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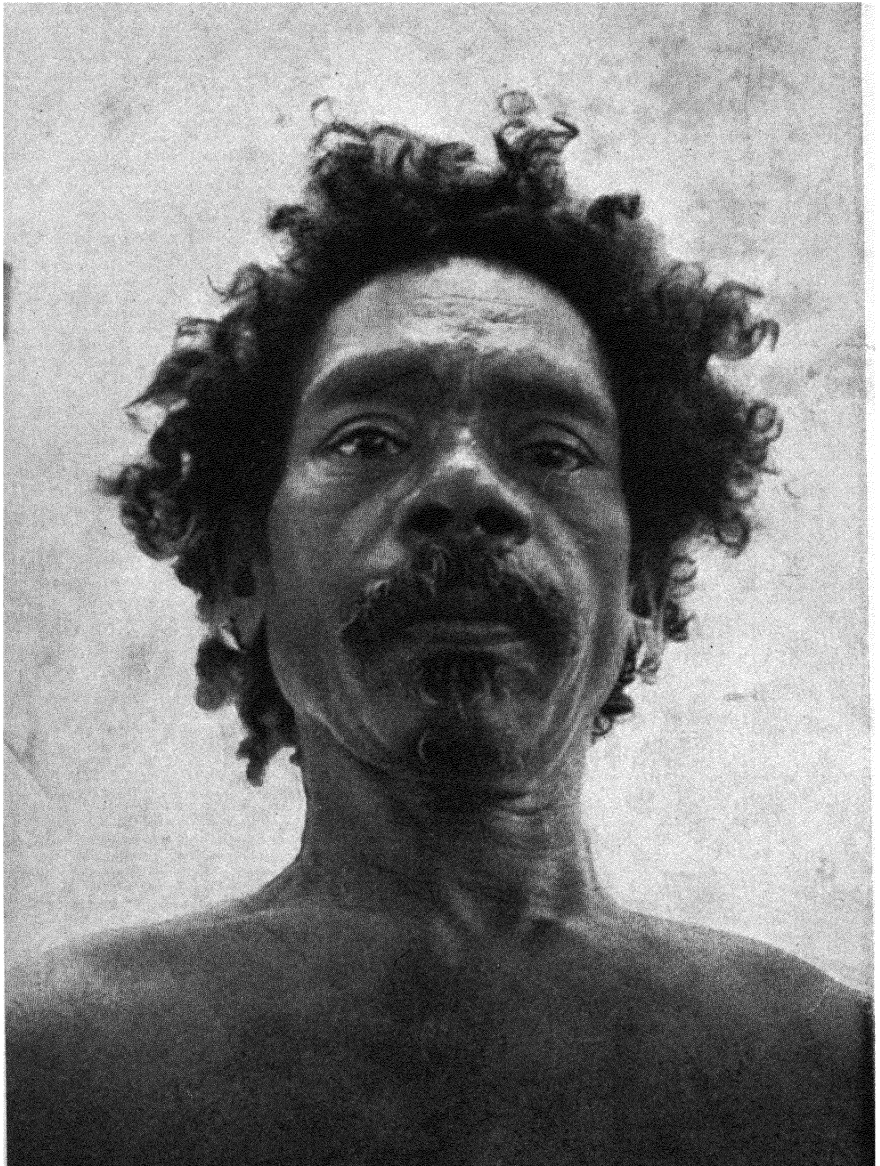
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THE EVOLUTION OF MAN



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THE EVOLUTION OF MAN

**(A Challenge to Darwinism through Human Biogenetics, Physical
and Cultural Anthropology, Prehistory and Palaeontology)**

by

FR. M. HERMANN, S.V.D.

with

Fifteen Illustrations

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FOREWORD

From time immemorial, one problem has ever engaged the minds of men—the problem of the nature of the origin of man and the goal of his final destiny. Every system of philosophy centres round these two questions, or rather the first question which is an enquiry into the origin of man. For, if man's origin is purely material, then his destiny cannot but be material. But, if his origin springs from something more than merely material, if his origin is spiritual, then obviously account must be taken of forces and factors which transcend animal nature and extend into the spiritual sphere.

Until recently, it was fashionable to believe that regarding this fundamental question there was a distinct opposition between religion and science. Fortunately, during the last decades, which saw the decline of what may rightly be called the "religion of science," it has been accepted that far from discrediting religion, science actually reinforces its truths. Many leading and well-known scientists *e.g.* Einstein, Planck, took up the study of philosophy and so were able to rise above the merely physical and material into the metaphysical to find out the ultimate causes of things. If man is to be guided by metaphysical principles which have validity for all times and all places, if certain values are to be regarded as sacred irrespective of any change in time-bound circumstances, obviously such a philosophy can derive its strength from a just appreciation of the origin of man.

If communism emphasises the material aspect of life (materialistic Marxism), it is because it accepts the false doctrine that man is but a higher form of animal, devoid of any spiritual faculties and supernatural gifts. On the other hand, if man has a special position in the whole creation, then he must have a destiny which is higher than that of animal nature. His philosophy of life, his mode and manner of living, his cultural and educational values, his social associations, all these must contribute towards enabling him to reach his final destiny. It is on account of this that the study of the evolution of man becomes important, not only to biologists, or anthropologists, not only to students of natural science but also to educationists, to philosophers and theologians, in fact to every educated man.

In this book, the author traces the evolution of man in its various aspects: through the origin of life, through the fossil records of plants and animals, and through a study of human fossils in all stages of development, from the *Archanthropus* (Archaic man) to the *Homo sapiens*.

Fulton Sheen, in one of his books, has this beautiful passage : "What is life ? That mysterious thing which is so intimately bound up with my thoughts, my ambitions, my pleasures, and my destiny ; Life—that which at times thrills me and

at times saddens me; Life—that which sometimes seems the greatest of all my gifts and at others the most burdensome of all ; Life—that which ushers itself in with a cry and takes leave with a moan ; Life—that which I know best and which I know least—what is it ? And where is it ?”

This book, “The Evolution of Man,” is an attempt to give the answer to the questions—“Where is human life?” and “What is it?”

✠ VALERIAN CARDINAL GRACIAS

Archbishop of Bombay

Archbishop's House,
Bombay I,
29th September, 1955.

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I. INTRODUCTION

The atom (microcosm) and the universe (macrocosm) reveal a wonderful and harmonious unity according to the leading scholars of natural science. On the other hand, the immense space of the universe is almost a mere vacuum into which matter is very scantily dispersed. Scientists get embarrassed every time they try to explain harmony and disharmony in one and the same nature, for they are not able to answer the question why and how such oppositions are possible and what they mean.

This is because they are confined within the limits of natural science which has as its scope and aim merely physics, or *material nature*. To give a reasonable answer to the *Why* and the *How* goes beyond physics. That belongs to the field of metaphysics, namely, what is beyond (meta) physics.

Here is the scope of natural philosophy which deals with the causes producing the physical phenomena. For this reason many eminent modern scientists have become philosophers, having witnessed that the working method of natural science had reached its limits and was unable to go any further. They therefore felt obliged to use the philosophical method to penetrate beyond the physical borders. This new scientific attitude causes a great crisis among scientists and gives rise to a situation similar to the time of *Copernicus* and *Galileo*.

But is the philosopher able to give the final answers to the most important questions? Can he explain thoroughly the origin of matter and energy? Can he demonstrate the source of life on earth? Can he define the essence of man? Human reason also has its limits and is not able to give us complete knowledge. Reason can even discover, by its own natural light, the limits which it cannot surpass through its power. Should this fact lead to the pessimistic viewpoint of *Descartes* who stated: "*Ignoramus et ignorabimus* (we do not know it and we shall not know it)" ? There is a still better solution ; reason needs revelation to acquire full and complete knowledge.

In modern times, the scientist, the philosopher and the theologian are fully aware of the limits of their own special fields, and have come to a better understanding of each other's standpoint. Thus they avoid intruding into the fields of others, by making statements on subjects of which they do not have competent knowledge.

This general basic position is more determinative in the special field of anthropology. Anthropology is the doctrine of man who belongs through his body to the physical world (physical anthropology) but is connected through his spirit with the metaphysical world (cultural anthropology). Thus man belongs to two worlds. This is why he becomes the focus of various sciences and why he is inter-

connected with different branches. But man is essentially a harmonious unity and cannot be divided and treated in different separate elements which are in themselves incomplete. Is that the revival of an anthropocentric world-view, making man the centre of the universe? The right answer to this crucial question and its full enlightenment may be obtained through the proper knowledge of the origin of man.

In complex anthropology every branch has to remain within its proper limits and cannot intrude into other fields. To interfere with other branches was a common fault a generation ago when writers on the subject thought they could cover every aspect of man. Nowadays such unscientific methods would seem impossible in any modern research. It is most surprising therefore to find that everybody believes himself competent to make "scientific" statements concerning every aspect of man. May I quote two examples only taken from recently published books?

Man in Evolution contains the following statement: "But their (Hindus) ideas about the origin of man and woman are even more practical than those held by the ancient Babylonians, the Jews and the Christians who, although they rightly placed the creation of man last in the order of living beings, yet believed that God had to take some clay, instead of an ape-like form, to make man from. Is this perhaps a suitable allusion to man's low moral qualities?" (M. R. Sahni, *Man in Evolution*, Orient Longmans, Calcutta 1952, p. 15) The answer to this wrong imputation can be found in any competent Christian book dealing with the matter, confirming that the Christians do not regard God as a potter. More details are given in this book. The next statement is a real *faux pas*:

"Geology and palaeontology have given much to humanity—coal, oil, minerals, precious stones and industry. But little did we realize that these sciences also gave humanity some of its saints. J. B. Haldane asserts that, for example, St. Protasus (correctly Protasius) and St. Gervaise were probably no more than ordinary mortals of the late Palaeolithic Age, whose sanctity is ascribed to the fact that after their bodies were decapitated and the flesh removed, their bones were besmeared according to Stone Age custom with red ochre, which simulated blood, so that when these bones were unearthed near Milan, they were acclaimed as those of saints. It is even reported that while being transported from their ancient to more dignified graves their touch cured the sick and ailing on the way. In reality, however, these 'saints' were only fossilized representatives of the Cro-Magnon race of 30,000 years or more ago, whose sex is unknown and who might even have been the victims of a cannibalistic ritual. So that geology and palaeontology gave to Christianity saints, who acquired their sanctity by 'sheer luck' and pious misinterpretation. And that is more than chemistry or physics or even mathematics has ever achieved, in spite of the belief that numbers can prove almost anything." (op. cit. p. VIII)

Assuredly, there is a misinterpretation, but I would like to point out that the misinterpretation is not on the part of the Christians but on the part of *Mr. Sahni*. What easily can be proved he says is not ascertainable, and states that their "sex is unknown." Every anthropologist knows very well that from a complete skeleton the sex—namely, male or female—can be determined. Besides, a fossilized skeleton can be, without any doubt, distinguished from a recent one by the fossilization process, and the age can be determined by the fluorin and carbon 14 tests, that is, by finding the percentage of fluorin- and carbon-content in the bones, as we shall see later on. All these facts can be verified exactly. Every modern scientist, worthy of the name, should know that.

Cannibalism in Palaeolithic times is dealt with in a chapter of this book. Granted that these two were the victims of cannibalism, how could their bones have been buried with such solemn rites ? Do the burial customs not prove clearly that the dead were highly esteemed persons of the tribe and not hunted "game" or devoured prey ? What cannot be proved by the skeletons the author fictitiously passes off as cannibalism.

Gervaise and Protasius were not canonized because Christians unearthed two Cro-Magnon skeletons embedded in red ochre, but because they were martyred at the time of Deocletian in Milan. Historical records state that they were buried by a Christian called Philippus at his house. St. Ambrosius discovered their forgotten burial place in the year 386 in the Church of Sts. Nabor and Felix. Later on, their tomb remained again unknown till 1864. If *Mr. Sahni* can prove that the forgotten relics of the saints were by mistake substituted by Cro-Magnon skeletons, his "fairy-tale" would at least have some meaning. As it is, his fatuous statement fits into a book on man's evolution and happily as an elephant in a porcelain shop !

In the book *Teach Yourself Anthropology*, the author comments on Jewish physical characteristics : "This feature, in so far as it is distinctive, is a product of the restrictions placed on the members of the group from the 12th century onwards, when they were forced to adopt the claustrophobic existence of the ghetto. It may safely be asserted that if this cruel system was imposed on any other religious group—for example on the Roman Catholics—then that group, by reason of compulsory inbreeding, would also tend to evolve distinct physical traits. There would thus come into being a Roman Catholic nose, a Roman Catholic mouth, a Roman Catholic skin." (*J. Manchip White, Teach Yourself Anthropology*, English University Press ; quoted from "Universe", 21 May 1954.) Such a "cruel system" was imposed by England on the Irish people, but the Roman Catholic nose, mouth and skin did not appear ! Is the author not able to distinguish between religion and race ?

If the authors of scientific books commit such blunders in anthropology, what can we expect from journalists and writers who popularize and indulge in anthropological fairy-tales ? (Cf. *Mulk Raj Anand, The Story of Man*, Amritsar—New Delhi 1952) They take for granted that the Darwinian theory of man's evolution is no more a mere working hypothesis but a well established fact which can be proved a hundred times over.

No wonder that Darwinism became a dogma even in school books for children (Cf. *Y. N. Bhatt, Elementary Physiology and Hygiene*, Bombay 1949, p. 38 seq. ; cf. Fig. 18, p. 40 showing the early stages of foetal development). When every science is to be taken seriously, then at the first instance the most important science of man, our own history should be treated very seriously. In the *Evolution of Man*, I have tried to give a complete picture of human evolution by combining human biogenetics, physical and cultural anthropology, prehistory and palaeontology. The real facts and results of sincere research must speak for themselves. They alone should be our guide in the science of mankind.

II. THE GENOTYPE OF MAN

(*Elements of Human Biogenetics*)

1. WHAT IS MAN ?

The questions "What is man ?" and "How did man originate ?" are as old as mankind. The answer to these questions has been a tremendous mystery and has racked man's brain from time immemorial. Different are the answers given in innumerable myths and legends which narrate the old traditions of many primitive people. These colourful legends of hundreds and thousands of tribes scattered over the five continents all tell one and the same story : the first man was created by a Supreme Being who created heaven and earth. This is the essential point in all the different creation-myths of mankind. As an example, let me refer to one of the legends which I collected during my recent research work among the Lepchas.

There are current among the Lepchas of Sikkim several myths of the creation of man. *Pum thing rum*, the High-God, created the first man. The first man was called *Ti gung thik*, and his wife *Ni gung ngal*. They lived in the land of *Mayal lyang*. There was no disease, no suffering and no death. It lies on the other side of the Holy Mountain *King tzum song bu*. All men return to this happy land after death. In olden times it was possible to reach it from the earth. But by men's sin the entrance to *Mayal* has been blocked. When men became sinful *Rum* punished them and sent great floods which lasted fifteen days, so that all were drowned. Only one Lepcha couple were able to save themselves in a wooden boat. (Cf. for more details *M. Hermanns, The Indo-Tibetans, Bombay 1954, p. 30 seq.*)

There are not only many primitive peoples who believe in the tradition that man was created by the High-God, but people who have developed a high culture have the same old myths of the first man's creation. The Indo-Iranian mythology relates several creation legends of man. According to the Vedic and later writers, *Manu*, the son of *Vivasvat*, was the prime generator of man (Rv. I. 80, 16). In other legends *Yama* and *Yami*, twin children of *Vivasvat*, are mentioned as the first human parents (Rv. X. 10. 2 ; X. 17. 1-2). In Old Iran, *Yama* is known as *Yima*, son of *Vivahvant* (*Avesta, Jasna IX, 3-5 ; IX, 8-11 ; V 25-27 ; XXXII, 8 ; Vendidad 2, A. 1-19*). Among the Tibetans the first man is called *Yi mon*, which name is clearly related to the Indo-Iranian *Yama-Yima*. Similar creation myths of the first man are known in Babylonia, Egypt, Greece, China, etc.

The same traditions are preserved in the holy scriptures of many religions ; e.g., in the Old and the New Testaments, in the Quoran, in Manicheism. Not

only have religions but also ancient philosophers dealt with the origin of man. Their interest in this question was very keen. Were not some of them forerunners of Darwin? *Anaximander* of Greece, for instance, could not understand how the first human couple could have started off their careers as all men do, namely, as babies. In baby form they would undoubtedly have perished in the struggle for life. Therefore, he suggested that the first man was derived from a shark, because he could see a remarkable likeness between this aquatic animal and man. *Empedocles* supposed that animals produced bizarre monsters, animals with human heads and men with heads of animals. Finally a complete man emerged and survived. People of those days had no difficulty in believing in such fantastic transformations. Observations had visibly demonstrated—they believed—that beings could come into existence by spontaneous generation. This means that they came into existence suddenly and abruptly from mud and slime without any reason. Spontaneous generation was the clue to every mystery of life. It was the “science of life” not only in ancient times but also throughout the Middle Ages until the 19th century. This doctrine of spontaneous generation was widely accepted until the well-known experiments of *Pasteur* finally exploded this fabulous theory. But even today there are men who believe in this ancient superstition. *Haeckel* claimed that spontaneous generation must be true, not because its truth could be confirmed, but because, otherwise, it would be necessary to believe in a Creator. Therefore he also substituted a clever subterfuge, called evolution.

What does evolution really mean? Ideas of evolution are very confused. “Evolution” literally means that something evolves or develops by a natural process which is set in action by agencies belonging to the nature of the thing itself; for instance, a chicken evolves from an egg. The confusion begins when different ideas are connected with one and the same word, “evolution”. We can group them into four classes.

(1) *Atheistic or absolute evolution*: The whole world developed from nothing or from ever-existing matter. Inorganic matter developed into organic matter, the first cell, and from this cell evolved the different kingdoms of life as a result of physico-chemical agencies. There exists no God, who created something. This theory is absolutely necessary to the atheists and materialists. “Belief in Evolution is the basal doctrine in the Rationalist liturgy” writes *Keith*, the leading anthropologist of England (*A. Keith, Darwinism and his Critics*, 1935, p. 53). Rationalists and materialists believe only in human rationality and matter and nothing else, and make evolution their creed. This is spontaneous generation *en gros* covered with a quasi-scientific cloak and renamed Darwinism. Whether *Darwin* himself believed in atheistic evolution or not is another question. But *Th. H. Huxley* and other co-workers did believe in it and they have many followers. *B. Bavink* writes: “The incredible rapidity with which Darwinism—and in those days this meant the same thing as the doctrine of descent—won the day is only to be understood when we take into account the intellectual position

of the time ; the collapse of the speculative philosophy of nature and the penetration of pure empiricism into science, with a resulting return to materialistic tendencies, the universal progress of industrialisation among European nations, and the corresponding appearance of the social question. Taking it altogether, it was a new philosophy of life which appeared to be then in process of formation, a philosophy of the pure 'there and now,' of pledged enmity to all speculative philosophizing, to all belief in transcendental reasons or purposes of the world—at a time of a determined struggle for existence in economic life as well." (*The Anatomy of Modern Science*, 1932, p. 454) In their struggle for power Marxism and Communism have made Darwinism the stronghold of their theory. "*Michurin's* theory has adopted and developed the best sides of Darwinism. *Darwin* has explained the evolution of animals and plants from the materialistic point of view. *Michurin* has developed this knowledge and taught methods of directing the process of producing new species of plants and new species of domestic animals, thus transforming Darwinism into a really practical creative doctrine. Thanks to the care of the Bolshevik party and of the Soviet Government, as well as to the personal care of our great leaders, *Lenin* and *Stalin*, *Michurin's* theory has been preserved from oblivion and has become the property of the people." (*Kaftanof*, Minister of Higher Education in the U. S. S. R., in an editorial article in *Izvestia* of September 8th 1948) The Soviets do not give proofs of the new species of plants and animals which they claim to have produced. Atheistic evolution developed as the backbone of the communists' world view.

(2) *Deistic evolution* is the second class, which pre-supposes that God exists and created the world matter. But the whole world-process developed as a result of natural agencies, let us say, from a gaseous ball to the sun-systems, from inorganic matter to organic life and from an amoeba to man. For controversial purposes, the atheistic and the deistic evolutions are taken together.

(3) *Theistic evolution* supposes not only the creation of the world by God but invokes extranatural activities to bring about the more radical changes in the development of the living kingdoms. Where are the limits of radical and non-radical changes ? Does the formation of phylum, class and order call for a radical change or not ? Can family, genus and species be developed without a radical change ? Anyhow, theistic evolution supposes that man's body developed from a lower non-human species ; that means, that from animal bodies, which are animated by sensitive entelechy, a human body developed through internal agencies only. The body is adequate to the animating entelechy ; an animal body is adequate to a sensitive, a human body to a spiritual entelechy. Both, body and entelechy, are incomplete components of one organic unit. A sensitive life principle cannot develop a body which overpasses the sensitive limit and should be adequate to the spiritual sphere. That is against the law of the adequate cause. "To believe that some species unable to speak and of which the mental powers were very greatly inferior to those of man, became transformed into human beings is to

make very great demands on the credulity, unless by selective breeding it has been possible very greatly to increase the mental powers of some species. In fact no one has succeeded in adding an iota to the intelligence of an animal species, and it may be doubted whether any zoologist believes this is possible. There seems to be a definite limit to the intelligence of every kind of animal which cannot be overpassed. This being so it is unreasonable, and therefore unscientific, to accept the theory of the animal descent of man unless those who support the theory can give a good reason for this failure to increase intelligence compatible with belief in the theory." (*Douglas Dewar, Man : A Special Creation*, 1946, p 5) The Theistic evolutionist does not go quite so far ; only for the human body he accepts an evolution from the animal body ; with regard to the soul he supposes a special creation. The law of entelechy states : an entelechy cannot surpass the sphere of its specific activity. The vegetative entelechy of a plant cannot overpass the limits of the plant kingdom ; a plant cannot evolve into an animal. The sensitive entelechy of an animal cannot transgress the limit of the animal kingdom, developing a human being. And man cannot evolve into a superman who lives beyond human nature.

(4) *Special creation* : The fourth view holds that man needs a special creation for body and spirit. The human body possesses a special, extraordinary position in the kingdom of life which can be explained by a special creation only. This theory admits that an animal body could be *re-created* into a human body as we shall explain later on. Furthermore it concedes that evolution occurs within the limits of natural races, species and genus. Man belongs to the single and specific family, genus and species *H. mo.*

To clarify the confused meanings of evolution it would be better to use the word "*transformation*" for "*absolute evolution*" mentioned under point 1 and 2. Refusal of absolute evolution means the refusal of atheistic and deistic evolution.

To prove the origin of man as a special creation, we depend on the above mentioned law of entelechy and its consequences. Modern biogenetics proves that there is a stable and unchangeable specific human chromosome-gene-system which is built up, organized and ruled by a human entelechy. This is the basis for man's *genotype* (internal structure). If the human genotype is essentially one and the same, then, in consequence, man's *phenotypes* (external, physical appearance) must be essentially the same. Physical anthropology is able to show that all the different fossil as well as the modern races of man can be traced back to one human *typical form* (*forma typica*). These are the arguments in our demonstration of man's origin :

(1) The human genotype is the result of man's special chromosome-gene-system.

(2) The human phenotypes are the result of an evolution from man's typical form which was the effect of the original human genotype. Let us consider the elements of human genetics.

2. ATOM AND CELL

What is genetics ? Genetics is the study of the origin (or genesis) of life or *bios*, as the Greek word for life means. It is a part of biology which is the science of life in its entirety. Different answers were given to the question : Where is the origin of life ?

Once upon a time—and this time is not so far back—men believed that life or animate matter could be evolved from lifeless matter by *spontaneous generation* ; that means, lifeless matter could be transformed into a living cell by a sudden and abrupt change as mentioned before. *Arrhenius* supposed that sperms of life came from interstellar spaces to the earth under pressure of rays. But modern research proves that every sperm of life would be killed in the stratosphere by ultraviolet rays and by the great cold. The last landmarks in the search for the origin of life were the discoveries by *Pasteur*. He made it clear that an organism like a bacterium can originate from a living cell only. There exists a fundamental difference between a lifeless atom and a living cell. An atom has a mechanical structure built up of nucleus, neutron, proton, etc. A cell, an organic structure, is formed by protoplasm, centrosom, nucleus with its chromosomes and genes, etc. There is a big gap between an inanimate atom and an animate cell, a gap which cannot be bridged by transition from crystal to amoeba, or from virus to protozoa.

A last attempt was made by some scholars to prove by demonstrations with virus that lifeless matter can evolve into a cell. Virus produces small-pox, yellow fever and other contagious diseases. The virus *Siphonospora polymorpha*, which develops cancer, originates from crystals but only when these crystals are irritated. And what is this irritation ? What is its cause ? It is a principle of life which is responsible for it. New researches were able to show that protein may be the fundamental element of the biological phenomenon. Virus as well as genes are composed of nuclear protein but only the genes achieve the processes of life. Today we can say with more certainty that the virus is not a living being because it does not have the change of energy and matter in building up its structure. It needs the closest contact with a living cell, using the cell's energy to develop its structure. A fundamental biogenetic law is accepted which states: *Omne vivum e vivo*, "all life from a living cell," or *Omne vivum ex ovo*—"every life from an egg." Inorganic matter cannot evolve into an organic cell. Such evolution is impossible as modern science proves.

3. WHAT IS LIFE ?

The difference between an inanimate atom and an animate cell is recognizable by many characteristic signs. The characteristics of living things are :

(a) The power of assimilation, *i.e.*, a plant can convert inorganic matter like salts, phosphorus, etc., into cellulose, the substance forming the solid framework of the plant. An animal can convert organic food, like grass or flesh, into protoplasm or protein which is the essential element of life.

(b) The power of growth : to grow and to develop by its intrinsic constitution is the second characteristic of an organism. A crystal grows chemically from outside when crystal joins crystal; a cell grows from within.

(c) An organism can breathe, *i.e.*, it continuously takes in oxygen and gives out carbon dioxide and water vapour. An atom does not need to breathe.

(d) The power to excrete is the fourth sign of life. By excretion, waste and useless matter is thrown out from the organism. Decaying atoms emanate rays and energy.

(e) The faculty of procreation : an organism only can procreate its own kind, producing an offspring to perpetuate its species. An atom is not able to reproduce its own kind. It can change by loss or augmentation but quite a different element will be produced.

(f) Power of restitution ; *i.e.*, reparation of injury or restoration of lost parts ; for instance, if a developing sea-urchin is cut into halves, each half will reproduce the whole organism.

(g) Susceptibility to decomposition, *i.e.*, the life-principle is separated from the body which decomposes into inorganic elements.

These characteristics belong to the whole organic world. The following signs are characteristics of the animal and human kingdom:—

(h) The power of irritability, *i.e.*, to respond to external stimuli through the senses.

(i) The faculty to move at will by means of motive apparatus.

An organism is not merely an object which is used but is a subject which uses other things for its own purposes. Materialists and mechanists suppose that life is an *epiphenomenon* of matter only. They deny an essential difference between

inanimate matter and animate cell. But they cannot explain the above mentioned characteristics of a living organism. Vitalists believe that life originates through a vital force which is quite distinct from physico-chemical forces. They seek to prove that life is an original phenomenon which cannot be traced back to, or be derived from, inanimate matter. The atom-system is a wonderful system ruled by fixed laws. But man is able to interfere with the system, can split up the atoms by force, and can change one form of an element into another element. The cell has also a material system and the nucleus of the cell is constituted by atoms, relatively by molecules. Scholars try to change the chromosome-gene-system by X-ray treatment. But they cannot change it essentially as we shall see later on, or they kill life.

The principle of life is called entelechy by *Aristotle* and by modern *Vitalists*. But the modern meaning is different from the Aristotelian meaning. *Aristotle* supposed entelechy to be a complementary substance and a component which forms together with the indefinite matter (*materia-prima*) a complete substance. According to Vitalists, entelechy is an independent natural factor, a causal factor which forms the teleological unit of the organism.

There are three kinds of entelechy : (a) the vegetative entelechy of plants ; (b) the sensitive or psychical entelechy of animals ; (c) the rational or spiritual entelechy of man or the human soul. These three entelechies are distinctly different and there is no development from one to the other. The plant entelechy cannot change into an animal entelechy, and that of an animal cannot evolve into a human spirit. We have the following hierarchy : the physico-chemical rules are transformed by the vegetative and sensitive entelechy into the higher order of vegetative and sensitive life, and the biological laws of the plant and animal kingdom are transformed by the human spirit into the higher order of spiritual life. There is no blind evolution from matter into plant, from plant into animal, and from animal to man. This is the law of entelechy which is elaborated later on. What are the elements with which the entelechy works ?

4. HUMAN GENETICS

(a) *The source of life.*

The biological unit is called a cell. A cell is surrounded by a wall or membrane which separates one cell from another. Inside the membrane is contained the living substance called protoplasm. Within the protoplasm is a concentration which forms the nucleus. It is composed of a chromatin net-work which masses together during cell division into visibly definite structures, termed chromosomes, which consist of an immense number of genes. According to the latest researches, each human chromosome contains about 44 000 pairs of genes. The human

cell has 24 pairs of chromosomes ; that means 48 times 88,000 genes. Other components of the nucleus are the nuclear matrix which is a clear substance, and the nucleoli which are highly refracting particles. The nucleus is surrounded by the cytoplasm in which there is an attraction sphere with an attraction particle known as the centrosome. The basic matter of every cell is protein. Each human cell has the same marvellous structure—with one important exception, the human germ cell. Each female egg and male sperm cell receives only 24 chromosomes and not 24 pairs and the ovum contains no centrosome. When an ovum is fertilized by a sperm which brings along the centrosome, the two half-sets of chromosomes come together, and so in the fertilized egg the full number of 48 is restored and the cell-system is completed. The human egg is about 85,000 times as large as a sperm. Whereas the ovum has a plus of quantitative matter, the sperm cell has a plus of dynamic power through the centrosome. But there is no difference in the effect on a child's characteristics. In general, inherited effects are equal from both parents. Such is the unchangeable human chromosome-gene-system. (Fig. 1 & 2)

(b) The organs of human life.

In wild animals, sperms are produced during only one part of the year, during the rutting season, and only at this time does the male display interest in the female. In man, the production of sperm is continuous, and if there is any seasonal variation it is not of practical significance. In all female wild animals, eggs are produced intermittently : in some only in spring, in others, that have litters, several eggs ripen at once. During the time of egg-producing, the behaviour of the female animal changes : she is said to be on heat, or *in oestrus*, and she is willing to receive the male. At other times the male is repelled. It seems that in most mammals the female oestrus cycle synchronises with the male rutting cycle. In this again woman has a special position. A woman is usually fertile between the ages of 15 and 45 years, though exceptionally the fertile period may be much longer. During this period, one ovum develops every 28 days, approximately, in alternate ovaries, except during pregnancy and to some extent during lactation, when no eggs are produced.

