at Mycenae his records enable us to-day to tell that the mode of sepulture was organised and that certain ceremonials took place at the burial. His thoroughness marks him out as the father of sound excavational method.

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What Schliemann did for Archaeology, Edward Burnett Tylor did for the cognate study of Anthropology. He is the founder of the science of Comparative Ethnology. On the appearance of his first work *The Early History of Mankind* in 1865 it was at once evident that here was a master-mind whose reflections were of prime importance. More important still was the fact that the writer was graced with wit and elegance and a powerful critical ability. Tylor's work was almost exactly contemporary with that of Schliemann, and both together influenced the whole development of the study of Man. Tylor was of

vast erudition and prolific in his output. Between 1861 and 1907 he published in all 262 items! I remember in 1909 seeing the old man on the occasion of the first meeting of the newly founded Anthropological Society at Oxford, of which I was the first secretary. It was a society of undergraduates, and we were all as eager to learn as we were innocent of learning. The massive figure of Tylor, with his grave manner, his twinkling eye and his vast white beard, impressed us all into silence as he gave his brief benediction to the society. He was one of the great scientists of the nineteenth century, one of the links with a period in which the study of Man and his past has advanced with more rapidity that it had before or has done since. The twentieth century has little to show on the anthropological side that can compare with the work of Tylor. He systematised the whole study of field-Anthropology and brought order into a world of study which was ill-ordered. His freshness of outlook lasted till his death.

Tylor is to be compared with Schliemann not only in what he accomplished for the nascent study of Anthropology but also as a personality. He was born in 1832, the year of the Reform Bill. His parents were Quakers, so that from the outset he was destined to grow up in an atmosphere in which the intellectual Liberalism of the early nineteenth century was fighting its long battle with an older order. His natural tendency towards a scientific outlook and method was a part of the background in which he lived. The fact that Tylor ultimately became a Professor at Oxford, though as he boasted, he had never sat for a single examination in his life, was proof that it was at last possible for learning to develop outside the fixed curricula of academic life. Tylor was thus a representative of the New Learning, of the Renaissance of the age. One of the main reasons, of course, for his exclusion from the normal course of education was

that, as a Quaker, he was debarred officially by the tests of orthodoxy imposed on entrants to the universities, which lasted right up to the 70's.

Tylor's brother became a distinguished geologist, and Tylor himself at once adhered to the views of Darwin and to the now accepted theories of the Antiquity of Man.

His parents were Londoners and owned a business of brassfounders. Tylor was educated at a small school in London and taken away at the age of sixteen to enter the family firm. Here for the short time that he worked in business he learned the exactitude of business methods, of book-keeping and the minor detail of a thriving concern. Like Schliemann he acquired method and simplicity of outlook and a passion for detail. For seven years he sat at his desk and then his health failed. In 1855 he was ordered to travel abroad, and he set out for America. He went to Mexico, and from that date begins his profound interest in the study which he had hardly himself begun to realise was that of Anthropology. In Cuba, which he visited before he went to Mexico, he had the good fortune to meet a certain Henry Christy, who, a banker and a man of leisure, was also travelling. It was Christy who suggested the trip to Mexico. Christy was deeply interested in the prehistoric caves of France where he had excavated. His talks with Tylor and Tylor's subsequent experiences in Mexico aroused various trains of thought in Tylor's mind which developed later into his wider statements of belief.

Nothing could have been more valuable than this visit to Central America, for it caused him to observe that certain methods of manufacture of human instruments, certain ways of thought and certain beliefs were not only similar to those in the Old World but were in fact identical. He found himself face to face with the now acute problem of diffusion versus

individual invention, a problem which still shakes the anthropological world. Tylor's work in his own words was

> 'to show that the development of institutions may be investigated on a basis of tabulation and classification'.

No solution for the dilemma just stated can be found until a truly scientific method has been introduced into the examination of human beliefs and institutions as well as of human material productions. The principle of the Pitt-Rivers collection was to be expanded and applied to the less material creations of mankind.

And so Tylor embarked on a careful and scrupulous classification of human modes of life and thought.

His first work was published in 1861, and was entitled *Anahuac, or Mexico and the Mexicans*. This was followed by *Researches into the Early History of Mankind* four years later. In 1871 he published his most impressive book *Primitive Culture*, and the same year was made a Fellow of the Royal Society, when still only thirty years of age. In 1884 he presided over the newly formed Anthropological Section of the British Association for the Advancement of Science which was held in Montreal, and took the opportunity of visiting New Mexico and the Pueblo country.

In 1883 he was appointed Keeper of the University Museum at Oxford and in the next year made a Reader, the first such appointment in the University in Anthropology.

His close study of the Pitt-Rivers Museum and his first experiences in practical method as applied to actual objects was the foundation of his early statement of belief. He maintained that it was essential

> 'to trace the development of civilisation and the laws by which it is governed' and that 'nothing is so valuable as the possession of material objects'.

Tylor thus realised that the work of the archaeologist and the anthropologist cannot really be severed. He believed that by resolute endeavour there can be established a real Science of Man. Tylor was thus a product of his age. The views of Huxley, who can in many ways be considered as the father of Comparative Ethnology, and who in the immediate post-Darwinian period did more than any other man to give a proper scientific background to the tentative anthropological studies of the time, foreshadowed that someone of the calibre of Tylor was certain to emerge. Huxley's admirable lectures, which were published in 1863 under the title of *Man's Place in Nature*, had drawn the main outlines. Tylor now began to compose the structure of the Science of Man. Unlike Herbert Spencer, who, with all his gifts, was incapable of realising the importance of *things*, and especially of human products as a raw material for scientific classification, Tylor, like a field-worker, kept his eyes on the ground.

Huxley had produced primaeval man at last in the flesh and bone. He recognised the Engis skull from Belgium, and the Neanderthal skull itself, as of certain human origin, and there was now identified at last the actual maker of the implements whose author had hitherto existed solely by inference. Huxley had further done enormous services in establishing that, while cranial characters were of importance in ethnological classification, other factors were necessary also, and that a variety of evidence was necessary to establish differences of race.

Tylor imported into the study of man the certainty that human institutions and habits and beliefs and artefacts could be similarly classified, and that similar results would emerge from such classification. He was certain also that in any such study it would be futile to examine only the evidence provided by savage or primitive or prehistoric peoples. He was emphatic

that civilised man cannot be exempted from any such research. His work therefore led directly to the organisation of inquiry into survivals among civilised peoples of their uncivilised past, and that, in turn, led to the organisation of research into subjects such as folk-lore.

It would indeed be difficult to estimate the enormous effect which Tylor's general outlook had upon the development of anthropological thought. The narrow field of study that had been concerned with the antiquity of man was now seen to be enriched by the addition of many other points of view. Tylor is out to explain the methods by which the development of human culture as such can be reconstituted. For the first time in the history of human studies those studies are to be looked at as a whole. There is to be no division into periods, no neat classification into 'Ethnology', 'Palaeontology', 'Comparative Religion and Mythology', with the archaeological evidence carefully segregated. Tylor proposed to make a complete synthesis in time and space of all human activities, and show how they blended and interacted, diffused and spread, or were repeated from place to place. In his view Anthropology should ascertain the 'laws' that controlled thought and action; in his view it would show:

> 'that the history of mankind is part and parcel of the history of Nature, that our thoughts, wills and actions accord with laws as definite as those which govern the motion of the waves, the combination of acids and bases, and the growth of plants and animals'.

Here was the humanist developing in the austere atmosphere of the scientific research of the early nineteenth century. To the philosophers such beliefs would naturally be anathema. There was no scope left for Free Will. Indeed its existence was rudely rejected. His work was a reaction against the philosophers. He was

determined in his own words 'to escape from the regions of transcendental philosophy and theology' and to start on a more hopeful journey over more practicable ground. The gauntlet was thrown down.

To him must be assigned the particular aspect of Anthropology known as 'Cultural Anthropology'. To him is the credit of causing men to examine the 'survivals' of their past which exist in their present. Hitherto no one had even thought of examining civilised man to find in him the traces of his original descent. Only the anatomists and the biologists had discovered that in the physical structure of man is to be found evidence for his past. Tylor went further and showed that in his habits and memories and modes of thought also can be found equivalent evidence.

The dilemma, already discussed in these pages, that confronts every anthropologist and archaeologist—to explain the occurrence in widely separated regions or in widely diverse periods of the same precise phenomena, was to Tylor not so acute as it has, to some extent, since become. He prefers on the whole to explain such phenomena by the principle of Independent Invention rather than by Diffusion. In all parts of the world in all ages men must eat and sleep and live their domestic lives, and marry and beget children in much the same way. Human psychological reactions are much the same the world over in those matters which are common to all humans. But he agrees that Diffusion is a potent factor as well, though its importance is always likely to be overstressed, if only because it is the easier explanation. The officials in charge of any patent registration office will bear witness to the astonishing fact that even complex inventions are often made simultaneously by several people. To explain the occurrence of similar inventions an appeal to Diffusion or Independent Invention is not a simple alternative. Both processes may be operative simultaneously. Even the distinction itself

is suspect, like all clear-cut antitheses. But on the whole Tylor preferred the psychological approach.

Among the most distinguished of Tylor's followers was Andrew Lang, who, seduced from the traditionalist and literary school, began to apply to the culture of civilised peoples like the Greeks and Romans the methods employed hitherto for savage peoples and primitive races. Lang, following Tylor's lead, examined the beliefs that underlay institutions. That for Tylor was a basic necessity of any examination of a culture. Men do not form their institutions until certain beliefs they hold have crystallised. Examine the institutions and you will get at the beliefs behind them. Here at last was a systematic scientific method applied to human activities. Even the philosophers themselves were institutions which, like theologians, were an expression of beliefs that called them into existence. All were raw material for the anthropologist and the researcher into human modes of life.

For the anthropologist and the archaeologist alike Tylor's analysis of 'survivals' was of the most profound importance. The best instance to take would be the survival among metal-using people of customs which predicate a stone-using phase of their culture. The 'standing-over' of ancient practices for ceremonial purposes suggested a different phase of existence in which they were normal practices. Such is the ceremonial use of stone for circumcision among the Jews, or the self-mutilation, in the ancient world, of the priests of Cybele with a sherd of pottery. No one had so far thought of these things or elaborated a general law which would explain them.

Tylor died in 1917 in his eighty-fifth year. The extraordinary width of his research and the simplicity of expression which marks all his writing raised him from the rut of academic stylists, and rendered his expositions of belief as clear and comprehensible as those of Darwin. His principal contributions to the

advancement of the human studies lie in his synthesis of vast areas of knowledge which had hitherto remained outside the scope of the average anthropologist. He almost bridged the gap which separated the comparative mythologist from the world of science, and he brought the study of comparative religion into the immediate control of the scientific anthropologist as such.

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The work of Tylor was developed and emphasised by another, perhaps even more impressive than him—Sir James George Frazer. Frazer was born in 1854 and is still as active as when he published his first work. He received his education at Glasgow University and early proved that he was a classical scholar of great distinction. The importance of his work is that, unlike Tylor, he did in fact bridge the gulf between the traditional Renaissance scholarship and the new modes of thought and lines of approach. So erudite is Frazer both in all branches of literature and in all aspects of Anthropology, that it is to-day difficult to classify his contributions to knowledge. He is equally distinguished as Archaeologist, Classic, Anthropologist and Historian. He has the true synthetic outlook that was the aim of Spencer and Tylor, and the literary style of a fine writer.

Frazer began to accumulate material for a work which was to cover precisely the ground suggested by Tylor's researches and publications. He is essentially the finest type of Renaissance scholar educated in the highest traditions of accurate scholarship. In him at last the two separate streams of research meet. For, although Frazer is in the best sense a traveller, his main work is work done carefully and systematically in the study. He is the true lineal descendant of Cyriac of Ancona and at the same time is alive to all the implications and contributions of science to the study of culture.

Years of research culminated in the production of his

first great work, the *Golden Bough*, which was published in 1890 in two volumes. In it he set forth scientifically, and expressed in fine literary language, the results of his inquiries into primitive religion and superstition throughout the world. He concentrated more especially upon survivals of primitive beliefs and religious customs in Europe itself. The title of his book is at the same time the starting point of his research. He examines the ancient custom connected with the shrine of Diana at Aricia in Italy—the slaying of a priest by his successor, who then became the guardian of a sacred grove. From this strange custom Frazer proceeds to examine a prodigious mass of customs living and dead which concern the growth of religion, the slaughter of divine kings, tree worship, seasonal ceremonies and magical rites. He accumulates a body of information more accurately set forth and more conscientiously compiled than any hitherto collected by any scholar in any land. His exposition of his facts at once places his work in the forefront of learned literature, literature in the sense that his language avoided all jargon and technicalities and could be read with delight by all educated men. No theologian could afford to ignore a book so impartially written, or to neglect evidence so conscientiously tested. The *Golden Bough* marked a turning point in anthropological studies, for it forced the scholars of the literary tradition to enlarge their vision, to realise the implications of ancient Greek and Roman customs which they had failed to analyse, and to accustom themselves to the new contributions which anthropological research could make to what had hitherto been a purely literary appreciation of ancient authors. Here was the inner mind of the two greatest ancient civilisations being revealed intimately to scholars who had hitherto examined only the surface. Dark and mysterious rites and survivals, magic and superstition which would be normal in Polynesia or Australia,

were seen to have been working in the background of the most civilised periods of the ancient world. Nor was the modern world exempt. The same processes and survivals were alive still in Europe. Even the readers of his book were themselves the exponents, unconsciously, of many similar examples of magic, superstition and ritual!

The pattern of the mosaic of human studies was taking shape at last. Pride could no longer exclude from inquiry the most sacred citadels of culture and illumination. In the hills of Arcadia in classical Greek times there was a strange ceremony in which the priest donned a mask and 'smote the Underground Folk with rods'. We are told no more and have no further light on this strange and barbaric ceremony. Frazer in our own enlightened times revealed to ordinary men the Underground Folk who accompany civilised man throughout his existence.

The complete absence of controversial outlook, the absolute impartiality of statement and the clear exposition of facts make the *Golden Bough* one of the most impressive works, the purpose of which is to explain the bases of religion, that has ever been written. The contributions of Tylor and Frazer towards an understanding of the primitive elements that underlie all existing and all past forms of civilisation cannot be overestimated. Here at last was Anthropology in action, uniting with traditional scholarship to go over anew ground of which the surface only had so far been examined. Frazer ploughed it over again and his furrows were deep. New soil was turned up and fresh seed was sown.

Eight years after the publication of the *Golden Bough*, appeared another work by Frazer which showed him in a different light. His appointment as a Fellow of Trinity College, Cambridge had enabled him to embark upon another project long contemplated. He went to Greece and spent several years travelling

throughout the length and breadth of those regions which are described in that admirable and invaluable guide book written in the second century A.D. by the Greek Pausanias. The ten detailed sections which Pausanias compiled have always been for classical scholars one of the most valuable illuminations for their work. Pausanias wrote what was, in effect, a guide book to Greece mainly for the use of educated Roman visitors and tourists and for such Greeks as took a genuine interest in the antiquities of their country. He was a true antiquarian and a sound and reliable guide. Intermixed with his descriptions of shrines and temples and cities is much folk-lore and record of strange customs and surviving superstitions. But also the importance of his work lies in the exact information he gives us about ancient works of art. Pausanias, in brief, gives us a picture of Greece before its glory had gone, a picture of a world which had not materially changed much from what it had been in the fifth century B.C.

Frazer conceived the plan of following Pausanias in his wanderings, and examining on the spot every tittle of information which the ancient author gave. In effect, his great edition of *Pausanias*, a translation in one volume with four large volumes of notes, is the most elaborate guide book for the modern traveller that has ever been written for any land. You can visit with Pausanias the places he saw and described, and then learn from Frazer what excavation has revealed to check the words of the old Greek guide. Sites like Delphi and Olympia spring to life from their ruins, under the guidance of two such learned men. Plans, maps and illustrations are freely added and every particle of archaeological research that can be gleaned is given to the reader. Without Frazer's edition of *Pausanias* few scholars, however proficient in the Classics, would be able to understand Greece. Even the smallest towns and sanctuaries are dealt with.

And on the other side Frazer discusses the problems of religion, magic and survivals that constantly arise, with the skill and erudition which mark the *Golden Bough*. Frazer is an Encyclopaedist in the best French sense of that term. He never gives too much information and yet never too little. He weighs evidence and states a case with complete impartiality. His *Pausanias* can rank as one of the most learned editions of any ancient author ever published.

Frazer thus combined all the virtues and merits of the pure scholar with the advantages of a scientist versed in the correct interpretation of anthropological material that concerned custom, ritual, religion and survivals. The principle of evolution, as applied to human institutions, had at last invaded the precinct of classical scholarship. There was no further need for the two ever to conflict again. The travelling scholar had also become the travelling scientist.

The excavations which had made it possible for Frazer so fully to illustrate his annotations to Pausanias had taken place mostly between the years 1875 and 1890. There was great activity in this decade. The Greeks had at last excavated, and not merely cleared, the Acropolis at Athens. Their excavations had resulted in the discovery of a whole new series of works of art of early Greece which made it possible for the art-historians at last to draw an outline of the origins of Greek art and of that great period, the Archaic, as it was called, which had flourished in the sixth century B.C. The German excavations at Olympia had revealed, not only similar evidence of the early phases of Greek art, but also that in the fifth century itself, hitherto mainly documented by the Elgin marbles, there had existed in the Peloponnese an astonishingly virile school of art represented by the sculptures of the Temple of Zeus at Olympia, which are by most experts to-day considered to be one of the chief glories of the art of sculpture in Greece.

Tremendous activity was exhibited by the various Institutes of Archaeology from foreign countries who all had headquarters in Athens, and who were given permission by the Greek Government, always alive to the interests of learning, to excavate on selected sites in Greece.

German, Austrian, British, and later American and Italian Institutes or Schools, filled with students, were now examining the innumerable sites of the Greek mainland and islands. For the most part they confined themselves to the remains of the Classical Age. Schliemann's astonishing discoveries were housed in the National Museum at Athens; they seem to have served mainly to arouse curiosity, but not to stimulate further excavation on Greek sites of the Bronze Age. Still earlier phases of Greek prehistory were completely unidentified. The tentative researches of George Finlay in the early years of the Greek Republic had not borne fruit.

Nor was the standard of excavation high. Classical archaeologists now realise that much damage was done, that the old faults of excavators were in evidence: that sites had been hurriedly cleared and hastily examined: that much had been thrown away because 'it was not artistic', and priceless evidence destroyed. All the largest centres were examined first and their excavation in some cases involved so great an enterprise that many are still being dug. Delphi and Delos have never really left the excavators' hands and Olympia is now being re-dug.

Collaboration with the scientist was neither sought nor considered necessary. Stratification was hardly recorded and seldom if ever made a part of an official publication. How much was thus lost to knowledge it is impossible to say. Such stratifications as were illustrated were of the most summary nature. The aid of botanists, zoologists and geologists was practically never asked for or offered. Such excavations

were considered to be a matter entirely for ancient historians, art-historians and literary experts. None of the lessons of Schliemann had yet been learned, nor his technique adopted. The re-digging of the spoil-heaps of these earlier ventures is now one of the minor profitable enterprises of archaeologists who have time and money to spare!

