

PALAEOOLITHIC SAVAGERY

THE first chapter of human history is still interwoven with natural history. Prehistoric anthropology studies what is to be known of man's physical evolution, the bodily changes in the human animal. Prehistoric archaeology shows how man became human by labour and studies the improvement of his extracorporeal equipment. Both the anthropological and the archaeological records cover a span of time roughly a hundred times as long as that covered by the oldest written record. The emergence of man and the manufacture of the first tools may be put somewhere about five hundred thousand years ago. That is the age assigned on one view to the beginning of the pleistocene epoch, the last volume in the geological record before the holocene or recent, which may begin ten thousand years ago and is far from ended.

Such figures are only approximate and are in any case so large that they mean relatively little to most people. What is more certain, and perhaps more helpful, is that man witnessed very substantial changes in the landscape and the configuration of his planet's surface. For instance, during part of the pleistocene Britain was joined to the continent of Europe. Much of what is now the North Sea must have been dry land, and men could have followed the equivalent of the Thames till it joined an early Rhine. Though the chief mountain ranges had already been uplifted before the first 'men' began to make tools, men lived to see quite important hills thrown up by the folding of the earth's crust. One school, indeed, holds that such gigantic cracks as the Rift Valley in Africa opened up when men were already inhabiting that continent.

Catastrophic changes in climate undoubtedly affected the whole earth; three or four Ice Ages followed one another in

high latitudes, and were accompanied by periods of torrential rain in now arid sub-tropical zones. The snow caps and glaciers that to-day cover the high Norwegian mountains grew slowly bigger, crept down the valleys, and eventually spread out in a huge ice sheet over the plain of Northern Europe. Ice caps developed on the Scottish Highlands, too, and thence ice sheets spread out over Ireland and over England to join the Scandinavian ice sheet to the east. The Alpine glaciers likewise crept down stream. The Rhône glacier that now terminates high above the Lake of Geneva flowed down till it reached almost to Lyons in France. Now glaciers are not rivers that have frozen, but rivers of ice that flow at not more than ten or twenty feet a year. In Greenland and Antarctica we can still see ice sheets like those that covered England and northern Europe in the pleistocene; they 'flow' at the rate of about a quarter of a mile per annum. So one can guess how long it took for the Scottish ice to reach Cambridge or the Scandinavian ice to cover Berlin. And the process of retreat, the melting of the huge ice masses, was almost as slow.

But melt they did. The climate grew warm enough for hippopotami and tigers to live in Norfolk, and for rhododendrons, now at home in Portugal, to grow in the Tyrol. And then the ice spread once more, only to contract again. Indeed, most geologists admit four major Ice Ages or glacial periods separated by three inter-glacial warm intervals. Some authorities would, in fact, admit a still larger number of glacials and inter-glacials.

Meanwhile man witnessed new species of animals emerge and become established by natural selection, sometimes only to die out. In the first inter-glacial some very curious creatures – the sabre-toothed tiger, the little three-toed horse and the southern elephant – survivors from the pliocene, were still competing with newer varieties that eventually replaced them. To withstand the cold of the ice ages species of elephant and rhinoceros – the mammoth and the woolly rhinoceros – acquired hairy coats. Such variations were presumably established by a process of natural selection extending over many

generations – and elephants are notoriously slow breeders. The most curious of all the species emerging was, however, Man himself. The first ‘men’ differ so radically in their bony structure from any race living to-day that zoologists classify them in distinct species or genera and refuse to them the scientific name for modern man, *Homo sapiens*. Such can be called *hominids*, ‘men-like creatures’, or just ‘men’ in inverted commas. The oldest fossil hominids exhibit many ‘simian traits’, features proper to apes that modern men can do without for reasons hinted at on p. 8 and more fully explained in *Man Makes Himself*.

‘*Pithecanthropus*, the ape-man of Java, had a very thick but very small skull with a cranial capacity varying from 1,100 to 750 cubic centimetres – on an average about midway between that of chimpanzees and modern man. His forehead sloped back behind a bony visor or torus that protected the eyes and supported the massive architecture of skull and jaw. But a rudimentary swelling over the area devoted to speech in our brains shows that Java man was already talking and investing sounds with socially approved meanings. But his jowl was disproportionately large and his jaw chinless. *Sinanthropus*, the generic name for the hominids found in the cave of Chou-kou-tien, near Peking, exhibits the same sort of peculiarities.’