In woman, egg-producing is regulated through the menstrual cycle. While most mammals have an oestrus cycle, only a few menstruate ; among these are certain monkeys, the apes. But their menstruation occurs during the oestrus time only. The sex life of mammals demonstrates that the sexuality of the animals is bound by fixed natural laws and by blind instincts and is compulsory during the rutting season and the oestrus cycle. Man alone is completely free in his sexual life. Could this freedom be developed from unfree and blind instincts ? The continuous production of human sperm and ovum requires a special hormone system. Let us demonstrate it by one example on the pituitary, a small endocrine gland lying in a pit in the bone below the brain and above the roof of the mouth.

Fig. 1 Cell-division (mitosis) in general; every animal life starts at this stage

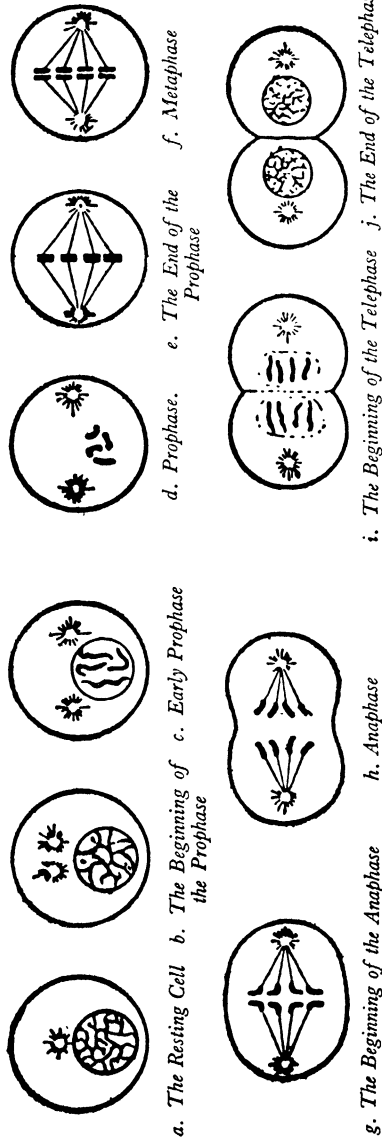
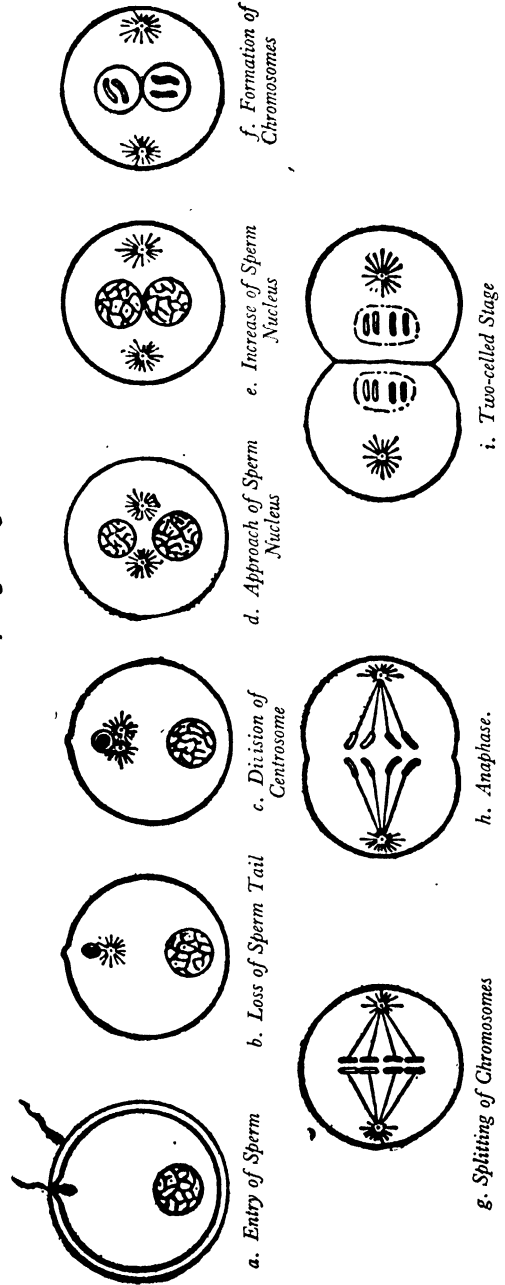


Fig. 2 Fertilization and cell-division of the human ovum which is determined through its 24 pairs of human chromosomes in the very beginning as a human being



The pituitary produces a hormone which stimulates the sperm and ovum producing organs. This gland is always functioning in man but only seasonally in animals, during the mating period. But what is it that stimulates the animal pituitary to produce hormones at a fixed time ? Some say it is the increase in the amount of daylight in spring. But that is not the case in the tropical zone, where the same rutting season and oestrus cycle prevail. During my research in Tibet I observed that the mating periods depend on the altitude of the district. In the lower valleys it is earlier and in the high mountain regions it is later. Both districts have the same amount of daylight. If the lambs, for instance, which are born in the lower valleys in December and January, were to be born at the same time in the high mountains, they would perish from cold and starvation. In the high regions the lambs are born in May.

Other hormones influencing the sexual life-function-cycle, as does the hormone produced by the pituitary, are oestrogen and progesterone. The gland- and hormone-system is another test that the materialists with their mechanical and physico-chemical explanation of life are at the end of their wisdom. There is an essential difference between human sex and animal sex. The vitalists can prove that entelechy is the cause of this rhythm. The sensitive entelechy of the animal is bound by fixed natural laws and instinctive function-cycles and is not free at all. The rational and spiritual entelechy of man is free also in sex-life and dominates natural laws. Is it possible to believe that this quite different human sexual life could be evolved from animal sex-life ? Can this human sex-specialisation be the effect of a blind evolution ?

A very interesting and instructive question is how and by which parent the sex of an individual is determined ? Who is responsible for a boy or a girl baby ? We have already seen that there are 24 pairs of chromosomes in man. One pair plays a special part in sex-determination. In a woman's cell the members of this pair are identical ; both are called X-chromosomes. In a man's cell the members are different, one X-chromosome and one Y-chromosome. Now consider what happens when the germ-cells are produced each with a half-set of chromosomes. Each ovum will always get one X-chromosome, but a sperm cell may have either an X- or a Y-chromosome. If an egg is fertilized by a sperm with an X-chromosome the ovum will have two X-chromosomes and will develop into a female ; but if a Y-bearing sperm has fertilized it there will be one X and one Y and so development will be into a male. In a normal ejaculation there are perhaps 240 million sperms, that means 120 million possibilities for the birth of a boy or a girl, respectively. Is it possible to determine sex during fertilization ? Attempts have been made to do it but so far none has been successful. The Tibetans claim to have medicines which can determine sex, but I was not able to verify their statement.

The chances of an ovum being fertilized by an X-or Y-bearing sperm are equal. But it is well known that rather more boys are born than girls : in Germany and

Britain about 105 boys are born to every 100 girls. What is the reason ? The mortality among male babies is higher. The higher sex-ratio at birth combined with the higher mortality gives a sex ratio of about 100 at puberty so that the youth of each sex are approximately equal at the time of marriage ? Another fact is surprising. After the first and second world wars the birth-rate of boys was much higher than normal. During the wars the loss of males was very great and the percentage of females rose. All these facts, which are unknown among animals, are not due to a blind mechanism ruling life. There is a spiritual entelechy which regulates human life in a telcological way. The regulations of human nature are psycho-physical and not physico-chemical. Let us make a short reference to another interesting question.

Has astrology any effect in determining the sex or the character of a human being ? The horoscope is taken from the time of a person's birth and is believed to have great importance during his whole life. The horoscope taken at a person's birth is without any value because from the very day of his birth onwards, he lives an independent life. Cosmic rays and astral influences may have some effect at the time of conception and in the early stages of embryonic development. Procreation at the time of the waxing or waning moon may be in favour of boys or girls, respectively. More important than the cosmic are the telluric rays, which are quite ignored and which astrologers do not take into account. Radiation of radioactivity emanated by subterranean water-veins are very influential on animal and man. Most powerful in effect are the rays produced by crossing water-currents which make animals sterile and, of course, women also. They are the causes of cancer and many other diseases. There is a corresponding connection between the sexual polarity of man as the microcosm and the magneto-electrical polarity of the macrocosm. Man has a positive, woman has a negative polarity. Here and there man and woman can change so that man may be negative and woman positive. By means of this polarity test it is possible to determine the sex of a foetus. Such strong influences could have something to do with sex determination during conception. How cosmic and telluric rays have influenced the development of human races we shall demonstrate later. Man alone is a microcosm and corresponds to the macrocosm to this extent. How could this be if man has evolved from an animal ancestor ?

(c) *Ontogenesis and phylogenesis.*

We saw that the source and the organs of human life have their special peculiarities quite different from the animal. The fertilized human egg contains in its chromosome-gene structure the potentialities and potencies of the complete human being. Now let us see how these potencies develop.

The development of an individual person is called ontogenesis. The evolution of a whole phylum—vertebrates for instance—is termed phylogenesis. The

extreme evolutionists suppose that the human ontogenesis is a recapitulation of the phylogenesis ; it means that in our foetal development there appear the ancestral characteristics of our prehuman evolution. They say that we go through a fish and a reptile stage, representing the fish and the reptile period of our prehuman ancestors. That is not all ; they state that we climb our family tree during our embryonic development, which is an evolution from a protozoan (a single cell-animal), the ovum, to *Homo sapiens*. This is the most important dogma of extreme evolution : "Every embryo recapitulates the history of the phylum." This dogma, which is called "the biogenetic law," was first stated by *Haeckel* who used falsification to supply those embryonic stages which were missing. What are the traces of such an evolutionary history they are trying to find ? They believe that the most obvious can be found about four weeks after fertilization. Externally the embryo seems to have rudimentary gills though actually these never fully develop ; it has a long tail in relation to the length of the body ; and in general it resembles, they suppose, not a fish, but a fish embryo. Internally the resemblance is carried further : for instance, the arrangement of the blood vessels is fish-like, and the principal muscles are divided into segments which are developed in a fish. But all these transitory structures undergo a rapid and complete transformation, and within a few weeks there is hardly any trace of them. They are not stages but transient structures only. Others find traces of a reptilian stage in human foetal evolution. If a recapitulation of prehuman ancestors does occur, then why do other examples of development fail to reflect such evolution ? Take for example, the shape of the head and of the face. In mammals there is a small brain capacity but a most prominent chewing apparatus with a big snout. If there were a straightforward recapitulation of ancestral characters, we should expect that the human embryo would develop a small brain but a prominent snout which it would then lose. In fact no snout ever appears, the face is completely flat and the skull is extraordinarily large as we shall see afterwards. Why do evolutionists point out the similarities, which are no proof of affinity, and overlook the discrepancies ? Fish, reptile, and amphibian possess cold blood ; but man has warm blood. The heart of the fish has two chambers, that of the reptile and the amphibian three, and the human heart has four chambers. Each phylum has quite a different brain. The phenotypes, the outer appearance, may be similar between the human and animal foetus in the first four weeks. But a specialist is able to recognise a human embryo about the 30th day and no one can mistake it for that of any other creature on the 49th day.

"The phenomena of embryonic development exhibit two outstanding features and, when once these are grasped, the reasons for many of the phenomena become clear. These features are :

"(1) The structural changes through which an animal passes in its embryonic development follow the shortest and most direct route possible to the adult state, compatible with the immediate necessities of life. Among these necessities are an

unceasing supply of nutriment and oxygen and the means of ridding itself of carbonic acid and other waste products of the chemical changes that take place within it.

"(2) The fertilized ovum is endowed with the power of developing at a very early period the tissue-producing cells or primordia of each of the major organs and structures that occur in any member of the phylum or class to which the animal belongs, even the primordia of structures which that particular individual will not need in the adult state: in the case of these, the development of the primordia capable of producing them is early checked; thus the embryo of every higher animal exhibits the primordia of both the male and female generative organs, but in normal circumstances only those of one sex attain maturity." (*H. S. Shelton and S. D. Dewar, Is Evolution Proved?* London 1947, p. 205)

The fact that the development of all these embryos is similar *in the first few weeks* is due to the mechanical necessity of cell division. "There is a mechanical or physiological reason for every feature exhibited by the human, and every other embryo at every stage of its existence, and in nearly every case we have sufficient knowledge to be able to state what this is. Every embryo, including that of a man, begins existence as a minute cell, not because of its supposed descent from a one-celled ancestor, but because this is the only possible method by which it can commence its existence." (*D. Dewar, Man: A Special Creation*, op. cit. p. 30) The same mechanical necessity works in the following cell-division. This is the reason why all embryos generally resemble one another in the earliest stages, but a time soon comes when they begin to differ, namely, when the ground plan of the specific phylum of the embryo is reached; for instance, the ground-plan of the vertebrates. As all vertebrates are constructed on the same plan which entails bilateral symmetry, a dorsal central nervous system, a dorsal endo-skeleton (notochord or backbone), a head and tail, and never more than two pairs of limbs, all vertebrate embryos whether fishes, amphibia, reptiles, birds or mammals, develop in the same way until the general outline of the vertebrate plan is established. This development is again a mechanical necessity if the embryo is to reach the adult state in the most direct manner. At this stage the embryos of fish, reptile, amphibian, bird, man, etc., must be similar to each other. But the phenotype, the outer appearance, only is similar; the genotype, the gene-system, is completely different. The same happens with the embryos of the same phylum, when they reach the ground-plan of their specific class, order, family, genus and species. In this manner the human embryo has to pass, in the first month of its evolution, the ground-plan of the phylum Vertebrates, of the class Mammals, of the order Primates of the suborder Anthropoidea, so as to reach his special state of the family, genus and species *Homo*, man, in the most direct manner and shortest way. Therefore human foetal development, or man's ontogenesis, is not a recapitulation of the phylogenesis and is never a reproduction of prehuman ancestors. *De Beer*, who is an evolutionist, admits that there is no logical justification in regarding an embryolo-

gical stage as evidence of such a stage representing an adult prehuman ancestor (*Dr. de Beer, Embryology and Evolution*, pp. 86, 90, 104). The famous biologist, *Uexküll*, vehemently opposed the theory of embryonic recapitulation, stating that it is flatly grotesque to value embryonic stages as relicts of prehuman ancestors which are supposed to have lived in earlier periods (*O. Kuhn, Die Descendenztheorie*, München 1950, p. 80).

The decisive causes for the development of the human ontogenesis is the plan of the end-product, which is the formation of a man; therefore this final object of the whole development rules every stage of this embryonic evolution. The ruling plan of man's ontogenesis is effective through the human entelechy. That is the architect who builds up the human body from the fertilized egg to the mature child. In conclusion I may say that human embryology disproves man's evolution from an animal. As the most stringent proof I regard the end-product : the new-born human child which is immature at birth.

(d) The immature human baby.

The life of every animal depends on its foetal development. When the embryo of the *higher animals* is mature it will be born and is fit to live. An immature animal embryo cannot live at all. There exists an embryonic rule : the higher the organization of the body, the longer is the embryonic period. The higher organized mammals like cattle, horse, ape, have a more specialized structure of body and therefore the foetal development is longer and the number of the new born is mostly one or two. But on the day of their birth, the offspring are so far developed that they have the movement and behaviour similar to those of their parents. A new born calf, colt, elephant or ape can stand and move immediately after birth. Thus maturity is reached with their birth at the end of pregnancy. This is the embryonic function-circle of higher animals. The pregnancy of a chimpanzee lasts 253 days, that of an orang-outang 275 days. The new born ape is able to stand, can grasp its mother's chest-hair and cling to it, can move and search for the breast to suck—and that too from the very first day of its life. The ape mother does not need to carry and support her baby. After six months the chimpanzee mother drives her child away and does not care for it any more. A six months old chimpanzee is completely independent.

The pregnancy of a human mother lasts about 280 days, that is 27 days longer than that of a chimpanzee. According to the pattern of evolution, and according to the embryonic function-circle, the new born human baby should be able at birth to stand upright, should be fit to walk and to grasp her mother's hand. But what a striking contrast! A new born human baby is weak and helpless. It lies down unable to turn from side to side, nor to hold up its head, which declines without support. How could it stand and walk at birth ? How could it grasp

the hand of the mother or search for the breast? Without a mother's help the human child would perish ; it needs support in every way.

The proportions of a baby-animal's body are exactly the same as those of the adult. But the proportions of a human baby's body are quite different from those of the adult. First of all the head is very large and the body and the limbs are small. A one-day-old ape-baby can communicate with others by certain cries and signs, and reacts to the warning cries of its mother. Accordingly the human baby should be able at birth to speak the first words, to make signs and to react to words and signs, but it is unable to speak, to make signs and to react. Is it so because its intelligence is less developed than that of a chimpanzee-baby ? Not at all ! The reason is that the child's body is completely helpless because he is immature at birth and needs one more year of development to reach the stage of a new born chimpanzee. This immaturity is so striking that some scholars suppose man's morphology is of a foetalized and highly unspecialized type which is in no way adapted to nature as the animals are. The human baby is a retarded animal foetus whose development was forcibly blocked. This view is contrary to the pattern of evolution which lays down that man stands on the top and is the climax of the natural development. (*A. Gehlen, Der Mensch, Seine Natur und seine Stellung in der Welt*, Bonn 1950, 107sq.)

Let us demonstrate, in short, the main stages of the development during the first year after birth.

(1) The development of the body towards an erect posture : In the first month, the human baby is helpless. During the second and third months, it learns to hold its head upright. From the 5th to the 6th month, it tries and finally is able to sit upright. From the 6th to the 8th month, it is able to get up, supported by a person or leaning against something. From the 11th to the 12th month, it can stand unsupported and take some steps. Thereafter it learns quickly to walk and even to run. From the 11th to the 13th month, a child lying prone on its belly is able to get up from that position. Corresponding is the growth of body and limbs. But about three years are required before the spine and pelvis of a human child have the structure of the mature form. Only a year after birth has the human child reached the same stage of bodily maturity as the ape baby on the day of its birth. We may say it needs an intra-uterine development of nine months plus an extra-uterine growth of twelve months, in all 21 months to reach the stage of maturity of an ape baby at birth. These are the reasons why I suggested that the human baby is immature at birth. According to the embryonic function-circle of the animal, human pregnancy should last 21 months. Such a long period of pregnancy would not be impossible. The Indian elephant is born after 21 or 22 months, and is 3 ft. in height and 200 pounds in weight.

Another decisive argument lies in the fact that it is impossible for the human child to take an erect posture owing to the humped position during its foetal life. To stand erect requires those 12 months of extra-uterine development. The erect position is one of man's main characteristics and enables him to have his hands always free that they may serve as "universal instruments." As such man becomes the *Homo faber*, the craftsman or artisan. This enables him to develop his practical and technical intelligence which serves him in building up his own surrounding world. Man's peculiar extra-uterine development is primarily to be attributed to his striving to achieve the erect posture. (Fig. 3.)

(2) Another causative factor is the need to learn the language. During the embryonic period the foetus is completely cut off from the outer world. For animals this does not matter because they are bound by instinct and nature. Their instincts are developed during foetal life and are complete at birth. For instance : a chicken just out of its eggshell notices the approaching hawk, recognizes the danger and flees immediately. A chimpanzee baby seeing a snake clings to its mother. The animal instincts work automatically and immediately after birth.

Man, on the contrary, is not wholly bound by instinct and is not restricted by way of function-circles. He depends on psychic faculties and powers, which cannot be developed in the maternal womb. They can only be completed through the immediate contact between the child and the outerworld. After birth, a human baby's conscious psyche reacts in no way and is unable to speak a word. Language is the faculty for communicating with others by the aid of words and signs, which as different combinations of meanings are arranged in a special way. The alluring voice of a bird, the imitation of words by a parrot, the warning cry of a stag are not a language. A human baby also reacts by crying, squeaking and squawking like an animal but these sounds are not a language: nor does speech develop therefrom. What are the different steps evolving the human language? A three or four months' old child begins to babble. In its fifth and sixth month, it is able to give a babbling monologue, using sounds and voices which it will not use later on. Babbling is a international baby language, common to children all over the world. From this babbling every language, may have developed. A nine- or ten-months' old baby defectively imitates its mother's words. A single word has the meaning of a whole sentence or some words mean a complex series of facts, wishes or aims. Imitating the words of its mother, the child starts to speak its mother's tongue and clumsily attempts to express its inner feelings. The inner psychic life is much richer than its ability to express this through words and signs. At 15 months the baby has finished the period of imitating and is able to use language independently. What a great difference between the human child and the chimpanzee baby which can produce 23 different sounds at the age of one year and about 200 sounds when grown up! But the so-called "chimpanzee language" is not a real spiritual language but an instinctive expression of affection that cannot be developed

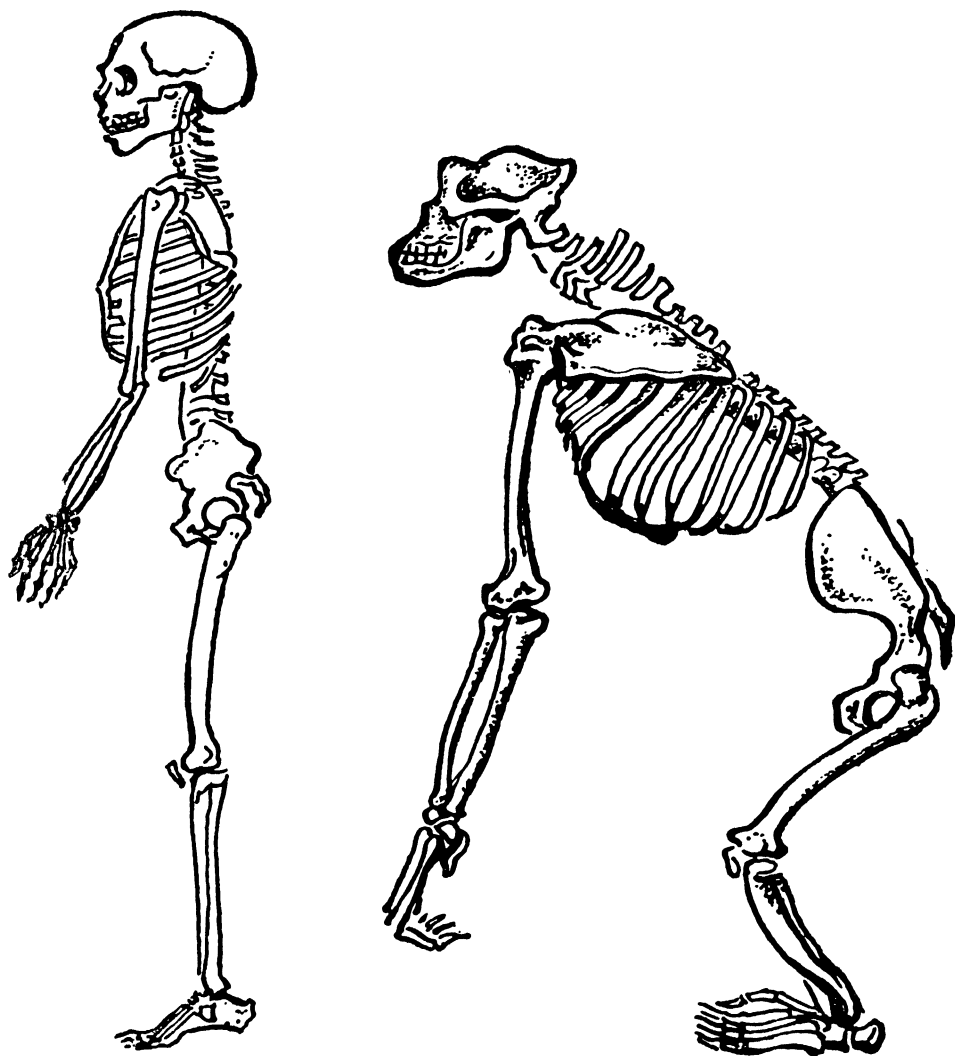


Fig. 3 The natural posture of man and gorilla. The architectonic plan of the human skeleton follows the vertical line of the erect posture and all the bones, from top to toe, are built according to this architectonic law. The apes are not adapted for walking, but have very long arms and four hands (quadrumania) suitable for brachiation in trees.

into a rational language. *B. Schmid*, an expert on animal psychology, confesses : "Who has been occupied with studies of animal language for several decades like myself and who accordingly has experimented on and controlled hundreds and hundreds of animals becomes very disappointed to observe that the apes have a very limited number of sounds. It is not only this small number of sounds but, most of all, it is the fact that there is no progress in any way from the lower monkeys to the higher apes. This is the first remarkable fact. The second is that neither orang-outang, or gorilla, or chimpanzee. . . show even the slightest beginning of the formation of a word. There is not even a superficial connection with the most primitive form of a human language. . . The reports on ape's language, which were reported from America, were disproved as erroneous." (*B. Schmid, Die Seele der Tiere*, 1951, p. 97) Except man, all the primates possess only a weak faculty of communication compared with other animals ; e.g. the parrot is the best in imitating the human language. These facts contradict again the theory of extreme evolution. The human child develops its language more and more because man alone is the *Homo loquens*, "man as speaker", and as such is able to form his social world. To learn the language at an early stage is the second main cause for man's peculiar evolution which has not only no connection with the animal stage but is diametrically different from it.

(3) At the same time that the language develops, the child learns also to act and react, to behave, and conduct itself in an intelligent way. In this respect the discrepancy between man and animal is extraordinary. Animal instincts are the instincts of their organs, through which they are adapted to the surrounding world. These instincts follow blindly the great rhythms of nature which have fixed times when they are allowed to awaken and to operate automatically ; for instance the sex-instinct at the rutting season, the migrating instinct at a fixed time, the hibernating instinct at the end of autumn, etc. Man is not instinct-bound and is able to act freely as he likes. A baby has actually to learn this free acting. In its ninth or tenth month, it is able to understand and to act according to its understanding. A child, of course, recognizes its mother, for instance, much earlier, but later on it understands a situation and reacts accordingly in a free way. This understanding, this intelligent acting and free behaviour is the strongest proof of the existence of a spiritual intelligence in a child. Spirituality is the greatest gap between man and animal, which cannot be bridged by evolution. (*A. Gehlen*, op. cit. p. 53) Such free acting proves man is a thinker, *Homo sapiens*.

(4) The characteristic signs of the spirituality of a human baby are its highly developed psycho-physical organs, the great capacity and complicated structure of its brain, its highly organized nerve-system, its extraordinarily big head and

its high body-weight at birth. The following table shows the corresponding data between man and ape :

Subject	Foetal time days	At birth		At maturity	
		Total weight g.	Brain weight g.	Brain weight g.	Total weight kg.
Man	280	3.200	360-386	1.450	65-75
Gorilla	?	1.500 (1.800)	ca. 130	430	100
Chimpanzee	253	1.500	ca. 130	400	50-75
Orang-outang	275	1.500	ca. 130	400	75

(A. Portmann, *Biologische Fragmente zu einer Lehre vom Menschen*, Basel 1944, p. 39 and passim).

The brain of a human baby is three to four times heavier than the brain of the biggest ape ; together with the brain-weight is its complicated structure, and the highly organized nerve-system which is more important than the brain-mass. There exists the nearest correspondence between the development of the body and the brain which is expressed by the formula $W=c.H$ (W =weight and H =height of the body ; c and r are unknown coefficients) ; $E=a.W$ (E =weight and a =standard of organisation of the brain, m =Dubois' coefficient of relation.) Both the formula combined mean $E=a.(C c. H^r) m$. Such harmony and correspondence can be achieved by an entelechy only and not through a physico-chemical law. (Reference of *R. Routil, Vienna*). These facts show obviously that the psycho-spiritual organs of a human baby are the most significant. If they are so highly organized and so important, the human spiritual psyche must play an extraordinary role not only during foetal development but also in the first year of life when the first period of human evolution is accomplished. This is the fourth main proof that a baby is immature at birth because the immediate contact between the child's psycho-physic organs and the outer world is necessary to develop its spirituality. Man is a *Homo sapiens*, a thinker, and uses his spiritual power to build up his spiritual world of morals, religion, art, poetry and science ; man alone is able to build up a cultural world. (Fig. 4 and 5)

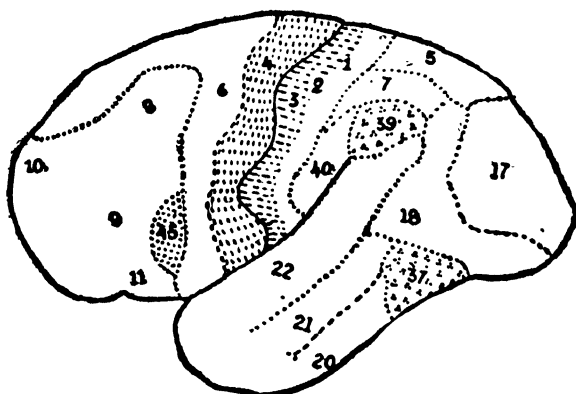


Fig. 4 The brain of a chimpanzee and its cerebral localisations

- 3. centres of feeling
- 4. principal centre of locomotion
- 5-7 centres of association
- 6. centres for pre-locomotion
- 8-11. centres of association
- 17. centre of sight
- 18. centre of visual associations
- 20-22. centres of hearing and its associations
- 37, 39, 40, 45 centres connected with voice

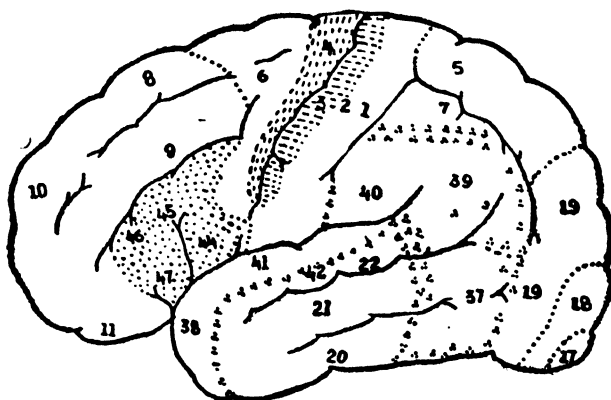


Fig. 5 The human brain and its cerebral localisations

- 1-3. centres of feeling
- 4. principal centre of locomotion
- 5-7. centres of association
- 6. centres of pre-locomotion
- 8-11. centres of association
- 17. centre of sight
- 18. centre of visual associations
- 20-22 centres of hearing and its associations
- 37-47. centres of language

Thus it becomes clear why a human baby cannot come under the law of a blind function-circle during the first year of its life, like an animal. It is governed by the law of its own history. Even a baby has its own history and makes its history. From its birth onwards it grows as a socio-cultural being in a society and is surrounded by a certain culture. This is the case with a child from even the most primitive tribe in the jungles.