It occurred to no one that the analysis of the animal bones found on a site might provide valuable evidence as to the domestic habits of its ancient inhabitants; or that the plants they grew and ate were of equal importance. Soil-analysis and bone-analysis are, it is true, very modern post-war additions to the equipment of an archaeologist. But not even their rudiments were employed at this time. Schliemann, it is true, had never thought of these more subtle aids to knowledge, but he did at least lay down the fixed rule that nothing should be thrown away without record and full examination. If Troy has been re-dug in recent years by an American expedition, it is not because of Schliemann's defects, but because, since his day, so much knowledge has accumulated that a revised examination of his strata is necessary. It is to his enormous credit that the excavators recently working at Troy have made only the most minor changes in his system of stratification and his morphology of pottery. If the Trojan chronology has been revised, it is the relative and not the absolute chronology that has been altered. His sequence of dates and strata was correct, his *actual* datings subject to revision. But this can happen at any site. Schliemann's original conclusions about the relation of Troy to the works of Homer were wrong, but they were rectified to a large extent before he finished, and finally straightened out by his assistant Doerpfeld, who continued his excavations, after his death.

The recent American excavations of 1933–8 proved that the bulk of Schliemann's methods were right and

that the main outlines of the culture represented by the site of Hissarlik had been clearly drawn by him and those who followed his methods there.

At Mycenae the Greeks continued excavations after he had gone and much new evidence was forthcoming. The fortress was again excavated in 1920–2 by British archaeologists, but not very much additional light was thrown on the site and here, too, Schliemann's conclusions were seen to be mainly right, except in so far as he had attempted to equate them with the literary evidence.

One of the curses of excavation is that so often an archaeologist is asked to set out with the declared intention of proving that some literary record, such as Homer, or the Bible, can be verified or proved true by the labours of excavation. Such an aim is not and never should be that of a scientific excavator. He selects his site, digs it and records what he finds and attempts to establish a history of the site on the evidence solely of what is found. Such conclusions may or may not accord with recorded history. If they do not, the more unfortunate for the history. Yet titles like *The Bible proved True by the Spade* are a common feature of publishers' lists even to-day, and in 1893 a work, otherwise learned, was produced with the title *Kypros, the Bible and Homer*. It was concerned with the archaeology of Cyprus which is, in fact, mentioned only twice in Homer, and is apparently barely known to that poet, while its connection with the Bible is so slender as to be hardly worth discussing. But such titles indicate how strong still is the hold of literary tradition over pure Archaeology.

Frazer had a wealth of archaeological evidence to draw from, but much of it was obtained by doubtful methods and of uncertain value, while masses of evidence had perished completely through bad excavational technique.

Since then in Greece the methods have vastly

improved, but still the representatives of some countries are not up to date in their methods, nor careful in their publication. The cleavage between the literary archaeologist and the scientific archaeologist is still perceptible.

Schliemann died in 1890. His work had had enormous repercussions. Once the foolish quarrel between him and the German scholars had died down it was at last possible to see the implications of what he had found. Schliemann, towards the end of his life, began to achieve that renown which he had always sought. He was fortunate in his collaborators. At Troy he had worked in lonely isolation, assisted only by his wife, who had a flair for practical archaeology that was quite remarkable. But by the time of the excavations at Mycenae he gained adherents. Virchow, the great German scientist, the director of the Völkerskunde Museum, not only approved and helped, but gave Schliemann the full benefit of his advice. He also gave him the hospitality of his museum, and there to-day are exhibited the main results of the excavations at Troy, the Treasure of Priam, the superb jade and lapis-lazuli battleaxes, and the bulk of the pottery. Virchow was rewarded for his friendship. But it was to Doerpfeld that Schliemann owed the improvement in his technique of excavation that was evident in his later excavations, and it was to Doerpfeld that the credit must be given for continuing the excavations at Troy after Schliemann's death, and showing the full sequence of the nine settlements within that citadel.

Schliemann founded no school of archaeological method: he collected round him no group of disciples. But by his enthusiasm and by the clarity of his publications he injected a stimulus into a world that was beginning to think of excavation as merely the clearing of ruins and the illustrating of recorded history. Schliemann fired the imagination of all who read his books. Troy, Tiryns, Mycenae, Orchomenos and

even Ithaka—sacred name to all scholars—all alike were illuminated by his writing. Schliemann had no style but that of simple exposition: his statements and descriptions are often naïve and simple, but they were all backed by a painstaking learning and written with the ink of absolute sincerity.

Troy he had shown to be a splendid if barbarous fortress, sacked, rebuilt and sacked again. Mycenae was a capital city of immense wealth and great strength. Tiryns, even earlier than Mycenae, was a fortress subsidiary to Mycenae, and also a palace. Earlier exploration in remoter places had produced objects which now began to be re-examined. It was found that the pottery and minor works of art found at Mycenae and Tiryns bore some relationship with similar objects found in places such as Rhodes, as early as 1866, at the island of Thera in 1862 and even from Egypt and Cyprus.

Archaeologists began to study Schliemann's material comparatively in the years immediately following his death. It was even noted that the Sixth settlement at Troy produced pottery identical in type with that of Mycenae. But, at the moment, no further step could be taken. The similarities were noted and observed but not fully understood. At least it was now possible to dispose immediately of such heresies as that Mycenae represented a citadel of Gothic or Byzantine date. It clearly belonged to a very remote antiquity in the Bronze Age.

Ceramic experts observed that the pottery from Mycenae denoted a long tradition of design, and that the Mycenaean examples were decadent rather than primitive. Immediately after Schliemann's death, in 1891, Carl Schuchardt produced a complete and critical summary of his excavations, and an English edition followed the next year. In 1890 Flinders Petrie in Egypt had noted the presence of alien pottery which proved to be identical with Mycenaean. It

could be dated in Egypt to the eighteenth Dynasty. Egyptian parallels were noted with Mycenaean art, and instances such as the splendid carved ceiling of a tomb at Orchomenos of Mycenaean type were seen to be based on an Egyptian repertory.

Synchronisms were accumulating and the learned world was rapidly accustoming itself to the discovery that Mycenae, as a culture, held an international position. Here was a magnificent civilisation of the Bronze Age which, as the literary scholars began to realise, illustrated the background of the Homeric poems.

But archaeologists as they excavate must always remember that no excavation is complete until the excavator has reached the very bottom, and touched natural soil or rock. So those who slowly pieced together the curious and diverse fragments of evidence that were accumulating began to realise that they were dealing with the last chapter of a long story, and not with any early phase. Mycenae and the sites that resembled it were the representatives of a culture which had a vaster history behind it. But no such traces of any earlier phase were to be found even at the lowest levels of Mycenae or Tiryns or anywhere else.

What worried the scholars was that Troy, Mycenae and Tiryns all alike seemed to have been inhabited by a wholly illiterate people. No traces of writing had been found at any Mycenaean site. But as early as 1883 a German scholar, A. Milchöfer, had noted that in Crete were to be found peculiar types of sealstone carved intaglio, bearing symbols which had the appearance of being a primitive mode of writing. In 1894 Sir Arthur Evans elaborated this theme, and three years later published an analysis of certain of such stones as seemed to be actually inscribed with a linear instead of a pictorial mode of writing. In 1889 a Greek excavator at Mycenae discovered two short linear inscriptions on vases and in 1899 in Cyprus inscribed clay objects were found at a Mycenaean site.

It began to be evident that the Mycenaean world was indeed literate, and it was equally evident that Crete somehow came into the story. Schliemann himself, following as he did the geography of legend, had remembered that Cnossos in Crete was the home of the Minotaur, of King Minos and of the Labyrinth. As early as 1878 a Greek, named appropriately enough, Minos Kalokairinos, had found at Kephala, the site of Cnossos, pottery which seemed even finer than that found in the Shaft Graves of Mycenae. An American journalist named Stillman actually obtained a permit to excavate here in 1880, inspired by Schliemann's discoveries. But he did not take up his option. In 1883 Schliemann himself applied for a permit to excavate there, but never found time for the project. But Schliemann knew that many secrets were hidden there, and that the clue to his own main discoveries was possibly to be unearthed at Cnossos. Nothing however was done for some years, mainly because of the political conditions of the time. Crete was verging on revolution and straining to get free from the Turkish yoke. On March 20th, 1898, the island at last declared its independence. The next year in the autumn, Sir Arthur Evans commenced his excavations of Kephala, the site of Cnossos, excavations which have continued annually down to to-day.

Arthur Evans was the son of John Evans, who, as we have seen was one of the protagonists in the story of the Moulin-Quignon skull, and the discoveries in the Abbéville pits. Sir John had transmitted to his son the passion for Archaeology which was his own. He was typical of the very learned and very painstaking antiquary of the early nineteenth century. Sir John had the advantages of wealth, which gave him the necessary leisure for his studies. He was the nineteenth-century representative of the type of British antiquary earlier illustrated by the work of men like Camden and Stukeley. Unlike Stukeley, he had no

violent literary or religious prepossessions. He was wholly absorbed in the pursuit of the then active and popular study of Palaeolithic man. Indeed, to Sir John Evans must be attributed the first serious attempt to classify and chronologise the Palaeolithic and Neolithic implements of western Europe. Between 1858 and 1872 he worked assiduously at the subject, and accumulated not only a private collection of stone and bronze implements, but compiled the most accurate and illuminating notes on the subject as a whole. He became one of the leading European masters on this subject, dealt with mainly from the point of view of the objects found. For, so far, little or no systematic excavation, at least on Neolithic and Bronze Age sites in western Europe, had taken place. Sir John was compelled to take as his data mainly the chance finds on the surface in the case of the Neolithic period, and the accumulated discoveries of workmen in gravel pits for the Palaeolithic. As early as the eighteenth and early years of the nineteenth century various antiquaries had rather ruthlessly dug into countless barrows and burial mounds throughout the length and breadth of Britain, but few had been explored scientifically and much evidence was irretrievably lost. Better work of this kind was done in the 70's by Canon Greenwell. Habitation sites of either the Neolithic or the Bronze Age had hardly been examined at all, and the Iron Age was still a period hardly understood.

John Evans attacked the problem from the point of view of the systematic and skilled collector. He realised the importance of a comparative study of objects as such. His learning was immense and his enthusiasm unlimited. In 1872 he had published his *Ancient Stone Implements of Great Britain*, which still remains a standard work. He followed it soon after with a similar work on the bronze implements of Great Britain. Both books are a mine of carefully collected

information, wise comment and clear exposition. They set a standard which has never subsequently been improved upon.

Sir John had wider interests still. He took up another subject which had till then hardly been understood at all. He examined the large numbers of British coins of pre-Roman date which were found from time to time in the soil. Here was a subject which neither historian nor archaeologist had hitherto been able to illuminate. All that was known of the ancient Britons before the Roman invasions was to be found in the pages of Caesar. A few occasional mentions in Greek authors, such as Strabo and Diodorus, suggested that British culture had been considerable, and that the Romans were conquering a by no means barbarous land. But all that the archaeologist had to show in illustration was an occasional coin on which the name of some pre-Roman king or princelet was inscribed. Evans began by collecting every known instance of a British coin. In due course he published a book on British Coinage *The Coins of the Ancient Britons*, in 1864, which remains the standard and only work. In it he identified not only a score of named kings and princes with their sometimes highly artistic coinage in gold and silver, but he also classified the much more numerous uninscribed coins of the Britons, and established the areas where they circulated and the main centres from which they were issued. Hundreds of examples of this coinage are discussed and the whole work is, in effect, a numismatic history of Britain in the two centuries that preceded the Christian era. Now to-day we have more archaeological information about the Celts who inhabited Britain during the first three centuries before Christ, and Evans's careful collection of information is an invaluable addition to our knowledge. In a word, Evans was a scholar of high distinction, a scrupulous and painstaking antiquary, and a sound judge of

evidence, as his handling of the Moulin-Quignon episode shows.

On the occasion of one of his visits to Boucher de Perthes at Abbéville in 1859, he took with him his young son, Arthur, at this time barely eight years old. Arthur had the good fortune to find in the gravel an actual specimen of a Palaeolithic implement. He can be said to have begun his career as an archaeologist at this date and on this occasion!

The discipline and training which Sir John must have given to his son served him well. Arthur Evans's early studies as an archaeologist were mainly in Classical Archaeology. One of his finest publications was his very close and scholarly study of the great silver coins of Syracuse. He had acquired his father's numismatic interests and rapidly accumulated a superb collection of Greek coins. His study on the Syracusan coinage was published in 1892.

Other researches into Greek Archaeology ensued, mainly what might be called 'study work'. But he also had a passion for travel. In 1873 and 1894 he went to Finland and Russian Lappland, and from 1875 onwards he frequented the Balkans. The Balkans have a lure of their own, and once you have been there you invariably return. The Balkans became Evans's playing ground. His archaeological interests exhibited themselves in various studies in Greek and Roman Archaeology. But one of his earliest works was a book of travel entitled *Through Bosnia and Herzegovina on Foot*, which he published in 1876. It is a most learned book of travel. No modern custom or ancient relic escapes his eye. And he passed through a land in which insurrection against Turkish rule was a common event. His book is as exciting as it is interesting.

Later he became involved in the political disturbances in Dalmatia in which Croat insurrections against the Austrian Government were the order of the

day. In 1882 Evans was imprisoned by the Austrian Government on a charge of complicity in these Dalmatian risings. The name of Evans is still respected in towns like Ragusa, and his memory is still green, now that Croatia has obtained its freedom from the Austrian yoke. Evans, after this treatment by the Austrians, resolutely refused ever again to enter Austrian territory and returned to Dalmatia only after its independence was gained in the Great War.

In 1884 Evans was appointed Keeper of the Ashmolean Museum at Oxford and spent the next ten years methodically building up the prehistoric and classical collections of that museum.

His first excavations at Cnossos began, as we have seen, in 1899. Evans first acquired the site as his property and then began to explore it. Inheriting his father's wealth, he was able to work untroubled by financial vexations.

As his work progressed it became evident that the site could not be compared with any known classical site in Greece. At Mycenae the great city walls, carved of imperishable limestone, stood fifty feet high in places, and the mighty Gateway of the Lionesses had never even been below ground. It had stood for every Greek to see from the day it was first built.

At Cnossos the remains of the great Minoan palace lay beneath only a few feet of soil and were little encumbered by any later Roman or mediaeval remains. But as soon as the massive blocks of the palace walls came to light it was found that they were composed not of imperishable limestone but of gypsum, a rock which consists of large crystals of that mineral compound more commonly known as Epsom Salts. As such, the gypsum crystalline blocks were particularly liable to destruction by water. They were, in fact soluble. The Minoans had undoubtedly coated them with some preservative surface covering.

But now, exposed to the air after long submergence in soil, they were an immediate prey for the elements. The problem at once arose how to preserve them from decay. For, if left as they were, they would not only break up in damp weather but positively dissolve. I have myself seen Minoan blocks, which have not been dealt with, bend and warp like wooden beams and weather away to an almost indistinguishable surface of rugged crystals. Clearly any ruins excavated would have to be allowed either to vanish in the course of time and nature, or else to be preserved. Evans firmly decided on the latter course and devoted a large part of his personal fortune to the reconstruction and restoration of every building he uncovered. The result is that to-day Cnossos and its palace stand revealed to the visitor as an almost exact reproduction of what they looked like to a Minoan some three and a half thousand years ago. Criticisms have been levelled at this wholesale restoration of such a venerable site. It has been thought that too much has been done. But the answer is that either total restoration or none at all must be done. There could be no half measures. Evans restored the palace as completely as possible. You can now ascend its long staircases and its winding corridors: you can sit in its royal Throne Room and rest in its shady halls. Frescoes on the walls repeat the designs of the originals, and the originals can be seen in the museum at Candia. Strong hidden steel girders preserve the building from the damage of earthquakes, those scourges of Crete. The interior of the palace is a blaze of colour on walls and ceilings, faithfully repeating the original decoration of that age of taste and invention. Cnossos, in short, is the only site in all Greece where you can reconstruct in the imagination the complete life of its ancient existence.

Evans recovered for the world a complete civilisation. Until he excavated no one had had even a

scrap of authentic knowledge about the Minoan world. Stray finds in Crete, vague legends that survived in ancient authors of Minos and Theseus, and the might of the Minoan world, had been relegated to the realm of Mythology. Even the ancient Greeks themselves did not believe that any civilisation of this stature had preceded them. Archaeology has given to the world in full detail the story of a forgotten and vanished island nation. Here was one of its greatest achievements, one of its first formidable additions to knowledge.

Schliemann had dragged from the earth the story of a Homeric Age, and revealed the might and grandeur of Mycenae, Troy and Tiryns. Evans gave to the world a further two thousand years of the same story. Where Crete virtually ended Mycenae began. As always in archaeological discovery, it is the later periods that are first explored, and then the earlier are discovered.

But it was an ancient world without history. Yet the scholarly prejudices that had hampered Schliemann's work and retarded its acceptance by the learned did not operate in the case of the new Minoan discoveries. For Evans was himself of the band of scholars. He was nearly fifty years of age when he began the excavation of Cnossos, and his previous life, apart from his adventurous travelling, had been devoted to precisely the type of scholarly learning of which traditional scholarship most highly approved. It was impossible to launch against Evans the charges which had been lodged against Schliemann. Evans was an experienced and highly-trained archaeologist who had spent most of his fifty years of life not only in an atmosphere of sound and reliable research but had himself already made contributions to knowledge in purely scholarly spheres which were universally accepted as completely competent and absolutely reliable. Before ever he began to excavate at Cnossos

Evans was an accepted authority on Palaeolithic man, on the Hallstatt period, on Greek coinage and on various branches of Greek history, art and religion. No one could have been more highly equipped nor better trained. He had had an orthodox education at Oxford and had achieved distinction in all his work there. He was an accredited Keeper of a most important museum, and he was a private collector of works of art which were all of the highest quality. The gradual revelation of the details of Minoan civilisation which resulted from his excavations caused astonishment, but was received with respect. The often-repeated charge of the scholars against the archaeologists that all they looked for were the 'pots and pans' of an ancient world could hardly be substantiated when at Cnossos the world was presented with schools of painting, treasures of ivory and gold, architecture of a type hitherto unknown, and finally with the discovery that the Minoans were wholly literate and had a mode of writing. This writing was not merely a scratching on clay tablets, but also, as one or two examples proved, designed to be used with actual pen and ink, unlike the Babylonian and general Oriental cuneiform, which was never so used. Here were Minoans, as literate as any scholars, and accustomed to the same methods of writing, with a script invented by themselves for their own use and the possibility, therefore, that a whole body of Minoan literature had once existed. The war was carried right into the enemy's camp.