Thus in Lower Pleistocene times the anthropological record disclosed, as might be anticipated, the emergence of species and genera intermediate in some ways between apes and men in the full sense of that term. The extreme rarity of documents illustrating this phase of evolution is significant. In digging drains or railway cuttings or other excavations through the gravels of ancient rivers or the debris of pleistocene ice-sheets, or where erosion has laid bare old seashores and river banks, the fossilized bones of sabretoothed tigers, rhinoceros, and mammoth may often be picked up. But down to the approach of the last ice age only four incomplete fragments of fossil hominids are known in

the whole of Europe, although scientists and amateurs are everywhere on the look-out for 'missing links'. Four fossils to represent the hominid population of our Continent during say 200,000 years! Asia has proved more productive. Java men and China men combined now take us into the twenties. Still the rarity of human fossils does justify the conclusion that during the first millennium or so of their existence 'men' were rare animals. The minute groups of hominids cannot have seemed dangerous competitors to the contemporary mammoths, cave-bears, tigers, and hippopotami.

This conclusion is not really falsified by the evidence of archaeology. It is true that cartloads of tools, made by early hominids, can be picked up on the high veldt where once the Vaal and Zambesi flowed. Admittedly museums' cellars in France and England are crammed with implements dug up in equally ancient gravels. But a single hominid might in a day make, use and discard three or four such tools. The many tons of them spread over a couple of hundred thousand years of 365 days do not attest a vast multitude of tool makers.

They do tell all that is to be learned directly of the development of that extracorporeal equipment that was to make its users masters of all the brutes. Admittedly the first beginnings of that development elude the grasp of archaeology. A critical moment was when men learned to control and later to initiate the chemical process of combustion - to use the terrible red flower from which other jungle dwellers flee in terror. But evidence for the use of fire is unobtainable in the conditions under which the oldest archaeological remains are normally unearthed. Still in the earliest known 'home', the cave of Chou-kou-tien, near Peking, charred bones indicate that even that odd hominid *Sinanthropus* was controlling and using fire. Similarly the first tools must have been natural objects only slightly modified to serve human needs. In so far as they were of wood, these have perished irretrievably. Those made of durable stone are so like natural chips as to be scarcely recognizable. The archaeological controversy about what

are termed 'eoliths' centres around just such doubtful products.

When in lower, or on a modern view only in early middle, pleistocene times unmistakable tools, stones patently shaped in an intelligent and purposeful way, do appear, their use is still uncertain. Probably each had many uses; tools were not yet specialized as with us to specific ends, but the same roughly-chipped flint served all purposes from dispatching a tiger to scraping the hairs off his hide or digging up roots. Gradual improvements can be detected as traditional skill was slowly accumulated; instead of just knocking off coarse chips by banging one stone against another, some men found out how to detach neater flakes by blows with a billet of wood. And we can observe methods of flint working diverging in different areas as divergent traditions grow up among distinct social groups.

Throughout Africa, in western Europe, and in southern India the favourite and most carefully shaped tools were made by knocking bits off a large lump or *core* till this was reduced to one of four or five standard forms. The products can all be classified as *core tools* and are currently designated hand-axes. In Europe during the ice age and in northern Eurasia we meet on the other hand almost exclusively what are termed *flake-tools*. Their makers do not seem to have cared much what shape was ultimately assumed by the parent lump or core; they were primarily interested in the flakes detached and trimmed these up to form implements, less rigorously standardized than hand-axes. Finally the tools made by China man and the earliest implements (termed Soan) from northern India and the Malay Peninsula cannot be classed as either core or flake tools, but are regarded as representative of a distinct 'chopper' or 'pebble' cycle.

The divergent traditions thus revealed no doubt reflect different responses to differing environments. But they are essentially conventional and conditioned by distinct social traditions. No factor of climate or habitat obviously obliges a tool maker to choose the core rather than the flakes

detached from it. And no less striking than the divergences between the main cycles are the uniformity and continuity within each. Notably in the core-tool province the same peculiar forms were given to hand-axes from the Cape of Good Hope to the Mediterranean and from the Atlantic coasts to central India. For a couple of glacial cycles we can detect only minor variations and improvements on a small assortment of traditional forms. And in each part of the province these variations succeed one another in the same order. It looks as if some sort of intercourse were being maintained among the widely-scattered groups so that ideas were interchanged and technical experience was pooled.