Between human intelligence and the intelligence of the cleverest ape, the chimpanzee, there exists an essential difference and not a difference in degree only. This is proved by the latest intelligence-tests on apes. The chimpanzee displays its highest degree of intelligence just before it reaches the age of puberty at, about 7 years. At the same time its impulse to play is the strongest. Such a chimpanzee is able to solve simple "problems" which are not difficult for it because it follows its inborn intelligence; in other words, after some fruitless efforts, the chimpanzee sits down reflects, and then suddenly it cries, jumps up and is able to solve the problem, for instance, the opening of a door. It solves this problem not by experimenting but by mere reflecting. In this regard the intelligence of a 7-to 8-year-old ape is similar to the intelligence of a four-year-old child. After reaching puberty the intelligence of an ape begins to deteriorate. At this age it is impossible to train it any further. The conclusion of the author is: "The question whether the ape is on the way becoming a man is answered in the negative." (*H. Wendt, Zwischen Tier und Mensch*; in the Journal *Du und das Tier*, München 1950, H. 11.) The cleverest chimpanzee is not able to learn the use of fire or to make by itself the simplest instrument. Like the above mentioned "ape-language," "ape-intelligence" is the result of a sensitive psyche and is not produced by a spiritual agency.

This is the reason for other remarkable differences between man and ape during the time of growth and of decline. A gorilla is grown up in its seventh year, a chimpanzee in its eleventh or twelfth year, an orang-outang in its twelfth or fourteenth year. A man is grown up in his 19th or 22nd year. Animals grow rapidly before their puberty. After that they grow very slowly and soon stay their growth. The time of puberty for some animals is as follows: stag at 1½ years, cattle at 1½ to 2 years, horse 3-4, gorilla 5-6, chimpanzee and orang-outang 8-10, elephant 8-10 years. In man the age is much higher. The average human puberty-time in white races is at the 13th to 18th years for males and about the 15th year for females. In more Nordic countries it may be in the 18th year, and among people living in tropical climates the average is lower. But even in India there are primitive races of which the girls come to puberty at the 15th or 16th year. In modern times there is a tendency for the age of puberty to be lower in industrialized countries. This great variation in the age of puberty in man shows again his special position.

Contrary to the mammals which have their main growth-period *before* puberty, man's main growth-period begins *at* the time of puberty and continues until the

as late as the 22nd year, sometimes. Corresponding to the growth is the inner-secretal development of the glands and hormones.

Man enjoys a long youth and when he is still young, the Anthropoids are aging. The orang-outang, gorilla and chimpanzee reach their senile period at the age of 20 and the oldest apes do not live much more than 30 years. That means that when Anthropoids die, man has just finished his youth. The average age of man is now 60 to 70 years.

Thus the development of man from the time of conception until death is quite different from the evolution of every animal which is bound through fixed function-circles. Man has a special position in all cases. His biogenetic development is very peculiar. Human genetics and human biology disprove completely the evolution of man from ape. Nowadays no competent scholar supposes that the ape is the ancestor of mankind because apes are too specialized and man more primitive in many respects, for instance, human hands, feet and teeth. This special position does also not admit the evolution of man and ape from a common far-remote ancestor. *Darwin* himself laid very great stress on the proofs from embryonic development to support his theory of man's animal descent and wrote : "Man is developed from an ovule, about 125th of an inch in diameter, which differs in no respect from that of other animals." "This assertion is not correct. : What *Darwin* ought to have said was that to the eye the human ovum looks like an animal ovum (phenotype) ; the fact that one (with a chromosome-system of 24 pairs, genotype), grows into a man, and the other (with 22 pairs of chromosomes) grows into an animal (rabbit) shows that there is a very great difference, (and that, too, at the very first beginning)."

Darwin continues : "The embryo itself at a very early period can hardly be distinguished from that of other members of the vertebrate kingdom." (*D. Dewar, Man : A Special Creation*, p. 29). That the outer appearance must be so is due to the same ground-plan of the phylum, vertebrates, which man and the other vertebrates have in common, as we explained before. Similarities are no proof of affinity. The genotype alone is decisive and is specialized in the fertilized human ovum. That *Darwin* could not have known, because this cell theory and its chromosome-system was quite unknown in his time. His modern followers therefore try to modify Darwinism by saying that mutation and selection are responsible for man's animal descent. This means that the chromosome-gene-system is not absolutely fixed and stable ; it can be altered by mutation. To understand the whole range of this statement, we must examine the chromosome-gene-mechanism.

5. MENDELISM AND MUTATION

The principles of genetics have mostly been worked out from experiments on plants that can be artificially pollinated, and on quickly breeding animals, such as the fruit fly, *Drosophila*. The first man to publish an accurate account of the manner of the transmission of characters—which we now say genes determine—was an Austrian priest, *Gregor Mendel*. He used sweet peas for his experiments. It is an extraordinary fact that these results published in 1866 were completely ignored. The Mendelian genetic law, as it is termed, was very inconvenient for materialistic evolutionists because it supposes the stability of species and does not allow absolute evolution. And therefore it was ignored and buried in the tomb of silence.

In 1900 the German, *Correns*, the Austrian, *Tschermak*, and the Dutchman, *de Vries*, independently published papers confirming *Mendel's* observations. Since then an enormous mass of research has been done on the subject, but *Mendel's* priority is still associated with his name "Mendelism." Mendelian heredity and chromosome-effect are most important.

Is it possible to give examples of the working of the Mendelian law from man? There are various examples; for instance, heredity of hair, eye and skin colour follows a fixed regulation. The same applies to other characteristics. The carriers of the different characteristics are the genes. There are two kinds of characters, one is dominant whose genes command, the other latent or recessive whose genes are overpowered; for instance, the genes for red hair are latent, those for black hair are dominant. Thus a mother with red hair and a father with black hair, not carrying a single latent gene for red hair, would have all their children with black hair and not one with red hair. The phenotype is non-red-hair but in the genotype are recessive red hair genes. Let us suppose one of these children marries the child of a similar couple. Although they themselves have non-red-hair, one in four of their children, on the average, will have red hair. This is the three-to-one ratio of the Mendelian law which, of course, is noticeable only in a large number of observations.

Not all characteristics are inherited in this simple fashion. And many characteristics are not inheritable. There are very complicated processes and it is not easy to find out the dominant genes and the recessive ones. Heredity of psychic characteristics is much more complicated. Certain talents, for instance, skill in music or in painting, gifts for poetry or mathematics, are often hereditary and we find great musicians and painters in one and the same family for several generations. Such talents presuppose a special disposition of certain cells in the brain. This special cell-structure can be hereditary as well as certain psychic powers responsible for the talent. Similarly, other psychic talents and characteristics are hereditary; e.g., a sanguine or choleric temperament, sentimentality or unfeelingness, a strong will or weak energy. The real disposing element for

this is our function-structure, which is the corporal basis for our feeling, recognizing and acting. And this corporal basis together with certain powers is handed over by heredity from parent to offspring. But it is impossible to explain the innumerable physical and psychical co-operating factors in the character of a person. Each man is an individual, not a copy. This individuality is due to man's spiritual soul which is not transferred from the parent to the child by heredity but is created individually.

The laws which reveal such marvellous working in human biogenetics go to prove that there must be someone who frames and regulates these very complicated laws. There must be a designer who has designed this excellent plan. It is not a blind fate that guides human destiny. The origin of man is not due to a blind evolution by means of *natural selection*, the *struggle for life*, or *the survival of the fittest*. There is a wonderful regulation in the Mendelian laws. Was it on this account that the Soviet Government banned Mendelism? "There are two opposite trends in the biological science. One of them is progressive and materialistic, called *Michurin's* theory. . . . the other is the reactionary, idealistic *Weisman's* or *Mendel-Morgan* theory. In opposition to the *Mendel-Morgan* trend Russia developed and, encouraged by the Soviet regime, brought to its full bloom, the great theory of the great modifier of nature *I. V. Michurin*. . . . This idealistic, reactionary theory is fundamentally antagonistic to *Darwin's* teaching." (*Isvestia*, Sept. 8th 1948, by *Kaftanof*, Minister of Higher Education in the U.S.S.R.) Like *Marx* who introduced Darwinism in his sociological, economic system, the Soviets also make Darwinism the backbone of their *Weltbild* because absolute evolution fits their party-programme. But this is not science, this is political propaganda. They force every new discovery into the service of *Darwin's* views, whilst those truths that contradict irrefutably the view that man as such could not evolve from an animal are either ignored or deliberately put aside.

To the greatest surprise of all, Radio Moscow announced on November 20, 1952 that *Darwin's* theory of evolution was wrong because the development of plants from lower to higher forms was not gradual but sudden and revolutionary. *Lysenko* had made a large number of experiments and succeeded in proving such sudden changes by artificial means. It is a well-known fact in palaeobiology that the new phylum, class, order, etc. appear suddenly; it is not at all a new Russian discovery.

Is there no exception to the *Mendelian law*? The genes in the chromosome system are generally fixed and their normal constancy goes on from generation to generation. But sometimes they change or mutate. Nowadays, men possess different colours of skin, yellow, brown, red, black, white and many other shades. The form and colour of the hair and eyes are also different in various races. In the beginning of mankind, of course, the colour was of one kind only. The same applies to other characteristics. During man's history many different races develop-

ed. Such differentiations and changes are caused by changes of the genes. It appears that, on occasion, during nuclear division, a gene is not reproduced exactly, and the new gene is similar to the old but not identical with it. A natural mutation would be a change by natural forces, an artificial through artificial forces. The forces which compel the gene to mutate will be discussed later on.

First of all, the rate of mutation in nature is very low; secondly, the degree of mutation is very small; thirdly, the minute mutation produces a little accidental change in the same line. This small mutation is termed micromutation.

The second kind of mutation would be the large or macromutation which causes an essential change in the structure of the individual. What is meant by an essential change? If the hair of man were to change into feathers, the arms into wings, and the feet into claws, and if by this way a bird-man were to be evolved, then we could speak of a large mutation and an essential transformation. The legends of a man with the head of a bird or a dog and myths of animals with human heads are mere phantasy. All accounts of such various monsters are fairy-tales. There are no cogent proofs that such macromutations ever happened in the kingdom of life. There is also no evidence of a large mutation in mankind and during the whole history of man a macromutation has never occurred as will be evidenced later on by the records of fossil man. If the first man appeared at the end of the Tertiary period he would have a history of about one million years. Modern races all over the world belong to the same species, man, because they can intermarry and are fertile. If the recent races are of the same species why should that not also be the case with the fossil races some 100,000 years ago? The time-factor is very important for an absolute evolution. The longer the evolution lasts, the greater the variation into different species. If mankind after one million years of evolution has only one species, then *a fortiori* must it have had only one species, let us say, 500,000 years ago. This is a theoretical conclusion; the practical demonstration will be given later on.

The fossil records of the whole animal kingdom support the same conclusion. The detailed records will be given in Chapter V.

Be that as it may. Surely, the facts show that if new species arise by evolution, the process is very slow. The fossil records prove that many species are very stable; for instance, 84 per cent of the species of molluscs now living have left fossils dating from the beginning of the Pliocene period, which is about 11 million years ago (D. Dewar, *Man: A Special Creation*, p. 130). Slow gradual changes cannot be proved; on the contrary the records show that every new type of animal appeared suddenly with all the characteristic attributes. If the phenotype appeared suddenly without intermediate and transient stages, the genotype must be produced in the same sudden way; that means the new chromosome-gene structure occurs abruptly. What a tremendous internal change is needed

to produce a completely new genotype. Remember that in every chromosome many thousands of genes—according to the latest record 44,000 pairs—have to be changed before a new species can be produced. How many more changes are required to form a new genus or a new family. “Take the fishes. The earliest nearly complete skeleton known reveals that the fishes then living had typical fish bodies, tail, and backbone. They show not the least resemblance to any other phylum ; so much so that there is no agreement among the transformists as to the phylum that is supposed to have given birth to vertebrates. Later new orders of fishes appear, but no transitional forms between them and the earlier fishes” (op. cit. p. 126). The same happened with all the other groups.

In the same sudden way the so-called “ancestors” of man, the Primates, (lemurs, tarsiers, New World monkeys, Old World monkeys) appeared suddenly at the Eocene and the Oligocene period in different genera and species. The apes (gibbon, orang-outang, chimpanzee, gorilla) arose abruptly in the Miocene period, let us say about 14 million years ago. And where do we find the common ancestor of ape and man ? Who is he ? That is a great enigmatical question. Some suggest it is *Dryopithecus*, others suppose it is *Propliopithecus* or *Proconsul*, who roamed the forests perhaps in the Oligocene period. And what do we know about this common ancestor ? There are some small bone fragments only, and nothing else. These little fragments cannot be a scientific basis for a comparative anatomical study of the skeletons of the common ancestor. Now notice that there is no other trace from about 35 million years of the Oligocene to about 400,000 B.C. when we have the first remains of human skulls. The existence of man is proved by stone implements in an earlier time at the beginning of the Pleistocene period. (Cf. *F. E. Zeuner, Dating the Past*, London 1950, fig. 83, opp. p. 310 ; fig. 80, p. 286-87 ; fig. 89, p. 331 ; p. 358). As with all the animals, man also appears abruptly without passing through transitory stages. The links between man and ape are missing. There is no mutation from animal to man. (Fig. 6 and 7)

What can mutations afford and what can they not produce ? Modern genetics realise that new species and new organs or structures can only arise by a gene-mutation. Three gene-mutations are possible: (1) Mutation by the loss or inhibition of, or damage to, a gene. The gene-system remains the same but an accidental change happens ; for instance, black hair would change into fair hair. (2) Mutation of one gene into a different kind of gene, for example, the genes producing arms change and bring forth wings. (3) Mutation by the origin of entirely new genes when instead of 22 pairs of chromosomes 24 pairs would be produced which means the creation of a huge number of genes, because every chromosome contains many thousands of genes. “Clearly (3) would be a miracle (a creation and not a mutation), and so would (2) if the rearrangement of the molecules that make up a gene were such as to produce a new gene, having the power to originate a new structure favourable to the animal of which it formed a part. Thus the only mutations available to cause evolution are those resulting from the loss or inhibition

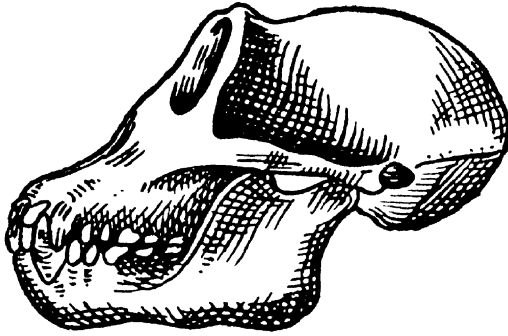


Fig. 6 The skull of a recent chimpanzee

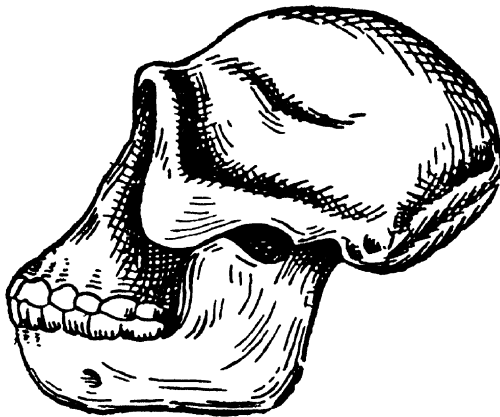


Fig. 7 The skull of an adult *Australopithecus transvalensis* (fossil)

of, or damage to, a gene. Breeding experiments indicate that these are the only kinds of mutation that occur under domestication or in the laboratory. In other words, all the breeds and mutants that have appeared are defective in some respect, although many may be useful to man. The chances of any of them surviving in nature are small. Nor is this all : breeding operations have not resulted in the production of any new organ or type of animal, and there is no sign of the appearance of any new kind of animal." (*op. cit.* p. 186 seq.)

The methods used by man to produce mutations are artificial : breeding experiments in nature and in the laboratory. Breeders keep the new breed separate and select. Thus by rebreeding, the extinct wild horse, Tarpan, and the wild cattle, Aurox, were bred anew. Man has practised breeding for about 12,000 years or more. The tamed dog appears in the *Mesolithic* period and is known in *Maglemose* culture (from 8,000 B.C.). Bones of domesticated cattle, sheep and goats are known in the *Yamukian* culture (*Palestine* c. 7,000 B.C.). The origin of cattle breeding goes further back into the *Mesolithic* period, I suppose about 10,000 B.C. During such a long time of domestication cattle remained cattle, sheep sheep, goat goat, donkey donkey, horse horse. All attempts to breed a fertile mule, the hybrid of horse and donkey, were failures. Many of the breeds are due to freaks resulting from gland-unbalance, such as the Eackshund and Pekinese, and fantail pigeons. The breeders were unable to produce a new species.

The experiments of modern biologists tell the same story. They have tried and try again and again to change the character of the genom which is the quantum of genes and which has a special character in every species. They used X-ray and other short-wave treatment to change the genes.

"The animal on which geneticists have done most work is the little fruit fly, *Drosophila melonogaster*, of which some 25 million individuals have been bred, representing nearly 1,000 generations in which about 1,000 mutations have been recorded. But these mutations are almost all clearly what may be called loss-mutations ; all are defective in some way. Thus over 100 mutations of wings have been recorded, in all of which the wings are defective or reduced to stumps or absent. This is equally true of all other animals experimented on. . . .

"Commonsense suggests that a new organ or a new kind of animal cannot result from the accumulation of losses. And so far as I am aware, no new organ or structure has been produced as a result of breeding operations. . . .

"What makes the experimental evidences so unfavourable to the evolution theory is that no mechanism has been discovered capable of originating any new structure or organ." D. Dewar, *Man: A Special Creation*, p. 187) Hurst writes : "By far the greatest mystery in evolution is the continued existence of numerous species, and even phyla whose genes have not mutated and whose chromosomes

have not transmuted and whose characters remain the same today as they were thousands of millions of years ago. Their fossils remain a standing witness to the stability and relative immortality of the mechanism of the genes and chromosomes." (C.C. Hurst, *The Mechanism of Creative Evolution*, Cambridge 1932, p. 188)

The botanist, W. Troll, deals with the origin of life and the stability of the chromosome-gene-system: "From the modern viewpoint we can state this problem as follows : Spontaneous generation seemed to be possible as long as protoplasm was considered as a tiny particle of simple albumen, that means as long as the knowledge of the chemical composition of a living cell was very poor. But the great progress in physico-chemical research of living matter proves that it is a very complicated composition. Therefore is the explanation most improbable that the origin of this very complicated mechanism of a simple cell should be due to a blind chance. . . . But all that we can say is that a mere play of 'inorganic' natural forces should have produced this effect is more incredible than the accidental origin of a car in an iron mine. The Darwinian phrase that only the fittest of many possible combinations could survive cannot help us in any way. The simple reason is that the Struggle for Life could start only when this living 'mechanism' existed which was thrown together (according to the Darwinists) by a monstrous chance." He stresses strongly the following facts : Today we know very well that the "short" time of one milliard of years, which is available for the evolution of life, is far too short if a protozoan should have evolved from inorganic atoms, because the number of atom-combinations which are required for the "accidental" formation of only one highly constructed protein-molecule is immense. And how many molecules are needed to build up one cell ? "For this evolution (from atom to cell) the time required is not available when we consider that life has existed on earth since 10^9 (10,000,000,000) years." Troll concludes his paper with the sentence : "Primeval generation needs a primeval generator. This is the same as the act of creation." (W. Troll, *Das Urzeugungsproblem*, in *Neue Abendland*, Augsburg, November 1951, 607-614)

By X-ray treatment it was possible to divide and augment the chromosomes of plants in an arithmetic order. But did this multiplication of chromosomes produce a macromutation so that a new species was brought forth ? Till now we know nothing about an essential new artificial species produced by X-ray treatment.

If mutations cannot produce a new species, man could never be evolved from an animal by a natural process, because man possesses not only a special chromosome-gene-system but also has quite a different spiritual entelechy, a rational soul. It is the entelechy which forms, organises and rules the body. Greater than the gap between an animal and a human body is the abyss between the sensitive life principle of an ape and the spiritual soul of a man.

The classical definition of man given by *Aristotle* is *Animal rationale*,—"rational animal." "Animal," the material element, is the subject and "rational," the spiritual element, is the qualifying adjective. I prefer to make the main component of man the subject and the subordinated component the adjective. As such, I suggest the definition of man *Spiritus incorporatus*,—"embodied spirit," because the human spirit is living within a body and with a body. Modern biogenetics support this definition by the law of entelechy and modern science acknowledged the sentence of the Old Testament (Gen. 2.7) : "The Lord God formed man, breathed into his nostrils the breath of life, and made him a living soul." Science also proves that man is a special creation by God. Did the Lord God form the body of the first man "from the clay of the ground," in the meaning of inorganic matter or did He *re-create* an animal body, that means organic matter, into a human body ? I am in favour of the latter mode of creation, because the hierarchy of life shows a marvellous order in the kingdom of plants and in the kingdom of animals, in which higher organized creatures presuppose the lower stages. If we suppose that the human body was created from an animal body, then we can easily understand the similarities between animal and man. This creation of body and soul took place at one and the same moment because body and spirit are the two incomplete and complementary elements of human nature. *Homo sapiens* is at the top in the hierarchy of natural life.

III. THE PHENOTYPE OF MAN

(Elements of Physical Anthropology)

1. ARCHANTHROPUS (ARCHAIC MAN)

The genotype of man proves that man is a special creation. Can this conclusion be affirmed by the human phenotypes ?

Let us give a short explanation of the evolution of the human races. Here we have a true evolution within the same species. Evolutionists were possessed by the idea that the early man must be ape-like. Guided by this prejudice, they started to hunt for the missing link. One of the first of these was *Dubois*. He went to Java on purpose to find the ape-like missing link of man predicted by *Haeckel*. How did he succeed in finding it near *Trinil*, in Java, in 1891-92 ? He found a skull vault and called the being belonging to it *Pithecanthropus*. Later on he found some other fragments. How did he reconstruct this famous so-called missing link ? “*Dr. Dubois* who brought the bits of him (*Pithecanthropus*) back from *Trinil*, Java, tricked the whole scientific world. From his many boxes of specimens he produced only the skull-cap, the two simian teeth, and the human femur found at fifteen metres distance a year later. He concealed the human tooth found in the same stratum, and four other human femurs, in bits. But far worse than this, he concealed the fact that he had found the two *Wadjak* fossil skulls only forty miles from *Trinil*, and though difficult to date exactly, certainly in a very early stratum. He only produced them in 1925 (more than 30 years later) because of similar finds by another man ; and he kept the human tooth dark until 1937.” (*V. Barclay, Challenge to the Darwinians*, Newport 1951, p. 149). The handling of the findings should be enough to brand the whole affair. Each of these remains were found at different times, and at varying distances from each another. Today there is no longer any doubt that the three teeth belonged to an extinct orang-outang and the left thigh bone to another human individual. But what a big noise was made with the fragments, from which far-reaching conclusions were drawn ! The creature was called *Pithecanthropus erectus* which means “the erect walking ape-man.” From the femur not belonging to him, the height of *Pithecanthropus* was calculated to have been about 5 feet 8 inches and his weight about 150 pounds. From the skull vault, the brain capacity was calculated at somewhat more than 1,000 c.c. The whole story of the *Pithecanthropus* is an example of how evolutionists produce the missing link by hook or by crook.

From three molar teeth found in a Chinese apothecary, they reconstructed a whole man and called him *Gigantopithecus*, the giant man. *Weidenreich* made *Gigantopithecus* the main root of mankind in his genealogical tree. (*F. Weidenreich, American Anthropologist*, Vol. 49, No. 2, 1947) From him he let stem *Megan-*

thropus, *Pithecanthropus* and *Sinanthropus*. *Gigantopithecus*, as the ancestor of man, is alive in the phantasy of some evolutionists only. The oldest fossil men are grouped as *Archanthropus*; *archaeon* means the earliest, *anthropus* means man. To this type belong later finds at Java which were discovered by Koenigswald between 1937 and 1939. In 1941 he found a second lower jaw at Sangiran which is larger and more massive than anything else human. He named him *Pithecanthropus robustus*. We have only fragments of skull and none of the skeleton. As yet no implements have been found in close connection with the *Pithecanthropus* fossils to prove that he produced tools and fire. One of the features of *Archanthropus* is the thicker and heavier bone of the skull, compared with modern man. He has a prominent brow ridge, a receding forehead and no chin. The teeth are larger but not more ape-like than our own. Because of their primitiveness, evolutionists arrange them near the apes. (Fig. 8)

There are other fossil men belonging to the *Archanthropus*; for instance, the *Homo modjokertensis*. West of Soerabaja in Java, skull fragments of a child were found in a Lower Pleistocene horizon, which are therefore older than *Pithecanthropus* who is found in a Middle Pleistocene layer. Only six miles from Trinil, Oppenoorth excavated a fossil human skull of Upper Pleistocene, in 1931 at Ngandong on the Solo River. Later on 11 skulls were accumulated, all closely similar in type. One skull vault is 22, 1 cm in length, the longest vault-length of a fossil skull ever found. The brain capacity is on an average 1,250 c.c. Though he is more advanced than the *Pithecanthropus*, he is more primitive than the *Neandertal* and therefore he is included in the *Palaeanthropus* class and not in the *Archanthropus*.

To make the anthropology of Java more complicated, the *Wadjak* man appeared, concealed by Dubois. In *Wadjak I*, possible a female, the brain capacity is 1,550 c.c., in *Wadjak II*, it is 1, 650 c.c. They undoubtedly belong to be Pleistocene age and bear a striking resemblance to the Australian aboriginal skull. But what is more striking, in Australia near the village of Keilor, 10 miles north-west of Melbourne, was found a fossil skull, which belongs most probably to the Riss-Würm Interglacial age in the Middle Pleistocene period, and which has the closest connection to the *Wadjak* skull. The brain capacity is 1,593 c.c. *Wadjak* and *Keilor* man do not belong to the primitive *Pithecanthropus* type but represent a *Homo sapiens* type,—a type to which modern man belongs.

Even *Solo* man is closer to *Rhodesian* man than to the *European* and *Palestinian Neandertals* and his mastoid processes are fairly well developed as in modern man. This specialization in the skull makes it impossible to conjecture an evolution from the *Pithecanthropus* via *Solo* man to the *Wadjak* man. The morphological and historical order of Java fossil men alone make an evolution from *Pithecanthropus* to higher types impossible.

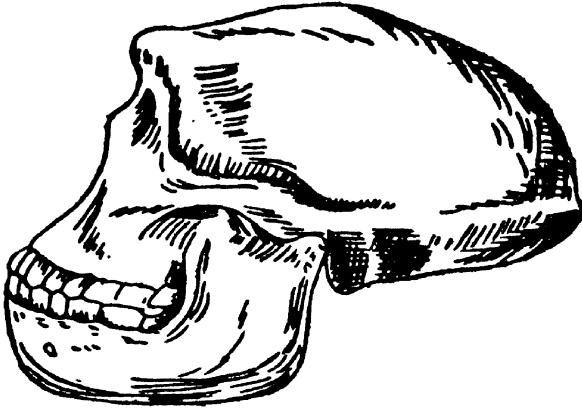


Fig. 8 The skull of a *Pithecanthropus robustus* (fossil)



Fig. 9 The skull of a *Sinanthropus pekinensis* (fossil)

This is supported by other fossils of the *Archanthropus* type. First of all there is the *Sinanthropus* of China, also called *Homo pekinensis*. At *Chou kou tien*, forty miles south-west of Peking human teeth were recognized among animal bones excavated in a delapidated cave rich in Pleistocene fossil. Late in 1929 a complete skull vault of an adolescent was found together with stone and bone implements and hearths. The same story was repeated as with the *Pithecanthropus*. Evolutionists exulted over the long expected missing link. I myself was in China at the time and collected the facts of the excavations; fragments of skulls were found together with stone and bone instruments; fireplaces in the cave were proof that these creatures knew the use of fire. I was the first to prove in a paper that *Sinanthropus* was a true man. Later on I visited the caves and made a thorough study. Fragments of about forty-two Peking men and women were found and 16 skulls or parts of skulls were recovered. Seven of these skulls are complete enough to yield most of the customary measurements. Body bones are much rarer than skull, jaw and tooth remains. It is important to note that we have not even one complete skull, leave alone complete skeleton. All reconstructions are mere conjecture. By general agreement the age of the deposits is somewhere near the Middle Pleistocene. This would presumably correspond with the early portion of the second Interglacial Period of Europe, let us say about 4,00,000 years ago. In age there is not much difference between the *Pithecanthropus* and *Sinanthropus*, but in morphology they differ greater. The *Sinanthropus* skull is higher, has a fuller or less sloping forehead, and somewhat greater capacity. An interesting point is that the *Sinanthropus* skull has little or none of the intrabone air chamber known as the frontal sinus, which is well developed in the *Pithecanthropus*, *Neandertal*, and most living races. The capacity of the nearly complete skull is on an average about 1,050 c.c.—say some 15 or 20 per cent larger than the *Pithecanthropus*. The jaws are fairly primitive. There is no large protruding canine tooth; the incisors are shovel-shaped as with modern *Mongoloids*. All in all, the teeth are much more like the recent human types than is the jaw—a condition which is true also of *Heidelberg* man. So we have a mixture of primitive and advanced characteristics, a fact which is contrary to evolutionistic theory. To stress this point more, it might be said that where *Pithecanthropus* is archaic and somewhat specialized, *Sinanthropus* is also archaic but a bit more generalized in his features. On the one hand the *Sinanthropus* is well developed, as is the *Pithecanthropus*; on the other hand the *Peking* man is generalized and only somewhat specialized; the *Pithecanthropus* is more primitive and more specialized. All these facts are contrary to the common morphological scheme of evolution. Compared with the contemporaneous or even older *Sinanthropus*, it appears that the *Pithecanthropus* is an aberrant development and leading experts call him an "aberrant type." In no way could he be the forerunner of the Peking man. (Fig. 9)

At *Chou kou tien* is another place, the so-called upper cave, which contained a rich mammalian fauna and a few human fossils. On faunal evidence this deposit is claimed to be of the Late Pleistocene period. The stone industry is regarded as

Upper Palaeolithic. Stone implements are few but of excellent type ; bone tools and ornamental objects are abundant. The greatest attention must be paid to the three skulls which have a *Homo sapiens*-like form, meaning that they are like that of modern man. One skull, that of an elderly male who was tall and large-brained—the brain capacity is about 1,500 c.c.—is described by *Weidenreich* as primitive *Mongoloid*, by *Hooton* as primitive *Caucasian* and quite *Ainu*-like. These authorities disagree also in their interpretation of the difference between the three individuals. On the one hand, *Weidenreich* supposes that the three skulls typify three different racial elements, best to be classified as primitive *Mongoloid*, *Melanesoid* and *Eskimoid* ; on the other hand, he believes that the people from the upper cave were still undifferentiated and that pure racial types as we know them crystallized later. *Hooton* thinks they represent a racial mixture. Then again did they develop from the primitive *Sinanthropus* of the lower caves or are they quite a new race ? Evolutionists again disagree. *Eickstedt* supposes that there is a slow and gradual development from the primitive *Sinanthropus* via the upper cave-man to the modern Chinese. This is another show-piece of evolution : the development of the primitive, ape-like *Asiatic Archanthropus* (old *Sinanthropus*) to a less crude but *Neandertal*-like *Palaeanthropus* (new *Sinanthropus*), who finally evolved into the gracile Chinese *Neanthropus* and modern Chinese. But this pedigree of the Chinaman is a mere fantastic reconstruction without any solid foundation. Human fossils tell another story. We mentioned the *Homo modjokertensis*, *Wadjak*, etc., who are different. (Cf. M. Hermanns, p. 123 seq.)