The astonishing thing was to realise how so vast and complex a culture had passed into oblivion in so short a time, so swiftly that even the Greeks themselves, barely five hundred years later, were almost unaware of its existence. To the Greek historians the Minoan world was hardly more than a legend, and none of its characteristics were known at all. What survived of the Minoans and their way of life was not recognised

as such by the Greeks. The Mycenaean culture, after all, was represented by the Homeric poems which fully documented it. But in discovering the civilisation of ancient Crete, with its palaces, its art and its high standards of peaceable life, Evans had added not a new chapter, but a whole series of volumes to Greek prehistory. Nor was the prehistory prehistoric in the usual sense of that term. Prehistoric had come to connote a primitive and barely civilised mode of life. But Cretans of the sixteenth century B.C. were infinitely more civilised than any Classical Greeks of the ninth and eighth centuries B.C. Those Greeks were then totally illiterate, and had only the rudiments of architecture. They were only just emerging from a barbarous state.

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The first problem which had concerned the excavators of mainland Greece, both Schliemann and those who followed him, was now in process of being solved. Here at last was a culture which joined at its end to the beginnings of the culture represented by Mycenae. The great Shaft Graves which had formed the principal sensation of Schliemann's excavations on the Mycenaean acropolis contained a vast wealth of artistic objects and of remarkable pottery vases. The larger and more splendid of the vases were seen to be identical with those which belonged to the Palace of Cnossos at its most elaborate and luxurious. Other works of art in the tombs were recognised as identical with Cretan works of art in style and period. Clearly the princes of Mycenae had been in some sort of intimate relation with Crete. The objects found in the tombs of Mycenae could be dated by comparison with the objects in Crete, whose date was independently arrived at. Apparently the city of Cnossos had declined in power, and its palace been sacked at a time when the power of Mycenae waxed. The Shaft Graves indicated a close trade or political connection

with Crete at a time when Mycenae was as yet not as great as she became later. One thing was quite certain—that Crete was the author of the outlines of Mycenaean culture. And here were the earlier chapters of the story that ended with the destruction of Mycenae about 1200 B.C. For the subsequent excavations and researches at Mycenae had shown that the city came to an abrupt end about that date. Indeed, as research advanced, it became clear that the whole of the Bronze Age civilisation of Greece was wiped out by violence at that time and replaced by a barbarous invasion from the north. Here at last historians could identify the arrival of the true Hellenes and the first recorded event of Greek history, the Dorian Invasion. And so at last the whole picture was drawn.

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As Evans continued his excavations methodically and carefully on the site of the great palace at Cnossos, and as he went deeper into the earth, he discovered the earlier phases of Minoan culture. One thing was certain; the great palace had been preceded by an earlier and simpler palace, and, before that was built, Cnossos itself was a settlement of great size and importance. At the height of its glory Cnossos probably held no less than 100,000 people. Here was no minor culture, but a full-blown civilisation, so complex and so developed that it could rank in some respects even higher in quality than the civilisation of Babylonia and Egypt. For the Minoan civilisation was one of peace. None of Evans's discoveries suggested that the Cretans were warlike or that they had ever faced war except at the end. The whole population of Crete was homogeneous. They apparently did not war among themselves and their cities had no defensive walls, unlike Mycenae and Tiryns. They relied on their maritime isolation to defend them from external attack. In the end this practical pacifism had

failed them, and about 1400 B.C. the palace was destroyed and burned. But who the aggressors were the excavators could not tell. Those who attack cities and depart do not usually leave records of their presence except in the shape of destruction and violence.

Year by year Evans methodically continued his excavations. Near the site he built himself a small villa, the Villa Ariadne, where he lived. He has since given this villa to the British School at Athens to serve as a permanent residence for all who excavate and work at Cnossos.

As the reports on the excavations appeared it soon became obvious that Crete was the most important place in the eastern Mediterranean and Aegean in the Greek Bronze Age: that it was as civilised as Troy was barbarous, and that there was constant intercourse between Minoans and Egyptians, as well as some connection with Syria and Asia Minor. Crete, in a word, was one of the Great Powers of the Mediterranean. At once other excavators flocked to the island. Italians began most fruitful excavations at Phaestos, Americans at Gournia, Pseira and other sites. Later French archaeologists arrived. The island was extensively surveyed and its Minoan sites searched for. Greek archaeologists joined in and did admirable work. Slowly a great museum at Candia was organised and all the Minoan discoveries placed there. There is no other museum in the world in which Minoan remains can be exhaustively studied except at Candia. Fortunately Crete has retained almost all her own antiquities.

Evans now set out to solve, if possible, the problem of the Minoan writing. He had accumulated a large number of inscribed clay tablets and some other inscriptions on stone or on vases. In 1909 he published a first volume of a massive work entitled *Scripta Minoa* which was solely devoted to the study and

examination of all forms of writing found in Crete, beginning with the simple pictorial signs, and ending with the more schematic and linear forms derived from them. Every known instance of the Minoan writing was here published and discussed. The second volume he reserved for a possible translation and interpretation of the texts published in the first. But the second volume has never been published, for he has, as yet, found no clue either to the transliteration or to the translation of the tablets and other inscriptions. No bilingual text has been found, and no sample of Minoan writing in other lands accompanied with any parallel text in a known tongue. Since we have not the slightest idea even of the form and shape of the Minoan language and none as to its type and nature, any attempt at present to decipher these tablets is doomed to failure. And so Volume II of *Scripta Minoa* awaits publication still. The records of these strange people so clearly written, so easy to see, defy interpretation, and what they wrote remains their secret. Almost every other script and language of the Near East has at length yielded some of its secrets to the patient decipherer. Cuneiform has given us the languages of Sumer, Hittite lands, Babylonian and a host of minor languages, because for cuneiform there were bilingual texts available. Egyptian hieroglyphics, as we have seen, were opened to us by a similar key. Minoan remains for us a closed book. One day, no doubt the key will be discovered and the language read.

What impressed students of Minoan culture most was the freedom and naturalism of its art. It had qualities in common with the best art of China and a skill that indicated a race endowed with more than normal visual memory. It was an art totally different from that of Classical Greece and yet in its own way almost as much to be admired.

It was an art of simple people who utilised the things

around them for their inspiration. It was an art of a maritime people also. Fish and sea-creatures, maritime plants and shells all played their part in design. Animal life of all kinds appealed to the Cretan artists and humans only in a more formal way. Technically there was nothing that a Cretan artist could not do. He could carve stone, cast in metal, make jewellery of gold, paint in true fresco on his walls, carve ivory and make statuettes in faience. The Cretan architect could build roads, make palaces with three or more storeys, design complete drainage systems and pave courtyards. Temples there were none, a peculiarity which stamps Crete as totally different from any of the other ancient civilisations of the Near and Middle East. Cretan religion was intimately bound up with Nature and certain aspects of nature worship. But as a religion, as Evans has pointed out, it contained no trace of the indecent or the obscene. In this again it differed from the main Oriental religions.

The other excavations in the island revealed small country towns, inhabited by communities of fishermen and agriculturists. Other palaces were found also, and it was evident that Cnossos alone was not the only large centre. Possibly Crete was controlled by a federation of princes. Minos was the greatest.

Crete never extended her influence far afield. Excavations had been made at the island of Melos, within sight of Crete, some sixty miles to the north. It was excavated from 1896 onwards and the results of the excavations published in 1904. Here was a settlement which appeared to be a small Minoan colony. Another had been identified on Thera, the modern Santorin, another of the Cyclades. Here many years earlier, as far back as 1862, the commercial exploitation of the pumice stone and tufa dust of this volcanic island had revealed the existence of a prehistoric settlement deeply buried under a heavy deposit of lava and ash from an eruption. At the time the pottery

and other objects found were unidentifiable. Now in the light of the Cretan excavations they were seen to be of Minoan origin and types.

But elsewhere, except at Mycenae, Minoan influences were not to be found. Connections with Egypt were illustrated by finds of Minoan pottery and at a later date of Mycenaean. But Crete as a power did not seem to have sent out any definite and specific colonies except to the two islands mentioned above.

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But now the great synthesis of knowledge had been achieved. Crete and Mycenae were seen to be one continuous story, though the cause of the decline of Cretan power and the rise of Mycenaean was still obscure. Evans continued his excavations without a break except during the war of 1914–18. And he still continues them, but on a smaller scale. After 1918 he began his final publication of his work on the site. Now all the restoration that is possible has been done at Cnossos and the last volume of Evans's vast work, entitled the *Palace of Minos* has appeared. Even as the last volume was being prepared there was still one surprise in reserve. A chance discovery of a superb gold ring in a vineyard not far from the palace led to further research, and a wholly unexpected tomb of great complexity was discovered. It was partly a tomb and partly a shrine, and may well have been a tomb of a King of Cnossos itself. No other Minoan tomb of the type has ever been discovered, and none as elaborate or so well built. Appropriately Evans concluded his publication of the site with the description of the tomb of one of its kings. The tomb was empty and had been looted, but as a building it was almost intact.

The discovery is best given in Evans's own words:[1]

'South of the Palace, about a kilometre from the

[1] *Palace of Minos*, Vol. IV (2), p. 947 ff.

> "Caravanserai" on the line of the Great South Road, where the hills on the West side draw nearer the course of the old Kairatos stream, there opens, just above the modern highway, a small rock-girt glen. Here, quite recently, a boy, bringing up his father's midday meal, noticed a bright object on the tilled earth beside a vine, which turned out to be a massive gold signet-ring. Hearing of the find, it was possible for me, somewhat later, not only to examine the object . . . but to obtain an exact replica and enlarged drawings of the ring and its intaglio design. The ring was of solid gold, weighing c.27 grammes.
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> ('The ring was purchased from the finder's father by a local priest, unfortunately of unbalanced mind, and no exact account of its whereabouts is at present obtainable. His favourite answer to enquirers was that he had given it to his wife, who had buried it and forgotten where!)
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> 'The glen in which the gold signet-ring had been picked up was overlooked in succession by two rocky headlands, the detritus from these covering the lower parts of their limestone steeps. As in similar cases, this circumstance rendered the banks thus formed a promising hunting ground for the entrance passages of rock-cut tombs. Conditions so favourable superadded to the discovery of what could not be less than a royal relic decided me to organise a massed attack on the position for the ensuing season of 1931.'

The success of this deliberately thought-out campaign is now evident and the Royal Tomb was found. The complex structures which form the tomb are now one of the additional sites of Cnossos. As Evans says, 'To-day, as rediscovered, thanks to a child's chance find, they still preserve—after a lapse of some thirty-three centuries—to a quite extraordinary degree the essential features of their original arrangement.'

The description of the great tomb forms the concluding chapter of Evans's final publication of his life's work—the excavation of the great palace of the Cretan kings. Never was an excavator so blessed by fortune.

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Such in brief is the astonishing story of Evans's work at Cnossos. No other archaeologist has ever been granted the opportunity of revealing in its entirety a civilisation the very existence of which was hardly suspected before the excavations began. It was a signal triumph for the study of Archaeology, and for the science of excavation. All that was found was found by the work of the pick and shovel. No literary records led anyone to suspect the existence of so widespread a culture. Homer had led Schliemann to Troy and to Mycenae. Instinct led him to Cnossos. But more than instinct persuaded Evans to excavate. As a trained archaeologist he had detected certain clues, he had sensed certain qualities in Mycenaean art and life which predicated an earlier culture. Occasional discoveries and chance finds suggested to him that Crete was the place where the main outstanding problems would be solved. Cnossos was the reputed capital of legendary Minoan power. And so to Cnossos and nowhere else Evans went. No archaeological venture has been so richly rewarded, no enterprise so full of surprises or so generous in results.

CHAPTER VI

MODERN ADVANCES

Flinders Petrie and Egyptology. His contributions to method, and to the study of Archaeology. The growth of human Palaeontology. Skeletal proof of the theory of Fossil Man. Benjamin Harrison and his theory of Eoliths. Archaeology concentrates on the history of Civilisation, now that human prehistory of the remotest periods has been adequately studied. The unknown culture of the Hittites. Recent developments in archaeological research. Sumerians. Prehistoric India. The growth of Anthropology and Archaeology in America. The origin of the American native. Theories of Fossil Man in America. The 'Archaic' culture of Central America. The work of Alfred Maudsley. Modern methods in archaeological research.

THE same urgent need for exact observation and recording which had inspired Schliemann was felt by others. Search for the remains of the past in what might be called the 'grand manner' of an Elgin or a Layard was becoming less popular. Intelligent archaeological workers began to realise that the quantity of small and unimportant objects disregarded, lost or damaged in the course of these grandiose expeditions was bringing the study of antiquity into disrepute. The meticulous standards set early in the nineteenth century by the cave-diggers and the explorers of gravel pits, and the rigid accuracy of the geologists suggested that Archaeology should look to its methods.

Schliemann was perhaps the first to realise this. But, while he was working, another archaeologist was, in his own way, coming to the same conclusions and starting to work out for his own use a more methodical system on which excavators and archaeologists in

general could proceed. In 1853 was born Flinders Petrie, the son of William Petrie and Anne Flinders. His parents met in the house of a remarkable man, Piazzi Smyth, who was profoundly interested in Egypt and its antiquities.

Petrie describes his own chequered career at its earliest stage in the following words:

> 'My parentage being thus determined, my first risk was being supposed still-born, and it was to an experienced old nurse that I owe my existence. Next, another nurse dropped me, and so punched in my skull, slightly marked on the temple to this day. The old past seemed all around me as I drank in the family stories. My mother had known her grandmother well, who was born in 1745 and knew Queen Anne's dressmaker. The old grandmother was thus a single life linking those who had known 1692 and 1892 when my mother died. . . . My great aunt, who brought me up, talked of the college days of her father, about 1770, and was full of the stirring events of her youth, of the adored Nelson and the watch, night by night, for the beacons which might signal Napoleon's invasion.'

When Petrie was eight years old he heard from another little boy of the unearthing of a Roman villa in the Isle of Wight. He was horrified to hear how the contents were rudely shovelled out and he protested that the earth covering the villa should have been carefully pared away inch by inch to see what was in it and how it lay.

In 1866 young Petrie found on a bookstall a copy of the book entitled *Our Inheritance in the Great Pyramid* by Piazzi Smyth. Petrie's father, who had known Smyth so well, was strongly attracted by the strange and mystical views set forth in this wholly unscientific and remarkable work. For Smyth, like another Stukeley, was determined to detect religious and prophetical meanings in the Pyramids, and to see in their measurements and dimensions indications of the past and

future. Petrie's father urged the boy to take an interest in Egypt and in due course it fell to the lot of the son to ascertain the true facts about the Pyramids some fifteen years later and to find, as he puts it, 'the ugly little fact which killed the beautiful theory'. But Petrie's father, stirred by Smyth's theories, strongly urged his son to go out and make a survey of the Pyramids.

At the age of twenty-two Petrie began to train himself in archaeological method by surveying earthworks and stone circles in Britain. In a few years he had made over a hundred and fifty plans. He had spent his boyhood roaming round the British Museum and had in his spare time made his own humble collection of coins. Petrie's father intended himself to go to Egypt to examine and survey the Pyramids and to take his son with him. In 1872 he and his father together made a survey of Stonehenge as a preliminary canter for the larger enterprise.

But his father did not, in the end, accompany him, and at last in 1880 he set off alone for Egypt. When he arrived there he had complete freedom and permission to carry out his measurements, but not to excavate. Nor was excavation his intention.

He carried out his close and accurate survey with skill and energy, and found himself also investigating that most interesting of all problems that concern the Pyramids—their method of construction. The book which he published in 1883 *The Pyramids and Temple of Gizeh*, was the first archaeological work in any land to concern itself with the technical processes by which ancient buildings are constructed. As such it has never been superseded.

In the course of his investigations he was horrified by the utter carelessness and ruthlessness of the authorities and inhabitants of Egypt in their treatment of their monuments. While he was at Gizeh workmen were sent to remove broken stones from the

pyramid to use for road-making. Near the Sphinx the Director of Antiquities, Mariette, had made excavations and had blasted with dynamite the fallen parts of a granite temple instead of removing them carefully and attempting to restore them. 'Nothing' he noted, 'was done with any uniform plan: work is begun and left unfinished: no regard is paid to future requirements of exploration and no civilised or labour-saving appliances are used. It is sickening to see the rate at which everything is being destroyed, and the little regard paid to preservation.' So Petrie records his impressions in his diary. In the ruins of a temple at Khafra a man was employed by the authorities to dig for fragments of diorite statues. The digger usually sold his finds to tourists.

In 1883 Petrie was given instructions by the British learned society which he represented to look for sites suitable for excavation. He travelled throughout the Delta, and one of the most important sites he discovered proved to be that of the important Greek trading centre known as Naukratis, where by a treaty Greeks were allowed by the Egyptians to establish the equivalent of a trading post, and a city, and to build their own temples and public buildings. The site belonged mainly to the sixth century B.C. and contained a wealth of Greek objects. He identified the site as Naukratis by finding an inscription built into a village house, bearing the very name of the city itself.

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About this time Petrie made the acquaintance in England of Francis Galton, the father of experimental Psychology. Galton was deeply interested in Ethnology and racial types, and arranged for Petrie to make copies and casts of any of the relief sculptures in Egypt which bore representations of races alien to Egypt. From an anthropological point of view this was a most important mission. Petrie was given a grant from the Royal Society for the purpose.

It was to Galton's credit that the enterprise was undertaken, and to Petrie is due the discovery that the Egyptians, as has been explained in an earlier chapter, were the first people that we know of to be conscious of racial distinctions. Petrie had paper moulds made of the reliefs and in due course castings from these moulds were made and exhibited in London.

In excavations made later on at Memphis, Petrie augmented this early record of foreign peoples by a remarkable discovery of a large number of moulded terracotta heads found in the foreign quarter of Memphis, and dating to the period of the Persian control of Egypt. Here were representations of Indians, Persians, Kurds, Scythians, Hebrews, Carians, Greeks of Asia Minor and of Macedonia, and a few identifiable possibly as Spaniards and Sardinians. Here indeed was an ethnographical gallery of the more historic period, a fruitful discovery and one to serve as an addition to the series of reliefs of alien people of the earlier Bronze Age. Clearly the Egyptians always had an eye for a strange type and an unusual race. But their curiosity never seems to have proceeded further.

The condition of affairs in Egypt when Petrie first began to excavate was astonishing. We have already seen examples of destruction carried out by the authorities. There were many such. Frescoes were hacked at so that their finer parts might be removed to the museum. In one case the authorities had made paper castings (in wet paper pulp) from painted relief sculptures, with the result that the paint was totally removed and destroyed in the process. In another instance, at Tel-el-Amarna, a superb series of wall paintings were found which for some time excited the interest of all visitors and tourists. The paintings were in an ancient building which stood in a farmer's field. But the authorities had refused to make a pathway to the building that held the

paintings, so that the farmer's crops got badly trampled. The farmer consequently went one night and hacked the frescoes to pieces so that there should be no more incentive to tourists to trample his fields.

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This state of affairs was horrifying to anyone of the integrity and thoroughness of Petrie. Like Schliemann he saw that excavations must be carried out methodically, with extreme care, and with an attention to detail which must be unremitting. Petrie himself formulates the main outlines of his methods as follows: They are, he says:—

> '(1) The fine art of collecting, of securing all the requisite information, of realising the importance of everything found and avoiding oversights, of proving and testing hypotheses constantly, as work goes on, of securing everything of interest not only to myself but to others.
>
> (2) The weaving a history out of scattered evidence using all materials of inscriptions, objects, positions and probabilities.
>
> (3) All details of material, colour, fabric and mechanical questions of tools.
>
> (4) Archaeological surveying.'