Finally, many of the later tools, particularly of the hand-axe class, display extraordinary care and delicacy of workmanship. One feels that more trouble has been expended on their production than was needed just to make them work. Their authors were trying to make something not only useful, but also beautiful. If so, the tools in question are really works of art, expressions of aesthetic feeling. But this expression was conditioned by the traditions of the group that used hand-axes. Some not quite unambiguous indications (an imperfect jaw of doubtful geological age from Kanam in Kenya and the occipital bone of a skull found in a gravel pit at Swanscombe, Kent) suggest that the hand-axe makers may have been more like ourselves than *Pithecanthropus* or *Sinanthropus*; they may have been our evolutionary ancestors, a status some would deny to the fossil men of Asia and even to *Homo heidelbergensis*, the proud but unhappily unknown possessor of a massive fossil jaw found in a deep sandpit at Mauer in Württemberg.

It may be assumed that all early hominids were just gatherers. Hand-axes would serve as well for digging up edible roots as for hunters' weapons. *Sinanthropus* was almost certainly carnivorous; the animal bones from his cave seem to have been split deliberately by the hominid. Among the bones thus treated are those of hominids too. So *Sinanthropus* may have been a cannibal. Probably all

hominids were in fact omnivorous; they ate whatever they could get. Not the least important lesson they had to learn by experience and transmit by social tradition was what was safely edible and what was poisonous. Their mistakes are not recorded in the archaeological record, but the simplest surviving savages have learned the necessary lessons and embodied them in their traditions. The determination of edible plants and animals, the discovery of ways of collecting or catching them, the recognition of the appropriate times and seasons were steps towards science. In jungle lore lie the roots of botany and zoology, of astronomy and climatology, while the control of fire and the manufacture of tools initiate the traditions that emerge as physics and chemistry.

Only towards the close of middle pleistocene times, on one chronology about 140,000 years ago, does the archaeologist's picture of hominid life become clear enough to allow an economy to be tentatively sketched. As the last great ice age was approaching, men were sufficiently well equipped to evict other denizens and themselves to find shelter in caves. There we find true homes.

The best-known groups thus inhabiting Europe all belong to a curious race termed Neanderthal and perhaps specifically distinct from *Homo sapiens*. Though their brain-cases are as capacious as those of many Europeans to-day, there is a huge bony vizor or torus above the eyes instead of two eyebrow-ridges; the forehead is retreating, the jowl enormous, a chin lacking. The head was so balanced on the spine that it hung forward; the structure of legs and feet permitted only a shuffling gait.

Many authorities believe that Neanderthal man represents a distinct species of humanity specialized and adapted for living under Arctic conditions and that the species became extinct when those conditions passed away. Whether any 'Neanderthal blood runs in the veins' of Europeans or other modern races is doubted. Hominids exhibiting many Neanderthal features, such as the supra-orbital torus, retreating forehead and excessively heavy jowl,

have been found in recent years in Palestine, South Africa, and Java. While some anthropologists incline to regard these as representing in a general way a stage in the evolution of *Homo sapiens*, others regard most of them as aberrant branches from the main human stem that had gone up an evolutionary blind alley and then died out. But some of the Palestinian fossils admittedly exhibit traits such as a rudimentary chin that suggest at least hybridization with *Homo sapiens*, and men of the latter type did exist, making flake tools, during the last interglacial.

Whatever their biological status, Neanderthalers and their other middle palaeolithic contemporaries must be credited with positive contributions to human culture. All possessed a more varied and differentiated equipment than their predecessors. It includes specialized weapons (represented by spear-heads), as well as distinct tools for scraping and chopping. Most of these are made from flakes. Rarely in Europe, regularly in Hither Asia and Africa these are made by an ingenious process, known as the Levallois technique, requiring much foresight and scientific planning ahead; for the desired shape was blocked out on the core before the flake was detached.

In the case of the European Neanderthalers we know a good deal of their economy and culture as well as of their skeletons and implements. They lived by hunting, principally the mammoths, woolly rhinoceros, and other thick-skinned beasts that browsed on the tundras along the margins of the European ice-sheet and in Siberia. Evidently such big game could not be pursued profitably by isolated families. The Neanderthalers must have hunted together as organized packs, and, however small these may have been, their economy required some social organization.