During the period when the primitive *Pithecanthropus* and *Sinanthropus* roamed about, there was still another race more like the modern man. In 1935-36 skull fragments were found at *Swanscombe*, *Kent*, England, in a deposit which is not later than the Middle Pleistocene, second Interglacial. Except for the remarkable thickness and the great breadth of the occiput, these bones are otherwise indistinguishable in form and character from those of modern man. Associated with these fragments were implements of *Early Middle Acheulian* type, that is to say, representing an industry very appreciably antedating the *Late Acheulian* and *Mousterian* implements of *Neandertal* man. The brain capacity of *Swanscombe* is about 1,325 c.c.

Even about the year 1912, fragments of a human skull, the upper and the lower jaws, and several vertebrae were found at the same *Swanscombe* site, deep down in the gravel. But since explorers were possessed by the idea that primitive man must look ape-like in any case, they assumed that this skull of modern type could not have been of the geological antiquity indicated by the deposit in which it was found.

More than that ; in 1888, the remains of a human skeleton were found in a direct extension of those same deposits at *Swanscombe*, associated with implements of *Pre-Chelean* industry. He is known as the *Galley Hill* man. The skull bones are

remarkable for their thickness ; the brain capacity is about 1,400 c.c., the chin is well developed, and the forehead high. Several primitive features are however present ; for instance, in the molar teeth of the upper and lower jaws, where the biting surface of the last molar is seen to be longer than the second—a very primitive feature similarly found in the jaw of the old *Heidelberg* man. The fact that a virtually complete skeleton was found has led to the belief that the *Galley Hill* man must have been interred, and hence must actually belong to a later period. The fluorine content of the bones is also indicative of a later age. The fluorine test proves that the bones have 0.2-0.4 per cent fluorine which means that they were buried in Post-Glacial times.

A more disputed fossil is that of the *Piltdown* man found in 1911-12 at *Piltdown*, *Sussex*, England. The form is reconstructed from several fragments of a female brain case, some small portions of the face, nearly half the lower jaw, and a number of teeth. Later, small fragments of a second skull were found. The skull capacity has been estimated by several scholars with different results. The average capacity is perhaps 1,300 c.c. The skull proper is not particularly primitive. Except for the unusual thickness of the bones—a characteristic of all the old fossil skulls—it might pass as modern. But what puzzles one very much are the jaw and the teeth, which while they are distinguishable from those of a chimpanzee, are still remarkably similar ; for instance, the canines project beyond the other teeth, as in an ape. They are certainly less human than the *Pithecanthropus* and *Sinanthropus* jaw and teeth. More than one expert has surmounted the difficulty by assuming that the skull of a human being and the jaw of an ancient ape happened to get associated in the same gravel.

Recently the dispute flared up vehemently. “A critical re-examination of all the *Piltdown* specimens was undertaken this year by the British Museum (Natural History) in conjunction with the Department of Anatomy, University of Oxford. The results published over the names of *Dr. J. S. Weiner*, *Dr. K. P. Oakley* and *Prof. W. E. De Gross Clark*, demonstrate clearly that the jaw and the canine tooth are in fact deliberate frauds (*Bul. Brit. Mus ; Nat. Hist.* 2, No. 3, 1953). The *Piltdown* brain-case must still be regarded as a genuine fossil (an Upper Pleistocene variety of modern man). The jawbone and tooth which had been falsely associated with this human cranium were so entirely out of character that, even when allowance was made for different parts of the human skull having evolved at different rates, it became increasingly difficult as time went on to reconcile them with the evidence of a human evolution obtained elsewhere. . . .

“Re-determination of the fluorine content of all the specimens, using an improved technique, has shown that whereas the brain-case contains the same amount of fluorine as some local Upper Pleistocene fossils, the jawbone and the canine contain no more than modern specimens. The organic content of all the specimens has also been determined. The jawbone and the canine contain

as much nitrogen as fresh bones and teeth ; but the brain-case contains only the small quantity expected in Upper Pleistocene fossils.

"Finally, evidence has been found which indicates that the jawbone was artificially stained by iron salts and potassium dichromate prior to its being discovered by the excavators." (*Nature*, November 28, 1953 p. 981 seq.) Besides this, microscopical examination proves that the teeth were artificial abraded to make them more human-like.

Thus many manipulations were undertaken to produce a missing-link by hook or by crook, through deceitful counterfeit, and forty years passed before this deliberate fake, the greatest fraud in anthropology, was detected. It was not the first fraud ; I have already mentioned Haeckel's swindle. Scientists who need frauds to prove their theory condemn themselves and their hypothesis; they are not even pseudo-scientists—they are charlatans.

Another confusing fact is that the recent fluorine tests of the Piltdown skull showed different results; the former one fixed the age at the Last Interglacial period; the latter at the Upper Pleistocene, meaning the Last Glaciation. It seems that the fluorine tests are not so easily to be made and are not absolutely reliable. Anyhow, the genuine *Piltdown* skull as such has the form of an *Homo sapiens* type and resembles modern man. He was contemporary with the *Neandertal* man, if he does not antedate the latter by a considerable period. (Fig. 10).

Another skull was found in November 1925 during excavations for the new *Lloyd's* building in Central London. The brain capacity has been estimated at about 1,250 c.c. about 50 c.c. less than the average of the modern English woman. Some features of the skull bear a close affinity to *Neandertal* man and some to the *Piltdown* man, but all in all the *Lady of London* is sufficiently distinguished from the *Neandertal cavalier* and akin to an earlier type of *Homo sapiens knight*.

Skulls of the fossil *Homo sapiens*-like type have also been found on the Continent. In 1933 a skull, probably of a female, was found at *Steinheim* in Germany and was associated with artefacts of the *Acheulian* age, in a deposit of *Mindel-Riss* interglacial period of the *Middle Pleistocene*. A number of features are common to the modern man rather than to the *Neandertal* man, e.g., steeper forehead, smaller facial parts without protrusion, modern form of the occiput, less accentuated eyebrows. All these are characteristics akin to *Homo sapiens*.

The *French* counterpart of him is to be found in the fossil man of *Fontéchevade*, which was excavated in 1947. This skull is of the same type as that of *Swanscombe* and resembles modern man. It belongs to the *Riss-Würm* interglacial period, or is even older ; according to *Wiergers*, it belongs to the *Mindel-Riss* period. The

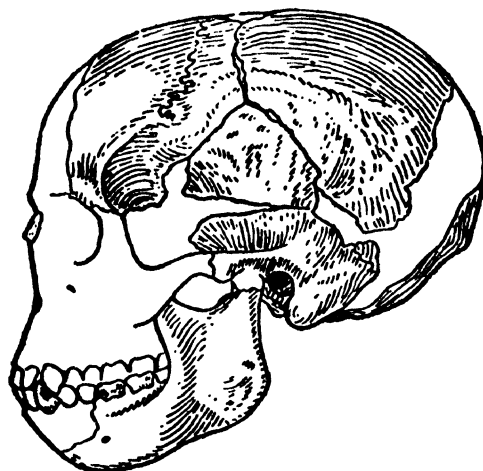


Fig. 10 Reconstruction of the Piltdown skull (*Homo sapiens fossilis*)

steep forehead, the form of the skull vault, and the brain capacity (1,450 c.c.) are like that of the modern man. The *Quinzano* skull (Italy) shows a similar form.

Not only is *Archanthropus* of the *Homo sapiens* type known in England, Germany and France, but there is strong evidence that he had also migrated far afield in Pleistocene times. Thus, for example, are his jaw fragments with their teeth found in 1932 at *West Kanam, East Africa*. *Kanam* man resembles the modern type of man in every way. His age is disputed; *Leakey* believes he belongs to the *Lower Pleistocene*; others doubt this great age. In any case *Kanam* man is of a modern type and can be very well contemporaneous with *Pithecanthropus* and *Sinanthropus*.

In a deposit at *Kanjera* in *Kenya*, and in *Florisbad* (*Africa*) were found the skeleton remains of individuals of modern *Negroid* type, associated with artefacts of *Chellean* industry. Their age is of early *Middle Pleistocene*, or even of the first Interglacial Period.

The *Boskop* man of *South Africa* also resembles modern man and has a remarkably high brain capacity of 1,650 c.c. He is undoubtedly old but his geological age cannot be determined exactly.

The *Keilor* skull proves that the *Archanthropus* of modern type had also reached *Australia*. All these facts strongly prove that the *Archanthropus* type of *Homo sapiens*-like form migrated over great distances, and branched out early into distinct ethnic groups, even before *Neandertal* man had done so. The picture which emerges from the evidence, as we now have it, quite upsets the older notion of early man, which was that man stemmed from the ape, was waiting for evolution, as it were, to push him into a more advanced type. At the middle line of the *Archanthropus*, we find a *forma typica*, typical form, which is very similar to modern man. Branching off from this middle line, there are aberrant types like the *Sinanthropus* and the *Pithecanthropus*. All pedigrees of man's evolution, which show an ape-like form in the beginning and the *Homo sapiens* at the end of the family tree, are misleading and completely wrong. (*G. Heberer, Bemerkungen zum Sapiens-Problem, Homo*, Bd. 2. Göttingen 1951. H. 1. p. 4 seq.) Why do evolutionists ignore the old *Homo sapiens fossils*?

"I am constrained to say that the fossil evidence has been so manipulated by evolutionists that the writings of the great majority of them do not give an unbiased account of the facts. The fossils unfavourable to the evolution theory are almost universally ignored in modern books. . .

"It is legitimate for transformists to disbelieve their antiquity, but it is not legitimate for writers to ignore them in their books, especially those written to instruct the public. The reason for this almost universal rejection by transformists

of these early fossils is that their acceptance would destroy completely the claim of the much-vaunted *Pithecanthropus* fossil from Java and the *Sinanthropus* fossil from China which are paraded as possible ancestors of modern man, because these two fossils are of much later date than the Castenedolo and Calaveras fossils. In fact there are several more fossils of men of modern type of earlier date than the *Pithecanthropus* and *Sinanthropus*, which are largely ignored." (*H. S. Shelton & Douglas Dewar, op. cit.*, p. 253 seq.)

Evolutionistic theory besides gets no support from the newly discovered *Australopithecus* in South Africa. In the latter half of 1949, and during 1950, many discoveries were made at *Swartkrans*. Two skulls, belonging to females, are nearly complete and only slightly crushed. The brain-case is well within the human range and has a capacity of about 850 c.c. The faces seem very flat with wide cheeks. The bony brow ridge is well marked but rather feeble. In the middle of the skull is a well developed bony crest, where the strong jaw muscles must have met. The perfectly preserved jaws with the teeth are human-like. A chin is likewise developed. No tools or weapons were found together with these bone-remains nor are fireplaces connected with them. The age of these finds cannot be fixed exactly. They are said to be of the Upper Pliocene or Lower Pleistocene. In any case *Australopithecus* is so late that he cannot be taken for the ancestor of primitive man who was his contemporary. *Broom*, the discoverer of the "missing link," does not believe that *Australopithecus* is the missing link between ape and man so arduously searched for. He supposes that man and "ape-man" have a common ancestor "closely allied to *Protopithecus*, but just a little more primitive, which lived in *Early Oligocene*—or possibly, but less likely, in *Upper Eocene*—say 25,000,000 years ago." (*R. Broom, Finding the Missing Link*, London 1951, p. 95) He goes back to a more far remote time, where all is unknown,—the common ancestor and the branching offspring—so that everything can be reconstructed by mere phantasy. We may deal with the *Australopithecus* group later on.

2. PALAEANTHROPUS

The best known primitive man is not the *Pithecanthropus* or the *Sinanthropus*, but our world-famous ancestor the *Neandertal* man, much honoured by reconstructions of his beauty in plastics and paintings, which were exhibited at the UNESCO Exhibition in Paris (1949) and in the London South Bank Exhibition (1951). These exhibitions try to show that man evolved from an animal and that primitive man must therefore look like an animal.

The first recognized discovery was made in a cave of the little *Neander* gorge near *Düsseldorf* in Germany in 1856. This fossil man was called *Homo neanderthalensis* (Neandertal man). His brain capacity averages 1,500 c.c. or more for males, while the figure for modern man is only 1,350 c.c. The skull is massive

with prominent brow ridges, a receding forehead and chin, and a broad projecting occiput. The face is large and long, the eye orbits large, the nose very large—both wide and projecting. The jaw is prognathous, though not more so than in many Australians and Negroes and very heavy. The teeth are large—but no more ape-like—than our own. The skeleton bones are also very thick and must have been provided with powerful muscles. The chest is large, the neck bull-like, and the thighbone is curved, indicating a knee somewhat habitually bent, but that does not imply a bowed and clumsy gait. *Neandertal* man is below the average stature of modern man, but his average height of 1,60—1,65m (5 feet and 3 inches) for males fits well in the line of fossil man. That is the picture we can draw with certainty from the skeleton. All the beast-like features such as the hairy coat of the body, long hair on the whole face, and a brutal look, are mere phantasy, because we know, in truth, nothing about the soft parts of fossil man, and less than nothing about the facial expression. Still, all the reconstructions show a beast-like ancestor of man.

The *Neandertal* skull is relatively low-domed, despite a very large brain. In spite of the fact that conclusions relating to mentality drawn from the shape of the head have been demonstrated to be utterly false, there are still evolutionists who so forget themselves as to assert that *Neandertal* man must have had a poor mind because he had a low brow. Why not because of his very large nostrils? That would be of the same conclusive value. Even brain capacity is no conclusive evidence of higher or lower intelligence. What is decisive is the structure of the brain and the brain-convolutions. The famous scientist, *Leibniz*, and *Anatole France*, had a brain capacity of 1,000 c.c. only. (Fig. 11)

A few words must be said about the reconstructions of the facial appearance and expression of *Neandertal* man. Such reconstructions have been determined by the belief that he was nearer to the "beasts" than *Homo sapiens* is. Hence the reconstructors have given him a bestial appearance. But the real truth is that for one thing we know nothing about the soft parts of the fossil man or the expression of his features: for another the more primitive and rude *Neandertal* type is the younger one. The early *Neandertalers* are more like modern man than the later ones. This is entirely contrary to the evolutionistic theory.

There are complete skeletons of more than twenty individuals, and the fragmentary remains of about 200 persons. Fossils of the *Neandertal* type were excavated in many European countries, in the Near East at the Krim (Kiik Koba) and even in the Far East, for instance, Teshik tash in the Turgan Darja valley at the upper Amu Darja in West Turkestan. A whole collection of different *Neandertal* types was made in 1899 in Krapina near Zagreb in Croatia. Many of them show a strong tendency towards modern man in forehead, round-headness and even broad-headness (brachycephaly). It is in the *Krapina Neandertaloids* that brachy-

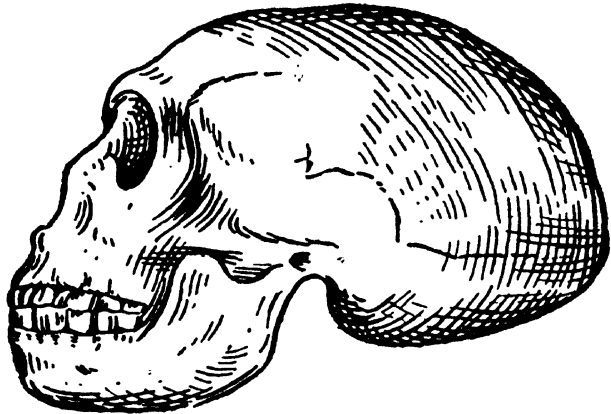


Fig. 11 The skull of a *Homo neandertalensis* fossilis

cephaly occurs for the first time in mankind. Similar variant types are *Spy II*, Belgium (1886), *Galilee* (1925) and *Gibraltar II* (1926) which approach the *Homo sapiens* type. The discoveries in Central Europe (Germany, Italy, Hungary, Yugoslavia and Southern Russia) reveal *Neandertaloid* types which—according to their geological and faunal associations—lived in the Riss-Würm Interglacial period. Their industry is of Acheulian and Pre-Mousterian form. This indicates a much greater age than that of the *West European Neandertal* man who lived in the Last Glaciation. The earlier *Neandertaloids* are not so massive and rugged; neither are they so extremely specialized as the younger *Neandertal* man of the fourth Glaciation. These facts provide the clue to the problem. The earlier Interglacial period had a warm climate and good economic conditions. The *Neandertaloids* of this time were rather massive. The fourth Glaciation brought about a deterioration of climate, and life became very hard. The effect and influence of this deterioration is also visible in the physical constitution of the men who lived in this frozen age. The whole skeleton became very massive and rugged. That shows clearly that the *West European Neandertal* man is an aberrant type which during the last ice-age retrogressed in the direction of developing a massive and rude sub-race. All these facts show clearly the *devolution*—not evolution—of a massive and specialized aberrant type from a moderate one. What happened with *Neandertal* man could equally happen to the *Pithecanthropus* and *Sinanthropus*, whose rugged types evolved through similar natural forces, through change of climate and life.

There is another interesting fact that upsets the theory of man's evolution, the *Palestine* man. From 1931 to 1932, fossils were excavated in caves on the slopes of *Mount Carmel, Palestine*. The bone remains show different types, an unmistakably *Neandertal* type, the *Tabun* group, and a modern type, the *Skhul* and *Nazareth* group. These types must be regarded as representing a racial mixture between *Neandertaloids* and *Homo sapiens*. A comparison of the typical characteristics gives the following picture :

The skull capacity is between 1,550 and 1,600 c.c. The stature varies from 5 feet 5 inches to 5 feet 10 inches. The limb bones show a lighter body. In 111 characters examined, 16 were like *Neandertal* man, 32 like modern man, 46 were intermediate, 13 indeterminate and 4 were peculiar. This proves that the *Homo sapiens* element was very strong in this mixture. This racial crossbreed shows that *Sapiens* man was contemporaneous with the *Neandertaloids*.

The fact that old *Homo sapiens* was also one remarkable type among the *Palae-anthropus* groups is proved by other fossils. Some of them, the *Sinanthropus* upper cave (China), *Keilor* (Australia), *Fontéchevade* (France) are mentioned above. The *Wadjak* (Java) fossils bear at striking resemblance to the Australian aboriginal skull. Some students believe that *Rhodesian* man, together with *Solo* (Java), are early *Homo sapiens* types which bear no relationship to *Neandertal* man

at all. The best proof for early *Homo sapiens* was provided by the excavation of *C. Coon* in 1951 in the *Hotu* limestone cave above the Southern Caspian shore in Iran. Three skeletons were found which were like modern men and amazingly different from those of the *Neandertal* and even *Pitldown*. The age of the deposit is clearly fixed because the vertical section of the cave shows levels of earth down through the ages from the iron to the old stone age. At the bottom of the excavation are layers of sand and gravel deposited during the last glacial period of the ice-age, about 75,000 to 100,000 years ago. The geological evidence is conclusive for the age; but in addition there were animal bones and stone tools with the skeleton which resembled exactly those of the definitely dated last ice-age levels in Europe. The skull of the *Hotu* man is small-brained and can be duplicated among living people. The chin is well developed. The teeth are modern and projecting as in many modern races. The long bones are as straight as in modern man and show no signs of curvature. The three skulls and skeletons of *Hotu* man are the oldest among those so well preserved. Till then we had only skulls and small fragments of skeletons, from such early periods. These lucky finds prove the old age of *Homo sapiens* and disprove completely the common evolution theory of man. (*C. S. Coon, Excavations in Hotu Cave, Iran, 1951, in Proceedings of the American Philosophical Society, Vol. 96, N. 3, p. 231 seq.*) (Fig. 12)

Another fact has the same conclusive effect. In Europe, the *Neandertal* communities were quite suddenly replaced by men of modern type, by the so-called *Cro-Magnon*. The same happened with *Neandertals* throughout the world where they were finally displaced by modern races. This group is called *Neanthropus*, New man, from whom all living races originated.

3 NEANTHROPUS

Neanthropic man, who is identical in almost every respect with modern man, belongs to *Predmost* in Moravia. His brain capacity was 1,590 c.c., his height about 5 feet 7 inches. He lived in the *Late Aurignacian* and was a contemporary of *Neandertal* man. He is again clear evidence that *Homo sapiens* types must have existed before the appearance of the *Neandertal* man. The skeleton which gave the name to the type was originally discovered in 1868 in a rock shelter near the little village of *Cro-Magnon*, France. Later on many fossils of this type were found. The *Cro-Magnons* were a very remarkable people in many ways. Physically they varied very much. The size of the brain-case, compared to the size of the face, which is very short, is tremendous. The bones are robust, not slender, and the muscles are powerful. In any case the *Neanthropus* is so similar to modern man that he is also called a *Homo sapiens fossil's*. A number of attempts have been made to distinguish the different types of *Neanthropus* into sub-races. But no permanent agreement has been attained on these sub-divisions. The common characteristics of all these types resemble the Australian of today. (Fig. 13)



Fig. 12 The skull of a *Homo sapiens fossilis* (Hotu, Iran)

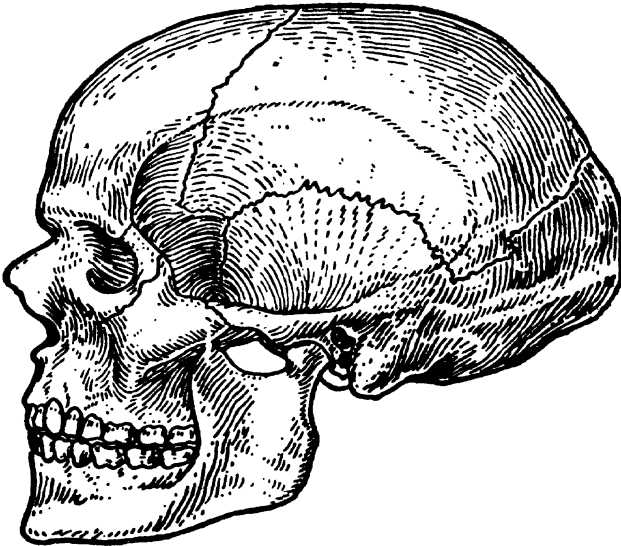


Fig. 13 The skull of a Cro-Magnon male (*Homo sapiens fossilis*)

4. GREAT VARIETY OF FOSSIL RACES.

Evolutionists—consciously or unconsciously—allow man's development to begin with an ape-like ancestor who possessed a heavy eye-brow ridge, sloping forehead, protruding snout (prognathism), a heavy but chinless lower jaw and body proportions like a chimpanzee. Such should be the prototype of primeval man ; in every respect, he should be beast-like. Every human fossil which resembles him should be old, primitive and primary. Every fossil, which was different from this, must be secondary and younger. Furthermore, they identified this morphological pedigree with the phylogenetic scheme of development.

In this construction of human genealogy, evolutionists commit several fundamental errors :

a. They presuppose that the modern apes are morphologically the same as the apes of the Late Tertiary period. Not a single tertiary fossil of an ape was excavated which could show such a type. On the contrary, one fairly complete skull of *Proconsul africanus* from the Lower Miocene of Kenya shows no accentuated brow ridge (supraorbital torus). His mandibular condyles are somewhat outwardly rotated, as in man. Also the simian shelf of modern apes is absent. There are other remnants of *Proconsul* skeletons which show that their structure does not resemble that of the modern apes.

b. The lineal descent of man from an ape-like animal is more strongly refuted by the discoveries of the *Australopithecines* of South Africa. The different fossils are divided into several types ; *Australopithecus africanus*, *Australopithecus prometheus*, *Plesianthropus transvaalensis*, *Paranthropus robustus*, *Paranthropus crassidens* and *Telanthropus capensis*. All these different types have in common many human-like characteristics, e.g., the teeth, forehead without a heavy brow ridge, postcranial bones, erect or nearly erect posture. No wonder that these *Australopithecines* were regarded as a stock of ape-man passing over into the *Hominides*. Some scholars believe that they were derived from *Dryopithecus-Sivapithecus* stock of the Late Tertiary, representing not a link to man but his conservative cousin. Others believe that the *Australopithecines*, separated already in an earlier period (Lower Oligocene), and the earlier *Hominides*, branched from a form which was very near to them in the Pliocene. Here again every phantastic reconstruction is possible because the fossils, which alone could offer a solid basis for it, are missing. Anyhow the *Australopithecus* rules out the ape as a human ancestor, but he is unable to take his place because he is too young, appearing in the Pleistocene time when man was already in existence. Some evolutionists are aware of this situation and confess : "Among the widely dispersed and varieted Tertiary apes it is quite impossible to point with any certainty to any form and say : This is the animal which, without any intermediate stages of development, gave rise to the earliest men.

"In the present state of our knowledge one can only point to the Australopithecines and say, that while no one of them may have been directly ancestral to man, a type very like them must have been ; which is to say that the manlike apes from South Africa are man's nearest present known relatives, and that there may have been one or more stages of development between a form like them and the appearance of the first man. There cannot have been, however, more than a few such intermediate stages for Australopithecines have themselves almost made the passage into the family of man the Hominidae. . ." (*M. F. Ashley Monagu, An Introduction to Physical Anthropology*, Springfield 1951, p. 121.) (Cf. Fig. 7)

That means that the older forms, the *Australopithecines*, are known, but the transient stages from them to man are not. We have to wait for the discovery of these transient forms. Anyhow, till now we are unable to prove by fossils the evolution of man's body from an animal.

c. Another error of the evolutionists is their linear morphological genealogy from an ape-like *Archanthropus* (*Pithecanthropus*) via *Palaeanthropus* (*Neandertal*) to *Neanthropus* (*Homo sapiens*) identifying morphology with the phylogenesis of man. We have already emphasized that they simplify the morphology too much because the old *pre-Sapiens* forms contradict it. There are so many types of *Archanthropus* and *Palaeanthropus* that it is impossible to arrange them in a successive transition from ape-like to *Homo sapiens*-like types. Furthermore, it is not permitted to identify morphological and phylogenetic development which are two completely different lines.

In my opinion the fossil record of man allows only one correct interpretation. The very early primeval man was of an unspecialized, general typical form (*forma typica*). This original type developed into different types of the *Archanthropus*. The *Pithecanthropus*, with his theromorphic similarities, is an extreme specialization forming an aberrant type. The heavy brow ridge, which is also missing among the *Australopithecines*, the bulky lower jaw, and the strong prognathism of the mouth would be a younger specialized development. The old *pre-Sapiens Archanthropus* (Kanam, Kanjera, Swanscombe, Quinzano) resemble more the original *forma typica*. The *Pithecanthropus* types died out, but the *pre-Sapiens* types survived.

A similar evolution was repeated with the *Palaeanthropus*. The fossil man of *Ste nheim* resembles in many instances the *Homo sapiens* type, having a brain capacity of about 1,070 c.c. only, 600 c.c. less than *Neandertal* man. Of a similar type are Krapina, Ehringsdorf, Saccopastore and Palestine man, who make a closer approach to the character of *pre-Sapiens* type than to the extreme *Neandertal*, who is much younger. To call them *Neandertaloids* is misleading because they have many similarities with the *pre-Sapiens* type. But they demonstrate very well that the younger extreme *Neandertal*, with his very low sloping forehead, strongly

marked supraorbital torus, heavy, chinless jaw, bulky body and somewhat bent knees (La Chapelle, Kassel, Spy), is again an aberrant, extremely specialized type. Other variant types point to the same line of development; Spy II (1886), Galilee (1925), Gibraltar II (1926). The *pre-Sapiens* types of Fontéchevade, Keilor, Piltdown and Hotu demonstrate that the older *pre-Sapiens* forms have continued their development in the same line. Fontéchevade, for example, shows a steep forehead, a weak brow ridge and a brain capacity of 1,415-1,470 c.c. The Palestine skulls of Skhül and Nazareth are a convincing document of hybridization of *pre-Sapiens* and *pre-Neandertal* types. All these fossils widen the gap between the *Pithecanthropus* and *Neandertal*, and it is impossible to bridge it. *Neandertal* is an aberrant type of extreme specialization and can never lead to the *Homo sapiens* of the *Neanthropus* group, whose earlier representatives were living side by side with the Neandertal man as new research of the stratigraphic situation of Brunn III and Combe Capelle shows, proving that these skulls are older than they were originally estimated.

The fossil records of palaeontology demonstrate that the extremely specialized types were not able to adapt themselves to great climatic changes and died out, e.g., the great saurus in water and on land. The same rule is effective in human development. The extremely specialized *Pithecanthropus* and *Neandertal*, who branched away from the middle line, died out. The moderate *pre-Sapiens* types, resembling more the original *forma typica*, formed a special race among *Archanthropus*, developed into *pre-Sapiens* races of *Palaeanthropus* and finally into *Neanthropus*, constituting *Homo sapiens* fossils (Oberkassel, Cro-Magnon, Combe Capelle, etc.). Again the more specialized *Neandertal* man vanished. The fossil *Homo sapiens* is universally accepted as having been primitive Caucasian who is very like an Australian. He is more similar to living Europeans than these Europeans are to the living Mongoloids or Negroids of today. This is the connection of the fossil *Homo sapiens* with modern races.