Here was a formulation of method, generally similar to that of Schliemann and equally new. No Egyptologist up to then had fixed such rigid standards for excavation nor insisted so firmly that they should be carried out. To Sir Flinders Petrie can be given the same credit as was given to Schliemann in another sphere. Petrie's systematic and careful methods of recording and searching set a standard in Egyptology which has continued and which, at the time when he began to work, was of paramount importance.

Petrie can claim credit for being the first person to call attention to the extent and spread of the Mycenaean civilisation. At Gurob in Egypt he had noted a

large number of indications of foreign contacts. It was here in 1889 that Mycenaean pottery was found for the first time, associated with Egyptian objects that belonged to the end of the eighteenth Dynasty. There, as has already been mentioned, was the first external dating point for the Mycenaean wares. Burials of foreigners were also found here, one being of a man who had yellow hair covered with a black wig. He was certainly no Egyptian. At Kahun in the same year, on the site of a complete Egyptian town, a different kind of apparently Aegean pottery was found associated with remains of the twelfth Dynasty. Petrie firmly maintained that it was comparable with the later Mycenaean wares and clearly imported from a similar region. Later, as Cnossos and other Minoan sites were excavated, the prototype of this alien pottery was found. It was a coloured and beautiful ware, and in Crete was of the period when the first palaces were being built, about 2000 B.C.

Petrie was thus able to establish contacts between Greece and Egypt going back to fifteen hundred years before the time of Alexander the Great, under whose rule Greeks and Egyptians for the first time established a close relationship.

In 1891 Petrie went to Athens to examine the Mycenaean pottery which Schliemann had discovered, to see if it was identical with that found at Gurob. After considering the matter, Petrie came to the conclusion that

> 'the Mycenaean civilisation was widespread: the objects imitated from Egyptian sources (found on Mycenaean sites in Greece) are not made in Egypt, but made in Greece, showing a high civilisation there, capable of inlaying metals in several colours, and of glazing pottery with elaborate patterns. . . . We deal with a great widespread civilisation, and not a local culture.'

Petrie then made an outline chronology which was

based on his comparison of the Egyptian finds with those in Greece. In general that chronology has proved completely right, though in detail it has had to be modified and rearranged.

Here was one of the first fundamental pieces of comparative Archaeology. The discoveries of Schliemann were in a state of suspended animation, so to speak, until some outside discovery could be produced to show that the Mycenaean world had relations with other civilised regions. If those outside discoveries could be independently dated, there was a fixed point from which a start could be made. Egypt gave two equations of date for Aegean pottery, one in the twelfth Dynasty, the pottery being Cretan, the other in the eighteenth Dynasty, the pottery being Mycenaean. The former date was about 2000 and the latter about 1400 to 1500 B.C. Here at last were guiders in what had been a very dark forest. Slowly, on the background of Egyptian chronology, the chronology both of Crete and of Mycenae was built up. The discovery of a new civilisation, previously not even guessed at, is always a grave problem for archaeologists. The culture of Mycenae was in clear contact with Egypt, as Schliemann had seen at the start, but most of the few Egyptian imported objects found by him proved to be, as Petrie pointed out, made not in Egypt at all. Actually, though Petrie was not aware of it, the home of imitations of Egyptian objects was Cyprus. But as Cyprus itself was virtually a Mycenaean colony, it makes little difference. But the discovery of true Mycenaean and Cretan objects in Egypt was another matter. There was a genuine and datable contact.

A similar situation has arisen to-day over the very recent discovery of an extensive civilisation in India, of the third and perhaps fourth millennium B.C. Its chronology can only be fixed by similar external contacts. Such contacts have emerged in Mesopotamia,

and so the Indian chronology must be based on the Mesopotamian, which itself is fixed by internal evidence.

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Slowly the great pattern of Mediterranean history was unfolding. The evidence was gradually accumulating. Only by careful and rigorous methods could that evidence be found. Petrie, by preserving everything that was found during an excavation, saved from oblivion the few broken potsherds and unimportant unbroken vases which were Mycenaean and Cretan. Other excavators might have disregarded them or pigeonholed them as inexplicable oddments. Petrie saw at a glance that they were alien and imported, and his very first impression was that they were definitely Aegean in origin. Here was a good instance of scientific observation and foresight. These unimportant fragments helped to fix on the chart of time two mighty civilisations, the existence of which had been totally unknown before 1870.

Another instance of Petrie's scientific method is seen in his handling of a minor problem which is continually pestering the archaeologist. How often is the excavator asked that dreary question about 'mummy wheat'? Journalists and people of inquiring but not critical minds seem determined to believe that samples of seeds found in ancient tombs of remote antiquity will grow if planted. All the researches of the botanists do not seem able to eradicate this superstition from the popular mind even to-day. It is a constant silly-season topic in the newspapers, almost as recurrent as that of the Mysterious Mummy at the British Museum or the Fatal Tomb of Tutankhamen! Every careful excavator finds seeds of some sort, but none have ever been known to grow, even when planted in the most favourable conditions. Petrie made the experiment, as indeed have most Egyptologists; he found on one site some bushels of Roman corn. He picked out the largest and fattest

grains and planted them carefully in soft and luxurious soil. The test was favourable, as the grain was planted the very moment it was found before it could have time to decay in the atmosphere, or be affected by the climate. He planted some ancient grape stones at the same time. Nothing at all resulted and no single seed germinated. Since then many similar experiments have been carried out, always with negative results.

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Petrie's contributions to Egyptology are, of course, his main life's work. He made no sensational discoveries such as could rank with anything Schliemann found, nor with discoveries such as the Tutankhamen tomb, or the Royal Tombs of Ur in Mesopotamia. But in 1913 he opened a tomb at Lahun which contained one of the finest groups of gold and other treasures ever found in Egypt. It was ultimately acquired by the Metropolitan Museum at New York.

The importance of Petrie's work may, perhaps, have been largely forgotten by later generations of workers. That is the invariable fate of all pioneers. But the study of Archaeology owes to him almost as great a debt as it does to Schliemann for his strict devotion to accuracy in detail and his emphasis on the importance of the apparently unimportant. When the methodology of archaeological practice comes to be written the name of Petrie will stand with that of Schliemann at the head of the list. Since he started working, new methods and further refinements have come into the science of excavation. Technique has advanced enormously in all branches of Archaeology since the Great War. But Petrie laid the foundations of accurate excavation in Egypt. His width of interest also makes his work of deeper importance. He was able to take long views and to make wide comparisons. Archaeologists, even to-day, are too prone to prefer to live in water-tight compartments. It is

only in the last generation, for instance, that the prehistoric Archaeology of Europe as a whole has been brought into contact with that of the Mediterranean. Unlike either Schliemann or Evans, Petrie was a poor man and always worked with a minimum of funds. But he extracted from every penny its full archaeological value.

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In the realm of prehistoric Anthropology of the Palaeolithic period accuracy of method had been early established owing to the association in the same work of geologists with palaeontologists. One of the first men to carry this same accuracy of method, particularly in actual excavation, into the later periods, was General Pitt-Rivers, who in addition to his admirable method of collecting ethnological specimens, mentioned earlier in this book, had carried out a veritable campaign of excavation on sites of the Stone Age and Bronze Age in Hampshire and Dorset in South England. He was among the first to bring British excavation out of the rut of mere antiquarian looting. Earlier digging of ancient barrows and habitation sites had usually been excavations carried out for the purpose of *finding objects*. The finds had often been carelessly extracted, frequently damaged, rarely examined carefully in their context and often subsequently mislaid or lost. Pitt-Rivers, by the lavish use of photography, proper planning and other means, contrived to preserve all the evidence concerning an excavated site, even after it had been destroyed by excavation. He even had models made of the site before and during excavations. The evidence so collected can be seen in the admirable little museum which he founded at Farnham, on the Hampshire-Dorset downs. A start had been made in England itself and the method necessary for all archaeological research had developed from the earlier inquiries of the palaeontologists.

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The study of Fossil Man had, meanwhile, made great advances. Boucher de Perthes had by 1858 succeeded in establishing his main thesis—that at the period of the river gravels to which his flint implements belonged man must of necessity have lived, and that in consequence the remains of man, when found, would belong to an age when they would rank as any other fossils of the river drift. The continuous development of man from earlier forms of life which had, before the publication of the *Origin of Species*, been presumed by scientists like Lamarck, had at an early date been illustrated by finds such as that of *Pliopithecus* in 1836 and *Dryopithecus* in 1850, both made in Tertiary deposits by Édouard Lartet in France.

Here were the ancestral forms of present-day anthropoids. The ancestors of man himself would not be far off. After 1859 all scientists agreed that it was only a matter of time before the family tree was plotted. In 1865 Sir John Lubbock, the banker-antiquarian, published his nomenclature of prehistory. To him we owe the terms Palaeolithic and Neolithic, which have not since been superseded. The geological basis of any investigation of man and his origin was firmly assured.

Inquiry into Palaeolithic man was now converging on to the later periods of his history. Exploration on a wide scale began in the caves of southern France. In 1862 Lartet and his friend Christy, whom we have met as the companion of Tylor in Mexico, at a later date, examined the caves of the Dordogne. It now began to be evident that the mysterious maker of the finer and later Palaeolithic implements was also an artist of very high quality. Paintings, carvings in reindeer-horn or mammoth-ivory, began to be found, and it was clear that here was a later and more refined stage of the remote ancestry of man.

And at last the skeletal evidence for Fossil Man began to turn up. In 1864 at Gibraltar was found a female

cranium which was then seen to be similar to the notorious Neanderthal skull. It resembled the skull of the living Tasmanian, but otherwise indicated a very primitive type. It had, in fact, been found as early as 1848 and placed in the Gibraltar Museum, but, like the Cannstadt skull, which had been found as early as 1700, it escaped the notice of the learned.

The Gibraltar skull was seen to indicate a new species of man, and that species was named *Homo calpicus*, after the ancient name of Gibraltar, Calpe. Further true Neanderthal remains now appeared. In Spain, in Belgium near Namur, ample evidence was forthcoming. At Namur two complete adult skeletons were excavated. They were in close association with the remains of extinct forms of rhinoceros and mammoth, and flint flakes and implements were with them.

In 1868 Lartet's son found at Cro-Magnon in Dordogne an entirely new type of skeleton. It was first noticed in a railway cutting, and, in all, remains of five people were found. The skulls showed that they were of a very advanced type approximating to the modern type, and radically to be distinguished from the Neanderthal. Similar remains were found soon after in Bohemia, and near Mentone on the Riviera, in the caves of Grimaldi, was found the complete skeleton of a man now known as *L'Homme de Menton*. In 1874 the remains of two children were found in what is now called the *Grotte des Enfants*. The research was then taken up and subsidised by that enlightened man the Prince of Monaco.

There were thus now two entirely distinct racial types of Palaeolithic man. Both belonged to the latest phase of his existence, the time when the ice-sheets of a Glacial Age had pushed far southwards and forced men to live in caves and not, as the river gravel implements showed, in a warm climate in open

country. The remains of the men who had made the cruder river drift implements of the type first found by Frere were still missing, though the discoveries of the maker of the more advanced implements of the caves and of the magnificent art that he had developed, all but proved that further search would in the course of time reveal in the actual river gravels the required human remains. Boucher de Perthes had anticipated this. It was bound to happen.

In 1887 the gap between the Palaeolithic and the Neolithic Age, which had begun to cause anxiety to chronologists, and which is still one of the major fields for further research, was partly filled by the discovery in France at Mas d'Azil of a culture that seemed to some extent to bridge the period.

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But attention had now been called to the very earliest periods. It had by now been realised that the implements of the type found by Frere and De Perthes were in themselves highly developed. They suggested an earlier period when they might have taken cruder forms. Just as the implements of the cave men were more sophisticated than those of the men of the river gravels, so all good evolutionists felt that the river gravel implements might conceivably have an earlier ancestry. Morphological studies like those of Pitt-Rivers had shown that every human artefact goes through a phase of development from a very simple to a complex stage. The complex may later degenerate into the simple again through decline of inventive skill. But there was no doubt at all as to the immense antiquity of the implements of Boucher de Perthes. Geologists calculated that they belonged to the second interglacial period, an age of tropic heat even in northern Europe. The time which it had taken for the river gravels to accumulate was a period which might well be calculated at half a million years. Arguing on the nature of Abbéville flints certain archaeologists

began to wonder whether their antecedents might not go back to a very remote age indeed, earlier still than that calculated by the strata in which they lay. Thus there opened the astonishing possibility that man, as an implement-making animal, might be found even earlier than the Pleistocene period of the geologists and be found in the Pliocene, or Tertiary Age.

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The earliest Palaeolithic implements so far discovered had been obviously those at the lowest levels of the oldest gravels. Where an existing river had cut its channel deep in the long course of time these earliest gravels would obviously be those on the topmost terraces, the oldest and first river banks. In some cases gravel deposits left by rivers that had actually vanished held such implements. A study of the development of shapes showed some slight difference between the implements of the earliest and the latest gravels, and all river implements alike were more primitive in shape than those of the cave deposits, though in a few cases, such as Kent's Cavern, implements as simple as those of the river gravels were found in the lowest levels of caves. Working on these lines—on the assumption that there were still ruder and simpler shapes to be found there was adumbrated the general theory that man had existed in the Tertiary Age. The name 'Eolithic' was coined for the oldest reputed age of man, 'The Stone Age of the Dawn'. This term was first used in 1883 to describe certain cruder implements which had been found in various places in Europe.

Now appears in the long line of remarkable men who had contributed to this complicated unravelling of the story of Fossil Man an unusual and singular person.

At the little village of Ightham, situated in the rolling chalk hills of Kent, lived a man called Benjamin Harrison. His family had lived there for some

generations and he was a typical English villager. He was born in 1837 and when he grew up took charge of the small general shop which his parents had managed. It was the sort of shop which is to be found in any village in Kent—low and red-roofed, covered with climbing flowers and with wide windows of small curved panes of glass, set in Georgian frames. Harrison was a simple country tradesman. But his parents and brothers had all been interested in the scientific discoveries of the time and were intelligent and well read. Harrison himself at an early age began to take an interest in local botany, local antiquities and local natural history. Though he had all too little leisure, having most of the day to be available in his shop, he began to learn his own countryside like a book. Among the books which he read as a boy were Gilbert White's *Natural History of Selborne*, Lyell's *Elements of Geology*, geological papers in a humble journal called the *Family Tutor*, and that remarkable work *Vestiges of Creation* by Robert Chambers, published in 1844, a work by an amateur which anticipated the hypothesis of Darwin in a most remarkable manner. According to Wallace it definitely formulated the conception of evolution in terms identical with those later used by Darwin. Thomas Huxley at the time, attacked it with ferocity, but afterwards wrote that the review was the only one 'about which I ever had qualms of conscience'. Paine's *Age of Reason* was given him by his brother, but his mother succeeded in burning it before he could read it. His brother, apparently in every way as interesting a character as Benjamin, had emigrated to Australia.

In the course of his visits to the neighbouring town of Maidstone he saw in an old antiquity shop examples of polished stone prehistoric axes, which interested him profoundly. From this moment he began to take an interest in the relics of the Stone Age. He soon began to search the fields and downs for flint

flakes and in a short time had identified the site of a Neolithic settlement. In the course of time he had mastered all the antiquities of the neighbourhood and understood them by means solely of his own patient researches.

It was not difficult for a man endowed with so much curiosity to learn the main facts about the discoveries of Palaeolithic remains which were then to a large extent occupying public attention. Neolithic implements and implements of the Bronze Age were, he knew, made when the surface of the country did not materially differ from its form as he saw it. But to find Palaeolithic implements required a certain geological knowledge. This, thanks to his reading, he had. He began to make up his mind where it was most likely that Palaeolithic implements would be found. The chalk downs and lowlands were, here and there, covered with deep deposits of river gravels, some from the earlier history of rivers which had now dwindled to small streams and cut their channels deep in the hillsides. But there were other gravels surviving only as patches on the summits of the chalk hills, the denuded remnants of a land-level which had long since been washed away into oblivion, the bank-deposits of rivers which had flowed over a surface which was once several hundred feet above even the high hilltops of Ightham. These indications of a ghostly geography, of a land surface which had vanished into space, of mighty rivers that had flowed, as it were, in the air, and were now completely erased from the earth, fired his imagination. For if, by any chance, implements made by man were found in such very ancient deposits the antiquity of man would be pushed back to an unheard-of age.

Such were the thoughts that apparently entered his mind. But methodically he set out to test the lower gravels first. In a short time he had a small collection of typical implements similar to those now

so well known. In 1871 he met Sir John Lubbock. It was due to this broad-minded man that the Bank Holiday Act of that same year was introduced. This to Harrison meant four free days each year in which further to follow up his researches. But he also profited from Lubbock's deep antiquarian learning, as did Lubbock from Harrison's minute knowledge of the locality.

Harrison was now acquiring quite a reputation as a local antiquary, and no archaeologist in the neighbourhood missed an opportunity of visiting him. In 1879 he made the acquaintance of Professor Prestwich, the most eminent geologist of his day. The next year he and Prestwich examined a bed of gravel which the geologist could certify as of the very greatest antiquity. Prestwich advised Harrison to search it closely, and all similar deposits. One implement turned up, and for the first time he realised that this must be one of the earliest recorded implements, for the gravel was at almost the highest level, and belonged to that forgotten geography of vanished river-systems. He now began to concentrate on these most ancient gravels, for he saw that what he was searching for was nothing short of the most ancient Antiquity of Man. New railway cuttings opened more possibilities, and slowly the picture of Ightham in that remotest age was forming in his mind. It was an Ightham which must have been a primitive settlement situated on a surface which was then five or six hundred feet above the present level. All that remained of it was a dump of gravel here and there on the summit of a hilltop. Glaciers, rivers and the incredible passage of long ages had worn it away and carried it into the mists of time. But he knew that men had once lived there and he was determined to find their tools and the stones they had shaped.

The famous geologist James Geikie, writing in 1881,

said of the implements that might be found in these oldest deposits:

> 'They will yet be found in such deposits and at such elevations as will cause the hairs of cautious archaeologists to rise on end. I hope other observers will take a hint from you and search for palaeolithic implements in places which have hitherto been looked on as barren of such relics.'

Prestwich was now fully convinced of the importance of Harrison's work and brought along Sir John Evans to see him. Harrison had already established himself in learned circles as a man of great foresight and unremitting determination. It was to precisely men of his type that the professors and teachers looked to carry out the most important field-work which was essential to their studies, and which they themselves rarely had the time to carry out. Harrison, periodically emerging from his old-fashioned general store, with its cakes and fruit and drapery, would spend a few precious hours more closely examining the local gravels, and encouraging the workmen and villagers whom he knew so well, to sharpen their eyesight and make further discoveries. Harrison was an inspiration to a small community such as Ightham.