For all their primitive bodies they needed a spiritual culture too. For their dead relatives they devised and socially sanctified burial rites which they perhaps fondly hoped would somehow reverse or cancel death. They buried the bodies in specially excavated graves, sometimes placing stones to protect them from the pressure of the earth. The

graves were normally dug in the caves that the living used for homes. Sometimes they are situated near to hearths as if in the hope that the fire's heat would restore to the cold corpse the warmth of life. The bodies are placed in deliberately chosen attitudes, generally doubled up. In one grave the skull had been separated from the trunk. Joints of meat and implements were regularly buried with the corpse. Neanderthals must have imagined that life somehow continued so that the dead experienced the same needs as the living. From middle palaeolithic times ceremonial burial can be traced continuously, till to-day the wreaths, the nodding plumes and the wake embody a complex of ideas which, however much altered in the transmission, are at least a hundred thousand years old.

This was not all. In some Alpine caves heaps of bones and skulls, particularly of cave bears, have been found deliberately, one might say ceremonially, arranged. The arrangement suggests the rituals still performed by hunting tribes in Siberia to avert the wrath of the bear spirit and ensure the multiplication of bears to hunt. Perhaps then we have here proof of hunting magic, if not worship, before the last ice age. In any case even the rude Neanderthal had an ideology.

Despite the seemingly unfavourable conditions prevailing we get the impression that humanity had multiplied. In any case we have from Europe at least five times as many middle palaeolithic as lower palaeolithic skeletons, though the phase lasted perhaps only a fifth as long. But the Neanderthal stock and its industrial traditions too seem to vanish abruptly from Europe at the close of the first phase of the last ice age. In the more genial interval which ensued modern men appear already fully formed and with skeletons at least that would be hard to distinguish from recent specimens in an anatomical museum.

Men of modern type, fully fledged 'wise men', appear in the anthropological record much about the same time not only in Europe but also in North and East Africa, in Palestine and even in China (in an upper cave at

Chou-kou-tien). They emerge already differentiated into several distinct varieties or races. Even in Europe anatomists distinguish the faintly negroid *Grimaldi* race, the tall *Crô-Magnon* stock, a shorter *Combe Capelle* variety sometimes round-headed, perhaps a Brunn type exhibiting possibly Neanderthaloid traits, while a later skull from Chancelade is said to resemble that of modern Eskimos. Such variety among the earliest modern men enhances the plausibility of the theory that direct ancestors of *Homo sapiens* had been evolving earlier in the pleistocene, even though most earlier fossil documents so far authenticated are more like Neanderthals.

In the archaeological record modern men appear in the upper palaeolithic enormously better equipped than any group so far distinguished in lower or middle palaeolithic times. The new equipment is found from the first differentiated by divergent social traditions, doubtless in response to varying environments, so that archaeologists can henceforth distinguish several cultures corresponding to several social groups. The best-defined of these are (1) the Châtelperronian of France; (2) the Aurignacian found in Hither Asia, the Crimea, the Balkans, Central Europe and, after the Châtelperronian, in France; (3) the Gravettian of the north Pontic zone, which succeeds the Aurignacian in Central Europe and France and spreads to England and Spain (all the foregoing used to be treated as mere phases of a single culture termed Aurignacian); (4) the Aterian of Africa; and (5) possibly later the Capsian in North Africa. Subsequently other local cultures crystallize out, notably the Solutrean and the Magdalenian in Western Europe (these are strictly local cultures, though their names, like Aurignacian, are used in the older text-books to designate periods within the upper palaeolithic). None of these social groups defined by archaeology demonstrably coincides with any of the races distinguished by anatomists; for instance, Grimaldians and Crô-Magnons alike used a Gravettian equipment in the famous Grottes de Grimaldi near Mentone.

Common to all these upper palaeolithic societies are the use of bone and ivory for tools and distinctive traditions in flint-work. All had learned how to prepare a lump of flint or obsidian so that a whole series of long narrow flakes, termed blades, could be struck off a single core once the long preliminaries had been executed. The method was more economical in material and, in the long run, in labour too than even the Levallois technique, which, however, was still employed extensively by the Aterians and other societies in Africa, Siberia, and China. Moreover, common to all upper palaeolithic groups in the Old World is an ingenious instrument termed a *burin* or graver – a blade pointed by removing a facet along one edge in such a way that it can be repeatedly repointed by simply removing another facet.