This short fossil record of ancient man proves clearly that man did not develop from an animal. Physical anthropology by itself is unable to verify a doubtful skeleton as human or not. Such a verification is only possible by cultural anthropology, proving that with the skeleton stone instruments, the use of fire, etc.,—"fossils" of the human spirit—are undoubtedly connected. This will be illustrated in detail in the next chapter. (Cf. Record of human fossils)

5. THE MODERN MAN

Cro-Magnon blood is supposed to have flowed in several European sub-races and to have been modified in varying degrees. This component of *Cro-Magnon* is different among the Mediterranean races, the Dinarics, the Alpines, the Nordics, Dravidians, Indo-Aryans and so on. These modern races belong to the

RECORD OF HUMAN FOSSILS

Time phases	no eminent brow ridge	with eminent	brow ridge	no eminent brow ridge	no eminent brow ridge	
	Australopithecinae	Anthropus types	Neandertal types	Pre-and mixed Neandertal	pre-sapiens types	H. sapiens types
LG1 ₁₋₃						Oberkassel Cro Magnon Grimaldi Combe Capelle
25,000						
72,000		Najaras (Africa)	Neandertal La Ferrassie La Chapelle Spy, Circeo, etc.		Hotu (Iran)	
115,000		Pithecanthr. soloensis		Krapina Ehringsdorf Saccopastore Palestine Skhul	Pitldown Keilor Fontchevade (Carmel Nazareth)	
LIgl						
PGI _{1&2}						
187,000						
230,000						
PIgl		Pithec. erectus (Trinil, Java) Pith. pekin- ensis (China)			Swanscombe Steinheimen- sis (Germany) Quinzano	
ApGI _{1&2}		Heidelber- gensis (Germany)				
435,000						
476,000						
ApIgl	Paranthr. robustus, Meganthr. javanicus, Meganthr. africanus,	Pithec. robustus (Java)			Kanam (Africa) Kanjera (Africa)	
EGI _{1&2}	Plesianthr. transvaalensis					
550,000						
590,000						
Pliocene Tertiary	Telanthr. capensis, Paranthr. crassidens, Australopith. prometheus,					

Explanation : EGI_{1&2}=Early Glaciation 1&2 at the beginning of Quarternary ; ApIgl=Antepenultimate Interglacial ; ApGI_{1&2}=Antepenultimate Glaciation 1&2 ; PIgl=Penultimate Interglacial ; PGI_{1&2}=Penultimate Glaciation 1&2 ; LIgl=Last Interglacial ; LG1, 2&3=Last Glaciation 1,2&3.

so-called *Middle Line*, which bears closer connections with *Homo sapiens fossilis*. The same sort of relation holds for the other continents, for Asia, Africa, Australia. The primitive races show closer similarities with the *Cro-Magnon*. The general name for them is *Australoids*, or *archaic Caucasoids*. From this middle line which is held by the *Australoids* and *Caucasoids*, two side-lines have branched off; to the left the *Mongoloids* (Chinese, Japanese, Indo-Tibetans, Mongols, Amerindians, etc.), to the right the *Negroids* (Negro, Negrito, Papuan, etc.). The left and the right line are later specialization. (Fig. 14).

6. THE CAUSES OF RACIAL DIFFERENTIATIONS

When mankind became numerous, groups migrated to make their living in other regions. They had to live in zones which were geologically and climatically different from their original home. The change of environment gradually helped to form a new type. This process lasted, of course, many generations. Fundamental elements of the surroundings are : cosmic rays (sun-, moon-, atmospheric rays), telluric rays (magnetism and radioactivity from the earth). I believe that the effect of cosmic and telluric rays on the chromosomes and genes are in the first instance responsible for racial differentiation. Through the new research of radiesthesia it is proved that earth-radiation affects man very much and that it is the cause of many diseases (cancer, sterility, etc.). Modern biologists try to produce gene mutations through X-ray treatment of the chromosomes. Nature has done the very same, since time immemorial. Biologists could produce loss-mutations, degeneration only, but could not effect a productive fundamental mutation. Sometimes nature also produces degenerative mutations, for instance, the aberrant types of *Pithecanthropus* and *Neanderthal* which died out. But contrary to man's artificial way, nature produces many productive mutations, the innumerable modern races, for instance.

Other fundamental elements in race mutation are water-content in the atmosphere, atmospheric pressure, content of mineral-salt in the air and in the earth, and the kind of diet; for instance, these are agriculturists, who have meat only occasionally and nomadic cattle-breeders, who live on meat, with a small portion of grain and no vegetables at all. During my research work among the cattle-breeders of Inner-Asia, among the Tibetans and Mongols, and among agriculturists in general, I noticed the effect of these elements in race-formation. It is a known fact that all nomadic cattle-breeders generally have very few children. The common explanation of this fact is that the women ride too much on horse-back, affecting the procreative organs and thus resulting in a low birth rate. I do not think that riding is the true cause of the low birth rate. Women do not ride so much for their organs to be affected. I suppose the reason is more that cattle-breeders always pitch camp near running water for proximity to the water supply. The camping ground is therefore mostly under strong radia-

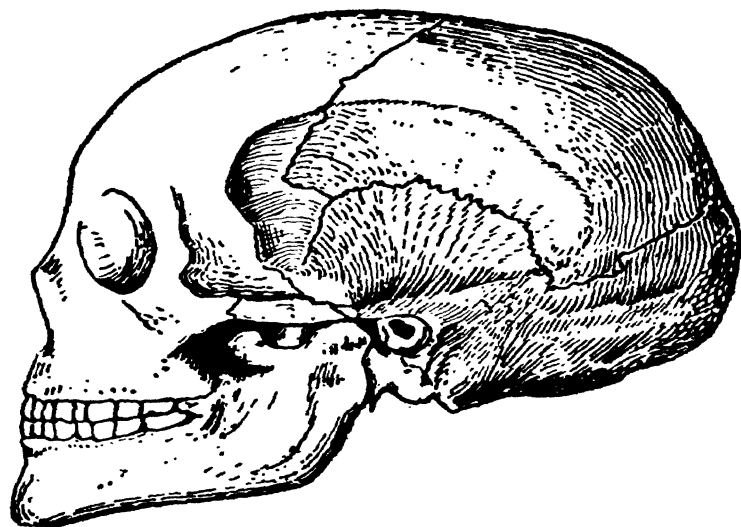


Fig. 14 The skull of a modern man (*Homo sapiens recens*)

tion from water-currents and as the people sleep on the ground, this radioactive influence may be the cause of the lower birth rate of the nomadic herdsmen. It happened that one part of the tribe settled down and started agriculture. They now live in houses, sleep on elevated bedplaces, and do not suffer from radiation of earth rays to such an extent. The effect is that their birth rate is higher than that of their nomadic tribesmen. Their vegetarian diet and way of life gradually produce a racial change. (For details cf. my book *The Nomads of Tibet*, Vienna 1949 p. 271 seq.)

By their mutual co-operation, these elements cause the racial differentiations and form new races. Races are within the same species. The origin of species is quite another question which cannot be explained by these causes. Even such a strong evolutionist as *Weidenreich* made the statement : "I believe, that all Primate forms recognized as hominids—no matter whether they lived in the past or live today—represent morphologically an unity when compared with other Primate forms, and that they can be regarded as one species. I arrived at this conclusion by an elaborated anatomical analysis of all particular features, from *Pithecanthropus robustus* up to modern man of today." (*Fr. Weidenreich, Concerning the origin of Homo sapiens, American Anthropologist*, N.S. 49, 1947, p. 188 sq.) To speak of subhuman races or of different human species is totally erroneous. The phenotypes of man apparent in various races are different but there is only one and the same genotype which is identical within all the fossil and modern races. Man is a special creation and the whole of mankind derived from one pair only. We are forced to make these scientific conclusions by the biogenetic law which shows that man has a special chromosome-gene-system which is fixed and unchangeable ; we are forced by physical anthropology which proves that all the different phenotypes of man depend on one and the same genotype only. This conclusion can be supported by comparative anatomy and morphology and by the fossil records of palaeobiology.

Man has a special position in many ways, even his classification in the animal kingdom is extraordinary. All the Primates, the Order to which man belongs, have different Families, Genus and Species ; e.g., the Family Pongidae has the Genus gorilla, chimpanzee, and orang-outang. The Genus chimpanzee has at least two Species, the common chimpanzee (*Pan satyrus*) and the bald-headed chimpanzee (*Pan valvus*). Only man consists of one Family (*Hominidae*), one Genus (*Homo*) and one Species (*Homo*). To prove the origin of man from an animal it is necessary to prove the evolution of a complete new Family and Genus and not merely a new Species. The Family is built upon a constitutional family-ground-plan which forms the essential family-type. The plans of construction from Phylum to Family are typical and entirely fundamental and cannot be evolved by intrinsic or extrinsic factors of evolution only, by natural selection or retardation of the hormone-functions. An essential entelechy is needed to form the Family-type. This essential entelechy is created and not developed as the law of entelechy

proves. That again contradicts the origin of human species, genus and family from an animal. The origin of species cannot prove the origin of man who is not only of a separate species but also of a separate genus and family of his own. The most convincing proofs for man's special position in the animal kingdom are revealed by prehistory and cultural anthropology.

IV. PREHISTORY AND CULTURAL ANTHROPOLOGY

(Elements of Human Culture)

1. ANIMAL AND PRIMITIVE MAN.

The Darwinian pattern makes the most primitive man ape-like in his physical appearance. The shape of his body is considered to be half-way between ape and man. Along with this rude animal-like physical constitution of primitive man go correspondingly ugly forms of religion, morality, psyche and society. The mental qualities of man are placed as close as possible to the brute's. Thus the difference between the most intelligent ape and the most primitive man is made to appear to be slight and only a matter of degree.

Evolutionists suppose that, in the earliest human society, family life was not known, and sexual promiscuity, *i.e.* free and unlimited mingling of the sexes, was practised and sexual excesses and perversions were common and habitual. In course of time, from promiscuity were developed group marriage, polyandry and polygamy. A monogamous family of one man and one woman was completely unknown in man's earlier history. There was only a herd-existence. In the struggle for life, men killed each other, cannibalism was normal and human life had little value. The aged and the sick were killed off, and unwanted infants exposed to death. There was no private property but only a kind of primitive communism.

Because man's mental capacity was supposed to differ very slightly from an animal's, he was not able to think logically ; his psyche, not recognising the relation between cause and effect, worked in a "prelogical" process. Therefore he was not fit to speak a proper language, and only uttered sounds like the babbling of the present human baby, which consequently is a repetition of the processes of the beginning of the human language. He was the *Homo alalus*. Consequently, he was not capable of forming religious concepts ; instead, he had some magical notions. He was the "magical man."

Men were believed to fear one another ; a similar fear dominated their mental consciousness. They were afraid of demons, ghosts, monsters, goblins, witchcraft and magic. To appease these dreadful beings and horrible powers, primitive men offered bloody and cruel human and animal sacrifices and performed magical acts. Thus religion had its roots in animism and magic.

Such is the picture of primitive man and primitive society, possessing no trace of culture, ethics and religion, which has been outlined by Darwinists who link

primeval man with the brute. *Darwin* himself suggests such a picture in his summary of his *Descent of Man*. "The main conclusion arrived at in this work, namely, that man is descended from some lowly organised form, will, I regret to think, be highly distasteful to many. But there can be hardly any doubt that we are descendants from barbarians. The astonishment which I felt on first seeing a party of Fuegians on a wild and broken shore will never be forgotten by me, for the reflection at once rushed into my mind—such were our ancestors. These men were absolutely naked and bedaubed with paint, their long hair was tangled, their mouths frothed with excitement, and their expression was wild, startled, and distrustful. They possessed hardly any arts, and like wild animals lived on what they could catch ; they had no government, and were merciless to every one not of their own small tribe. He who has seen a savage in his native land will not feel much shame, if forced to acknowledge that the blood of some more humble creature flows in his veins. For my own part I would as soon be descended from that heroic little monkey, who braved his dreaded enemy in order to save the life of his keeper, or from that an old baboon, who descending from the mountains, carried away in triumph his young comrade from a crowd of astonished dogs—as from a savage who delights to torture his enemies, offers up bloody sacrifices, practices infanticide without remorse, treats his wives like slaves, knows no decency and is haunted by the grossest superstition." (*Ch. Darwin, The Descent of Man*, New York, The Modern Library, p. 919 seq.)

This is a typical example of the Darwinian method of comparing "heroic and brave" animals with "brutal and savage" humans. The whole civilized world has accepted *Darwin's* picture of the primitive *Fuegians* as brute-like, godless cannibals, hardly capable of muttering a few words.

However, *Gusinde's* research and study, published in about 4000 pages of printed matter, show the *Fuegians* in a completely different light. We learn that these "savages" have tribal initiation ceremonies which constitute an entire educational system, the main features of which are here outlined :—

(a) "It's main aim is to make the pupil what they call a human being. By this they meant that he should above all be trained to contribute to peace and harmony both in the family and in the community. Social education is thus the primary object of the initiation but we shall see later that the religious element is by no means absent.

(b) "Like other mortals, the Yamana have learnt that in general man does not naturally grow "good" in that sense but must be helped by systematic and energetic education. There is quite an element of planning. In fact, it almost looks as if the Yamana had followed courses in modern pedagogy.

(c) "Our Fuegians are also aware that puberty is the time that is decisive for the trend of life ; so it is chiefly the young people of this age that are subjected to special training.

(d) "The Yamana recognize that parents in general have not sufficient authority for this special kind of education. The candidates for initiation are therefore placed under the authority of their sponsors and of those who organize such instruction, and are therefore more or less removed from parental control. It is felt that the young person who is to be taught to face life with all its demands, must sooner or later be taken in hand by educators outside the family circle.

(e) "This is how the community or organized group, which we may take to be the most primitive form of state, comes into action as soon as it is necessary to ensure special training for youth. Among the Yamana, organized society is evidently at great pains not to interfere with the liberty of the family and of the individual more than is absolutely necessary. It takes upon itself only those functions that are beyond the scope of the individual family.

(f) "During the Yamana initiation, the boys and the girls enjoy essentially equal rights. This does not, by any means, imply complete co-education. The primitive Fuegians are well aware of the specific character and the specific needs of either sex and act accordingly in theory and in practice. Side by side with the general instruction for boys and girls there are always other courses only intended for one or the other group. The girls are taught by older women of standing.

(g) "One of the elements essential to the realization of Yamana ideals of education is self-control. Fasting, a certain deportment when sitting or lying, the limiting of speech to the strictly necessary said in a low tone, the custody of the eyes, long watches, early rising, doing without sleep, are the means employed to teach it. The educators evidently start from the idea that one who has learnt self-mastery will later in life be better able to put in practice what Yamana ideals demand.

(h) "This is no less than a considerable measure of altruism in thought and action. The candidates for initiation are expected to practise unselfishness, to help or serve old people, to fetch fuel and water, to procure food, and serve it to others before touching it themselves. The language has the special word, *tatu*, the observance of this last rule.

(i) "Another of the educators' fundamental aims is to cultivate the sense of authority. Respect for age is continually inculcated and is so much a matter of course that with nearly all Yamana it may be said to have become a second nature. Serious slips or offences against the respect due to age are exceptional.

(k) "There can be no doubt that ultimately this educational system rests upon religious sanctions. Watauiniawa, the high god of the Yamana, desires them to hold Chiehaus and to keep his commandments. Those who trespass will certainly be punished by early death, disease, loss, of children, etc." (*W. Koppers, Primitive Man and his World Picture*, London 1952, p. 143 seq.)

Thus the educational system of the "savage" Fuegians aims at securing a favourable monogamous family life within an altruistic community life, and at keeping alive the old traditions. It teaches that there is a High God, called Watauiniawa. "The Ancient One, The Eternal, The Unchangeable," or Hitapuan, which means "My Father." He is the creator and lord of the world, The Mighty One, the lord of life and death. He rules and dominates the good and evil spirits, gives life to man, and punishes evil-doers, usually by making them die young. Thus the "brute-like" Yamana have a high concept of a spiritual High God, which surpasses in profundity and purity that of many more cultured people.

These "barbarians" who were supposed by *Darwin* to be unable to speak a proper language, had actually a richly developed language of about 23,430 words, which are collected in *Thomas Bridge's Lexicon*. We have, therefore, overwhelming proof that the primitive Fuegians had a high standard of family and community life, in morals and in religion. What a drastic contrast with the brutish savages who sprang out of *Darwin's* fertile imagination! No other assertion of *Darwin* was more convincingly refuted than his statement about the Fuegians.

The Fuegians are not the only "wild hordes" whose reputation has been restored. *W. Schmidt*, who wrote of many primitive peoples of the earth, sums up his findings in this definite fashion: "When we consider all the data brought forward in our earlier chapters to show the existence of monotheism among men with the oldest and most primitive cultures, we cannot for a moment doubt that if we go back still further than these cultures, to the common religion of primeval humanity, we shall find man's faith, obedience and worship entirely directed towards the one great dominant figure of the Supreme Being." (*W. Schmidt, Der Ursprung der Gottesidee*, Münster 1935, quoted by *W. Koppers*, op. cit. 168)

Modern anthropological and psychological research proves that all human beings of today, from the most primitive jungle tribes to the best cultured high caste people, have one and the same human nature, which is everywhere different from that of the animals. The most intelligent chimpanzee can never reach the degree of intelligence of the most primitive man. The intelligence of man and ape does not only differ in degree but also in essence; because human nature is totally different from an animal. *Bernheim* expresses this very well: "The identity of human nature is the fundamental axiom of historical thought. Should there exist or ever have existed a people or an individual whose way of thinking was governed by a logic different from ours, their history would be less accessible to us

than that of a polity of bees." (*E. Bernheim, Lehrbuch der historischen Methode und der Geschichtsphilosophie*, Leipzig 1908 p. 192; quot. by *W. Koppers* op. cit. p. 4) And the anthropologist, *Kälin*, draws the same conclusion from biological reasons : "The whole organization of man's body is directed towards the objectivating intelligence, the primacy of mind over matter. Without our mental faculties we should be hopelessly lacking in the necessary biological adaptation and could never permanently survive. 'Primitive' man, close to the animal and without a trace of culture, is therefore inconceivable for biological reasons, if for no other." (*J. Kälin, Zum Problem der Menschwerdung, Schweizer Rundschau* 1946 ; quoted by *W. Koppers*, op cit. p. 4.) The intelligence tests of modern animal psychology prove that animals are endowed with the intelligence of a sensitive soul which is able to imitate (e.g. a parrot's speech), to associate conceptions (e.g. a chimpanzee opening a door) etc. Animal instinct can never develop into intelligent acts. (*Lorenz, Seitz, Tinbergen in Zeitschrift für Tierpsychologie*, III, 1939, IV, 1940)

The characteristic of sensitive cognition is that animals recognize the concrete object as a corporal thing. The spiritual cognition of a primitive human being does not depend on the material object only but is able to make an abstract and universal concept of the thing, as, for instance, the idea of man in general, which exists in the human mind only. Forming universal concepts, man alone understands the discursive way of thinking (reasoning as opposed to intuition) and is thus capable of the conclusive reasoning of cause and effect, for instance of using fire for cooking. Spiritual reasoning and a free will, which acts freely according to the reason, are the typical characteristics of human beings and show the insurmountable gap which separates man and animal.

2. PRIMITIVE RACES ARE "LIVING FOSSIL" OF EARLY MAN.

If the primitives are supposed to be representative of a very early stage of mankind, why are they in appearance not like the *Neandertal* man, for instance, with his sloping forehead, projecting heavy brows, protruding mouth and ugly, ape-like face ? Are not all modern races traceable back to the fossil *Homo sapiens*? Does not this fact alone refute the attempt to reconstruct the prehistory of human development by equating living primitive man with his prehistoric forerunners ? It is quite true that, for instance, the *Kadar* of Cochin in South India do not live exactly as the *Neandertal* man of Krapina in Europe did about 150,000 years ago. There is a universal process of physical and cultural development, but there are stabilising factors in man's development which far outweigh these changes in many respects. The *Kadan*, the *Pandaram* and the *Andamanese* are still food-gatherers, as their very early ancestors were several hundred thousand years ago. Their economy is built on the same system of collecting wild plants and animals that was adopted by man in the very beginning of human history. In other ways too, their customs are unchanged. Originally they used bamboo vessels for cooking, and till today

they do not know to make a rough earthen pot; only recently have they learnt to construct a hut ; since time immemorial, they have used primitive wind-screens for shelter. Wooden sticks are even now widely used to dig out wild roots, for till not long ago, stone and iron implements were entirely unknown to them. The knife and axe are very recent innovations, which have resulted from contact with neighbouring people. The Kadan and the Pandaram never reached the stone age which started in the beginning of the Quarternary period. Stone implements, of course, were not the very first tools produced by primeval man, for the technique of shaping a stone is not easy. Before the stone age there was an alithic, stoneless period during which man used instruments of wood, bamboo, bone, etc. Till today such tools are used by the pygmies in Africa, and by other primitive Asian tribes, none of which reached the stone age.

Our mind boggles at such stability of primitiveness. But must we not accept the parallels and analogies between the "living fossils" of such ancient epochs and their prehistoric ancestors ? Such parallels and analogies are not drawn by free comparison but by their genetic connection, because they are linked together. For instance, the Veddas of Ceylon produce primitive stone tools of a crude flake type like that of the early protolithic period. They remain primitive food-gatherers and hunters. Why should they not be the offspring of the stone age people of Ceylon, who hunted there several hundred thousand years ago ? The stone industry of the Tasmanians was of a *Mousterian* type with an *Aurignacian* element. These islanders were again primitive hunters and collectors. In their tools and economy, these tribes resemble their ancestors of the old stone age. That the basic tool of palaeolithic man remained the same for many hundred millenia is proved by the *Acheulian* hand-axes from *Madras* (India), *Kenya*, *Cape-town* (Africa) and *London* (Europe), which are absolutely identical except for the material used. They have been dated from about 450,000 to 130,000 years ago. When the stability of certain cultural elements was and is so strong, why should we be surprised that even today primitive tribes have an alithic or old stone age culture ?

3. PRIMITIVE MAN'S SPIRITUAL POWER.

The fossils and remnants of the Palaeolithic people reveal not only their material culture, but also many aspects of their mind and spirituality. Tools, ornaments, fire, etc., are "materialisations" of primeval man's spiritual powers, because they rest and depend on his capacity for recognizing cause and effect and are the expression of his thoughts and conclusions. Tools and instruments are man's "artificial hands." Bow and arrow, harpoon, hook and spear-thrower are mechanical devices for increasing the range of missiles and the accuracy of their aim. Man, the maker of tools and weapons, was also the fire-maker. In the earliest known "home," the cave of the *Chou kou tien* men near Peking, charred

bones and ash-layers indicated that *Sinanthropus* knew how to produce, how to use, and how to control fire. That was about 450,000 years ago.

Yet burial grounds have been found to contain skeletons which show that care and trouble was taken by men in the treatment of the dead. This at least proves some sort of belief that death did not mean extinction, but that an afterlife was expected. In the Palaeolithic caves of Spain and France, marvellous paintings of bison, horse, mammoth, stag and boar are portrayed with wonderful skill and beauty. They reveal in the Palaeolithic man an artistry which might well awaken envy in the breast of a modern artist. Let us go into details to show how the "spiritual fossils" of the Palaeolithic men prove their spiritual power and religious belief.

(a) *Man The Tool-Maker*

In the lower Pleistocene times, the first stone implements were, of course, simple and not specialized. By a rude technique, they were intelligently and purposefully shaped for a multiplicity of uses. The same rough flint served a number of ends : as a knife to kill game, as a scraper to scrape the hair off the hide, as a digger for unearthing roots, as an axe to cut wood. Gradually, as traditional skill and experience slowly accumulated, the tool-maker improved his technique. Instead of knocking off coarse chips by banging one stone against another, some skilled men worked out a method of detaching neater flakes by means of a wooden club. There are two main types of stone implements : hand-axes or core-tools, and flake-tools. Hand-axes were produced by knocking bits off a big lump or core till this was reduced to the desired form. As already mentioned, the uniformity and continuity of these hand-axes is amazing. The same peculiar form can be found from the Mediterranean to the Cape of Good Hope, and from the Atlantic to the South Indian coasts. And for several hundred thousand years, there were only minor variations in the traditional forms, and these variations succeed one another in the same order in far remote countries. Was there an exchange of technical experience ? And why did tool-makers finally produce hand-axes of a delicate and artistic form which could not be used for work but were the expression of an artistic and aesthetic feeling ?

Flake-tools, on the contrary, were chips knocked off a lump and trimmed up to form instruments which never became as standardized as hand-axes. We find these flake instruments almost exclusively in Europe and in northern Eurasia during the Ice age and later. Thus there were fixed provinces for the hand-axe and for the flake-tool-maker, who did not mix easily with each other. Are these divergent traditions not the result of different racial and social traditions ? No factor of climate or environment could make the tool-maker choose the flake rather than the core, which is the parent of the former.

From the Middle Palaeolithic time onwards, more and more varied and different implements are preserved. They include distinct tools for scraping and chopping. Most of them are made from flakes by an ingenious process known as the *Levallois-technique*, which required more foresight and planning. The desired shape was blocked out on the core before the flake was detached. The weapons are also more specialized ; for instance, the spear-heads.

Of the Upper Palaeolithic period many more tools are preserved. *Magdalenian* bone javelin-heads and spear-heads were made in a variety of forms with pointed, bevelled or grooved bases. Hammers, chisels or wedges, and perforators were added to the list of bone tools. The slender bone needle, with an eye, that the *Solutrean* may have devised and the *Magdalenian* certainly possessed, implies thread and sewing and presumably, therefore, some sort of more or less fitted or pieced garments. Ornaments are also plentiful. The *Aurignacian* women wore rows of perforated shells and teeth round their necks and waists. All the Upper Palaeolithic societies used bone and ivory for tools and ornaments. We even find ornaments made out of amber, which was transported from the German coast to Southern France.

For greater range, hunters devised weapons of composite mechanism. Using a bow, the archer stored up, in the bent wood or bamboo the energy, which, suddenly released, shoots the arrow to a distant target. To increase the range of the spear, hunters used the spear-thrower,—a sort of rod, board or handle, one end of which is grasped by the fingers while a short projection at the other end engages the butt of the harpoon or dart-shaft. The hand steers the shaft only at the beginning of its flight ; the propulsion comes from the thrower. There is, of course, considerable ingenuity involved in this apparatus, both in its invention and in its successful use. The harpoon came into extensive use in the *Magdalenian* period. The shafts have long since decayed, but some of the reindeer-antler heads have remained intact. At first, shafts were notched with barbs along one edge only ; later, barbs were cut on both sides. The harpoon differs from the simple spear of javelin in that its head is detachable from the shaft; the two being fitted together by a socket. If the game, be it fish or stag, is not killed by the first throw, its struggle to escape shakes the shaft loose, while the barbs hold the head firmly embedded in its body. A line is attached to the head and tied to the shaft, thus preventing the animal from escaping. The harpoon is really a rather complicated instrument consisting of at least three parts—head, shaft and line—and since it is thrown, it is even more complicated.

The Palaeolithic hunter knew how to construct traps to catch not only small animals, but also big game such as bison, rhinoceros and elephant. Thus the tool- and weapon-maker, the skilled hunter and clever trapper must have been men of an inventive and courageous mind. For better understanding, we must get acquainted with the psychology of the tool-maker.

(b) *The Psychology of the Tool-Maker*

The tool-maker shows his human spirituality. An animal, even the most clever chimpanzee, never produces an instrument, but knows only how to use ready material. A tolerably well-ground axe or mortar can be made without much difficulty by anyone willing to take the trouble. A person, inexperienced in the working of stone, should be able to produce a fairly satisfactory instrument by a gradual rubbing-away technique. If, however, he attempted to manufacture a chipped-stone tool, even of a simple type, he would probably fail repeatedly before learning the method well enough to turn out a satisfactory tool. Indeed, he might never learn to do this without guidance. It would seem that the manual dexterity required to produce the best forms of chipped stone tools is greater than that needed for the grounded product. In Upper Palaeolithic times, primitive tool-makers developed a method of preparing a lump of flint or obsidian in such a way that a whole series of long narrow flakes could be struck off a single lump by a single blow. They produced an ingenious instrument called a graver or burin which could easily be repointed by removing another facet along one edge.

Inasmuch as chipping predates the rubbing process, we are confronted with a paradox ; because, contrary to the principle of evolution, palaeolithic man started with the more complicated technique of tool-making and never used the simple method of rubbing which was introduced by his neolithic successor quite recently in human history. Palaeolithic man was able, in the quickest manner and by a convenient technique, to produce the implements he needed. Palaeolithic tool-making proves the high intelligence of these primitive people.

(c) *Man the Fire-Maker*

Man alone knows how to produce, control and use fire. Wild animals are afraid of fire ; they avoid it, nay, fly from it in terror. Primitive man knew an astonishing variety in the means of fire-making—for example the fire cord, the fire saw, fire drill, flint and hard stone, and the fire piston. The use of fire, one of the greatest devices of mankind, was known in the Lower Pleistocene period, and is excellent proof of the genius of primitive man. We do not know the time when the fire piston came into use. The primitive people of South-Eastern Asia used it. The piston is a device for kindling fire with the heat generated by the sudden compression of air caused in a hollow cylinder by a plunger piston. The cylinder must be true and the piston packed air-tight yet freely moving. It is also necessary to admit free air to the inflamed tinder immediately after the compression to prevent the spark from being smothered. The artificial production of fire, and the consequent roasting and cooking of food, is another touchstone whereby spiritual man may be distinguished from instinct-bound animal.

(d) *The Primitive Hunter*

From the hunter's implements, weapons, traps, etc., and from the excavated bones of animals, we come to know a good deal about primitive hunting. The *Neandertal* lived by hunting horses, mammoths, the woolly rhinoceros and other thick-skinned animals, and smaller game like the stag and boar. Big game called for group hunting in bands according to certain organized training. In the Upper Palaeolithic period, hunters entered the vast steppes and tundras where horse, bison, auroch, reindeer and mammoth were plentiful, and pitched their tents along the trail of these herds. Immense heaps of bones prove the success of their clever hunting methods.

Among the many groups of animals painted on the cave walls at *Lascaux* in France, there is a hunting scene of particular interest. On a wall at the very bottom of a shaft is a composition of a bison, a man in a bird mask lying prostrate in front of the animal, a stick with a bird on top, a weapon on the ground and woolly rhinoceros near by. The bison is pierced through the hind part with a spear, and the entrails bulging out show that his belly was cut by the instrument lying nearby, perhaps a shaft with a flint-knife. How can this prehistoric painting be interpreted? Was it the first bull fight? A hunter wearing a bird mask lay near a path where wild animals had to pass, perhaps, on their way to a watering place. To allure the game, he placed a stick topped with a decoy bird near his hiding place. Not interested in rhinoceros, he let pass the animal which is painted on the left. But when a bison approached, he rushed out, pierced the animal's hind part with a spear and cut its belly with a flint-cutter. The bison, although severely wounded, charged the hunter, killing him. The primitive hunter testifies how fragile man, through his weapons, obtained superiority over to the giant bison, rhinoceros, mammoth and elephant.

(e) *Primitive Man the Artist*

On the walls of deep caves in parts of France and Spain are paintings in which animals like the auroch, bison, horse, mammoth, stag and boar are portrayed with great skill and beauty. Often these caves are in deep recesses a mile or two beneath the earth, where the artist worked by the light of a feeble flame kindled by burning fat in a stone lamp. The colours prepared from certain earths have remained for about thirty thousand years and more. The portraits of the animals are realistic and individualistic copies of nature not abstract symbols. When the first cave paintings were discovered, many scholars would not believe that they were the work of primitive Palaeolithic man and insinuated that they had been forged by the Jesuits to mislead the public. At least 90 decorated caves with paintings and engravings have been discovered to date, showing the evolution of techniques in different stylistic groups. The Franco-Cantabrian group in the Lower Aurignacian

phase contains engravings of crude representations of animals in black, yellow and red, drawn in rough contours with the finger on soft clay walls. In the paintings of the Upper Aurignacian period, animals are represented in naturalistic form within essential details. Painting reaches the highest standard of portraiture in the Lower Magdalenian time. The most famous paintings are those of the bisons of Altamira in Spain and the gigantic aurochs of Lascaux in France.