Harrison commented on Geikie's words as follows:

> 'If Geikie with his wide experience was ready to cry "excelsior" I was prepared to follow.'

John Evans on the occasion of his visit gave Harrison a copy of his book on *Ancient Stone Implements* and Harrison at once buried himself in it.

In 1882 Harrison went to Charles Darwin's funeral, an indication of the reverence he held for the man whose hypothesis he was now assisting by the discovery of further evidence for the early history of

man. In the same year Prestwich asked Harrison's permission to read an account of his Ightham discoveries to the meeting of the British Association.

In 1885 Harrison at last found Palaeolithic implements at what was almost the highest level at which gravel was found, actually above the 500 feet level. Gradually he increased his collection until he had acquired what could reasonably be considered as a convincing mass of material. In 1889 Professor Prestwich arranged to read a paper to the Geological Society on Harrison's finds. In it were discussed not only the clearly-defined implements from the lower gravels that everyone accepted as of human handiwork, but also the large series of much cruder and rougher stones now called 'eoliths', which came from the small summit patches of gravel on the highest hills above Ightham. Harrison's main thesis was that his most primitive implements were the very first attempts ever made by man to fabricate a tool. They were rough lumps of natural flint which had been struck in a few convenient places so as to make them utilisable as instruments. The men who made them must of necessity be the positively first humans who could be distinguished from animals by their capacity for fabricating tools. Harrison had, in short, launched on the world a minor hypothesis, which threw back the antiquity of man to an age far older than the river gravels in which Boucher de Perthes had found his well-shaped and uniformly-designed axes.

Harrison now achieved fame and repute as a man who by an indefatigable industry had propounded a thesis which might prove to be acceptable. Many were not convinced. Indeed the question of the human manufacture of his 'eoliths' is still a matter of dispute, and not accepted by many. Sir John Evans was throughout unconvinced. He did not appreciate the fact that the 'eoliths' had been found in gravel

which contained no palaeoliths, and that consequently they might well be the prototype of palaeoliths.

In 1891 Harrison was visited at Ightham by Alfred Russel Wallace, the pioneer of Evolution. It was a great moment for the simple antiquary, and an indication of the respect in which he was held. Harrison's nervous greeting of the great man took the form of the well-known greeting Stanley gave to Livingstone. He said simply 'Dr. Wallace I presume!' rather to Wallace's astonishment. He explained that he knew Wallace by sight from photographs. Wallace noted, with his trained eye, that the large numbers of specimens which Harrison showed him, exhibited an agreement in form and workmanship. That indicated a repetition of method in their manufacture and that in turn indicated the activity of mental processes which repeated themselves. Here was proof of human origin for the implements. Wallace, the greatest living evolutionist, appeared to be convinced. He tried to persuade Harrison to publish a popular article on them:

> 'I was greatly interested in your collection of the *oldest* palaeoliths. If you could write as you speak I think a paper would be published by one of the reviews.'

Harrison's case really depended on the flints all following similar forms which indicated the working of human hands and brains. His thesis, in his own words, was plainly stated by him in a letter to Sir John Evans.

> 'I wish to disclaim aught like a desire to set up a theory. I ask leave to lay before you evidence, from notes and observations, which has occupied my attention for many years. I do so as a humble seeker after truth and not as one by whom truth has already been discovered. . . . After a long apprenticeship in the Neolithic stage, I became a student of the Palaeolithic, then, having acquired many examples of Palaeolithic skill, I asked

myself the question "Do these represent man's first essay? if not, where are such first essays to be found in my area? If these palaeoliths represent the copper-plate handwriting, where may I expect to find the pot-hooks and hangers of the initial stage?" '

There could be no clearer exposition of faith than this.

Harrison was now the centre of a lively controversy, and the issue at stake was the very same issue which had involved so much discussion in the time of Boucher de Perthes. Boucher had been the first to claim a geologically ascertainable antiquity for man. Harrison was pushing that antiquity back a further and immense stage. Both were facing the same scepticism, the same opposition.

In 1895 Harrison was invited to give an exhibition of his 'eoliths' at the Royal Society. The matter had now become a scientific problem of prime importance. In 1899 Harrison was notified by the Prime Minister that he had been awarded a public pension on the Civil List. This was an unexpected honour, and a truly public recognition. Soon afterwards the Royal Society purchased for him an annuity. His labours were being publicly rewarded. In 1919 his public pension was doubled and in 1921 he died at the age of 83.

Harrison was a remarkable man in many ways. He represented the typical English countryman, from a particularly intelligent region. He was a man devoted to the soil on which he had been brought up. He acquired his interest in the antiquities of his small world as a consequence of being stirred by the controversies of the time. He was one of the products of the age that saw the great Darwinian hypothesis launched. From 1859 onwards Evolution was everybody's conversation. Harrison, by his kindliness and general charm of intelligence, soon became friends with everybody. He rarely left his village and enjoyed the enviable position of showman to all the

great and learned men who came to him. In most villages all over the world there is usually some single man of outstanding intelligence to whom others come for advice and help. Not often does a true village philosopher arise who instructs a whole neighbourhood on its past as Harrison did. He never was a didactic teacher. He merely carried on his own researches quietly and so aroused the curiosity of the neighbours. Then when they asked him questions he gave the answers. In that way the whole district became aware of the importance of the finds made there for the scientific world.

In country communities there are always local antiquaries and local archaeologists. All too often they become cranks and claim discoveries which they refuse to submit to expert opinion. It was Harrison's humility that made his work so successful. He claimed to be a humble 'seeker after truth and no more', with no desire for fame or for personal advantage. He had a certain pride in his theory and a vast enthusiasm for it. But he never resented those who rejected it and never complained that he had not achieved universal recognition. For he knew only too well that the very evidence he offered was capable of being explained in various ways. His main point was that the perfect implements accepted as the first work of man must themselves have had a previous technical evolution. He claimed that they had evolved from his 'eoliths'. To-day his hypothesis is still not wholly believed nor universally accepted. But it is a working hypothesis. Every museum that contains a collection of prehistoric implements is proud to exhibit his 'eoliths', even if they are exhibited with a caution. The nature of his hypothesis and the character of his evidence make it impossible for his theory to be proved finally and certainly true. Only if, by some remote chance, a skeleton of a human is found clutching in its hand one of his 'eoliths' will it

be possible to state with certainty that the matter is finally disposed of. But such a discovery is virtually incredible and impossible, for his 'eoliths' had been washed and rolled by ancient rivers and too much time had passed over them for any such sensational association of human and stone remains to be made.

Men of the type of Harrison are rare. The village scientist is not often to be found. Indeed no one of the stature of Harrison has since emerged from such a background. Cranks and amateurs there are in abundance. But Harrison was fortified by the true scientific spirit.

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Rapidly the skeletal evidence of early man had begun to accumulate. In 1907 a lower jaw was found in a deposit of sand near Heidelberg. It was classified as of early Pleistocene or Late Pliocene Age. That is to say, it was to be associated with the oldest types of Palaeolithic implements in age, perhaps with Harrison's 'eoliths'. In 1909 another skull of the Neanderthal type was found at La Chapelle aux Saints.

In 1912 at Piltdown in Sussex parts of a human skull were found in a small patch of gravel that survived on a hilltop, resembling the gravel caps of the chalk downs which Harrison had examined. It was given a name which indicated a new species, *Eoanthropus Dawsoni* after its finder. It was considered as the skull of a contemporary either of the 'eoliths' or of the very earliest Palaeolithic implements.

In 1891 Dr. Dubois of Leyden University had found the most primitive skull of all. He had held the post of surgeon to the Dutch forces in Java and began a careful geological campaign with the intention of searching for fossil remains of extinct animals. At a place called Trinil he found human remains, which were at once brought to the notice of the scientific world. The remains were so simian, yet possessing human characteristics, that the scientific world claimed

that it was the very earliest human specimen, perhaps sub-human. The chain of evidence was accumulating. The Trinil skull was far more primitive even than the Piltdown skull, and it was seen that there was still a gap between the Java and the other European examples. The Java type was tentatively named *Pithecanthropus erectus*. The geological context of the Java skull was, unfortunately, uncertain. Controversy still continues as to its actual human character.

It was not until 1929 that a new species of man, which bridged the gap between *Pithecanthropus erectus* and the remains of the type found at Piltdown were obtained. They were found in China at Chou Kou Tien. In 1926 and 1927 human teeth turned up. The researches were subsidised by the Rockefeller Institute and carried out with great scientific precision. Two human jaw-bones appeared next, and in 1929 a complete brain-case was found. Comparison with the other human remains showed that this new type, called *Sinanthropus pekinensis*, was identical neither with the Piltdown type nor the Java type. Further research in China has increased and added to the evidence, and these admirable excavations are still continuing.

The earliest researches into the antiquity of man were confined to Britain, France and Germany. As evidence accumulated it appeared that man had, at the very dawn of his existence, covered an enormous area of land. All Europe, Asia and Africa was his home. America was apparently cut off from all communication with the Old World by the vast ice barriers that had covered her northern extremities, so that human wanderings were confined to the Old World. This, at any rate, was the thesis generally maintained. The most recent researches have identified the most ancient types of Palaeolithic man as far south as Rhodesia and as far east as Pekin, in Palestine and as far west as Gibraltar. From the small and

insignificant discoveries of roughly-hewn implements first noticed by curious men, who could find no adequate explanation for them, had grown up this tireless study of the vast antiquity of man. Piece by piece the argument developed. First a dim and uncertain background which could not be accurately stated, the geological background of the Abbéville flints: then the inference that if man's handiwork is found so too will man himself appear: then the actual discovery of man, and the disputes as to whether the remains were human or simian: finally the great general thesis that man had originated at a date well over half a million years ago, to be computed more or less accurately by geological methods: and finally the tentative assumption that the types of the earliest man differed, as races differ to-day, and that still we must await the single type and the common ancestor.

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Countless workers have contributed to this great archaeological illustration of evolutionary methods. It would be impossible to mention all of them here. I have emphasised only those who by their persistence and sincerity forced the pace of discovery and stimulated the other workers. Without that flame of enthusiasm possessed by men like De Perthes, without that continuous industry and determination of men like Harrison, the long search might still have been in an elementary stage of development.

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Meantime the inquiry into the earlier stages of Civilisation was moving at an almost equally rapid pace. The discoveries in Crete stimulated a wide research into this newly found period. Crete was more closely explored itself and subsidiary information acquired on a large scale. On the mainland, tombs of the Mycenaean period were opened and the earliest phases of Mycenaean culture were seen to be indistinguishable from Cretan. The two cultures were

either two aspects of the Minoan, or else a metropolitan culture and its provincial version.

The Mycenaean culture was seen to be far more widespread in its latest phases. Evidence of Mycenaean trade between 1400 and 1300 B.C. were found as far west as Sicily and as far east as Cyprus. But any connection with Asia seemed to be remote. The Asiatic cultures appeared to be related to some extent in spirit but disconnected in commerce.

Meantime a further addition to our knowledge of Asiatic culture was made. In 1861 Georges Perrot, the art-historian, was sent to Angora to investigate the famous monument of Augustus. From there he went inland to the wild Cappadocian hill-country east of the rivers Sangarius and Halys. There, at a Turkish village called Boghaz Keui, he found remains of a vast fortified city, amongst the ruins of which were sculptures of a type not immediately classifiable. Collectors had by now learned that a wholly new and peculiar type of seal and seal-inscription was found in these parts. Here apparently was the seat of a new and relatively unknown civilisation, not, indeed, comparable to the Minoan, but evidently powerful, competent and completely different from anything Babylonian or Assyrian that was known. In 1906–8 German and Turkish excavations revealed that this great site first explored by Perrot, was the capital city of a great nation, the Hittites. During the course of the excavations a large deposit of official archives was found in the remains of a palace, consisting of tablets with lengthy inscriptions in cuneiform writing. Since cuneiform was the standard mode of writing of the Middle East, invented by the Sumerians in the first instance, scholars could at least transcribe the words on the tablets. The tablets numbered several thousand, and work on their translation has only, relatively speaking, begun. There remain nearly three thousand still to decipher.

Oriental scholars in different lands combined to work on these records. Amongst them one of the most industrious was a Czecho-Slovak, Dr. Hrozny. He has succeeded in identifying on these tablets a number of different dialects and languages. Some of the tablets were actual dictionaries, with words in three columns, Hittite, Sumerian and Assyrio-Babylonian. This made the task of the decipherer relatively easy, though the Hittite language which was thus reconstructed proved to be a new addition to our large list of Oriental languages. Modern opinion tends to agree that Hittite can be classified as one of the Indo-European languages. If any similar documents had been found in Crete such as these Hittite dictionaries, the decipherment of the Minoan tablets would have been begun. But nothing comparable has ever been found there.

The discovery of this large occupation of Asia Minor by the Hittites was not a surprise. The Hittites had long been known as a people, and their name occurs in the Bible. But it had been thought that they lived much farther east, and that they were a thoroughly Oriental people. The excavations that now began, showed that they had evidently occupied most of the main part of Asia Minor except the coast. Other sites further south were examined, but Boghaz Keui still remains as the only large site excavated before the Great War. Since then a site known as Alishar has been opened and much more information gleaned. But the original centre of these strange people, in northern Cappadocia, still remains largely unexplored.

In 1888, Dr. A. H. Sayce, one of the protagonists of Hittite work, had compiled a small book called *The Hittites: the Story of a Forgotten Empire*, Sayce at that time being Professor of Assyriology at Oxford. It contained a brief outline of all that was then known, which was based on the records of other peoples and on an examination of the surface monuments.

As research had progressed it was found that the Hittites actually possessed a hieroglyphic mode of writing, and did not always employ the cuneiform. So here was a further addition to the unknown scripts of the Mediterranean. Their hieroglyphs resembled the Egyptian in general usage, though they did not correspond in appearance. It is only in the last few years that any success has attended their decipherment, and what has been achieved is slight and unimportant.

Hittite studies are now a part of Oriental studies in most universities and institutes. But our knowledge of them comes still mainly from the two sites, Boghaz Keui, which was most inadequately excavated and is now at last being re-excavated, and Carchemish where excavations were carried out shortly before the War. Carchemish is in Syria and represents a southern outpost of Hittite civilisation.

The Hittites, now that we can reconstruct the outlines of their history, appear to have been a barbarous people who entered Asia Minor, probably from the Caucasus, somewhere about 2500 B.C. Their first king known by name, lived about 2000 B.C., by which time they can be said to be in the early stages of civilisation. They lived on a federal basis with powerfully fortified castles.

There seems little doubt that these Hittites were of the general stock of 'European' peoples who were thrusting southwards into the warmer regions in the third and second millennium B.C. The principal Hittite dialect bears a relationship to Old Latin. Hittite culture never seems to have reached that standard of originality and distinction which marks the Cretan, but on the other hand it shows some advance beyond the standard of Babylonian and Assyrian. But the Hittites seem to have taken no precaution against inroads from the west. Their interests were all confined to the East. They strove continually to

press on to Assyria and Babylonia and challenged Egypt at the Egyptian frontier in Palestine. The strength of the Hittites seems to have been in their possession of raw materials. In Cappadocia, near their capital city, were vast mines of copper and silver, which had been worked from time immemorial. Later, as metallurgy advanced in method, the Hittites seem to have mastered the intricacies of iron smelting. They seem to have been the first peoples of Asia to export iron and to have achieved a monopoly of this, to warlike nations, most necessary military ingredient. But they had no international maritime trade and could not rank among the maritime peoples of antiquity.

Hittite research has been one of the features of archaeological enterprise during the twenty years before the war and for some time afterwards. One of the most sensational discoveries in Hittite Archaeology was made in 1924 and ensuing years, when at last the translation of some portion of the great archives of Boghaz Keui was made. The tablets comprising these archives appear to have been an official library organised about 1350–1300 B.C. As soon as the documents began to be translated it became evident that they were what might be called 'Foreign Office' documents. Among the people mentioned in them were Egyptians, Babylonians, Cypriots and a new and unknown people called 'Ahhiyava'. It soon became apparent that these latter were the Achaeans, and that the term 'Achaean', used in Homer to designate Greeks was, in fact, the name by which the Mycenaean Greeks were known in the Bronze Age. Here, then, was a discovery of prime importance, the linking up of one known but relatively isolated civilisation with another. Here was precisely the sort of discovery that historians and archaeologists alike are always seeking to achieve. A picture could now be drawn of the Levant in the last three hundred years of the Bronze Age in which Hittites, Egyptians,

Babylonians and Greeks all played their part, more or less as equals. The evidence of the tablets conformed precisely with the archaeological evidence. Here was literary record and history confirmed by discovery. For the Ahhiyava appeared as a maritime folk who raided the Hittite coasts of southern Asia Minor, who settled in Cyprus and who were ultimately accepted as equals in Asia Minor itself and the Levant with the Hittites.

The knowledge that the relatively new culture of Hittite lands was known to that of the Greeks of the Mycenaean period and that the Greeks had pressed eastwards was confirmed by the realisation that islands such as Rhodes and Cyprus exhibited a full Mycenaean civilisation in precisely the period when the Hittite records mentioned the maximum activity of Ahhiyava in those waters.

Here was a clue as to the activities of Greeks in the east, in their ventures against other powers. No Greek records of such activities survived, but the story was told in full detail in Hittite tablets which had been unearthed in Asia Minor, far from any Greek centre. The translation of these now famous archives startled the learned world, and came as information of priceless value to Homeric scholars and students of the Greek Bronze Age.

Once more Archaeology had forged a link between two forgotten cultures. Schliemann's work had been justified over again.

Since 1924 archaeologists have gone eastwards to fill in the details of this new story. French excavations on the Syrian coast, at a site known as Ras el Shamra, have revealed the existence of a kind of international port, largely under the control and influence of Mycenaean people, but inhabited by a local race of Semites, probably the original Phoenicians before they had become a maritime folk. The narrow seas in the centuries 1400–1200 B.C. seem

to have been almost entirely in the control of Egyptians on the south and Achaean Greeks on the north. Phoenicians as sailors are hardly heard of except in local coastal traffic.

The long tale of exploration in the Middle East that began with Layard and Rawlinson continued uneventfully during the nineteenth and twentieth century. The complete history of Assyria and Babylonia was pieced together. As always, the research began at the later periods and was slowly but certainly pushed back to remote origins. It began to become evident that the origin of civilisation as such was to be sought in the valleys of the Nile, the Euphrates and the Tigris. Every known element of what we now call civilisation could be detected in one or the other region. The ancient tale of the Garden of Eden was true to the extent that it was to be located correctly in geography.

As Assyriologists and students of Babylonia proceeded in their researches they realised that behind both cultures was another infinitely more ancient than either—the Sumerian. The outlines of Sumerian history were known from Babylonian records, but it was never quite clear who the Sumerians were. Excavations made shortly before the war and renewed immediately after in Mesopotamia, began to reveal sites in which a culture of Sumerian character was found in its earlier phases. The Sumerians were evidently the people who had been the first to settle in the lower plains of the Persian Gulf and to reclaim land from its waste of marshes, occupying an area apparently inhabited by aboriginals whose marsh settlements precede Sumerians.