Economically upper palaeolithic societies must still be designated savage inasmuch as they relied for a livelihood on hunting, fishing, and collecting. But their methods and equipment have undergone an almost revolutionary improvement. From the collective experience of ancestral generations they have learned how to take full advantage of natural conditions and how to manufacture ingenious new engines.

The several hunting communities who occupied Europe had still to brave the severities of a subarctic climate; for the great ice sheet still covered the northern plains, though the mountain glaciers had retreated, albeit only temporarily. But, equipped to support these disabilities, they entered a land of steppes and tundras where vast herds of mammoths, reindeer, bison, wild cattle, and horses offered an easy prey to organized hunts. On the plains of South Russia and Central Europe the Gravettians pitched their camps along the routes the herds of big game must follow on seasonal migrations from winter to summer pastures. Along the Don the sites were cleverly chosen in river valleys which provided shelter against blizzards but adjacent to the mouths of lateral gullies which could be used as natural corrals to trap the herds. Immense piles of bones

testify to the success rewarding the choice of such locations. Artificial protection against the cold was provided by tents, presumably of skins, or even by substantial 'houses', dug in the soft loess soil and roofed by skins and turfs similar to those inhabited by arctic hunters to-day. As wood was scarce the hunters burned bones to keep them warm - the bone heaps may take the place of wood-piles - and could construct fireplaces provided with sunken flues to supply a draught to this fuel. They made clothes of skins, since the scrapers for preparing these and needles for sewing them together are found. A statuette from Mal'ta in Siberia seems to be clad in a trousered suit of furs such as Eskimos wear.

In the Dordogne and on the slopes of the Pyrenees and Cantabrian mountains ample caves offered shelter to Aurignacians and Gravettians who hunted on the adjacent plateaux and plains. Yearly the salmon ran up the rivers to breed, and the Magdalenians at least had learned to catch the fish with hook and line or spear them with 'harpoons' of reindeer antler.

Upper palaeolithic hunting tackle had been enriched by many fresh inventions. The Aterians and Capsians in Africa certainly, their European and Asiatic contemporaries probably, employed the bow, the first composite mechanism devised by man; the total energy gradually expended by the archer's muscles is stored up in the bent wood or horn so that the whole can be concentrated at one point and released simultaneously. The Magdalenians and probably also other upper palaeolithic societies used the spear-thrower, another mechanical device for increasing the range of a missile and the accuracy of its aim.

Specialized tools were needed and used for manufacturing this tackle and for satisfying the new needs for housing, clothing, and adornment. Men were no longer content to extemporize tools to meet immediate needs, but had the foresight to make tools for making tools - secondary and tertiary tools, in fact. In addition to wood and stone, men had now secured mastery over other materials, notably

bone, antler, and ivory. For sharpening these a new process was employed – polishing, which applied to stone used to serve old-fashioned archaeologists as a criterion of the new stone age. Moreover antlers, bones, and even flat stones were sometimes perforated with circular holes. If not requiring the use of a drill, perforation seems to imply some application of rotary motion, so preparing the way for such critical inventions as the wheel.

The pursuit of large gregarious animals by Aurignacians, Gravettians, and the rest required the co-operation of a group larger than the natural family, even more certainly than among Neanderthals. But speculations as to how such groups were organized are hardly profitable. Some division of labour between the sexes may be deduced from modern analogies, but each 'family' or 'household' could probably manufacture its own equipment. And each group could be self-contained and self-sufficing.

Yet there are indications of interchange of products – in fact of a sort of 'trade' between distinct communities, though the articles traded were normally luxuries not indispensable. Mediterranean shells have been found in the caves of the Dordogne (west-central France). Some of the flint found at Gagarino on the Don seems to have been brought from exposures more than seventy miles down stream, perhaps at Kostienki, where there was another large camp. Finally, the bones of sea-fish are so common in Magdalenian refuse heaps in the Dordogne that it looks as if there may have been a regular interchange of commodities between coastal and inland communities living in France contemporary with mammoths and reindeer. Such intercommunal specialization can be illustrated among recent savages on the same economic plane as the Magdalenians. Evidently upper palaeolithic groups were not entirely isolated from one another. The interchange of material objects attested by archaeology gave opportunity also for the pooling of ideas.