Another group of painters in Eastern Spain depict, in expressionistic style, fighting scenes of men which are full of exciting movement. Everything is concentrated on the essential points and all unnecessary details are omitted. Thus we find both the naturalistic and the expressionistic style practised by primitive artists. They must have had special training centres. In fact, there are stone slivers and pebbles on which small-scale trial pieces for the cave paintings are scratched, some showing corrections. Are these copy-, and sketch-books of a school of art ?

Wonderful as these cave paintings are in displaying the artistic skill of Palaeolithic man some tens of thousands of years ago, they are still more important as "picture-books" because they reveal to us something about early man's spiritual and religious life.

(f) *Primitive Man's Spiritual Life*

The artistic-aesthetic motives of primitive art are clearly apparent. But there are also traces of magic hunting and fertility rites for the sexual propagation of game. Certain animal pictures bear marks which suggest that arrows have been shot at them. Other pictures show men wearing stags' head-masks and performing magic dances. Are these dances similar to the magic dances of the Bushmen who don animal masks while their women-folk clap hands ? Here again we meet a surprising parallel of palaeolithic and recent primitive rites.

We have much evidence of magic rites to ensure food-supply, to increase the hunted game, and to secure success in the chase. The *Gravettian* people used to carve little figures of women in stone or ivory, which usually have no faces, though the sexual parts are strongly emphasized. A very beautiful ivory statue of a female figure, 147 mm. long and 66 mm. wide, was found at *Lespugue* in France. The most important find is the *Venus of Willendorf*, Austria, illustrating the old stone age man's ideal of female beauty. Round the forearm are two bangles, and the rich hair is arranged in a way which resembles the coiffure of modern primitive people. Archaeologists believe that these statues, with such accentuated breasts and thighs, were idols of fertility and motherhood. This would be primitive man's answer to the mystery of life. He had to ensure his own life by self-preservation, by getting sufficient food. At that time, man knew nothing of agriculture

and cattle-breeding, and subsisted only by hunting and food-gathering. As food-storage was impossible, food-supply was an ever-urgent problem which palaeolithic man tried to solve by resorting to magic rites. Besides self-preservation, he had to ensure the continuity of the race by procreation and the preservation of offspring. Thus the mystery of birth and life must have loomed very large in the mind of primitive man.

Contrary to birth and life, the mystery of death was the other great and far more awful problem which he had to face. Many graves have been found to contain skeletons that have been carefully buried and provided with gifts. Primitive men buried their dead relatives at the place where they were living. They dug graves in the caves and protected the bodies by stone-slabs. Sometimes the bodies were placed in a special position, and joints of meat, implements and ornaments were placed near by. Often the skeletons were reddened with ochre to symbolize the life which they hoped would last. Thus from palaeolithic times, burial ceremonies and rituals can be traced continuously ; till today, primitive and highly cultured people furnish graves with food, ornaments and implements. All these ceremonies show some sort of belief that death did not mean extinction, but only a change to some other place, where life's needs were the same. Primitive man's worship of the dead testifies clearly his strong belief in an after-life.

We possess still other facts to prove certain beliefs of the Palaeolithic man. In the Alpine caves of *Wildmannlisloch*, heaps of skulls and long bones of bears were found arranged in a ritualistic way. These are supposed to be the remains of the Last Interglacial period and are about 1,50,000 years old. Similar bone deposits were found in the *Petershöhle*, Germany. These arrangements suggest offerings that are still performed by reindeer hunters as well as bear hunters in Siberia. In honour of the High God, the Samoyeds and Koryaks put aside the skulls and tubular bones of the bear and reindeer they hunt. Have the bone deposits of the palaeolithic man the same sacrificial character of an offering to a High God ? Or were they an offering to the hunting god ? In any case the sacrifices prove the belief in God.

There are other offerings of the prehistoric hunter. At the end of the last Ice age, reindeer hunters used to repair every season to *Holstein*, Germany, and slaughter many hundreds of reindeer. One of the slain animals was weighted with a stone and was cast into the mere at *Meiendorf* near *Hamburg*. Reindeer skulls were lifted on poles, which were posted in the mere. This is exactly the same skull-offering which is practised today by hunters in Siberia.

There are many other proofs of primitive man's religious life to which we do not here refer. Only one very important fact may be stressed. It is very difficult to get access to the painted caves because they are situated in deep recesses. Such dark and sticky places were not fit for human dwelling and consequently no im-

plements, ashes or fire-places were unearthed there. On the contrary, such signs of human habitation were excavated at the entrances to the caves, which are dry and bright but devoid of paintings. The painted caves in the deep recesses, often difficult to enter, are the *sanctuaries* of the palaeolithic people and are cave-temples. All the pictures, engravings, statues and plastics, preserved there, are ritual objects which reveal the magical and religious world of these people. Why should the artists not be the priests and *medicine men*, who were training their assistants and students in art, magic and religious rites, and performed their ceremonies in these cave-temples? These are not sweeping statements, for considerable evidence lies behind them.

(g) *Primitive Man's Cultural Life*

All these traces of palaeolithic man's spirituality display his spiritual culture which was of a high level compared with his very poor material culture. The soul of a culture is the culture of the soul. People of highly developed material culture have a high civilization, but will have a low culture if their psychic, spiritual, and moral powers are degenerated. Anthropology has ample tests to prove that people of a very primitive material culture have a higher spiritual culture than many so-called *civilized* people.

The term "culture" derives from the Latin word "*colere*" which means "to train", "to develop". In the strict sense, culture means the training and developing of man's own nature in a spiritual and physical aspect. When and how did human culture start? In myths and folk-lore of people all over the world, it is related how a god or hero, called *culture-bringer*, brought during primitive days the most important devices like fire, instruments, etc., to mankind; a god instructed man how to sow; *Agni* or *Prometheus* brought fire from heaven to man on earth; others introduced tools, bows and arrows. These myths of *culture-bringers* illustrate the belief of primitive people that the use of fire, tools, etc., is the beginning of culture, which is regarded as a heavenly gift. Culture is the abyss which separates man from animal. Many minds have been puzzled in defining this frontier. There are some who believe that the faculty of speech marks the difference between man and animal; speaking and thinking are closely correlated. Others stress man's tool-making ability; others again point to his fire-making faculty as the criterion. Undoubtedly the cultural gap indicates a mental rather than a physical difference between man and animal. It is not a single faculty nor a single device which makes human culture. The whole complex human constitution is the basis of culture. It is man as an *incorporated spirit* who *is* culture and *makes* culture.

By his knowledge and accomplishments, man is able to communicate culture to his descendants, thus transmitting habits, ideas, achievements, etc., from generation to generation. He binds generations for centuries and millenaries by his

cultural traditions. Thus man makes history, binding not only time, but also space by linking Asia, Africa and Europe by the same culture. Through his religious cult he even ventures into a third dimension, into the after-life, into the world of the deceased and the world of gods and ghosts. Culture is therefore a powerful force in mankind. Any given form of culture, whether of *Sinanthropus* or of *Neanderthal*, of *Cro Magnon* or of the contemporary *Indian* and *Wester-ner*, has behind it a long history of other forms of culture by which it was conditioned and from which it derives, thus linking up the primeval ancestor of mankind with all the generations past, present and future.

With culture another human quality is closely connected, society. The Latin word "*socius*" denotes companion or ally. In the specific sense, the word refers to associations of human individuals in families, and of families in groups or tribes, not like animals in herds but in a social organisation and structure. In man, social and cultural phenomena are associated. Therefore man may be defined as a *socio-cultural being*. To classify the palaeolithic man as a *savage* and the neolithic man as a *barbarian* is a *Darwinian* prejudice *comme il faut*. When we call the palaeolithic man *primitive*, that does not mean a classification or estimation as a rude barbarian. The modern primitives are in the same position. Their material culture is primitive ; their spiritual culture can be high. We may say : man makes culture and culture makes man.

We draw this picture of primitive man's spirituality from the palaeolithic period as a whole. In the Lower Palaeolithicum, such proofs are very rare; in the Middle Palaeolithicum, there is more evidence ; in the Upper Palaeolithicum, arts and crafts are better developed, the cultural deposits are richer and better preserved. Such circumstances again draw surprising parallels between prehistoric man and the primitive man of today. For instance, the Kadar did not originally erect a crude stone beneath a tree to mark an offering place, as some of their neighbours do. They did not have any religious representations or images. Their sacrifices were very simple, as we shall see later on. How could traces of their ritual performances be left ? Since time immemorial, they have roamed about in the same area, constantly changing their camping place. On their departure they leave behind the remnants of their camp, wind-screens, ragged baskets, mats, etc., all perishable things, and none of lasting material. After some time, not the slightest trace is left to prove that the place had been a Kadar settlement. The only evidence which remains for a long time would be the skeleton of a member of the group in a nearby grave, someone who died when they camped there. But the superficially buried bones, unprotected, have no chance of fossilization and cannot be preserved for long. The very same situation must have existed in the Lower and Middle Palaeolithicum, in the case of men not living in caves. Here again, we have a striking negative parallel between the palaeolithic and the modern primitive.

When the material culture, the domestic economy, implements and technology of the early prehistoric people and modern primitive tribes are similar, why should their spiritual culture, sociology, psychology and religion be different, especially when they are linked up genetically ? There is one remarkable difference between them. Many of the old stone age people progressed to higher and higher levels of material culture because they were inspired by a dynamic spirit of development, thus showing a greater vitality than some other tribes which remained stagnant and retained their old stage of *fossilized* culture. Such stagnation means more or less degeneration. Modern primitives are the descendants of such stagnant people and are therefore preserved as *cultural fossils*. The study of such primitive tribes enables us to reconstruct the spiritual culture of those early times which the prehistorian, even with the best of good will, is not able to do in his field. To give a more vivid picture of primitive man's world, we will describe some of the primitive tribes of India. (Cf. Record of prehistoric culture p. 73)

(4) PRIMITIVE MAN IN INDIA

(a) *The Andamanese*

Even in India there are "living fossils" of pre-stone age tribes. The Andamanese of the Andaman Islands in the Bay of Bengal are well known among anthropologists as such relics. They are hunters and food gatherers, and since they possess rich hunting and collecting grounds, they are able to live in big groups, in a settled way of life, and can build permanent houses. These hunters produce a powerful bow by making the bow a half reflex or double-curve, the shooting power of which is much greater than that of a simple bow. With their bows and arrows, the Andamanese also shoot fish. They use hafted mussel shells as tools. The axes and iron blades with which they work are borrowed from the more cultured people of South Asia. From the same neighbours they have learned the fundamental principles of ceramic art and they now make very crude pottery. The hearth fire is kept burning continuously ; if it is extinguished, they run to their neighbours to get a burning coal. The Andamanese are one of the few people who do not know how to rekindle fire.

Boys and girls have a free choice of life partners for marriage which is strictly monogamous i.e. the union of one man and one woman for the purpose of leading a common life and raising children. Conjugal fidelity for life is the rule rather than the exception. Man and woman are equal partners. The husband goes out to hunt animals and to provide meat ; the wife has to gather roots, greens, plants, fruit, etc. At home, the mother has more work with the children ; but even in her household duties the man aids her. The harder work always falls to the lot of the husband ; there is not the least trace of any attempt to put the wife

RECORD OF PREHISTORIC CULTURES

Time Phases.	Prehistoric cultures.			Post Glacial.
	in Europe	in North-West India		
PGI	Mesolithic	Mesolithic		
LGI ₃ 25,000	Pre-Tardenois Final Magdalenian		Q u a r t e r n a r y	Upper Pleistocene
LGI ₂ 72,000	Magdalenian Solutrian Solutrian Upp. Aurignacian Mid. „ Ear. „	Upper Palaeolithic		
LGI ₁ 115,000	Mousterian, Levallois			
LIgl	Micoquian, Mousterian, Levallois V Upper Middle- Acheulian Levallois	Late Levallois		Middle Pleistocene
PGI ₂ 187,000	Middle Middle Acheulian Levallois	Late Soan (Levallois technique)		
PGI ₁ 230,000	Middle Acheulian Early Levallois	Early Soan		
PIgl	Middle Acheulian Lower Acheulian, Clactonian 2	Early Acheulian Early Soan		Lower Pleistocene
ApGI ₂ 435,000 ApGI ₁ 476,000		Large crude flakes		
ApIgl	Abbevillian—Clactonian 1			
EGI ₂ 550,000	Cromerian			
	Norvician			
EGI ₁ 590,000	Ipsvician			

Pliocene = Tertiary.

Explanation : EGI₁&₂=Early Glaciation 1&2 ; ApIgl=Antepenultimate Interglacial ; ApGI₁&₂=Antepenultimate Glaciation 1&2 ; PIgl=Penultimate Interglacial ; PGI₁&₂=Penultimate Glaciation 1&2 ; LIgl=Last Interglacial ; LGI₁, 2, 3=Last Glaciation 1,2&3. PGI=Post Glacial. (Cf. F.E. Zeuner, op. cit. p. 266/67 Fig. 80)

in a lower position. These so-called wild tribes are very hospitable ; they always keep food simmering in a plate over the fire for unexpected guests, or in case of other unforeseen demands on their hospitality.

In their creation myths explaining the origin of the world, the Andamanese trace the origin of mankind back to one man and one woman. They are neither animists, fetishists nor magicians, but believe in a Supreme God whom they connect with thunder and storm. It is very strictly forbidden to burn beeswax for the custom is supposed to annoy the deity who inflicts hurricanes and cyclones upon the people in vengeance. The Andamanese are obliged to venerate God with prayers and offerings. They do not fear the dead, and they look upon life after death as a continuation of this life. A widow has to carry about the painted skull of her husband wherever she goes. A similar custom of ancestor worship is prevalent among some Australian tribes.

This practice may explain why we find so many skulls in palaeolithic sites, for instance, at *Chou kou tien* near Peking, China. The skulls are not proof of cannibalism or head-hunting in the early history of mankind, as some people imagine. Such bloody habits are unknown among the most primitive tribes, and were only developed by more advanced people like the Nagas in Assam. Another strange custom worth noticing is that the Andamanese greet their friends by weeping, or by tears of friendship.

These "wild" tribes have a system of education for their youth. Boys and girls have to undergo initiation ceremonies. They go through a period of fasting, sacrifice and observing strict taboos, by which they become useful members of primitive society.

Summarising the religion of the Andamanese, we may say it is clearly a monotheistic religion because *Puluga* is a true and effective High God. The existence of some demons of minor powers does not contradict monotheism because *Puluga* is the creator of the universe and of mankind. He is the only one who is almighty and eternal, omniscient, knowing the secrets of each one's heart, and kind and helpful. He has made the moral and social laws and has imposed them on every man. *Puluga* is the guardian and judge of the moral order on earth and in the other world. He punishes with cyclones and thunder-storms ; lightning is the fire-brand he throws, and thunder is his voice. He sends death through the *Gol*, or evil spirits. It is *Puluga* who provides the Andamanese with all the things they need. These primitives are afraid and anxious if they see the powerful God angry ; but they are very thankful if they receive His grace and benefit, and have a great reverence for Him.

The physical structure of the Andamanese is as follows: The average height is 4 ft. 10 ins ; the head is brachycephalic (broad and short) ; the nose is

straight and not flat ; the face is broad at the cheek-bones ; the lips are full but not everted ; the hair is woolly and black in colour, and the skin colour varies from bronze to sooty-black. Thus the Andamanese are the most Caucasoid-looking Pygmoids.

(b) *The Mala Pandaram*

Another well-known race still in the palaeolithic stage are the Veddas of Ceylon, who are small in body and of an average height of 4 ft. 11 ins. The Vedda head is the smallest type found among living races with an average brain capacity of 1,250 c.c. only ; the fossil Neandertal man had a brain capacity of 1,650 cc. The Vedda head is strong dolichocephalic with a slightly sloping forehead and moderately developed brow ridges. The nose is depressed at the root but rises to form a squat triangular eminence. The face is short and broad; the hair, black with a reddish tinge in some individuals, is wavy or slightly spirally coiled. The skin colour is chocolate brown.

Although the Veddas are different from the Andamanese, they show close affinity with some pre-Dravidian tribes in South India. Because the Island of Ceylon is merely a detached portion of the southern mainland of India, we will not go into a detailed description of the Veddas, but will shift instead to the hill and forest tribes of Travancore-Cochin, which is in an excellent position to form a reservation for primitive races. The Arabian Sea forms a watery barrier on the west, thus allowing only seafarers to enter the country. The precipitous mountains of the Western Ghats, with their dense forests, rise aloft as an insurmountable wall closing the eastern frontier of the State. There are only a few passages in the north, the Palghat Gap along the Punnam River and the "Malabar Door" on the coast leading to the Malayalam Plains. For this reason, Travancore-Cochin is an ideal refuge of the primitive tribes isolated in inaccessible mountain forests.

The forests near the Periyar Lake are the hunting grounds of the Mala Pandaram, one of the most primitive tribes of South India and as shy as the sambar or the deer of their forests. We will deal only with this group and not with the others living south. In the whole area there are about thirty families: ten in the Rani range, eight in the Manimalla range, and the rest scattered about the other ranges. They are divided into two different groups; Mala (mountain) and Katu (forest)-Pandaram. The latter are pygmy-like and of very short stature with a strong Negrito element. Only four Katu families are alive and the group is dying out because they do not intermarry with the Mala Pandaram.

Usually the families live separately and have their own hunting and gathering grounds with fixed borders. Nobody is allowed to enter the district without per-

mission. If someone intends to get into contact with his neighbour, he makes a certain sign on a tree by the foot-path crossing the border. The man who is called gives a reply by making his sign on the tree, and fixes the day of meeting. One straight notch on the stem means tomorrow ; two notches, the day after tomorrow. On the day fixed, the two men meet and settle their business. If any intruder enters the district secretly, he is caught and killed.

A newly-married couple gets its own district to live in and builds its own jungle palace, called a windscreen. The man takes some small bamboo sticks and constructs a frame of about 6 ft 2 ins. in length and 5 ft 10 ins. broad ; the woman cuts bamboo leaves and covers the frame with it, making it "waterproof." They then place the screen in an oblique position at an angle of 40 degrees, supporting and fixing the elevated side with bamboo sticks. The three sides remain open, the highest point in front being about 5 ft 7 ins. Heavy stones hold down the screen and prevent it being carried away by stormy winds. It takes a few hours only to prepare the material and construct the jungle palace, which is erected at a spot that offers protection against the attacks of elephants and tigers. These sites are usually on precipitous rocks at river banks, or on steep slopes which are inaccessible to wild beasts. These very primitive tribes never build, as their neighbours do, little huts in trees whose branches are cut.

Their utensils are poor. Because the Pandaram do not know how to weave mats and baskets, they have no mats to lie on and no baskets to keep things in. They store their possessions in a kind of pouch made of wild banana leaves stitched together with creeper tendrils. Water is carried in bamboos. For cooking, a woman takes a short bamboo stem, plasters it with mud and places it on stones over a smouldering fire. Usually the fireplace is near the windscreen. Originally the Pandaram did not know of a method of kindling fire, and so had to keep it burning constantly as the Andamanese do. Now they have borrowed flint and steel from other tribes and prepare their own wood-wool. In the same way, some families have imported one or two earthen pots for cooking. Even the use of salt was formerly unknown. The women use wild pepper and chillies (capsicum) to flavour the food. Generally, they only roast their food and do not favour much other cooking.

What is the food of this forest tribe ? The man gets meat by hunting deer, sambar, goat, guana (a big lizard), tortoise, big squirrel, fish and various birds. He is very clever at setting traps to catch game and is so acquainted with the habits of animals that he is able to read, from the traces left, the exact time to a minute when an animal has passed. He can also follow traces very well. It is said that these primitive hunters are even able to smell the animals when they are near by. The Pandaram do not kill or eat monkeys (langur) like other primitive tribes who favour the flesh of the black langur but do not eat the white one. The reason

for this, I was told, stems from a belief that monkeys look like men. Some primitives even believe that monkeys were originally men who were driven into the forest in olden times and forced to stay on trees. Unable to live on the ground, they changed into monkeys. What would *Darwin* say of this theory that man is the ancestor of the monkey !

The Pandaram do not kill or eat wild cattle(gaur, bison) and wild bear because they believe that these animals are cursed ; they even avoid crossing the tracks of these beasts. I could not find out if such behaviour was activated by fear of any harm or evil inflicted by these animals. The only answer the primitive gives when questioned is : "Our ancestors did so ; therefore we do the same." They do not kill or eat the tiger because they believe this beast is sent by God to kill evil persons, thus punishing them for their crimes. Because of this superstition they do not even defend themselves when attacked by a tiger, or rescue a man who is in a tiger's clutches. "It is the will of God to punish this person" they say, and remain passive. They do not eat wounded game or that killed by beasts of prey. Such were the old customs, which nowadays are changing through contact with other people.

The women-folk gather roots of muron and vella (creepers), kharange, mang-kharange, wild mango and yak-fruits, edible leaves and greens. They know every herb and plant that is edible. The Pandaram are very fond of wild honey, and eat young bees and larvae in the honey-comb, but throw away the wax. They use a digging stick made of hard wood and sharpened at one end. They do not affix to it a stone or blade, or piece of iron, but use only the wooden point. From their neighbours they have borrowed the little hatchet and small sickle. These are the only tools they use.

Do these primitive people observe proper marriage laws or do they live in promiscuity, or practise polyandry and polygamy ? According to the extreme evolutionistic pattern, there cannot be any set marriage customs among such primitive people. This supposition is refuted by the rigorous marriage customs that prevail among of the Pandaram. If there is a grown-up boy in one family and a mature girl in another, the boy's father calls for a meeting with the head of the other family by making a sign on a tree. After they have met and an agreement is arrived at, the mother of the bride goes to the boy's family and asks his father, mother and the boy whether they agree to the marriage of her daughter. If they agree, then a day is fixed when the bride should be brought. This is on the first appearance of a new moon, when the crescent rises behind the mountain top. On this date the mother brings the bride to the appointed place and kindles a fire. The mother-in-law meets the party and takes the bride. During this procedure, both women look up to the heavens saying, "God", and point with their right hands towards the sky—the usual ceremony for calling on God as witness to confirm an action. This is the proper marriage act which makes the marriage indissoluble.

Matrimonial fidelity is very severe and strict. In case of adultery, the husband is bound to kill his wife and the adulterer, if he can get at him. If an unmarried girl becomes pregnant, she is killed.

If the girl's family does not agree to the marriage, then the boy's family keeps watch to see where the girl goes to gather vegetables. Usually each person moves separately when food-gathering. If the girl reaches a suitable place, the man rushes to her, forcing her to follow. If she wants the marriage, she will agree and follow him ; if she does not like the boy, she will cry out to her people for help. They hurry to her aid and if they capture the kidnapper, he is killed. If, however, the kidnapper is fortunate enough to escape to his own district, he is safe because the pursuers will not give chase and risk an attack in another's territory. If two boys desire the same bride, they may fight it out even to the death.

With the Periyar Pandaram, we have the unusual custom of a family living separately. One would expect that the struggle for existence in the primeval forest and a need for united effort in contending with nature and wild animals, would draw families into a common group. This is the case with other Pandaram groups and other primitive tribes in Travancore and elsewhere, which form loosely joined bands of inter-related families and have pooled resources for the common good of all concerned. Thus they are numerically and economically stronger and much better fitted to contend with the extreme hardships of forest life. Because the Periyar Pandaram do not have this group-co-operation, the single isolated family has to struggle much harder.

The equal status of man and woman and the co-operation within the family help to overcome the hardships of such a life. Members of a family are forced to support each other. For example, when a woman is pregnant and her confinement approaches, her husband takes her to a protected place outside the wind-screen and builds a little shelter of big banana leaves. During confinement, a woman has to stay at least thirty days outside the wind-screen and is not allowed to cook. The husband does the cooking and brings her food. After thirty days, or even three months, she returns to the fire place and to her normal routine of life. In labour a woman is alone and has to do all the work by her self ; she cuts the umbilical cord with a reed. She prays to God, asking for His help. To make delivery easy, she drinks a great quantity of honey and uses honey to massage her abdomen. After delivery, she eats a great portion of wild pepper and manjal to avoid uterus affections and puerperal fever. Should she die during confinement, then her husband has to leave her as well as the child, even if the infant is alive. Should the child die, the parents leave the place and settle far away. During menstruation, a woman must remain outside for ten days, sleeping on barren rock or on a layer of branches in order to avoid contact with the ground.

The Pandaram have a very strange custom, namely, the sacrifice of the first-born child. Shortly after delivery, the mother places her baby on a big banana leaf which she spreads out in the jungle. Making her reverence to the High God, she offers her baby to him because He is the creator of human life. Then she leaves the child alone there in the jungle to fall prey to wild beasts. Till recently, the custom was practiced, but on account of the scarcity of the Pandaram population, the mother now takes her baby back shortly after offering it.

Two or three brothers will never share one wife, as polyandrous people of higher cultures do. Such a habit is completely unknown among these primitives. The shortage of women is likely to lead to the complete extinction of the Pandaram in the near future.

The old and sick who cannot move when changing camp are killed. If anyone dies, the whole family leaves the place immediately, avoiding the place of death for a long time.

The Pandaram believe in a powerful God who resides on certain very steep mountain tops. Such localities are very precipitous and inaccessible even to animals. The Pandaram name for God is Malagal, literally meaning mountain, or Mala devam (mountain god). God's residence is used as His name, just as we use the word 'heaven.' Another name, not so often applied, is Daivam or Daiv. The name of God's mountain is Daivamivikum medu; translated literally, this means "God-sitting mountain", or the mountain on which God is sitting. The primitives assured me that they are able to see certain movements on the peak which prove the presence of God. They say that at the foot of one of these holy mountains there is a deep pit filled with water in which are plenty of common flat shells. Each group of the Pandaram living in a mountain range has its own Daivamivikum medu.

The head of the family has to offer sacrifice on a mountain-top opposite the holy mountain. He places a banana leaf on the ground and puts on it a small portion of tortoise meat, sambar, deer and guana, together with roots and vegetables; he may offer any food he wishes. Then he adds a pint of toddy extracted from the wild palm tree. When the offering is prepared, he takes his position in front of it; facing the holy mountain, he joining his hands and, keeping them before his forehead, he whispers short prayers, like "God on the mountain give us food," "Malagal cure me," "God protect me", "Daivam give us a child." Bowing, he makes his reverence. Thereupon the family eats the offering.

The Pandaram are afraid to offend God and take care not to provoke him by evil acts and sins. They are quite sure that Malagal will punish every transgressor; even a thief will not escape his due. For this reason, they do not punish anyone who is caught stealing, for they are sure that God will take revenge on

every male-factor for his crimes. These primitive people believe that God is very powerful because he created the whole universe and man. After death, man has to appear before God. When I asked what form this after-life would take, they replied : "We do not know."

The Pandaram believe that the sun and moon are deities, but that they are not so important and are subordinate to Malagal. This is proof of a clear monotheism, the belief in one high and powerful God who rules over the minor gods. I did not come across any black magic among the Pandaram ; white magic is also not of any importance.

The physical appearance of the Pandaram is peculiar. He is short of stature, clearing an average height of 4 ft 8 ins, with a light yellow skin, brownish eyes, wavy, light black hair, a steep forehead, small nose and receding chin. The whole appearance is infantile. Physical and cultural anthropology classified the Pandaram as a very primitive type.

(c) *The Kadar*

1. INTRODUCTORY NOTE:

The Kadar are a food-gathering tribe roaming in the dense forest of the eastern part of the Chittur Taluk in Cochin (South India) and in the adjoining forests of Travancore and Coimbatore. In a recently-published biography, *Kadar of Cochin*, Ehrenfels draws a picture of these primitive tribes. (U. R. Ehrenfels, *Kadar of Cochin*, Madras 1952 ; quoted as E. 1.) In Chapter VII and VIII he deals with their religious conceptions. A preliminary report was given in *A Kadan Creation-Myth* (*Anthropos*, Bd. 45, 1950 p. 165-176 ; quoted as E. 2) Ehrenfels carried out his research in the surroundings of *Parambikulam*, (E. I p. 3) which since the beginning of this century has been connected with the plains by a small-gauge tramline for timber transport. Contact with timber coolies and with the contractors who exploit the minor forest products (honey, wax, cardamom and certain medical roots) "has changed the entire pattern of Kadan life and economy." (op. c. 14) The Kadar of Parambikulam have settled down to "more or less a three-quarter aboriginal type of life." (op. c. 14) They build rectangular houses and even put up cowsheds. (op. c. 18) Evidently this group is strongly influenced, and *acculturation* has taken place on a large scale. Other groups which remain more isolated have preserved more of their original nature and habits.

In April 1953, I visited some Kadar camps in the border district of Travancore-Cochin and in May 1955 the groups along the tramline. One group of eighteen families was camping on the river bank near the Cnarpa Forest Bungalow. On the southern bank of the river begins the Travancore territory. I found another camp

north-east of Poringal kuthu, the Ambula group consisting of eight families. To the north, near Chantan thodu, were two small camps by the roadside, consisting of two families from Parambikulam and three from Coimbatore district. These five families have started tapioca planting. Two miles away camped three families from Coimbatore and three from Parambikulam. One family had sheltered far away from the Ambula group. Valakayan's hunting ground was originally near Kuryarkutty. Because his wife belongs to the Adropoly group, which I was not able to contact, he visited his relations and remained there for a year. I was thus able to get my information from different groups, each in a different stage of acculturation. The Charpa group is the most primitive and genuine. My interpreter during this tour was Mr. King, the eldest son of the engineer who built the small-gauge tramline. As he was born in the district and was very well acquainted with the Kadar dialect and the people, he helped me to establish contacts and collect important information. My interpreter among the Kadar along the tramline was the forest guard, Mr. Kalarekal. (Kadan-singular, Kadar-plural)

2. THE KADAR CONCEPTION OF THE DIVINE BEINGS.

(a) *The Charpa group* : Kanakuthy is the chief and *pujari* (priest) of the Charpa group. I found him to be one of the most clever and able men in the whole tribe. His father, who died some years ago, was reputed as a man of great knowledge of the Kadar traditions and customs. His son's statements were confirmed by the older men of the group. Kanakuthy reiterated the Kadan belief in a High God called Parama Shiva, or Parameshva. He stated: "This god is identical with Surya, the sun god. The sister of the sun god is Ilura, the Moon goddess. We are not allowed to utter the name Surya but replace it by the simple "He." The name of the sister, Ilura, we may invoke as we like. Ilura, on the other hand, is identified with Parvathi, Shiva's wife. The female counterpart in this couple plays no special role and is hardly mentioned.