It can hardly be said that the civilisation of Sumer was a discovery. It was known of before it was discovered, for it was the background to all the past history of Mesopotamia. Sumer was to the later Babylonian culture what Rome was to Europe of the

Middle Ages. Sumerian ritual and custom survived and Sumerian language was revered and used as a ceremonial language until very late in Mesopotamian history. What was not known until the last twenty years was the extent and depth of the civilisation the Sumerians founded. Nor was its age calculable; nor again was the origin of the Sumerians known.

The post-war researches and excavations first of Mr. H. Hall of the British Museum and later of Leonard Woolley, revolutionised the study of Sumerian life and history and made it possible at last to trace back the very origins of Civilisation itself.

The whole development of Archaeology in Europe as well as in Asia had been, since the time of Schliemann, first to isolate the various stages of development and then to work steadily backwards towards the very beginnings. To the ancient Greeks and Romans the start of all things was put in Egypt. The Egyptian priests claimed an antiquity that was vastly older than anything the Greeks or Romans knew of. Their own Minoan civilisation being all but forgotten, the Greeks had no doubt at all that Egypt was the parent of all civilisation as they knew it. Nor was this claim at any time disputed later until after 1920. Indeed the Egyptologists had themselves pushed back inquiry into a very remote age indeed and found that an agricultural organisation of life with small village communities existed at a very early date. The Neolithic Age, which is the age of agriculture that replaced that of mere food-collecting, is naturally not an age that is contemporary in all places. Agriculture was an invention, and like all inventions, had to begin in the Old World somewhere at a fixed point in time. As knowledge of it spread, so a Neolithic Age appeared. Many lands are still in a Neolithic Age and, until recently, some wilder regions can still be said to have been in a pre-Neolithic age. In Egypt the age of food-collecting, the Palaeolithic Age proper, is represented by

the countless Palaeolithic axes that still litter the deserts that border the Nile valley. They are found on the surface and below the surface. They testify to an immense age when hunters roamed the deserts, which then were fertile and moist land. These implements are still found where they were made and dropped because the geological changes that have taken place in Egypt are slight in comparison with those of northern Europe. Axes of the type of the Somme valley and the British river gravels are found on the Egyptian plateaux above the Nile depression. The land surfaces have altered but little. At some undefined date some of these hunters discovered, perhaps by accident, that seeds will germinate in Nile mud if artificially sown. And so agriculture was born. The same discovery seems to have been made in Mesopotamia at an equally remote age. But at present no exact chronology is available in either region, and so the priority of knowledge of this revolutionary invention cannot yet be assigned either to Egypt or to Mesopotamia. But the important contribution of these researches that emerges is that the gap between the Neolithic and the Palaeolithic is being slowly closed. Working back from the known to the unknown, the tendency of post-war research in the Middle East has been to attempt the solution of that most fundamental problem of all, 'How and when did man change over from food-collecting to food-producing?' That problem, as stated, is itself the result of all the long laborious inquiries of the palaeontologists, joined to the research of the archaeologists. It is only quite recently that the two branches of study have approached each other. For in the Middle East, where the dim horizon of civilisation itself is seen, it is known that the Palaeolithic mode of life was continued right down to its latest phases. Here at last it may be possible to see in one single area the actual transition between those two great phases of

human life. Another contribution of the archaeologist is the discovery that once the process of civilisation had begun, it advanced at a fantastic speed. For some half a million years the state of man had remained almost static. The Palaeolithic Age was an age when invention was confined to mere variations on accepted themes. All that happened from the earliest Eolithic phase to the latest Palaeolithic was that man had made slight changes in the simple stone and bone tools that he used. He still lived literally from hand to mouth: he still hunted and wore skins. He still was at the mercy of the elements except in so far as his chief invention, fire, enabled him to keep warm and cook food. The only strange thing that had happened to him was his discovery of Art. This occurred towards the end of his career as a food-collector. For some reason which it is hard to ascertain he discovered the joys of aesthetic creation. But this neither civilised him nor added to his amenities. It was a strange aberration, a luxury in an age when luxuries were unwanted, an adventure that led to nothing. It proved the incalculable factors that compose the soul of man, and proved nothing else.

But the moment that Civilisation began, it spread round the world like a consuming fire. Those who started, after the war, to investigate the sites of early Sumerian culture, discovered that at a date perhaps as early as 3000 B.C., long before Minoan culture began, a most complete and well ordered civilisation was in existence. One of the most remarkable of all discoveries by excavation was that of the Royal Tombs of Ur.

The history of the researches that led to this excavation are in themselves of the greatest interest. In 1854 Mr. J. E. Taylor, British consul at Basra, was requested by the British Museum to investigate some of the sites of southern Mesopotamia. On one vast ruin he found inscriptions which identified the site as

'Ur of the Chaldees' of the Bible, the home of Abraham. He made surface excavations and did no more. The district was not noted for its peaceable character and public security was not, under Turkish rule, of a notably high order. Although it was recognised that the site was of prime importance, nothing could be done. Towards the end of last century an expedition was sent out by the University of Pennsylvania and brief excavations were carried out. The site was not touched again until 1918 when, at the close of the war, the presence of British troops made it possible for researches to be carried out. Professor R. Campbell Thompson made soundings at Ur, and the next year the first proper excavations since the American were begun by Hall. Two other Sumerian sites were also dug—Eridu and Al Ubaid. In 1922 a joint expedition of the University of Pennsylvania and the British Museum was organised, and Leonard Woolley was placed in charge.

It was not for some years that any finds of first-rate importance were made, but at last the greatest discovery of all appeared. At the close of the season 1926–7 the excavators found at the bottom of a shaft among masses of bronze daggers a gold dagger

> 'a wonderful weapon whose blade was of gold, its hilt of lapis lazuli, decorated with gold studs, and its sheath of gold beautifully worked with an openwork pattern derived from plaited grass. With it was another object scarcely less remarkable, a cone-shaped reticule of gold containing a set of little toilet instruments, tweezers, lancet and pencil, also of gold. Nothing like these things had ever before come from the soil of Mesopotamia: they revealed an art hitherto unsuspected, and they gave promise of future discoveries outstripping all our hopes'.[1]

The next discovery was the sides of a deep pit, at

[1] Woolley: *Ur of the Chaldees*, p. 42.

the bottom of which was a large tomb of a new type. But it had been robbed of its contents in antiquity. More such tombs appeared, and it was evident that the excavators had lighted on a highly important cemetery. Then the next year came the astounding discovery of the great grave pit in which lay the skeletons of five men and of ten women elaborately dressed in headdresses of gold and lapis-lazuli and carnelian. A harp of wood and gold inlaid with semi-precious stones, and a sledge, also adorned with gold and coloured stone, was found. In front of the sledge were the skeletons of two asses. By their bones were the skeletons of two grooms. Near the sledge was a vast wealth of gold cups, bowls and ornaments, and some of silver. Beyond the treasure lay the bodies of six royal guards with copper spears and helmets. Other bodies of attendants and soldiers were found. Here was the complete regalia of a royal or princely burial. At the ceremonial all those connected with the dead person had been killed in order that they might go with the dead into another world. The body of the actual king or prince was missing. But near by was a second tomb which revealed the entirely untouched burial of a queen with all her richest possessions. The queen was named Shubad and she had died after her husband, and been buried near him. When all the attendant dead were counted, no less than sixty-five had perished with the king and twenty-five on the occasion of the queen's death. The sacrifice appears to have been voluntary. Here for the first time was evidence of an advanced civilisation in Sumer far exceeding any standard of excellence which had been known. It was a fully-developed civilisation which must have come from an earlier period. Yet the latest date assignable to it was about 3000 B.C.

The origins of civilisation were thus seen to recede into a remoter past. The Sumerians were themselves

immigrant into Mesopotamia and the aboriginal people whom they replaced or absorbed lived at an even earlier date. But it was the Sumerians who established the outlines of civilisation in Mesopotamia. Whence they came and what was their own earlier history is among the many problems which still await solution. Woolley's excavations at Ur are epoch-making, for they made it quite certain that in Mesopotamia the claim to be the originators of civilisation can be lodged for the Sumerians, and that their claim is just as strong as the Egyptian claim. Probably there was sufficient intercourse between the two cultures for the general outlines of the urban life, which developed out of the more primitive agricultural, to be developed in both areas on parallel lines.

But the vital conclusion was that here and here only in the lands of Mesopotamia and of Egypt are to be sought those first seeds of modern human life and of the mode of urban existence which is our own inheritance to-day. All other claimants, if indeed there are any, are out of court. For nowhere in the world can a fully developed civilisation be identified at so remote an age. All European culture is evidently in the last resort derivative from the Middle East. This is the conclusion at which all modern archaeologists agree. By a process of search and exclusion it has been established that there is no other possible centre. All forms of culture in Europe and elsewhere in Asia are, in the ultimate resort, dependent on Mesopotamia and Egypt. It is still undecided as to which of those areas can claim precedence. One school prefers Mesopotamia, but, until the origins of the earliest Sumerians are more fully studied, this claim cannot be settled. In Egypt the earliest known communities of agricultural people seem to go back to as remote an age as any in Mesopotamia. But the advance of Sumerian civilisation seems quicker than the Egyptian.

Since the epoch-making discoveries of Ur, steady excavation has plotted the outlines of early Sumerian development, and the story is approaching completion. Subsidiary excavations farther to the west, in the fertile crescent of downland that leads across to Syria, have revealed equally early settlements which seem dependent on Sumer. Farther to the east more startling discoveries have been made. Until recent years the prehistory of any region east of Mesopotamia was a closed book. The plateaux of Iran, the deserts of Baluchistan, Turkestan and the rich valleys of Afghanistan were literally unexamined. One careful excavation was made in 1908 near Merv in western Turkestan by an American expedition, but it was an isolated venture. Indian prehistory was entirely unknown, and it was not even possible to say whether in India there was any really ancient background at all. But recent excavations at two large sites known as Harappa and Mohendjodaro at last revealed a distinct and remarkable culture the date of which is approximately fixed at the third millennium B.C. Here in the Indus valley was a developed city life in every way comparable in quality with anything in Mesopotamia. Its earlier history has still to be ascertained, for it was fully grown cities of large size that were excavated. It appeared to be a civilisation entirely new, one more to add to the growing list of primitive successes of man in his struggle to achieve communal organisation. At first no link could be found between this Indian prehistoric culture and any other, although there seemed to be a general similarity with Sumerian. But the discovery of a connection with the outside world was not long delayed. During the course of the Mesopotamian excavations on Sumerian sites a small number of unusual sealstones had been identified which appeared to be importations from elsewhere. Their origin was unknown. Like the Aegean potsherds found by Petrie in Egypt, they appeared to

belong to some other culture. The excavations in the Indus valley showed where they came from. For the sites of Harappa and Mohendjodaro produced large numbers of them. Clearly India was their place of manufacture. The contact was established. In Mesopotamia a rough dating could be fixed by the canons of Mesopotamian chronology for the imported seals. This gave a date to the levels in the Indian sites in which similar sealstones were found. Further, the fact that the inhabitants of the Indian sites were in touch with Mesopotamia was of vital importance. Perhaps both cultures originate in a common source. But until the region between the Indus and the Tigris-Euphrates valleys has been explored this problem must await solution. But, as an example of how strict method must be applied in Comparative Archaeology, this association of two apparently distinct cultures is an achievement of great value.

The story of the discovery of the prehistory of India is interesting. No attempt was made at any time during the nineteenth century, or during the twentieth before 1914, to investigate the remoter history of that vast country. The Indians appeared to be interested solely in their immediate past. The site of Harappa was long known as an ancient one, but it had served only as a brick-quarry for neighbouring villages and towns, and as a source for railway ballast. The Director-General of Archaeology in India realised that the site of Harappa was an ancient one, but also that it had been seriously damaged. He decided to search for a similar and less-damaged site. This was found at Mohendjodaro. But the antiquity of neither was at first realised. The opening of the site of Mohendjodaro is due to the acumen of Mr. R. D. Banerji. He was excavating a Buddhist site there in 1922, and discovered that the Buddhist buildings were built of bricks from much older buildings, which lay beneath them. Work was in fact also begun at

Harappa, and showed that the site was of equal antiquity. Work began at Mohendjodaro in 1924 and continued during the following years. Further surface-survey plotted on the map a whole series of similar sites in the Indus valley. Mohendjodaro, in the Sindi language, means the 'Place of the Dead' and is a mound thirteen hundred yards by six hundred and seventy. Two hundred yards away is a second mound not quite so large. Excavations revealed a complete City of the Dead and a complex of buildings that indicated a very developed architectural knowledge. Here was a civilisation in an extraordinarily advanced stage of development. The cities were actually town-planned, a feature not known in Mesopotamia until about 2000 B.C. at Babylon. Some definite authority seems to have been in control of city construction. Architecturally these prehistoric Indians were highly skilled. But artistically they were by no means notable. Indeed, their civilisation, compared with that of early Sumer, is almost devoid of art. Harappa and Mohendjodaro appear to be cities of traders who lived in peace. No traces of extensive fortifications are found and it seems probable that no dangers threatened except raids from the wild regions of Baluchistan. Evidence of one such attack was in fact found.

But what is surprising is that the inhabitants had invented a mode of writing peculiar to themselves. Like the earliest Cretan script, it is apparently pictorial and is confined to sealstones and a few brief inscriptions on brick. No long inscriptions have been found. Some believe that the Brahmi alphabet is a lineal descendant from this script. So far no bilingual text has been discovered, nothing on which cuneiform and Indian appear side by side, and so no transcription is possible. But it is enough to know that these people were literate.

The contacts with Mesopotamia seem superficial.

There are no deep connections and no similarity in outlook and spirit. The Art of the Sumerian gold cups and vessels of Ur, or of the Sumerian sculpture and mosaic work, is entirely absent. The true arch, known long in Mesopotamia, does not occur at the Indian sites. Only the corbel-arch is used. Indian writing resembles nothing in the west.

The chronology of the Indian cities would have remained entirely relative had it not been for the Mesopotamian contacts. The earliest possible date for one of these contacts is between 3000 and 2750 B.C. Coastal trading by ship may account for the contacts, and a drawing of a ship was found on a potsherd. Land routes through Baluchistan are also possible means of contact, and Baluchistan is known to have been more heavily populated in early times than it is to-day. Inside India trade with the Indus cities and remote places is clear. Kashmir and the Nilghiri hills provided rare materials; jadeite from Central Asia and gold from southern India, lapis-lazuli from Afghanistan and a green stone from Mysore all testify to internal caravan trade. The skeletal remains at Mohendjodaro indicate a very cosmopolitan population. Proto-Australoid, Mediterranean, Mongolian and Alpine skull types have been identified. The main population seems to have belonged to a type of big-brained, long-headed people similar to Mesopotamian types from Kish and Al Ubaid. Conceivably the whole culture derives from the west. But until the earliest stages and levels have been explored it will be impossible to be dogmatic about the origins of this elaborate and highly organised Indian prehistoric urban civilisation. If it is derivative, together with Sumerian culture, from a common source, then both must have separated off from the parent stock at a very early date, certainly before either invented the art of writing. Until the wastes of western Turkestan and the plateaux of Baluchistan

and Iran have been more fully explored we must suspend judgment.

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Such are the major advances made by the study of Archaeology during the present century. In minor fields much solid work has been done. Problems like the origin of the Celtic peoples, the archaeological background to the movements of the Indo-European peoples, and the origin of the Etruscans are receiving attention. The Celtic peoples are now known to have originated in south Central Europe and to have moved westwards in the Iron Age to France and Britain. The so-called 'Aryan' peoples still remain to a large extent a linguistic group without any racial background or any certain archaeological context. The oriental origin of Etruscans gains more and more certainty, though their wanderings to the west are still obscure.

In China Archaeology is a very recent growth, barely a few years old. Palaeontology on the other hand, as has been explained above, has in the last fifteen years made great strides, and resulted in the addition to anthropological knowledge of a fine group of remains of a new species of Man. Excavation by Chinese archaeologists cannot be said to have reached a stage when it is possible for the outlines of Chinese history and prehistory to be written with any clarity. The collecting of Chinese works of art was a highly organised pursuit many years ago and, as such, has obscured the archaeology. For, by searching China for works of art, the collectors have muddied the streams of evidence and done for China what the early collectors did for Etruria. This state of affairs was in process of being remedied, when the present war in China broke out. It will not be possible to proceed on this course of research for another generation. One notable discovery deserves mention, namely the fixing of a Neolithic Age for Chinese prehistory and the realisation that that age is dependent

upon a similar culture that stretches right across Asia to eastern Europe. The uniformity of early Asiatic culture is indeed remarkable. The same story is touched on again by recent excavations in the highlands of Persia, where a primitive culture using highly skilled painted pottery shows a community with both east and west.

The story of discovery in America follows more or less the same lines as those of discovery in Europe. Early Spanish writers, and others of semi-Spanish blood, like Garcilasso, are notable contributors. Contemporary men wrote descriptions of peoples long vanished. The Inca and the Aztec and the surviving Maya peoples, whom the conquerors saw, are recorded for us in various priceless works. Early researches saw no further back than them. It was known that behind the Aztec lay a 'Golden Age' of legend and a mysterious people, the Toltecs. The discovery of what is now called the 'Archaic' period of American history is one of the great achievements of American research. The story follows the familiar lines of discovery. The Toltec and the mysterious Maya peoples behind them correspond in the pattern of discovery to the Minoans and Mycenaeans of the Old World.

Of all the Spanish work the famous *Relaçion* of Bishop Landa, first bishop of Yucatan, is the most remarkable. It was written in 1566. It gives an account of the Maya tribes of those parts as he saw them, with information about their calendar and writing which forms the basis of the various interpretations of their inscriptions which has hitherto been made. Of the Mexicans a similar account survives in the *Histoire générale des Choses de la Nouvelle Espagne*, by Bernadino de Sahagun, originally written in the Nahuatl language. Annals and native traditional records of the Mexican and Central American

regions also exist. Actual documents from pre-conquest times survive, such as the *codices* now preserved at Dresden, at Paris and in Spain itself. These are documents written in the American script, or 'glyph' writing, and mainly concern religious matters. The same inscriptions are also widely found on stone monuments.

No sort of order was brought into this accumulation of legends, contemporary records and archaeological facts until recent times. Pre-conquest America was believed to have been inhabited by various related 'Indian' tribes of various stages of development, from completely primitive savages at north and south, to the highly organised Royal Kingdoms of the central regions. W. H. Prescott in the early nineteenth century brought order into the recorded history by his famous accounts of the conquest of Peru and Mexico. But actual research on the spot lagged behind recorded history in the usual way.

But America was not behind Europe. In 1873 Charles Jones wrote of *The Antiquities of the Southern Indians, particularly of the Georgian Tribes* as an early anthropological contribution, and in 1877 W. H. Dall carried out research on sound archaeological lines. His work was entitled *On Succession in the Shell Heaps of the Aleutian Islands.* In 1886 the pottery of the primitive peoples of the Mississippi valley was studied, and in the following years remains in Arizona, Mexico and Columbia were examined by highly competent workers. This piece-meal approach was profitable, for it revealed the wide extent of early cultures in the continent. American ethnological study was well founded, and followed truly on the lines first laid down by the Spanish invaders. Archaeology was still slightly behind in the race.