Upper palaeolithic societies had further elaborated that spiritual equipment already vaguely attested among

Neanderthalers and earlier. Dead Grimaldians and Cro-Magnons were interred with even greater ceremony than Neanderthalers. Their graves were furnished with food, implements, and ornaments. Often the bones are found reddened with ochre. The mourning relatives had sprinkled the corpse with the red powder, surely in the pathetic hope that by restoring to the pallid skin the colour that symbolized life they would also restore the missing life itself. Such a confusion of the symbol with the thing symbolized lies at the root of 'sympathetic magic'. It is symptomatic of the tenacity of tradition that the practice of sprinkling the dead with ochre persisted for 20,000 years, long after experience should have convinced everyone of its futility.

Magic rites to ensure the food-supply, to promote the multiplication of the hunted game and secure success in the chase, were also devised. The Gravettians used to carve little figures of women out of stone or mammoth ivory, or model them in clay and ash. Archaeologists term these Venus figures (Venuses). But they are generally hideous; most have no faces, but the sexual characters are always emphasized. They were surely used in some sort of fertility ritual to ensure the multiplication of game; Zamiatnin suggests puppet plays imitating and so magically causing the generative process. In any case they must mean that the Gravettians grasped the generative function of women, and sought magically to extend it to the animals and plants that nourished them.

In France Gravettians and their Magdalenian descendants elaborated other rites. In the deep recesses of limestone caverns, perhaps two miles beneath the earth, the impenetrable gloom lit only by the feeble flame of fat burning in a stone lamp with moss wick, and often on rock surfaces accessible only by standing on a helper's shoulders, artist-magicians painted or engraved the rhinoceros, mammoth, bison, reindeer, that they must eat. As surely as a pictured bison was conjured up on the cave wall by the master's skilful strokes, so surely would a real bison emerge for his associates to kill and eat. The beasts are always highly

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individualized, actual portraits not abstract shorthand symbols (p. 14). They reflect minute and deliberate observation of real models. But the models so carefully studied and so accurately reproduced were very likely dead beasts.

In fact, so important was this magic art in the estimation of upper palaeolithic society that the artist magicians may have been liberated from the exacting tasks of the chase to concentrate on the reputedly more productive ritual; they would be assigned a share in the proceeds of the hunt in return for a purely spiritual participation in its trials and dangers. At least, the pictures are so masterly that they seem to be the work of trained and specialized craftsmen. In fact, from the Magdalenian site of Limeuil (Dordogne) we possess a collection of stone slivers and pebbles on which are scratched what look like small-scale trial pieces for the cave pictures; some show correction as if by a master's hand. The collection may be scraps from the copy-books of a school of artists. Thus we dimly discern the emergence of the first specialists – the first men to be supported out of a social surplus of foodstuffs to collecting which they had made no direct contribution. But of course the Magdalenians regarded their magical contributions as just as important as the acumen of the tracker, the precision of the archer, and the valour of the huntsman.

The economic prerogatives of the specialized magician are based upon socially sanctioned superstition. But the surplus that the magician thus appropriated was available only because just at this time the hunting grounds and rivers of France were exceptionally well stocked with game and fish. When forest invaded the steppe at the end of the ice age, magic was of no avail; bison, reindeer, and mammoth vanished, and with them the Magdalenians and their art.

At the close of the last ice age, when the tundra zone was shifting north, the reindeer migrated, too, and men followed them. Every summer a band of hunters from farther south used to repair to Holstein and encamp beside a little mere at Meiendorf, not far from Hamburg. They succeeded in

slaughtering hundreds of reindeer. But the first kill of each season was not eaten. Its body, weighted with a stone, was cast into the mere, presumably as an offering to the spirit of the herd or the genius of the land. If this interpretation be correct, the idea of sacrifice and some correlative conception of spirits to be placated and conciliated had been reached by these rude savages at least 10,000 years ago. So even in the savagery of the Old Stone Age we can discern the germs of religion, the propitiation by a collective social sacrifice of spirits, conceived as having human emotions and desires, in contrast to the vaguer and impersonal forces that magic is supposed to 'control', often for individual rather than social ends.

Art, too, enriched the spiritual culture of upper palaeolithic societies. The engravings and paintings in the French caves are admired as beautiful by artists to-day. If they were executed for prosaically utilitarian magical purposes, that did not debar the artist from an aesthetic satisfaction in making his drawing beautiful, even though he could see it no more than Beethoven could hear the Ninth Symphony. Music, as well as graphic art, may have played a part in Magdalenian magic, since bone pipes and whistles have been found in the caves.