"Another couple is Kari mala gopuram, a mountain god also called Aiyappan, and his sister, Kaliyani. (When I enquired, "Is Kaliyani another name for Kali" Kanakuthy denied it.) According to him the Sun god married Kaliyani. One day they started a quarrel and the Sun god got furious. He rushed at Kaliyani to strike her but she fled to her brother for protection. Surya pursued her to her brother's place, and shot an arrow at Aiyappan, wounding him. Blood gushed in torrents from his wound and formed a lake called Chora kulam (lake of blood). Aiyappan and his sister, Kaliyani, are now believed to be residing in two mountains. They are the first human beings and their offspring are the Kadar. The very first human couple was created by Parama Shiva to whom the Kadar do not offer sacrifice."

Said Kanakuthy: "Surya gives us, men, the procreative power which we communicate to our wives through sexual intercourse. The first two ancestors

appeared on the surface of the earth coming out of a hole at the foot of Mount Paraporapari." That was my first report from the chief. In his second report, he narrated the creation-myth stated below, in which stress is again laid on the one High God Parama Shiva.

The Charpa group does not honour the High God by sacrifices, as mentioned above. Kanakuthy stressed : "We do not honour Shiva by sacrifice but after our death our souls go up to appear before God who will judge them."

The chief is the pujari of Aiyappan who comes down during sacrifices to possess him and speak through his mouth. This is the reason why this Kadan group is closely attached to Aiyappan, who is the first man and primeval ancestor. He is looked upon as a powerful mountain god who protects the Kadar from wild beasts and poisonous snakes, and helps them in all dangers. He is also a hunter god who provides the Kadar with game. The Charpa group has a place of cult in a cave near the waterfall below Charpa. Here we find a pyramidal stone and two small bells, marking the place for their offerings of coconuts, roasted rice, plantains and arrack. The cult of Aiyappan is an influence by other tribes in Travancore, because all the Kadar groups do not have it.

(b) *The Ambula group* : The older people of this group stated : "Our main God is Parama Shiva. His consort is Parvathi. Shiva created the first Kadan. In the olden days we Kadar possessed many traditions relating to God and mankind. But now they are lost and forgotten because we were forced to retreat to such poor and restricted districts, and became so scanty a people.

"In veneration of Shiva we burn lights and offer coconuts, honey, and betel, but not tobacco and arrack. We can offer these on any prominent rock opposite our wind-screens. We clean the place and bore a hole on the top of the rock into which we pour oil and light it. Near by, we place the other oblates and offer them. Once a year we have to make a great sacrifice to Shiva." Two rocks for sacrifices were situated opposite their settlement. I was not allowed to approach them even to take a photograph.

"Aiyappan," the people continued, "is our most powerful protector and mountain god. We honour him together with Shiva. We consider the stories of the two mountains, Malavy and Malankuratti, mere fables and do not esteem them as divine beings. We venerate a female goddess on the Kari mala gopuram, offering her opium, ganja and arrack. It is Kaliyani who has her abode there. Near Manjakutty is a growing rock—the dwelling-place of the goddess, Athavichari. We are not allowed to offer her tobacco or arrack.

"Our pujari, Valayan, gets possessed by the spirit of Karivali who was the very first Kadan. When we make offerings we take away a handful of rice for our

ancestors, especially for Karivali. We also know of a god for travellers, Parivazi Mundara. During the feast connected with the offerings, we dip our fingers in liquid and scatter a few drops in the air." This account I got from the Ambula group.

(c) *Valakayan of Kuryarkutty* : Valakayan, who is about 50 years old, said to me : "My old mother always admonished me to pray to one God only who protects us and gives us sufficient food. She constantly mentioned two names, Parameshva and Aiyappan. On the summit of a high mountain is a flat rock. From its centre projects a stone. This spot commands a view of the sea to the west, and is the reason we believe Aiyappan dwells there, watching and protecting the world. Here the pujari offers arrack, opium, ganja and incense. He also kills a cock and sprinkles the blood on the stone. During this procedure he gets possessed first by Kanur (which means "deceased ancestor" in general and not "my father" as in the Malayalam language) and foretells impending disease and disaster. He instructs the attendants as to the district in which they should camp and hunt in the following year. The Kanur spirit then leaves the pujari, and thereafter he becomes possessed by Aiyappan, who at once announces : "The offerings you have brought are not sufficient and are too poor. If you have no better sacrifice, I am not able to protect and help you." The people reply : "Of every-thing God has given us, we offer you a share."

"At the sacrificial place there are two double-edged daggers about 25 cm. in length, and two long sickle-shaped knives. If the possessed pujari grasps a dagger he will pierce himself through the mouth. If he seizes a knife he will strike his head with it. During this great festival a band, consisting of three cylindrical drums, one round drum and two flutes, provides music. This great sacrifice is offered once a year on a Sunday or Friday in the last week of December. The Kadar have no knowledge of time and the pujari has to fix the date by contacting the people of the plains. In this offering the strong influence of the plain people is apparent.

"It is an accepted belief that the life of every child is given by god. Parents cannot do anything to force God to give them a child. If they do so, the child will surely be still-born. Our people have a proverb to this effect : "The parents tried to force god to give them a child, so God did not give the baby a soul and the child was still-born." Abortions and premature births are also a punishment from god. According to a Kadan belief, after death the soul goes up to heaven and appears before god saying: "The body is from the earth; why should there be mourning ? What God has given (the soul) he takes back." So far the report of Valakayan. Such a belief shows clearly that the Kadar have a distinct conception of a High God.

(d) *The Coimbatore group* : The mountain god of the Coimbatore group is called Kayakan Kandheki. At the foot of the mountain is a cave where a stone is placed. There they make an offering in the month thai. The paddy used for this sacrifice has to be pounded with a new pounder in a new mortar. Coconuts, rice, plantains and incense are the sacrificial ingredients. The pujari wears small bells round his ankles and carries a small bundle of seven reed-canes. A cylindrical drum is beaten during the ceremony. For ancestral sacrifice, this group offers rice, plantains, tobacco, arrack, opium and all kinds of food on Monday or Friday of any month. Marital is the female goddess they honour. Here again outside influence is apparent.

These are the most important aspects of the conception of divine being among the Kadar which I was able to collect from the various groups mentioned.

3. CREATION MYTHS OF MAN

All the Kadar believe that a Supreme Being created the first man. On enquiring about the manner of creation, they replied : "In olden days there were many stories relating to them, but they are forgotten now." Only the chief, Kana-kuthy, was able to tell me one :

"Parama Shiva and his consort in heaven had a son. They sent him down to earth to enjoy himself. He visited a few countries, but he soon returned to heaven and complained : 'There is nothing on earth except for the trees and forest. I could not find a companion, so I have come back.' Thereupon Shiva, giving his son an earthen pot containing 4,000 kinds of seeds, said : 'Be careful and use these seeds only when they are needed.' The son revisited the earth with the pot. As he was roaming about, he let the pot fall, scattering the seeds, which quickly grew into all the things on earth. Among them, men also appeared, and they came to Shiva's son, complaining : 'On earth there is no water, no fire and no food. How can we keep alive ?' He was unable to give them anything. At this moment the Naga king happened to meet him and asked : 'What is your trouble ? What is your difficulty ? Let me know if I can help you.' He told him about the pot and how men originated and were asking for a living. The Naga answered : 'Do not worry; I can collect all the men.' He then collected all of them, locked them again in the pot and returned them to Shiva's son, who went back to heaven and reported all that had happened. Of all the men brought back, Shiva selected Aiyappan and Kaliyani and sent them down to the earth. Because men were first enclosed in a pot and came out through the opening of the pot, it is said that the first couple came to the surface of the earth from a hole.

"Shiva again sent his son down to the earth, once more endowing him with powers to establish the human race. First, he made the forest-tribes, the Kadar,

Pannans and others—in all eighteen tribes. Then he created the tribes of the plain—the Parayans, Pulayans and others, forming altogether eighteen tribes. In the beginning, men were stark naked, living in the midst of 8,000 different kinds of animals that roamed the earth, and 10,000 varieties of birds that flew in the air. But the rivers and seas did not as yet exist.

“One day the Naga king came to Shiva, reminding him of the service he had done him in collecting the men, and asking for a reward. Shiva promised to grant him whatever he wanted, whereupon he asked to be made the ruler of the world. Shiva did not agree to this proposal, saying: ‘The world might not remain stable and may get into disorder.’ The Naga king answered: ‘If you are afraid that the world might become unsteady and get into disorder, then let me carry the world.’ Parameshva then placed the world on Naga’s head, and he was thus compelled to carry it. Naga started weeping and his tears formed rivers. As he continued to weep, his tears collected together to form the seas. Thus the rivers and seas came into existence.

“In the beginning men were stark naked, but they were happy because they had everything they wanted. Without work or effort, life was very easy. But one Kadan chief, who was discontent with such a life, went one day to Shiva asking for more enjoyment. God questioned him saying : ‘Why do you want more enjoyment ? What do you wish ?’ The chief answered : ‘I would like to have a basket and a digging stick.’ His wish was granted, but the chief realised that he lacked the power to carry the basket and the skill to use a digging stick. So he asked for these powers and received them. Thus men began to work, digging roots and collecting food.

“After some time, man was again discontented and asked Shiva for wealth. God replied : ‘This is the last request I shall grant you, therefore you must be careful.’ The Kadan chief stood near a pillar of the heavenly palace. He stretched out his hands, embracing the pillar. In doing so he opened both his hands together. Parameshva filled them with gold. But as he withdrew his hands, the gold fell down and was scattered all over the earth. The Kadar have since remained poor and have had to work all their lives.” This is the story of the creation of man, his happy life in the beginning, and his subsequent ill-luck and poverty.

The other groups believe in general that god created mankind in a happy state without disease and trouble. Most of them call the first man Aiyappan and the first woman Kaliyani. These are the first parents of all mankind. Some remember the first Kadan who is not identical with the primeval ancestor and call him Karivali or Kanur. The traditions of the Kadan groups along the tramline will be narrated below.

4. THE MALADEVI

The Kadar believe in a general group of spirits whom they call Maladevi, meaning "Mountain and Forest Spirits." Among them are also "Nature Spirits" who live in trees, caves and water. On the rocky banks of the upper Chalakudi river are caves submerged in water, where live the water-monsters, who possess long arms with which they drag into the caves the victims bathing near by. Evil spirits lingering in the trees can also do harm to man. The spirits abiding on mountain peaks have no special names and receive no offerings. As a rule, the Kadar do not live in fear of the Maladevi.

Some animals are placed in the same category as the Maladevi. The Kadar regard the gaur (bison) an accursed animal so they do not kill it neither do they touch its flesh or polute their implements with it. When a hunter from the plain shoots a bison, he sometimes borrows a big copper vessel from the Kadar for boiling it. After which the Kadar discard the vessel and use it no more. (E.I. p. 180) These primitives are even anxious to avoid meeting bison in the forest or crossing their tracks, for such meetings are regarded as bad omens. There is a peculiar exception to the bison taboo. The group around Parambikulam practises a gaur dance. They attach the animal's horns and frontal skull bone to a bamboo board, and the dancer then dons this bison-mask on his head and performs. This custom is only known in the Parambikulam district. The other groups know the ceremony but do not practise it. Enquiring about the reason for their gaur taboos, most of the Kadar replied : "Our ancestors did so and we do the same." A few men answered : "Some of our ancestors are reborn as gaurs. That is the reason." This reply surprised me because the idea of re'irth is otherwise completely unknown among the Kadar and other primitive forest tribes like the Pandarams, the Hill Pulayans, the Malayans, etc. Which ancestor was reborn as a gaur? He cannot be of the benevolent type since the gaur is regarded as an accursed animal. The good powerful ancestors of the Kadar are, on the other hand, the helpful protective spirits. The Kadar are not able to explain the gaur-mystery clearly. Lately, when I had a chance of visiting these groups and taking photos of the bison dance, they explained it simply as a play which does not have any special significance.

Similarly they consider the tiger an accursed animal, and they are not allowed to kill it or use any part of it. It is a common belief among the forest tribes that the tiger is sent by the High God to punish bad people by killing and devouring them. For this reason they do not try to rescue any person attacked by a tiger.

The Kadar do not eat the white monkey (*Macaca radiata*, subsp. Travancore), the elephant and the bear. This again they could not explain, but the practice is common to all the primitive tribes of Travancore-Cochin.

5. THE RELIGIOUS CONCEPTIONS OF THE PARAMBIKULAM KADAR

Let us compare briefly the religious conceptions of these Kadar with those of the Parambikulam district related by *Ehrenfels* (E.I. p. 154 sq; E. 2. p. 165 sq.) The puja at Karimtalapara pool near Kuryarkutty in honour of Bhadrakali, the ancestor, the spirits of dead children, and the tree spirits show all the characteristics of the puja of the people of the plains. The offering of arrack, and opium, the biting off of the cock's head and the drinking of the blood, the beating of the drum and the blowing of the pipe are clear proofs of the resemblance. (E.I. p. 157 sq.)

A similar puja performed on the top of a high mountain in honour of Aiyappan was related by Valakayan (cf. p. 83 above).

The author mentioned Malavay and Malankuratti as "two very, very old Kadan gods... They were the first beings in the world and had come from below the surface of the earth... They were the creators of the first Kadan man and woman... 'Malavay and Malankuratti created the mountains. These two mountains began to fight badly. The *chora kulam* is between these two mountains. Their blood can be seen even today, so badly did the two mountains fight !' The two hills referred to here are the two peaks of the double pronged Karimalai (Gompuram Kovil)." (E.I. 161 sq.) The double pronged-mountain is supposed to be Malavay and Malankuratti, brother and sister. Feeling the contradiction, others say they represent "two giants who fought a fierce battle," or the battle was fought with "two mountains further east, Perungunnu and Mayangunnu, who had proposed to the sister-part of the Karimalai as a bride". (E. 2 p. 170)

There is some confusion of ideas. The fight between the Sun-god and Aiyappan on the summit of the Kari mala and the myths related below give a clearer picture.

There is similar contradictory story about Attuvacherry who is supposed to be the daughter of Malavay and Malankuratti. There are clear proofs that her cult, like that of Bhadra Kali, is borrowed from the people of the plains.

But more important is the fact that there is a counterpart of this couple. "A divine couple is known to certain people of the plains as Malakoran and Malaykoratti and by other similar names. Though not worshipped in tempels, they are considered as hill-gods. Particularly the Panans worship them in some places." (E. 1 p. 163, note 5) It is well to remember here that the Panans and the Kadar were the first forest tribes established by Shiva's son (p. 84). The similarity in the names Malankuratty and Malakoratti is especially striking. There are several divine couples. Therefore, it cannot be proved that "Malavay and Malankuratti

are, or were at least until quite recently, the Kadan gods *per excellence*". (E. 1. p. 192) In the light of our recent research among the Kadar, the religious conceptions of this tribe are much more complicated.

Ehrenfels himself quotes some Kadar who objected to his divine couple-idea as the main god. Murugan, Govinda, Velli who "stressed the importance of Aiyappan," Velluppu, who mentioned an "old spirit Karia Muppan (Black Old Man) who saved them, gave them clothes, advised them to create the first two Kadar and then disappeared" (op. c. p. 1766) ; Velama, who said "that Malavay and Malankuratti were not gods at all, but just reformers who introduced civilisation, especially the wearing of clothes, the use of fire and the preparation of boiled food. The Kadar were not created by them but by Ishvara (Shiva)". (op. cit. p. 167)

Karia Muppan, who advised them to create man, has his counterpart in the Naga king who was helpful in bringing about the creation of man in the right way. It even reminds us of Shiva who instructed his son how to create man. How strong the belief in an ultimate creator is among the Kadar, we have seen in detail in the above quoted reports and will see below. *Ehrenfels* is conscious of the stress laid on a High God who is the creator. He writes : "Velluppu's story of the old spirit Karia Muppan, however, allows still for a possible assumption of an original, almost forgotten Kadan belief in an ultimate creator also of Malavay and Malankuratti." (op. c. p. 196)

The Kadar of Parambikulam know about the happy and easy life in the "Golden Age." The loss of their paradise was due to "some mischievous boys and girls" who "went alone to the jungle. They were silly things and could not grasp anything with their clumsy hands. So they got hold of some sticks and began to dig into the ground, out of curiosity... Ever since this, their foolishness, the whole tribe is doomed to the drudgery of using our heavy digging stick". (E. 1. p. 175) How the Kadar lost the money which the gods placed in their hands is related in another story. Embracing small trees, they stretched out their folded hands to get the money. But when they withdrew, they opened their hands and the coins were scattered on the ground. (E. 1. p. 173) The belief in the Maladevata (hill-gods), in a life after death high up in the sky—because the souls go up there after death,—in taboos and omens is similar to the ideas of the Kadar which I have already examined. (E. 1. p. 196 sq.) The religious elements of the Parambikulam group reported by *Ehrenfels* agree more or less with those of the other Kadar.

6. THE RELIGIOUS CONCEPTIONS OF THE KURYARKUTTY KADAR

Recently (May 1955) I was able to study the Kadan groups which have settled along the tramline. My interpreter was the forest guard, M. J. Kalarekal, who has been in charge of this district for more than three years. I report only on

the traditions of the main group of Kuryarkutty consisting of 17 families with 75 persons. The most important informants were Phonala, Uthandan and Muppan Nallai pulla. According to them, in the beginning there was Mala devam (mountain god) only. Once upon a time he created an immense water which covered the whole world. Later on, when the water ran off, God created four great mountains which were not lifeless rocks but like human beings. Their names were Kari mala gompuram, Kalianathi, his sister, Wairi, his wife, and Chury mala. These great mountains were able to speak, to move about, and to behave like human creatures. So Kari mala went to the south where Wairi—whose name means “pregnant woman”—was living, took her as his wife and brought her to his place near Kuryarkutty. Thereafter Chury mala tried to take Kalianathi forcefully as his wife, inviting her to the Kaliana pandel. Fearing that he would marry her, Kalianathi managed to escape, fled to her brother and settled between Kari mala and Wairi. Suspecting that the mountains, Mayan mala or Baliyan mala, would try to marry her, Chury mala pursued her and shot an arrow at Baliyan, who bent down at the right moment, thus evading the attack. But the arrow hit the right hand of Kari mala gompuram, who furiously extracted the arrow with his left hand and threw it at Mayan mala. But he also managed to bend down and escape the arrow. Because these two mountains bent down, they are lower than the others. Kari mala’s hand was cut off by the arrow and dropped to the ground. The blood gushing from the wound collected and formed the blood sea, chora kulam.

These four great mountains were created by the High God, but the Kadar have no special veneration for them as deities. The small mountains were built by Cherapol, the immense tortoise which was living at the bottom of the great water. When the water ran off, Cherapol took the mud left after the flood and formed the minor mountains. She worked so hard that her very bulky body became smaller and smaller, till it shrank to the small size of the present day tortoise.

In the district of Makel para was a black rock called Kaila para, “naked rock.” It happened that two holes opened on this rock’s surface. Out of the right one a man named Malavay appeared ; and from the left one a woman called Malankuratti emerged. These were the first human beings, the ancestors of the Kadar. They lived a very happy life because the world was a kind of paradise in which illness, trouble, pain and death were unknown. It was very easy for them to get their daily food, because they had only to think of roots, fruit or meat and immediately were able to pluck delicious fruit and tasty roots, or could catch black monkeys by their long tails or wild fowls by their feathers. But the first ancestors were not satisfied with such an easy life and longed for some fun. One day, immediately after plucking some fruit, they happened to meet God who had come on earth. They asked God : “Could you not give us something that we may be happy ?” God agreed with their request and gave a digging stick called chali-

kawaty to the man, and a basket, chalikakoran, to the woman. Thus they were able to dig roots and to collect fruits. When years and years had passed, the couple were again discontent. One day, when they were digging, God appeared again before them. They got hold of the deity and putting him in a basket, they carried him to their shelter. At home they requested God, saying : "Give us something that we may be happy." To please them, God produced gold and precious stones. Stretching out his hands, Malavay embraced the pole in his wind-screen. When his hands were full of gold and stones, he drew them back, but because of the pole he had to open his hands and the gold and the stones fell to the ground, turning to cardamom, green ginger, turmeric, matti oil, incense, and other useful things. Thus men got all they needed, and they kept God in their dwelling-places, adored him and made their offerings. As a reward, God gave them whatever they wanted. Thus men were healthy and strong and lived to a very old age.

In the mean time, they became very numerous. A part of them, the Chem (red) Kadar, left their original group and settled at a place called Wanari far in the north. When they learnt that the Karing (black) Kadar possessed a digging stick and a basket and that God resided among them, they got envious and came secretly and robbed the digging stick and basket and took God away. So the Karing Kadar lost their God and His blessings. Subsequently, they got sick and weak and finally died.

At that time, they had no chief to rule them. Then an old man, Vayawuri, came from Kolan kore searching for an able man whom they could entrust with the chieftainship. He discovered two able boys in the forest of Parayan kadave near Parambikulam. The eldest was called Mayan and the younger one Baliyan (the same names as the two mountains mentioned above). The old men of the Kadar tribe gathered together and prepared an ordeal to get the decision of God as to who should be their chief. They heated milk and ordered Mayan to put his hand in the boiling milk. Without hesitation, the boy did so, plunging his right hand into the vessel ; he drew it out completely unscorched, and the milk was cool. This ordeal was a sign from God that Mayan should be chief. Because the boy was still young and not yet of age, the people appointed the Muppan Vayawuri as regent. When Mayan came of age, he ruled the Kadan people, dividing them into groups of ten families and appointing a little Muppan in charge of each group. He gave orders that every family had to collect honey, cardamom and other useful medical herbs. At that time, there were no thieves, liars, mischief-makers, adulterers or other wicked people among the Kadar. They all lived a very happy life like members of one and the same family. Being in possession of the forests, the elephant tusks and other valuable forest products belonged to them. Mayan, the first muppan, lived to a very old age. After his death, things began to deteriorate.

The rajas came into power, dominated the Kadar and levied taxes on them. From that time, the muppans collected the honey and medical herbs which the people brought from the forest, sold them and gave a sum of money to the raja. This tax was called Kandayam. The raja invested the main muppan with an iron stick for sceptre, and an umbrella, and presented him with clothes and ornaments; he was also given a horse and saddle, and an ox, for his wife. Later on, the rajas of Travancore, Cochin, Pandi and Britain assembled and appointed a leader for the Kadar. Finally, the people from the plains invaded the forests, taking away the forest products and cutting the timber. And so the Kadar were very badly treated and became very poor. This, in short, is the history of the Kadar.

The Kadar of Kuryarkutty and the other groups along the timberline have a very clear idea of a High God whom they call Devam, Mala devam, or Kadavul, and to whom they pay very great respect and homage. They regard Him as the creator of the world and all things in it, especially the human soul. And it is this God who takes the soul back, because after death the soul returns to heaven to appear before Him. Even the minor gods are created by Him, and are like His servants, obeying His commands. Mala devam punishes the wicked with disease, or by tiger and elephant attacks. Thus God sanctions the moral laws. After death, the souls of the deceased return to God in heaven and from there they visit their relatives to see to their welfare and protect them. The Kadar do not believe in re-incarnation, or transmigration. To venerate God, they remember Him, always think of Him and pray to Him, asking for protection, especially in times of danger and misery. Some of them related that they bring offerings to Mala devam, who is surrounded by their ancestors. A special offering is made in the month of Magaram (the sixth month, in June), when God takes His place on a mountain top. The pujari, called devam malli, and the men, assemble at night and go into the forest near an old burial place. There the pujari cleans a spot, puts a banana leaf on the ground, places the oblates—betel, tobacco, opium arrack, incense and sandal powder—on it and a burning lamp near by. Then the pujari calls on God and prays together with the assembly, asking for protection in illness and danger, for food and health. At the same time, they honour their ancestors for whom they need opium and arrack. At the end the pujari gets possessed by Velluvara shasta, prophesies and gives answer to any question put to him. The Kadar of Kuryarkutty deny that there is any offering to Mala devam because the High God, unlike the minor deities, does not need any offering.

Anyhow, the belief and the customs of the Kadar prove without any doubt that they possess a clear monotheistic religion because they recognize only one God as the highest and most powerful. I once put the question to them: "Who were the parents of Kari mala and his sister, Kalianathi?" They were greatly surprised, and laughing they replied: "How can anyone ask about their father and mother? They do not have parents because Devam created them. The same is true of the first man, Malavay, and the first woman, Malankuratti, who do not

have parents either because Devam created them when they came out of the holes." Thus the belief in a High God is the most important element of the Kadan religion.

Another important element is their ancestor worship. It begins with the ceremonies for the dead. When someone dies, the relatives must bathe in the morning and in the evening. After his bath, the eldest son puts a little rice and ganji water on a leaf, folding it together, and places it on the spot where the man expired. He makes the offering for three days till the time of the burial. After that, for four days, he places offerings on the path leading to the burial place. Before the corpse is carried away, the relatives gather round and throw rice on it. Putting the dead man in the pit, they place his knife and flint for striking fire near his head. Outside on the grave, they place a vessel near the corpse's feet because they believe that the deceased might want it when he is in need of water. After the funeral, the relatives again bathe and return home, where a feast is prepared. The eldest son, or some other near relative, lays seven banana leaves at the place where the deceased expired. Six leaves are for the great ancestors and one for the dead man who has just been buried. When the meal is ready, the son, the widow or some other relative, takes a small portion of every dish and places it on the seven leaves. It remains there for some time because the ancestors and the deceased come down from heaven to enjoy the essence of the meal. Later on, the person who officiates, eats the share on the one leaf belonging to the dead man in order to get his protection. The oblates on the six other leaves are given to six boys to eat. At the end of this ceremony, the people start eating the common meal. On the sixteenth day after burial, the same ceremony of offering and feasting is repeated. During those sixteen days the Kadar are not allowed to shave their faces or cut their hair.

The Kadar believe that their ancestors and the dead are their best protectors in danger and their good helpers in case of misery and calamity. When the time comes to collect wild honey in the dense forest, they make an offering to their ancestors to enlist their protection in the dangerous climbings and to help them to collect plenty of honey. When they go into the forest for hunting and collecting forest products, they invoke their ancestors for help and protection against wild animals. Some people even see their ancestors in dreams. At every offering made, the ancestors have their share. The forefathers also participate in the marriage ceremony. Thus ancestor worship is very deep-rooted in the Kadar's belief and customs and constitutes one of the main elements of their religion. I found that the important elements common to the religion of all the Kadan groups are the belief in a High God and ancestor worship.

Other cults—for example, the cult of Attuvacherry amma at Maniakutty, where the Kadar and Malayan worship this goddess, and of Bhadra Kali at Karim tallaparra, where the goddess abides at the bottom of the Parambikulam river—are clearly imported from outside. Only certain groups of the Kadar worship these

goddesses; other groups have chosen other deities for their special devotion. These practices do not belong at all to the genuine belief of all the Kadar. (The details of these cults will be related in my book, "The Hill Tribes of Travancore-Cochin.")

7. ANALYSIS OF THE RELIGIOUS CONCEPTIONS

The Kadan groups are in a different stage of acculturation. Kuryarkutty, the home of Valakayan, is, like Parambikulam, very strongly influenced by the people of the plains. Both the districts are near the tramline, which led to intrusion by outsiders. Likewise, the Kadar of Coimbatore are influenced by the people of the tea-estates. Though contact was not so close among the Ambula and the Charpa groups, the influence of the people of the plains is note-worthy. Acculturation is evident among the first two groups in the building of houses and cowsheds and the cultivation of plantains and tapioca. Clothes and ornaments show the imitation of Malayalam and Tamil customs. The Kadar have lost their original language and now speak a mixture of Tamil and Malayalam. They have retained only a few words of their old tongue. Even their religious names have been replaced by Malayalam and Tamil names. The disintegration of the Kadan culture is very marked. This fact must be taken into consideration when we analyse the Kadan religion.

There is another fact that is very important for the right understanding of the Kadar. We may divide their neighbours into three circles, the inner, the middle and the outer circle. The inner circle comprises food-gatherers like the Malaysans, the Hill Pulayans, the Pandarams, and tribes that practise nomadic cultivation by burning the forest, clearing it roughly and then sowing seeds by a very primitive method in the ashes; after one or two years, the nomadic tribes move on and burn another part of the forest. Such tribes include the Muthuvans, Mannans, Pallayans, Uralis and Malai Aryans. Both the nomadic gatherers and the nomadic cultivators belong to a pre- and non-Dravidian population. The middle circle is formed by the Parayans, Pulayans, Vedans, Vettuvans, Panans, etc., who farm the land at the foot of the hills and the adjoining plains; and the Ulladans and Nayadis who are food-gatherers in the plains. The latter lost their hunting grounds because the lower jungles disappeared completely. All these tribes are pre-Dravidian. The outer circle consists of the proper Dravidian castes, people who follow Hinduism or Christianity. They occupy the fertile plains and the lower hills, but, under compulsion of over-population, have recently migrated into the areas of the middle and inner circles. Consequently, the people of the middle circle have moved into the territory of the inner circle. There the sources of food have been exhausted because the forests have been cleared to a large extent. Thus some tribes of food-gatherers and nomadic cultivators are forced to settle permanently. In the whole area, acculturation is taking place on a large scale, and the primitive tribes are changing rapidly.

The pre-Dravidians of the middle circle have their own beliefs and customs. Of course, they are influenced by Hinduism and to some extent by Christianity also, but not to such a degree as would be expected. I cannot go into the details of this pre-Dravidian religion. Some points only may be stressed. It is characteristic that they have no temples. They put up stones beneath certain trees as the abode of their gods and spirits. In spite of this, there is a strong belief in a Supreme Being, known as Shiva, Ishvara, Devam, Bhagwan, etc. The female goddess, Kali, Bhadrakali, plays an important role but does not by any means dominate the religion. Bloody sacrifices of cocks, sheep and goats are common. Magic is well developed especially among the Parayans, and the magicians form a special class called the *mantravathis*. Many of them use the hour-glass-shaped drum so typical of Shamanism. The concept of rebirth is not at all known, or at most it is acknowledged to a very slight degree. These characteristics show that the people of the middle circle are not remoulded by Hinduism as is the case with so many other primitive tribes in India. If that is the situation in the middle circle, which was in the closest contact with the Dravidians for so many centuries, the inner circle, it may be said, is even less influenced by Hinduism.