Early travellers, notably John L. Stevens as far back as 1839, noted the existence of architectural

remains of striking quality and great size in the regions south of Mexico. Prescott had been vaguely aware of them. It soon became evident that the Toltec period represented a great age of culture of longer duration than the Aztec. Stevens's publication of his *Incidents of Travel in Central America, Chiapas and Yucatan* remains a classic. But it was not until the results appeared of the patient explorations of a remarkable man, Alfred P. Maudsley, that it was realised that the Maya peoples had created a civilisation comparable to any of the early civilisations of the Old World. The story of the gradual repiecing of the Archaic culture of pre-Columbian America is comparable to the discoveries of forgotten Middle Eastern and Aegean civilisations. Like them the Maya world had vanished almost under the soil, and barely survived even as a memory among the peoples who succeeded them. The living Maya tribes whom the Spaniards encountered were displaced from the area they had originally occupied, and it was then not possible to associate them with the ancient remains of the Maya. Besides, these remains were unnoticed until the nineteenth century. It was primarily due to Maudsley that they were first brought to notice. In the fever-ridden and impassable forests of Yucatan, Honduras and Guatemala Maudsley carried out a systematic survey. Hidden in dense undergrowth were numerous massive stone monuments sometimes so thickly overgrown with jungle-growths as to be barely perceptible. Maudsley, like another Petrie, made the most elaborate pulp-paper moulds of a whole series of monuments, and had a series of first-class photographs made. These moulds were transported to England, and casts made from them. His work occupied his life and took place during seven visits to Central America. The bulk of his research was carried out during the years 1881–94.

The exhibition of the casts showed archaeologists

that the Maya were by far the most cultured people of the continent before the Conquest. Their art was singular. Grim, forbidding and austere it could not be classified with any art of the Old World. The Maya appear to have been the only people in the world to build up a culture on an entirely Stone Age basis. Their knowledge of metal was confined to gold and copper. Copper they used mainly as ornament, and do not seem to have had any proper metallurgical knowledge at all. Iron was entirely unknown to them. Their cities, temples and roadways, were of stone, hewn entirely without metal tools. In some cases their copper is found accidentally alloyed with tin, but they are not in a Bronze Age. Their vast sculptures were carved solely by means of stone tools. Individual monuments bear date-inscriptions in the peculiar Maya script. This remarkable people created not only a mode of writing of their own unrelated to any other, but they also elaborated a calendar with a year of 365 days, and eighteen months. Where no external contacts, such as those between Crete and Egypt, were to be expected, the absolute chronology of the Maya remains uncertain. It must be remembered that they lived in the one region of America which is farthest removed from any other land. The thin spine of Central America recedes both from the Atlantic and from the Pacific, so that any external contacts by sea are unthinkable. Here, for anthropologists and archaeologists alike, was a perfect instance of a human society growing up from its own stem without any grafting on of other stocks and influences. Although the Maya themselves, like all the American native peoples, must in origin have been descendants of the first Asiatic incomers from the north, their culture bears no Asiatic connections and contains no Asiatic qualities except those given to their art by the Asiatic facial types of the human features portrayed. The absolute dating of their

civilisation is generally considered now to begin in the first century B.C. The main duration of the Maya community, or Empire, was from then down to A.D. 340. An alternative chronology, also widely accepted, would place all these dates 270 years later. Until some further light is obtained, these two chronologies must be the alternatives. It is hardly to be expected that any external dating can be obtained and the date is, in any case, too recent for geological evidence to have any weight.

The Maya script is unlike any from the Old World, in that it is not based on a series of picture-signs derived from common objects of everyday use and observation. Egyptian and Hittite hieroglyphs, and all forms of cuneiform, Minoan scripts and all minor modes of writing in the Ancient Old World, are all based on such signs. But the Maya signs have the appearance of having been designed as a series of complex patterns. They have no primitive origins, no derivation from simpler and more comprehensible forms. The Maya signs are a series of pictures all roughly alike, small works of art of a complex kind. They differ among themselves in the variation of details. Animal and human shapes are predominant. They constitute a highly artificial series of symbols.

The causes of the rapid and almost simultaneous abandonment of all the early Maya sites is still without explanation. Many reasons have been suggested—change of climate, pestilences and earthquakes. Possibly the Maya were unequipped with their Stone Age implements to cope with encroachments of the jungle, and were starved out. Malaria and general decay are suggested. None of these explanations are proved. All that is known is that the whole race evacuated their elaborate homes and moved elsewhere. After that they decay and decline to a condition of rudimentary civilisation. When the Spanish met them they were indistinguishable from

the other natives, and even the memory of their great past seems to have passed away. They were not a warlike folk and there were no enemies who beset them. Their homes were not destroyed and sacked, merely abandoned.

In America continuous research has gone on into Maya history. The whole central American region has been widely explored in recent years. Panama is the latest to yield results to the excavator. Here a culture more primitive than the Mayan but related to it has been found.

Archaeologists from the Old World, accustomed to the extreme variety of the remains of the heterogeneous cultures of the Near and Middle East or of Europe as a whole, are always struck by the homogeneity in artistic quality of the archaeological remains of America. From the extreme North to Cape Horn there seems to be a certain quality in the objects made and a similarity of outlook of the makers that indicates a common ancestry for the different varieties of culture. And that ancestry can be none other than Asiatic. The original immigrants covered the whole continent, and in some more congenial centres proceeded to organise that communal mode of life based on agriculture which is, as we have seen, the basis of all growing civilisation. Some backward tribes remained partly in the condition of hunters and food gatherers. The agriculture of the North American Indian when he was first encountered, was of the more primitive kind. He lived in a transitional stage between the Palaeolithic and the Neolithic.

But it is remarkable that the knowledge of metallurgy never developed in the continent until contact with the Old World. Metallurgy, at least, is one of the elements of civilisation which must be conveyed by diffusion and cannot be independently generated in any place at any time. In the Mayan culture America possesses a unique phenomenon in the history

of Man. It has no exact parallel elsewhere, either in general outlines or in detail, in character or in origin. So with American Ethnology. It is *sui generis*. The usual complications seen in Old World communities are absent, for the American natives appear to be homogeneous.

One interesting side-issue of American Archaeology belongs to the historical period. The discovery of America by the Norsemen is an accepted fact. It is fully documented by literature. But it is not documented by archaeological discovery. To expect full confirmation of the residence of a mere handful of Norsemen on the American coast is to expect too much. It would be hard enough to prove the existence of the Pilgrim Fathers by any discoveries of their material remains! So not much can be expected of the first Norse settlers. Certain objects, inscribed stones and oddments, have been associated with these mediaeval wanderings from Europe. But some are proved forgeries and only one or two have the appearance of authenticity. Yet even one certified discovery is enough. Unfortunately no strictly archaeological research has revealed anything that is absolutely beyond dispute. Possibly such may in due course be found. But Norse America is not yet a period of American history which the archaeologist can set out to illustrate by considered discovery. Its illustration rests on chance discovery only, and chance discoveries are usually made by the wrong people or else made and not noticed.

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The problem of the Antiquity of Man has always tantalised American prehistorians as well as other researchers. The distribution of Fossil Man in the Old World is widespread. We have seen his remains hidden in cave earth or buried deep in river gravels in Pekin and in Portugal, in South Africa and almost at the foot of the ice-sheet of the Glacial period where it

swept across southern England, in the gravels of Bedfordshire. But no single Palaeolithic implement has ever been found in America and no certified example of fossilised human remains has appeared which is universally accepted as such. The reason usually given is that while man was differentiating himself off from the anthropoid stem in the Old World no such process had occurred in the New. Consequently the only way in which man could reach the New World was across the narrow straits between Asia and America. That the earliest type of man was in fact developing in eastern Asia is now proved by the Pekin discoveries. Could he have crossed over?

The answer to this question is a decisive negative, for the ice-sheet in the Glacial Ages when man was developing extended so far south that there would be no hope of his crossing its cold wastes. North America almost down to New York Sound was one vast area of ice. Even when it receded in the interglacial periods it was still too far south to make transit possible. The discovery of Pleistocene or Pliocene Man in America thus depends on the assumption that the same evolution from earlier animal forms took place in the American continent as occurred in the Old World. For this evidence has been adduced. Much of it has proved to be mistaken or misunderstood. A skull buried below thirteen and a half feet of alluvial gravel in Florida is held by some to be final proof. But the skull bears no resemblance to any Old World type of fossil cranium, and it is generally identified as an ordinary Indian skull which had reached the place where it was found by burial. The gravels in which it was found contained also mammoth and mastodon remains and the skull was thought to be 'early post-Pleistocene'. But that identification is now considered untenable.

But in the last ten years a scientific discovery of some

importance does throw back the antiquity of the American native to a very early date, even if its age is not pushed back to those remote horizons which the Old World provides. At Folsom in New Mexico have been found a large number of fine flint implements, constructed of flakes delicately worked by secondary flaking. These have been discovered in full scientific context, not merely found by chance. They were sought for by skilled archaeologists and anthropologists after the accidental discovery of one or two. Now no less than 2,000 of such small implements have turned up in a precise geological setting. The implements, commonly known as 'Folsom points', are of various shapes, but mostly appear to have been missile-weapons for hunting. Their types do not correspond exactly with Old World types, nor have any human remains been found with them. But some were found in association with the remains of an extinct type of bison and with remains of mammoth. One was actually found between the ribs of a bison skeleton.

Cautious investigators assign to these implements an age which is either Late Pleistocene, or Recent. Those geological terms virtually mean in Old World chronology that they might belong to a period as recent as 15,000 B.C. and they leave unsolved the problem whether man was independently evolved in the New World. But, in fact, these implements are of highly evolved types and, even in the Old World, would not be given any remote antiquity. Also, while it is true that they are associated with extinct bison and mammoth, yet we do not know until what date those animals survived in the New World. The extinction of the mammoth there may be an event which occurred at a much later date than in the Old World.

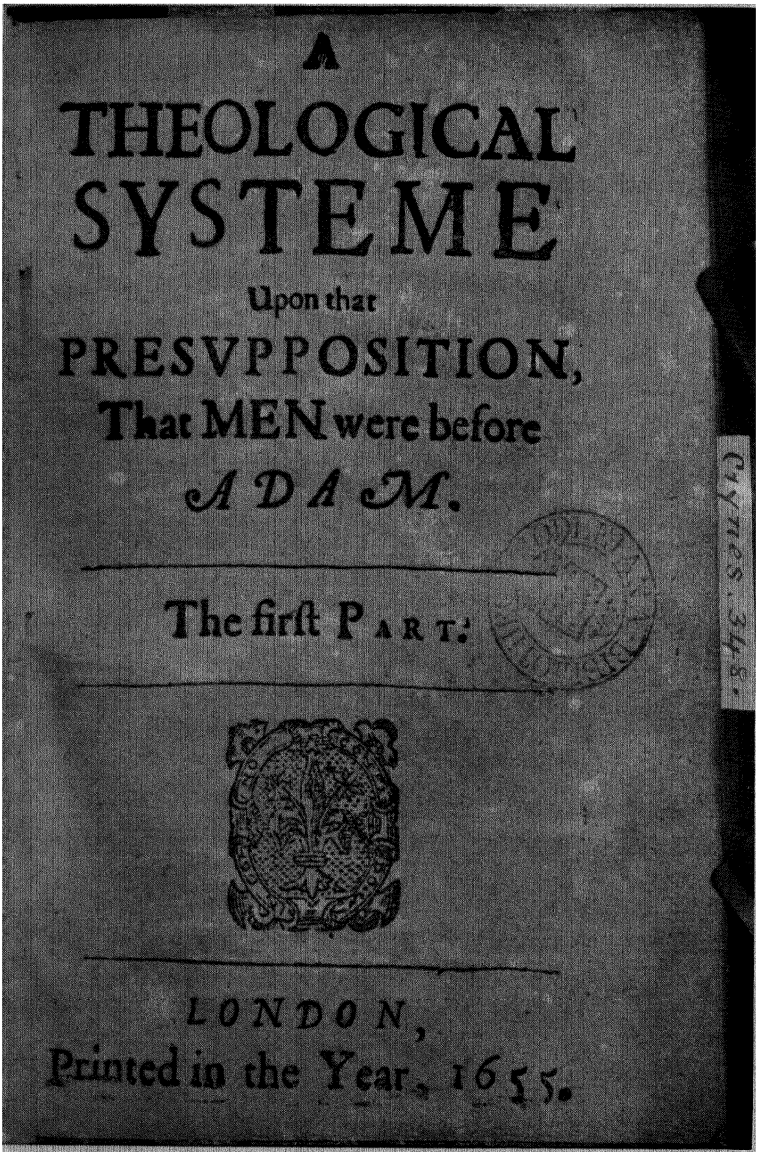
What is needed most in America is the establishment of an independent chronology which is not necessarily based on that of the Old World. This can only be established by modern methods of research. Tree

sections, analysis of lake mud deposits—all such approaches—must be examined to fix a typical and absolute American chronology with which the successive waves of human immigration from the recent to the earliest can be equated.

The most important field for American research, and the one to which most attention has been given, is the investigation of the mode of entry of the Asiatic tribes who peopled the continent. That this occurred is not in doubt or dispute. The Behring Strait is universally admitted to be the water-bridge across which the movements came. Several different Asiatic types appear to have entered, thus explaining certain strong divergences in the otherwise homogeneous natives. But their order of coming and time of coming is still obscure. Until this is known, and until the condition of culture of the first immigrants is ascertained it will still be difficult to say how the continent was filled up with human inhabitants. The safest hypothesis upon which to work is that the immigrants who left Asia were still in a stage of culture midway between the Palaeolithic and the Neolithic. It was no hard matter for them to cross the Behring Strait. According to the latest American researches the Behring Strait is not a serious obstacle even to the most primitive. The tribes who saw across it from Asia the first outlines of America would have to face only one wide sea space—itself twenty-five miles across. For the Strait is filled with intermediate rocks which could serve as temporary stopping places. Assuming that the immigrants came in skin boats, this twenty-five miles with the opposite shore in view was no hard matter. Far more adventurous trips were taken in Neolithic times along the Atlantic coasts of Britain and Ireland, with a sea-crossing to Spain of far greater danger and width. The tide at the Behring Strait is only slight—a daily foot of rise and fall. There is a steady current that sets in from south to north, but

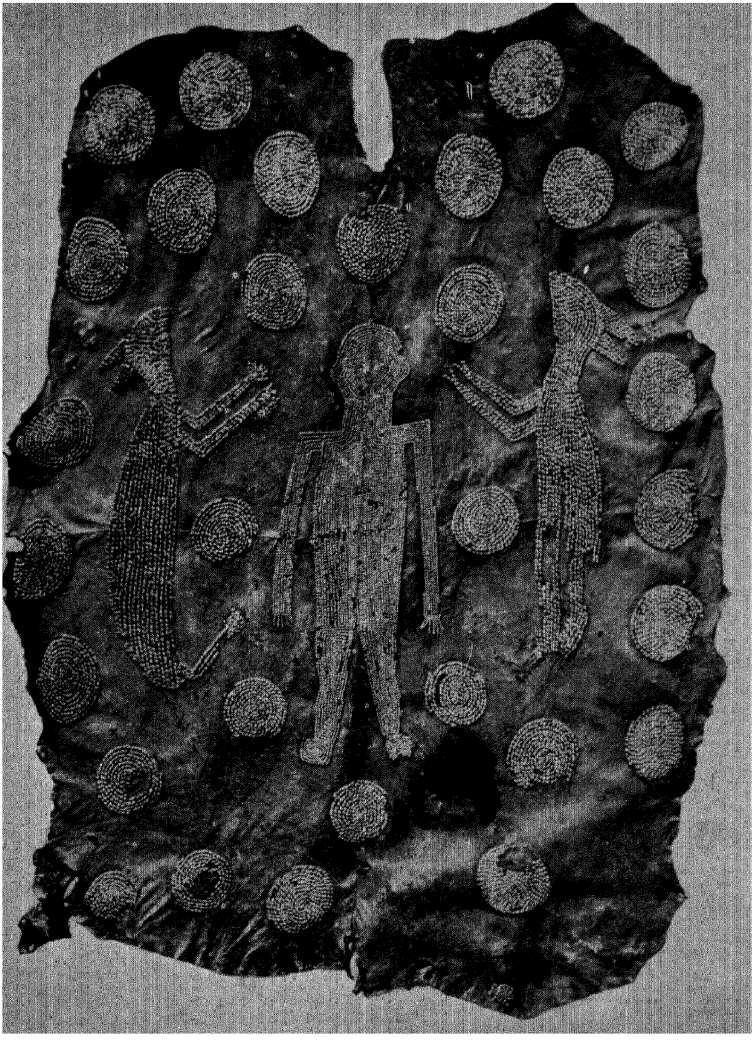


Sumerian Prince


A
THEOLOGICAL
SYSTEME
Upon that
PRESVPPOSITION,
That MEN were before
ADAM.
The first PART.
LONDON,
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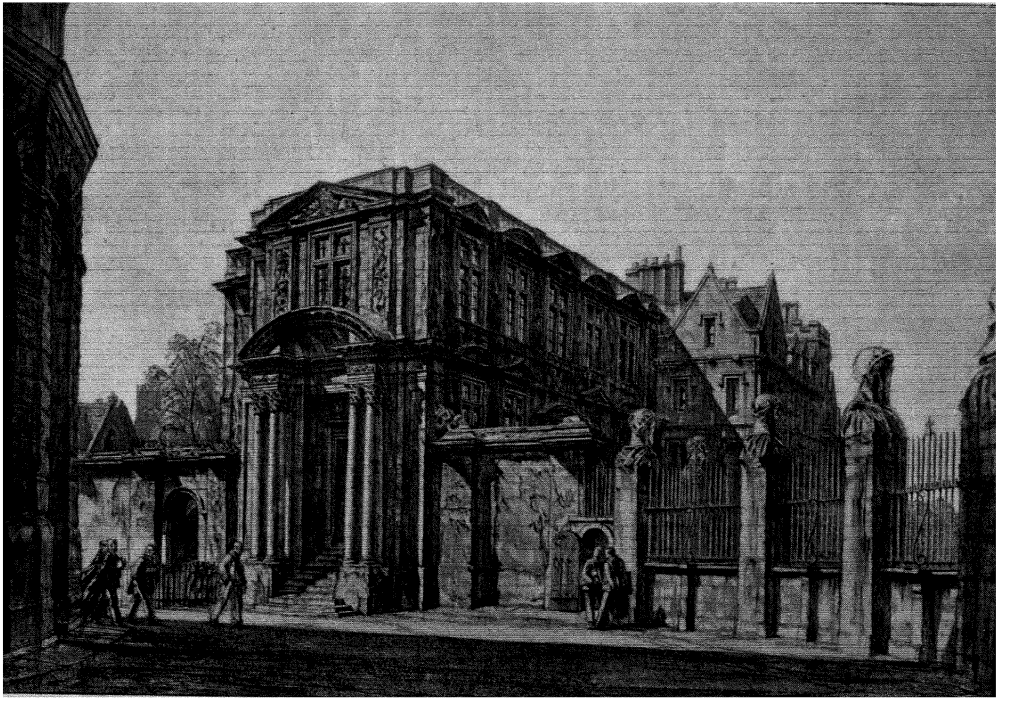
le-Page of the English Edition of Isaac de Feyrere's book first published in Latin with the title *Systema Theologicum ex Preadamitarum Hypothesi*

to by permission of the Curators of the Bodleian



The "Mantle of Pocohontas"