With the same duality of motive, hunting tackle was embellished with life-like carvings and engravings of animals by the Gravettians and Magdalenians of France and Spain. All upper palaeolithic peoples tried to increase their beauty and enhance their personalities by mutilating their bodies or decking them with ornaments. In Africa a tooth was knocked out – at the behest of fashion, no doubt, but also as a ritual act. Everywhere shells or animals' teeth were collected, pierced, and strung together to serve as necklaces. But they were not only personal ornaments but also charms. Cowrie shells were so highly valued as to be brought from the Mediterranean to the Dordogne; they were valued because they resemble the vulva and therefore confer fertility. Bracelets might be made from mammoth's tusks. One from Mezin in the Ukraine is carved very

beautifully with a purely 'ornamental' geometric pattern — the meander. But to Australian black-fellows patterns equally devoid of representational content have a meaning, tell a story and work magic. Art and fashion are as definitely rooted in the Old Stone Age as magic and superstition. They were as necessary socially then as now. It is permissible to doubt whether the 'Highland Cattle' on the sitting-room wall or the diamond necklace on the dowager's throat be an advance on the bison in the limestone cave or the shell necklace of the Crô-Magnon savage.

In Ice Age Europe savagery produced a dazzling culture and, judging by the relatively numerous skeletons that survive, supported a substantially increased population. But this cultural efflorescence, this expansion of population were made possible by the food supply bounteously provided by glacial conditions and an economy narrowly specialized to exploit these. With the end of the ice age these conditions passed away. As the glaciers melted, forest invaded tundras and steppes, and the herds of mammoth, reindeer, bison, and horse migrated or died out. With their disappearance the culture of societies which preyed upon them also withered away. In early holocene times, during what archaeologists term the *mesolithic* phase, we find instead of the Gravettian and Magdalenian cave-men small groups scattered about in the vast forest in open glades, on the shore of sea or meres and along river banks hunting and snaring forest game, wild fowl, and fish.

By contrast to what had passed away, the mesolithic societies leave an impression of extreme poverty. Nevertheless, all seem to have enjoyed one advantage: in mesolithic sites in Portugal, France, the Baltic region, and the Crimea, bones of dogs are first found. Now it is precisely in hunting red deer, wild boar, hares, and similar game that dogs could help men. The wolfish or jackal ancestor of the domestic dog may have begun hanging round camp fires, a tolerated scavenger, much earlier. In mesolithic Europe he is first disclosed as a partner in man's food quest, exploiting man's

superior cunning, but helping in the hunt and rewarded with offal from the catch.

Again the mesolithic societies inhabiting the wooded plain extending from the central English Pennine chain to the Urals seem the first in Europe to have devised any equipment for dealing with timber – and the forest was the outstanding factor differentiating the holocene from the late pleistocene environment. Beginning with splitting tools – handle wedges – of antler, such as had been employed already in late pleistocene times in south-eastern Europe (Rumania and Hungary), the mesolithic forest-folk armed their wedges with blades of flint or of stone, sharpened like the antler tools by grinding. Eventually they thus created a regular kit of carpenter's tools of axes, adzes, and gouges with which, among other achievements, they could solve the problem of transport over snow and ice by making sledges. (Runners of sledges found embedded in mesolithic peat in Finnish bogs are, perhaps, the oldest surviving vehicles.)

Savages, in fact, could – and did – advance after the end of the Old Stone Age, though remaining savages. But within the limits of savagery the scope for progress was very small, and its pace as slow as in the pleistocene period. Some societies, by an economic revolution, emerged from savagery and progressed much faster. So it would be tedious, were it possible, to enumerate the timid steps forward made by savage societies from the end of the Ice Age till the present day.

The fate of the most brilliant savagery of the past – the Magdalenian cultures of France – will have sufficiently disclosed the biological limitations of that economy. A happy conjunction of circumstances, quite outside their own control, provided the Magdalenians with sufficient food to support a growing population, obtainable with so little effort that they had leisure to embellish life with a brilliant spiritual culture. But the magic superstructure did nothing to increase the supplies of food which, after all, were not inexhaustible. So population was limited and eventually waned with the specially favourable conditions.

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The same conclusions could be drawn from an ethnographic study of modern savages. Red Indian tribes on the north-west coast of America, by exploiting salmon runs and similar resources as the Magdalenians had done, attained an even richer culture and were relatively very numerous. Kroeber estimates that the population density in the more favoured regions was as high as 1.7 to a square mile. But that is quite exceptional for savagery. Even on the Pacific coast the same author puts the density in other regions as low as 0.26 per square mile, while on the prairies the hunting population would not have exceeded 0.11 per square mile. In the whole continent of Australia the aboriginal population is believed never to have exceeded 200,000 – a density of only 0.03 per square mile.

However approximate such estimates may be, they give a fair idea of the inherent defects of savagery as an economy. It led to an impasse – a contradiction – and, had that contradiction never been surmounted, *Homo sapiens* would have remained a rare animal – as the savage in fact is.

Still, on the margins of tropical jungles, deserts, and ice-fields, isolated tribes have continued to eke out an existence with a palaeolithic economy long enough for recent anthropologists to be able to study their spiritual culture. From the reports of these observers it is possible to deduce what sort of ideology effectively lubricates the operations of a food-gathering economy. Such deductions cannot disclose with scientific precision what savages in the Old Stone Age actually believed, or how Moustierian or Gravettian societies were organized – that is unknowable – , but are relevant in as much as ‘survivals’ from inferentially savage ideologies seem to clog the workings of barbarian and civilized economies.

Contemporary savage tribes are generally groups of *clans* which, being more stable, overshadow or even replace the family *as an institution*. All clansmen are regarded as related in virtue of mystical descent from a *totem* ‘ancestor’. The totem is generally an edible animal, insect, or plant, important in the tribal economy, more rarely a natural

phenomenon, a feature of the landscape or a man-made implement. 'Descent' is reckoned sometimes in the male, sometimes in the female, line. The system of kinship which determines the mutual rights and duties of clan-members and, in particular, who may marry whom, is frequently 'classificatory'. Not only the natural father, but also all paternal (or maternal) uncles, etc., are classed as 'fathers', first and second paternal (or under a matrilinear system, maternal) cousins are classed as brothers, and so on. Membership of the clan is theoretically based on 'blood', practically on ceremonial initiation at puberty. While 'kinship' guarantees the 'right' to initiation, the same rites may secure adoption into the clan. Hence the relationship of clansmen may be more or less fictitious.

Hunting and fishing grounds, and the food obtained therefrom, are generally owned and enjoyed in common. But something like personal property in weapons, vessels, and finery and even in spells or dances may be recognized.

Old men generally enjoy authority and prestige that entitles them to a major share in women or any other sort of 'wealth'. But, particularly in America, these privileges have often been monopolized by hereditary 'chiefs' who can sometimes accumulate considerable wealth. Occasional or endemic warfare between tribes or even between clans is reported even in Australia, and more often in America, where it serves to enhance the prestige of chiefs.

The ideology of savages seems to be expressed in words (spells) and imitative actions, *rites*, that symbolize changes in the real world that society wishes to bring about. Each totemic clan performs periodically dramatic ceremonies supposed to ensure the multiplication of the ancestral animals or plants. It looks as if the symbol were confused with the result. The savage behaves as if he thought that with spells and rites he can control natural phenomena that we now hold cannot be controlled by these means, if at all. All such operations are here termed *magical*. But it must not be assumed that they are, in fact, performed for any such clearly formulated reasons. That would be no

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more legitimate than if a Negro in A.D. 2050 inferred that Europeans of 1950 wore white collars to avoid sore throats. Nor can it be assumed that, besides magically 'controlling' nature, savages do not ever also invoke the interposition of supernatural beings that might be termed 'personal' and divine. On the contrary, Australian aborigines and others tell stories or *myths* about such beings. The impersonation of the totem by clansmen might lead to the personification of the ancestor. The word-book to a dramatic ceremony may become a myth.

Finally magic, though it cannot produce the results its practitioners are supposed to desire, can be biologically useful. Totemic ceremonies and abstinences, for instance, promote not only social solidarity but also the efficiency of the hunter both by giving him confidence, and by familiarizing him with the habits of the totem. Moreover, the clansmen's abstinence from the totem as food does, at least, retard the destruction of this source of livelihood for the rest of the tribe.

The foregoing remarks are not intended to define the religion or the social organization of all savages. There is, in fact, as much variety of spiritual and of material culture among modern savages as there was at least of material culture among the men of the Old Stone Age described more fully in this chapter.