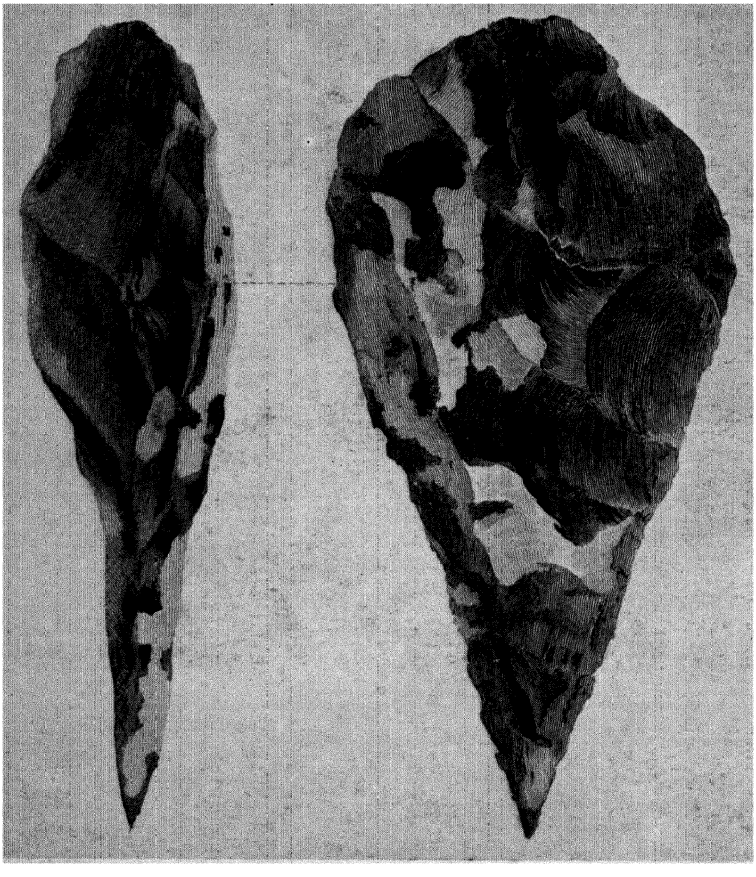
By permission of the Ashmolean Museum



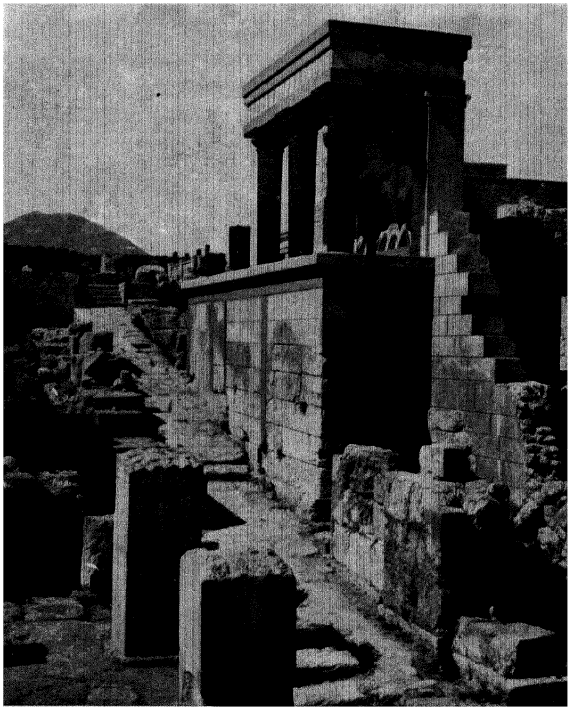
View of the Old Ashmolean



Avebury from the Air



The Illustrated Plate used by John Frere in his first publication of Palaeolithic Flint Implements in 1797



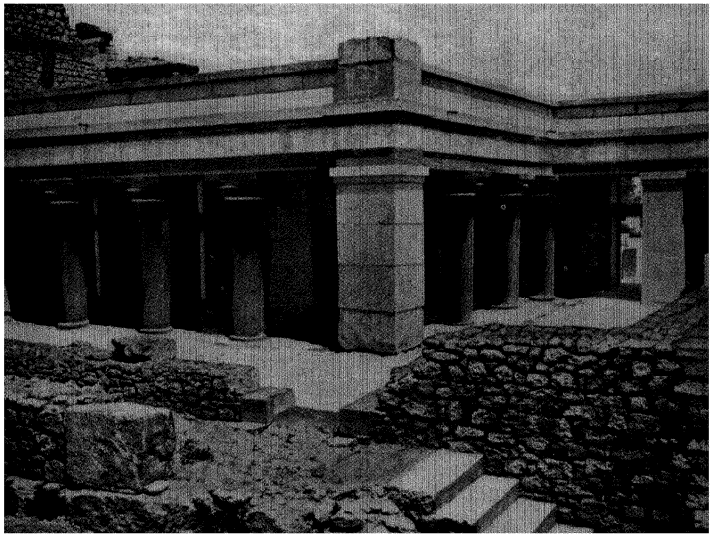
Upper

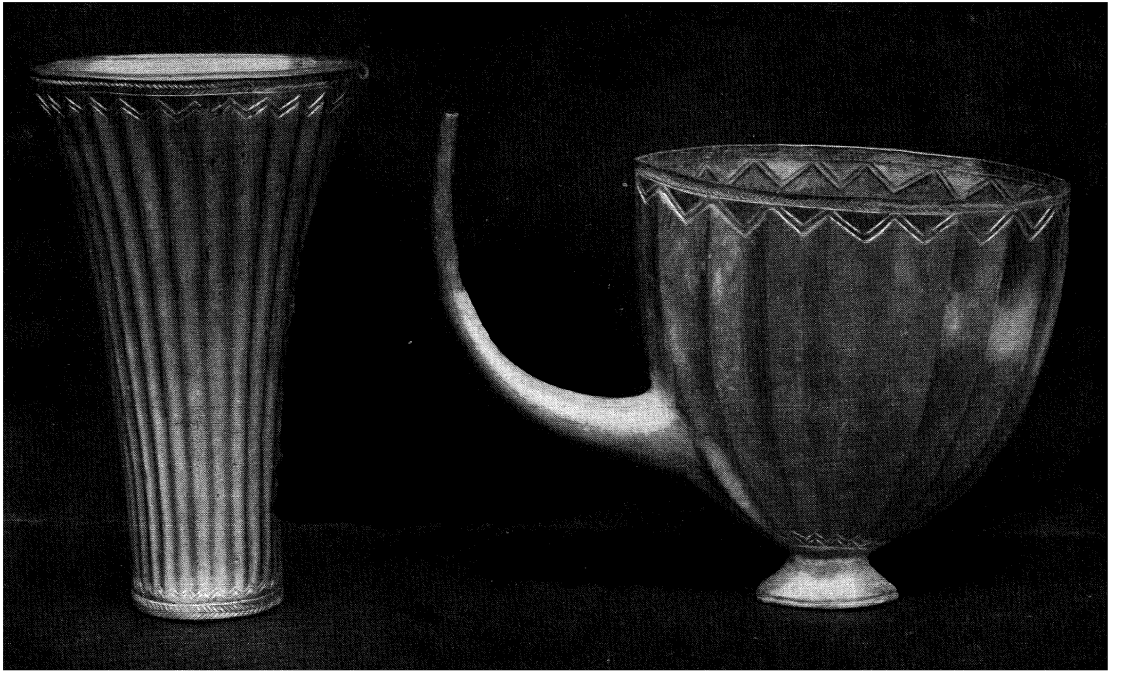
North Entrance
to the Palace
Cnossos

Lower

Hall of the
Double Axes
Cnossos

By permission of
Sir Arthur Evans





Sumerian Gold Cups from Ur

that is not a serious hindrance. But sea-travel is not to be considered as within the inventive capacity of man until he has emerged from the more barbarous stages of his Palaeolithic development.

To a wanderer from Asia the coasts of Alaska were inviting. They contained a varied fauna on which he could live, and wide spaces of lowland for his settlements.

If man came over to America in that transitional age shortly before the invention of agriculture, then the Folsom implements may well belong to this earliest phase of his existence in the continent. Assuming a late survival of animals now extinct, the Folsom culture is thus representative of the first men to penetrate into the heart of America. Once settled they could soon turn their inventive minds to other things and in due course learn the arts of agriculture. This invention is more likely to be made by independent enterprise than is the more complicated art of metallurgy. And so the course of human development ran from a primitive food-collecting stage, with the use of implements midway in type between the latest Palaeolithic and the earliest Neolithic, to an advanced agricultural stage. On the basis of this latter grew up in the Central regions a complete urban life. At this point the parallelism between New and Old World ceases. Central America had her own ideas on how to run a Stone Age—and they were far in advance of any in the Old World! Some kind of illustration of the stage of development of the original immigrants is suggested by the mode of life of those Asiatic tribes who never entered the heart of the continent. For on the Arctic fringe to-day survive living tribes of those very Asiatic peoples who entered. And those tribes live a life which is still essentially that of a people who have not yet entered upon the full advantages of an agricultural existence. America thus has its own fascinating problems—in their way as

deeply interesting as any from the Old World. But they are fundamentally different.

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My story as a whole is the story of how man slowly but inevitably turned his eyes inwardly on to himself and examined his nature and past in the light of unexpected discoveries. Without the continuous refreshment provided by new outlooks and men of vision, Anthropology might have remained always as a simple collection of unrelated ethnological data, and all anthropological work might have consisted of treatises on strange tribes and unknown people. Without the stimulus of excavation Archaeology might have remained the mere collection of unusual objects and their classification, without any realisation of their cultural value or their chronological relationships. As we have seen, anthropological studies did in fact remain for long ages in this state and were only removed to a higher plane by the realisation of the deeper implications behind the data, and of the important conclusions to be derived from them. Slowly the data from different regions were correlated and the conclusions drawn. Archaeology only became a comparative study when excavation had revealed the relationships between apparently isolated cultures.

Religion and religious organisations have, as we have seen, almost always opposed their views as a barrier to the further advance of both studies. This conflict, as deep as it is permanent, is not, I think, due to the nature of religion itself. It is because in religion and religious observances man has enshrined all his pride of achievement and all his innate belief in his superiority over the animals. Religion is his way of expressing his belief in his approach to the Divine. Consequently those who point out to him that, if his subsequent development has in it the elements of the transcendental and superhuman, his origins nevertheless indicate his derivation from the humblest sources, are

disliked and disapproved of. Humility is supposed to be a Christian virtue. But it is more successfully taught by Science. Much of the age-long battle between traditionalist religion and unconventional science is a battle between human pride and the humility of those who seek for truth. It is not a struggle to the death between reaction and revolution. The discovery of our origins should have resulted in increasing our respect for our achievements, but man is naturally vain, and all too often his vanity operates before his intelligence has had the opportunity to act as a check to his ambitions.

Perhaps Man's greatest virtue is his persistence. The story of science is a story of unremitting determination to get at the truth despite all opposition and all hindrances. We have seen how the Greeks persisted in their inquiries and laid the first foundations. We have seen how among the Romans the Roman inability to produce scientists led to the cessation of progress in the two studies with which this book is concerned. And we have seen how in the Middle Ages and the earlier days of Christianity direct opposition to the humane studies resulted from the premature framing by the Early Christian Fathers of a cosmogony which was not based on any intelligible or scientific research. The opposition to those whose views upset that cosmogony was the opposition, not of the religious to the irreligious, but of men who had framed a hypothesis which would not work against men who showed how and why that hypothesis would not work. If in the course of this book the conflict of religion and science has appeared as prominent as it was inevitable, that is only because religion and science serve as cloaks to hide tendencies of the human mind which are deeper and more fundamental. Religion is said to originate in fear. It owes its organisation and stability to that self-assertion which is the psychological reaction to fear. Singing in the dark to keep one's courage up

leads one to admire one's own songs. Once one has developed a modicum of self-assertion and self-admiration, one resents any attempt to create humility.

Man, as a species, is hardly weaned from the animal state before he begins to boast of his achievements. The more he boasts the more he wilfully despises his past, that dim animal life which he has so recently quitted. In his new emancipation he scorns his old companions and his outmoded manner of life. As he scorns them he also despises them. And when some curious-minded student points out to him the elements of his ancestry he repudiates that information because it recalls to him the past that he despises.

Without these defects man would not have grown up. Indeed, during that long half-million years after he became *homo sapiens*, he seems not to have cut himself quite adrift from his obscure origins. Therefore he made no progress. The growth of religion, however much it may have delayed the dawn of his intelligence, at least gave him that necessary pride and self-interest which in turn promoted self-respect. Those qualities in turn generated their opposite, humility. And out of humility was born all true science.

The hardest step inquiring man had to take was that which led him to speculate objectively on his own origins. Self-interest may be a laudable element in progress, but self-examination is harder. Anyone who examines the modern development of the study of Psychology will notice how in its early stages it met with as violent opposition as the kindred studies which we have been examining. The analysis and classification of the workings of the human spirit were not at first considered as tolerable unless they were associated with the study of philosophy and religion. The earliest psychological text-books are detached studies in only the most general phenomena of Psychology. But as Psychology became more intimate it created more violent opposition. Once it began to probe into

aspects of the human spirit which were not considered worthy of revelation, and which seemed inconsistent with man's high intellectual aspirations, opposition grew more violent still. And when Psychology attempted to become an experimental study, it was relegated to the domain of cranks and charlatans. Here again we see human conceit and unrestrained pride at work, the old enemies of true objective research. The more recent branches of psychological inquiry, such as those which deal with the subconscious mind, or with sexual impulses and reactions, are still derided as unworthy of attention, or else as derogatory to human dignity. Even the blameless study of Statistics is, if applied to human population in bulk, considered as a misapplication of human ingenuity by people to whom the processes of birth and death are considered to retain a religious sanction and control.

As long as Anthropology is confined to savage and primitive peoples few nowadays will raise a voice against it, but when anthropologists begin to discover survivals of primitive habits among highly civilised races, they encounter a certain proportion of obloquy and disapproval. Samuel Johnson can be taken as a typical opponent of such sciences. What he said about speculations on human origins, such as those of Lord Monboddo, perfectly illustrate that conceit of the educated man which retards objective scientific study. Johnson was not personally a conceited man, but his outlook was that of a humanity proud and satisfied with its condition and its achievement. Johnson had as fine a mind as any man of his age, but it was a mind which was the product of a well-organised social system. He was typical of the average educated man of any age or land in his reactions to inquiries which had been no part of his education. Against the background of that massive prejudice the twin studies of Anthropology and Archaeology have grown up. By their discoveries they have been vindicated, for they

have added to the age of man half a million of forgotten years, and have given him the only kind of dignity worth having—the dignity that is founded on a true knowledge of how he originated.

The future of the two studies is assured. Both are intimately bound up with all sociological inquiries. No one can analyse modern social tendencies and organisations without first examining cognate tendencies and organisations in the past or in primitive societies.

Anthropology has untouched fields of research in those ill-explored regions of the earth which have hardly been entered. Brazil, Arabia, northern Siberia and northern America all contain untouched peoples and unexamined societies.

Archaeology, later developed, has still many problems to solve. The pages of the book of the Antiquity of Man are numerous, but still the book is a slim and slender volume. The origin of civilisation may be well documented in the Middle East. But the Far East is still unknown. China, where civilisation began perhaps as early as in the West, still remains a story whose mere outlines are known.

New methods open out new fields. The discovery that the aeroplane can serve the archaeologist was one of the results of post-war research. An observer or a camera can from the air perceive things on the ground that the field-worker cannot always detect. Once seen from the air, such identification can be checked and verified by excavation and surface exploration. So far very few regions indeed have been examined by air. Great Britain and some few areas of France and Germany, Central America and some few parts of Mesopotamia have been examined from the aeroplane. Discoveries of whole cities buried in the desert mud, of causeways and road systems, frontier forts and hill camps—all these are the results of air-photography and observation. Outlines of buried settlements and buildings show up in

the different colouring of crops and grass from the air. Roadways through forests in the jungles of Central America are perceived by changes in height of the foliage on the top branches of the forests that hide the ancient works. These slight variations of height in the forests emerge in photographs as ghostly repetitions of the causeways and roads which lie beneath the tree roots. Stone circles were not the only monuments built by primaeval Britons. They built similar circles of wood. The wood has long perished but the holes that held the wooden structures remain as dark markings on the soil. Man, it has been said, can destroy anything but a hole in the ground. That remains for all time. Holes in the ground fill up with a different texture of earth, and the grass or crops over them grows differently. All such things are perceived more easily from the air. From the air, too, the observer can look down into the depths of the sea and note sunken ruins or forgotten towns which have vanished as a sea level rises in the course of time. The aeroplane is the finest preliminary scout for the excavator, and the first eye to detect what the earthbound pedestrian cannot see. From air-photographs plans and maps can be made which will guide the excavator.

Modern archaeological research also calls in the botanist to examine the soils of the ancient sites that are uncovered. Remains of plant life in ancient soil give evidence as to the climate which existed at the time the site was a living one. Changes in climate can be dated by geologists, and so an independent chronology can be established.

Bones of domesticated animals give evidence as to the nature of the food upon which the vanished population lived. Sometimes they give even more important evidence, such as the date at which those inhabitants acquired the use and knowledge of animals like the horse. That in turn indicates an advance in the culture examined. For the advent of the horse

for traction marked a turning point in community life of very great importance.

Just as the geologist served the first student of the antiquity of man, so other branches of science to-day serve the excavator. The reconstruction of the past is a complex process: it is not a mere assembling of objects. The earliest excavators merely looked for striking objects. The evidence they threw away or ignored was as important as anything which they could learn from what they retained. We have seen how, gradually, systematic excavation sought to reconstruct not the exciting parts of a long story, but every element in it.

Cartography is beginning to-day to be the assistant of Archaeology. Archaeological maps can be made which cover every main period of a given area, so that the whole history and prehistory of that area can be seen as though in a bird's eye view. Proper map-making and surveying are an indispensable qualification of any field-archaeologist, for in his maps and surveys may be preserved perhaps the only evidence as to parts of his site which have vanished under the excavator's pick and shovel. True recording is the preservation of evidence.

Our story that began with the tentative inquiries of the curious into evidence which they could not understand has ended in a fully organised research which summons to its aid every conceivable assistance from any competent quarter. The activities of man are various and manifold. To unravel them you need every device which man has himself invented. In the unravelling the discerning will recognise the various qualities of the human soul which are revealed by the uncovering of human history and prehistory. To watch man growing in complexity is to watch the greatest and only certifiable miracle in history. To observe civilisation taking shape is to see one of the real marvels of the earth.

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