What proved effective for all the tribes was also effective for the Kadar. Their dominating concept is the idea of a High God who rules the Kadan life and after-life to a great extent. This monotheistic God is the centre of their belief, but this does not exclude the belief in minor gods and spirits. The High God is the creator of the world and of man but delegated certain demiurges to create special parts of the world. He gives a soul to every child that is to be born, and to him the soul returns after death. God provided a paradise for mankind, a state of happiness and joy, and when man lost the "Golden Age" through his silly, ambitious desires, the Divinity gave him the equipment to win the struggle for life. Even now the Kadar depend on God for food and sustenance. The Supreme Being watches over the world and mankind, protecting them and also punishing transgressors with disease, tiger attacks, and other misfortunes. It is true that the Kadar neglect to worship this God with offerings, but this stems from their belief that God does not need man's trivial goods and cannot be appeased with sacrifices. The belief in an ultimate creator is one of the basic original ideas in the Kadan religion.

The consort of the High God plays a negligible role. More important is a kind of demiurge appointed by God to create man and certain parts of the world. In one myth, it is the son of Parameshva, in another it is Malavay. In the beginning, there were fights, Surya against Aiyappan on behalf of the latter's sister, one mountain against another on behalf of a bride. The creation of man had to be repeated because the first creation was a failure. A mysterious person appeared and gave his advice—the "Old Spirit Karia Muppan," or the Naga king who could not reign in the waters, as rivers and waters were non-existent then. The fundamental

aspect of these features seems to belong to the original Kadan belief. The influence of pre-Dravidian tribes is obvious as the change in names and details proves.

It is either Aiyappan or Malavay who is greatly honoured. The pre-Dravidian people show the greatest devotion to Aiyappan, who is closely associated with Sastha. The following quotation elucidates this clearly : "Iyappan or Sastha is believed to be the supreme god and highest ruler among the non-Aryan aborigines (better pre-Dravidian M. H.) in Southern India. He is rightly called Sastha (ruler) or Iyappan (respectable father) and the chief of the *bhutas* and ghosts, whom he restrains from inflicting harm on human beings. He is in this respect identified with Shiva, who is called Bhuthesa or Bhuthanadha, the chief of the ghosts. Worshipped as he is by all castes of people in Southern India, especially in Malabar, Cochin and Travancore, he is more revered and feared by the low castes in rural parts. He is often represented as mounted on an elephant or on a horse. He rides with sword in hand over hills and dales to clear the country of all obnoxious spirits. Followed by his retinue, during midnight, he goes a-hunting, armed with swords and surrounded by torch bearers. Anyone who meets the hunting party on the road is sure to meet with certain death. When not riding, he is supposed to be in a sitting posture as a red-skinned man. On his head he wears a crown, on his forehead are painted the three lines of *vibhuthi* (holy ashes) and on his tuft-like locks hang strings of pearls which adorn also his ears and neck. Ornaments cover his arms, hands, feet as well as waist. As an emblem of his royal authority, he carries a sceptre in his hand, and a girdle encircles his waist and left leg. He wears no clothing on the upper part of his body, but covers his loins with a gay coloured cloth.

"There is hardly any place in the rural parts of Malabar, Cochin and Travancore, which does not possess a small temple (with or without roof) or shrine, beneath a shady tree or by the side of a brook, dedicated to the worship of Sastha. As the people, especially the Sudras and the lower castes, are largely agricultural and fond of hunting, and as they had to live and work in the forests, they began the propitiation of this deity for protection against demons and all kinds of illness. He thus became the favoured deity of the Sudras. Brahmans also must have borrowed the worship of this god from them. . . There are temples for this deity where pujas are performed and daily offerings given by the Sudras, who never offer animal sacrifices. Their special songs, called Sasthapattu (songs in honour of Sastha), are sung to propitiate him in order to prevent any pestilential diseases prevailing in the villages, to prevent failure of monsoons, and to keep off evil demons. . .

"After recovering from illness or to commemorate any piece of good fortune (acquisition of wealth or the birth of a son) in a Sudra family, the members thereof celebrate a festival in honour of Aiyappan by inviting a band of Sudra songsters, well versed in the songs in praise of him. A small structure in the form of a temple

is built in a conspicuous part of the house, and a small stool, with an image thereon, is placed in the temple. The figure of Aiyappan is also drawn on the floor, pujas are performed and offerings of rice boiled in milk, sugar, plantains, fruits, etc., are made to him. The song lasts for the whole night and is accompanied by tambor beating. One of them turns as Velichapad at the end, and dances or walks up and down in an excited manner amid the noisy music, while an attendant sings songs describing the deeds of demons. He finally succumbs in a frenzied fit and gives out oracular responses to any enquiries addressed to him. Most of the by-standers consult him as to their wants and destinies." (L.K.A.K. Iyer, *The Cochin Tribes and Castes*, Madras 1909, Vol. I, p. 312 seq.)

Iyer simplifies the actual fact, because some of the primitive tribes never use the name Sastha for their Supreme God, as the Kadar do, for instance. There is a clear distinction between the primitives. Some use the name Sastha, others refuse to use this name. The idea of a High God is common among all the people, but the names given him differ. That the Kadar did not choose the name used by their pre-Dravidian neighbours but the nomenclature Shiva of the Dravidians, goes to show their aversion to these pre-Dravidians. The name Sastha, also pronounced Sastan, is perverted by the Dravidians into Satan—devil—thus turning the High God of the primitives into a demon. This is mostly done by Christians. The Hindu Brahmins consider him a child of the unnatural union of Hari and Hara (Shiva and Vishnu in the form of a beautiful girl, *op. cit.* p. 313). It is an acknowledged fact that the victors make the High God of the vanquished people a demon.

A second mistake in Iyer's report is the identification of Sastha and Aiyappan. The aborigines themselves never identify the two personalities but keep them clearly separated. They never offer cocks, sheep, goats or any bloody sacrifices, arrack, opium or tobacco to Sastha. Only food and light offering are allowed. The Ambula group of the Kadar offer coconuts, honey and betel-nuts, and they burn an oil lamp. The pujari is never possessed by Sastha.

With Aiyappan it is quite different. He gets bloody sacrifices and arrack, opium and tobacco. During the ceremony he takes possession of the pujari, who begins to tremble, dance and jump, and then to prophesy in the name of Aiyappan. Besides the pujari, the others may also get possessed by him. "On the morning after a boy was killed by a tiger near a village east of Parambikulam, parts of the victims hands and feet were found in the jungle. Velli, who was in no particular way related to the killed boy, became obsessed by Aiyappan and went with Murugan and one Kadan from the boy's village, to the jungle. There he gripped the already decomposing remnants of the body with his teeth, and crawling on hands and knees, transported them to a small hole which had meanwhile been dug by the other two members of the party. Finally, the scant bodily remains were buried and a wooden peg driven into the meanwhile covered hole with the invocations to

Aiyappan. This, it was said, would cause Aiyappan to prevent the tiger from killing any further humans. . . . When discussing the genuineness of Velli's obsession, his friends asserted : 'How else could he have taken the boys remnants into his mouth ?' They seemed convinced of the genuineness of the obsession, whilst Velli himself declined to talk about the subject." (E. I. p. 183)

Kanankutty, the chief and pujari of the Charpa group, said to me : "I am very afraid that possessed by Aiyappan, I may one day fall down to the ground and die immediately." I asked him whether he had a revelation or prophecy from Aiyappan to this effect. "No, it is only fear," he replied.

From the enquiries I made among the different tribes of Travancore-Cochin and from the above mentioned Kadan belief in Aiyappan, it can clearly be proved, that Aiyappan is an ancestor who was deified and then became a powerful mountain-, forest- and protector-god. His consort shared his fate to a certain degree, but never became so important. This theory is not credited by the Kadar alone, but by other pre-Dravidians as well.

I suppose the belief in primeval ancestors and their veneration as protectors and mountain gods, including ancestor worship, is an original part of the Kadar's creed. But the Kadar have changed the name and enriched the sacrifices with bloody offerings, arrack, opium and tobacco, and with the music of the drum and the pipe. Similarly, they have introduced the rite of possession by Aiyappan, and the magic connected with it. I supposed the offerings originally made to Aiyappan by all the pre-Dravidian tribes did not include bloody sacrifices—the killing of animals and the sprinkling of their blood—but were like the other ancestor's offerings. Such ceremonies are closely connected with Kali and Bhadrakali, the ferocious aspect, as the name suggests. She is the specific mother-goddess, whose original worshippers—the agriculturists—possessed a cultural pattern formed by mother-right. Contact with such people influenced the other pre-Dravidians who had a patrilineal organisation, and they took over the Kali cult with the bloody sacrifices. Some of the Kadar groups show the same acculturation—for instance, those around Parambikulam. Others refused to adopt such ceremonies.

There is one remarkable fact: the stronger the practice of Kali-cult in a group, the greater is the development of magic. The best proof of this we find among the Parayans, who are recognised as the best magicians. They are consulted in all matters relating to theft, demoniacal influence, murder of enemies and disease. In the black art of the *OTI-CULT* they render themselves invisible or are able to assume the form of an animal like the bull, cat, elephant or dog. To practise this, the chief ingredient they require is *pilla thilam* (infant oil) which they prepare from a six- or seven-month-old foetus of a young mother in her first pregnancy.

The magician extracts the foetus from the hypnotized mother at midnight and distils an oil from it. In spite of the great influence of black magic among these tribes, we recognise the negligible role played by it among the Kadar.

The belief in Surya (sun) and Ilura (moon), the creation myths of the world and man, the legends of the "Golden Age" and the "Lost Paradise," are also fundamental features of the Kadan "Weltbild."

8. CONCLUSION

Ehrenfels is of the opinion that "a simple, somewhat vague conception of a primeval couple, conceived almost as one entity, appears genuine and not self-contradictory." (E. I. p. 196) "... the female aspect of the divine plays not a negligible role in the Kadan religious thought" (op. cit. p. 188) and "would appear to approximate Hindu mythology, especially that of Shiva Shakti." (op. cit. p. 191)

Even in the belief of the Parambikulam Kadar related by *Elrenfels*, no stress is laid on the female consort of the divine couple, nor is "a female creation deity largely submerged under patriarchal acculturation-sheets." (op. cit. 286) The female goddess remains always in the background of the religious concepts of the Parambikulam and of all the other Kadan groups. The male ancestor plays an important role and takes over some of the functions of the High God, but the Supreme Being was never outruled by Aiyappan, nor is the strong monotheism of the Kadar a recent adaptation from the Hindus or Christians. (op. cit. 196) I found that some Kadan groups, living just to the west of and close to the Christians, do not call their Supreme Being by the Christian name, Devam, but the Hindu nomenclature, Shiva, Parameshva, etc. The Coimbatore groups closely connected with the Tamil-speaking cast, use other names; still others have adopted the name Devam.

All these facts prove that the High God of the Kadan's belief is the original creator and genuine ruler of the world and of mankind. It does not exclude the secondary influence of Hindus as well as of Christians.

Side by side with the religious conceptions of the Kadar, I would like to stress the importance of primitive man's monotheistic religion, his strong belief in a High God. Like other primitive tribes, the Kadar are also said to have a very crude belief in magic, in animism, in fearful ghosts and spirits, and in several gods—in polytheism, in short. But my research about their religious ideas proves that their belief in a High God is genuine and indigenous and not borrowed from their neighbours. In their monotheistic religion, the Kadar are in accordance with all other primitive tribes, as the overwhelming tests of research work show.

Kadan economy has always been based on food-gathering without any agriculture. Their legends relate how God provided them with a wooden digging stick, called kurankal or chalikavaty, and a basket : "In early days our people had a happy life and obtained food without much trouble. We used to go into the forest to catch the black monkey which was an easy victim because of its long tail. Fruits were abundant, so we just reached out for them and got enough. But the foolishness of our chief deprived us of all this luck and happiness and we had to dig everyday. At first, we used the wooden-digging-stick given by God. Later, living became more difficult as the roots receded further into the ground. So we had to affix a stone at one end of the digging stick, which was then called parakol, the 'stone stick.' People were no longer naked and made short clothes of the barks of trees, and of grass and leaves. Our shelter was a simple wind-screen. Then life was not too difficult because the forests were wholly ours. But when the people from the plains rushed into our territory, we began to wear cotton clothes and affixed iron tips to our digging sticks. We used earthen-pots for cooking and our life began to change completely." The Kadar are well aware that the influence of the plains and other people is very recent. Their economy is still of the most primitive type and is exactly the same as it was in the earliest days of mankind. Nowadays they are changing rapidly forced by the acculturation of other people.

The same primitiveness exists in regard to their social organisation. They lived in small groups of several families, each group possessing a fixed district as its hunting and collecting ground, like the Pandarams. Their food-gathering system does not allow the formation of bigger groups. With them, again the usual form of marriage is monogamous.

Among Indian tribes, the racial appearance of the Kadar is both peculiar and extraordinary. Their whole racial complex is of the proto-Australoid type with a broad deep-rooted nose and open nostrils, rather coarse features in general, stout and of short stature and of darkish skin. Some anthropologists believe that they have frizzly hair and betray an Negrito element. I do not share this opinion, because I find that their hair is very thin and curls easily. I observed the hair of the same person at different times. Immediately after oiling and combing, it was straight and just wavy ; later on it became curly. The hair of old men which has not been combed for long became especially curly and thus gave the impression of frizzly hair ; but the characteristic Negrito "pepper corn hair" does not appear. The physical appearance of the Kadar testifies to their primitiveness.

The description of these three very primitive tribes—the Kadar, Pandarams and Andamanese—gives us a picture of man's oldest history. They remain nomadic food-gatherers like their very early ancestors several hundred thousands years ago. Their economy is just the same as the economy of mankind was in the very beginning of human life on earth. The Kadar and the Pandarams have adhered to their very primitive wind-screens and have never developed even a primitive hut,

except lately through foreign influence. Since time immemorial, they have used the simple wooden digging stick, the hole of bamboo as a vessel, and the bamboo bow, and have never learned the technique of producing a simple stone implement or moulding a crude earthen pot. Their social organisation shows the same primitiveness. Our mind declines to accept such stability and stagnation. But we have to accept—forced by the facts—the parallels and analogies between these “living fossils” and their prehistoric ancestors. The study of these “savages” enables us to recover the history of our own development. Their material culture is very simple, crude and primitive, just sufficient to keep up the struggle for life. But their spiritual culture is of quite a different degree. Primitive man is not brutal, nor is his standard just a little higher than that of the animals. On the contrary, he has clear ideas of a High God, who is the creator, preserver, ruler and judge. He possesses a happy monogamous family life and a high standard of morality and knows nothing of promiscuity, polyandry or polygamy ; modern influence, in this regard, has been completely ineffective.

d. *The Irulas*

The above mentioned tribes are merely nomadic food-gatherers and hunters, representing the earliest economic stage of mankind. The next progress in economy was the invention and introduction of agriculture, of which the most primitive form is shifting cultivation. People burn down a plot of forest, clear it roughly and sow the seeds in the ash-mixed fields. After one or two years, they leave the place and, shifting to another district, again start to burn, clear and sow. Thus they are nomadic cultivators ; at the same time, they retain their old hunting habits to provide meat and even collect forest products. Consequently, there is not much change in their life. Shifting cultivators live in little bamboo huts forming small hamlets. There are several such tribes in Travancore-Cochin ; the Uralis, Mannians, Muthuans, Kanikars, etc.

The Irulas in the Niligris also belong to the same category. I visited their settlements near Kotagiri and inquired about their religion, sociology and economy. Their chief, Ranka of Arakod, gave me the following report :

“We Irulas believe in a god called *An devan*. *An* means *Everything, all things, altogether* ; *devan* is *God*. Thus *An devan* means *God of all*. He created the world and man. He supports the universe and gives us everything—food, game, health, children, etc. We depend completely on him.

“The first men *An devan* created were pygmies who were only two feet in height and were called *Patchä pandwa*. These people cultivated Tcholam grain. They covered the grain with leaves, so that the birds could not pick up a single grain and were starving. The birds therefore flew to heaven to *An devan* and complained

about the men on earth who were so avaricious. Hearing this, *An devan* got very angry that men had become so wicked. He caused a torrential rain to fall on the earth. The whole world was covered with water and all the people were drowned. Only two persons, a brother and sister, were saved because they managed to go into a calabash and close the opening so that it floated on the water. After some time, the rain ceased, the waters abated and the calabash touched ground. Noticing this, the brother opened the calabash and they came out. When *An devan* passed by, he saw these two human beings and enquired: 'How did you escape the water and be saved? How did you come here?'

"They replied: 'When the great flood came, we entered into a calabash and closed it. We floated on the waves and were saved from drowning; only the two of us. But we are brother and sister and there are no other people alive any more. Thus we are not able to marry and we cannot have offspring.'

"*An devan* said to them: 'Both of you face opposite directions.' When they had done so, *An devan* blessed them and said: 'Now turn again and face each other.' They did so and, looking at each other, they understood that they were no more brother and sister but had changed into completely different persons. *An devan* told them: 'Now you are husband and wife and may get children.'

"Thereafter they got children and we, the Irulas, are their offspring. It is *An devan* who gives offspring. Through my mother and father, my body of flesh and blood was provided, but *usru* (soul) is given to every child by *An devan* at the moment of conception. Without *usru* the foetus cannot develop. There are three *usru* in every man; the first *usru* keeps the heart moving even during sleep. The second is the cause of our speech; she is the greatest, is able to leave the body during sleep, to move about and act in dreams, and nourishes to *heart-usru*, enabling it to move the heart when we are asleep. The third *usru* works as breath. The *speech- and breath-usru* are immortal. When we die our body dies and our *heart-usru* vanishes, but our *speech- and breath-usru* are immortal and go back to *An devan*. God judges the soul, rewarding the good and punishing the bad. Very good souls remain with *An devan*. The less good *usru* are reborn as men on earth, and the speech- and breath-souls enter human beings again. Bad souls have to be reborn as animals, but only the *breath-usru* are in them for the *speech-usru* cannot animate an animal. We Irulas believe in rebirth as men and animals."

I was much surprised by Ranka's statement on the three different 'souls' of man and the peculiar belief in rebirth. I questioned him several times on this matter, comparing it with the Hindu belief in rebirth. But he and the others denied that their concept of soul and rebirth had anything to do with Hinduism and affirmed that it was an old tradition, existing since time immemorial. Their funeral and wedding customs show scarcely any Hindu influence. Such circumstances convinced me that the beliefs of the Irulas were original and authentic. They

do not admit that they can be reborn as demons, ghosts, plants, etc., as Hindus do. The belief in three human souls in one person is also current among the Chinese and other people.

Ranka continued his report : "As the forefathers of the Irulas became very numerous and grew to a great population, they formed twelve clans. When many, many generations had passed, a famous hunter, Ghar pükhta, the wild forest man who belonged to the Kodwa clan, was living on the eastern slopes of the Nilgiris. His companion was Deri vaga, the fat mate who belonged to the Khupa clan. Both were very keen hunters and pig-rearers. One day they climbed the mountain Tchande denea and Maga denea to hunt. From the top of the mountain, they saw cattle grazing far away at Huliur, a place in the plains three miles distant. Ghar pükhta pulled his long bow and shot an arrow, killing one of the animals. Then they both went down and brought the carcass back towards the mountain to a river one and a half miles away. Here they prepared saffron and smeared it over the meat. Hence the place is called Mangala kundi. From there they carried the meat one mile further up to a spot called Watham phai, where they cut the flesh into long strips and placed it on a long rope to dry. When it was dry, they brought it up to the settlement, Adu khotaga. These two hunters are our most famous ancestors. They used to eat beef.

"For a long time, the hunters knew the use of only the bow and arrow. Afterwards they learned to use the spear, in hunting game, and would set big nets to catch animals. We Irulas have always been passionate hunters. Little wonder that we honour the goddess of hunting most zealously. We call her *Phei* in our tongue, or *Masani*, her Tamil name, and she stands as a symbol of fertility which is required for abundant game. It is this deity who enthuses us for the hunt. But she did not give us the necessary weapons or knowledge of the chase, nor is she able to provide the game which can only be sent by *An devan*, the High God. The day before we start hunting, we have to offer sacrifice to *Phei*. Originally the offering-place was in the forest near the settlement. But now that the fields surround us, an oblong stone is put up in the house of the master-hunter, as a dwelling-place for the deity. Here the master must offer flowers and incense, singing the hunting song which begins as follows : 'Call Masani ! Call Masani ! Call Masani ! bring her on here, bring her on here!' The refrain is repeated by the attendants, while the master chants the other verses. During the singing, a man gets possessed by *Phei* and starts shaking and trembling. When he raises his hand, the song is stopped. All the people present kneel down and pray for good fortune in the hunt. Then the possessed man tells them where to hunt, and what game they will meet. Thereafter he recovers and gets back to normal. The hunters must follow his advice.

"When hunting sambar, the leader first spears the animal so that it cannot escape. Then his own son or another lad has to kill it, thus learning to spear.

They eviscerate the animal on the spot and, taking out the liver, cut it into small pieces and stick three morsels each on two Phula sticks to prepare a first offering of the game.

"The master-hunter kindles a fire, using flint, steel and palm tree fibre. The fire needed for sacrifices must always be kindled by this old-fashioned method. Taking the two sticks, he roasts the pieces on the fire and puts them on leaves which are spread on the ground. He kneels down in reverence to the hunting goddess, *Phei*, and offers the oblations. Thereupon he eats them, which nobody else is allowed to do. Only the liver is used for this first offering of any game killed by the hunters, because they suppose the liver is the most precious part of the animal—a belief which is wide-spread among people all over the world. After this offering the animal is divided. The right hind leg and the right hip belong to the owner of the net with which the animal was caught. The hunter who holds the net gets the same portions of the left side. The right foreleg and the left upper loins are the share of the chief. All the rest is distributed equally among the members of the hunting party, who are allowed to roast at the same fire as much of the meat as they like, but they must eat it completely. They are not permitted to take the remainder home, except little pieces for their children.

"Some groups of Irulas are not permitted to take the head of the animal home, but must prepare and eat it on the spot, or throw it into a river because, no woman is allowed to see the head—another custom, well known among hunting tribes.

"At home, the master-hunter takes a small a piece of the right upper thigh and, after boiling it, he offers it to *Phei* before the stone in his house. After which the people in the settlement are allowed to eat the meat. Such offerings belong to the original customs of the Irulas, who are primarily hunters." Thus the report of Ranka.

It is peculiar that the hunting deity has two names, which originally designated two different gods. They regard *Masani* as a Tamilian goddess, but claim *Phei* as their original Irula-goddess. A very old Pulayan mantravathi (magician) near Ramapuram, Travancore, told me that *Phei* is his most important female deity, helping him to cure diseases and expel demons. I found the same belief in *Phei* as a deity (female or male) among other pre-Dravidians, contrary to the Dravidian concept which makes *Phei* a demon. In Tamil *pey* means *devil*, *goblin*, *fiend*, the female form *peyeci*, *pecci*, *demoness*, *woman under possession of a demon*; in Malayalam *pe*, *demon*; Tulu *peyi*, *demon*; Old Kannara *pətu*, Middle Kannara *hede*, *demon*. This etymology clearly proves that the Dravidian name for demon is *pey* or its derivative. A derivation from the same root in Malayalam is *pena*, *ghost*, *spirit*, *kota pe n*, *pe nm*, *possession of woman by dead ancestors*, Old Kannara, *penkuni*, *penkuli*, *demon*. Some primitive tribes of Central India know

the same word : *Gondi pen, god, Kui penu, a god, a spirit, Kuwi penu, god.* (M. B. Emeneau, *The Todas and Sumeria A Hypothesis Rejected. American Anthropologist*, Vol. 55, No. 3, 1953, p. 454) Mr. Emeneau comes to the conclusion : "The further implications of this family of etyma are fascinating ; but still not quite certain. Have we found here the proto-Dravidian morpheme for "god" ? Certainly, the fact that the two central Indian languages (Gondi and Kui-Kuwi) have this meaning looks in that direction. If so, the meaning has undergone pejorative change in the southern languages that preserve the morpheme (Tamil-Malyalam-Kota *pey*, Kannara, Tulu) under the pressure of borrowed Indo-Aryan words for "god" (chiefly Sanskrit *deva*—and its derivative" (op. cit. p. 454).

The facts are right, but I think the conclusion is not ; because *pey* is not a *proto-Dravidian* name for "god" but a *pre-Dravidian* morpheme. The Dravidians, as the ruling class, degraded a god of the subdued *pre-Dravidians* to a *demon*, a fact which often occurred in history. The pejorative change is not due to the pressure of Indo-Aryan words like *devan*, for aborigines like the Irulas adopted as the name of their High God, *An devan*. The deterioration of *pey* as a god of the pre-Dravidians to *pey*, as a *demon* of the Dravidians must have happened in an earlier period before the Aryan influence.

Because the Irulas practise shifting cultivation, they have offerings connected with agriculture, but are devoted to the same hunting deity, *Phei* or *Masani*. After burning and clearing a forest plot just before they start sowing and planting, the chief of the settlement has to take a bath and prepare an offering at the burial place before the ancestral stones which are erected there. He places a banana leaf in front and on it he puts, as the share of the gods, two small heaps of boiled rice without any meat. In the second row below, he arranges five leaves with a heap of rice on each, with or without meat, as he likes. In the third row, he puts a very long leaf with twelve heaps of rice for the twelve clan ancestors of the Irulas. Then he kneels down in reverence and offers the oblation, after which he pours castor-oil on the ancestral stones. After this, the oblations are eaten. From now till the harvest-offering, a period of about three months, the chief is not allowed to take a bath or eat anything outside his own house. After the offering, the people start sowing and planting.

At the beginning of the harvest, the chief takes a bath and goes round to the fields, carrying a branch in his hands to drive away the flies and insects, for he is not allowed to scratch himself, as this would be a bad omen, signifying that the rats would eat the harvest. On his way along the fields, he calls out "do !" seven times at each field and collects some grains, leaves and edible greens. He is not allowed to cut them with a sickle or a knife, but must break them with his hands. At home, he prepares the gathered food, without using a knife and offers it before the deity *Phei*. Then he eats the oblation. After the offering, people are allowed to gather in the harvest and eat the first new fruits.

Besides their cultivation, the Irulas gather any edible roots, vegetable, fruits, and green of the forest all through the year.

There are also two pujaris (offerers) of *Phei* who belong to the Kodwa clan, and whose office is hereditary. One week before the Masani festival at Devali, the pujaris retire into the forest and must avoid being seen by any woman. They have to fast and diet, eating only a little rice without meat, fruit and tamarind. The fasting diet must be prepared in a new earthen pot. In the meantime they ripen a bunch of bananas by exposing it to smoke. On the sacrificial day, they have to fast completely and are not allowed to drink or smoke. When coming out of the forest, the pujaris wear only a loin cloth and cover their mouths with a veil or a piece of cloth. Their long hair is kept loose and flowing.

The sacrificial place was originally in the forest, but is now in one of the houses of the settlement. An oblong stone, roughly resembling the human form, is erected on a round platform. In front of it, the two pujaris kill a cock, cutting its head with a knife and sprinkling some of its blood on the stone. Then they cook the cock and offer up some of the meat. Finally, they eat all the flesh and no one else is allowed to have a share of it. They also eat the boiled rice that is brought in. After this the people outside begin to eat the prepared rice.

This offering is completely different from the previously mentioned sacrifices ; here special pujaris officiate and sacrifice a cock, pouring its blood on a stone which marks the dwelling place of the goddess *Masani*. The custom is well known among other pre-Dravidian people like the Parayan, Pulayan, Mannan, etc. It has to be performed on a Thursday in the season of Devali. On the preceding Wednesday all the people meet and sing songs and clap their hands. When the excitement reaches its highest, one or other of those present begins to shake and tremble and prophesy the luck of the hunt. All these circumstances prove that the Irulas borrowed this offering from their neighbours.

They also venerate other deities like *Range swami*, *Rama swami*, and the goddess *Mari*, but they remember well that these do not belong to their original belief but came to them from the people of the plain.

The Irulas have very peculiar funeral rites with a great *sastram*. They bury their dead in a communal family grave in a sitting position, and put up ancestral stones at the place. Their ancestor worship has already been mentioned.

Their family system is strictly monogamous with a clan-exogamous organisation. Their wedding ceremonies are very lavish, and their morals are good. Compared with the very primitive food-gatherers, the Irulas show a higher develop-

ment in many respects, in economy, marriage and funerals ceremonies and in religion. But they have the same monotheistic belief and a monogamous family life.

e. *The Lepchas*

As a further illustration of primitive man's belief and behaviour, I would like to describe the Lepchas, the aborigines of Sikkim in the north of Bengal. The Lepchas, or Lapches, are more advanced than the Irulas, having permanent fields, better cultivation and better houses. But they remain passionate hunters and collect forest produce, thus showing their connection with the primitive food-gatherers. Here again, we lay the greatest stress on their religious conceptions.

(1) MYTHS OF THE CREATION OF THE WORLD.

Their creation myth runs as follows : In ancient times, *Rum* (God) created a great expanse of water. There was nothing else. Then he created on the bed of the water the fish *ngo*. Thereafter he formed three pairs of deities who lay cross-wise over the fish. At the bottom were *Rug lu* and *Rug lom* ; they were followed by *Mon li* and *Rong gul*, *Pö ril* and *Pö dong*. These are three pairs of male and female deities. Over these were fashioned a couple as man and wife, *Söm-li* and *Söm nag mön mu*, who are supposed to be human beings. They all carried the earth which rested on them in the form of a dish. Even the slightest movement of the fish caused earthquakes. *Rum*, God, then created the great mountains on the earth. The chief peak is the *King tsum song bu*, "the highest over our head," which is the same as *Kangchenjunga* in Tibetan.

Thereafter *Rum* created the two rivers, *Rong nyo* and *Rong nyit*, coming down from the mountains. They are male and female. In the middle of the female *Rong nyo*, he created the rock *Lyang nyit long*, like a navel. A high mountain like a navel is a well-known idea in the Asiatic concept of the world. On this rock the goddess, *Lyang nyit long bong*, is supposed to live, and she is prayed to by childless couples for parenthood. The idea of male gods on the snow mountains and female goddesses in the lakes is wide-spread among the Lepchas. They are often connected with the first parents. (Report given by *Gu gu Bong thing of Git biyong*; cf. M. Hermans, *The Indo-Tibetans*, Bombay 1954, p. 30 seq.)

(2) CREATION OF MAN

About the creation of man, there are several current myths. *Pum thing*, God, created the first man, who was called *Ti gung thik*, and his wife, *Ni gung ngal*. They lived in the land of *Mayal lyang* where there was no disease, no suffering and no death. This land lies on the other side of the *King tsum song bu* and all men return there after death.

In olden times, it was possible to reach this land from the earth. Once a hunter entered the district of *Mayal*. As night overcame him, he stayed there. Then he became aware of lights glowing a little distance off. He approached and met people and asked for shelter. They asked him what he was doing in *Ren dyong* (the dwelling place of the ancestors, now mostly pronounced *den dyong*). He replied : "I hunt and kill animals, so that I may have food." They asked : "Do you have nothing else to eat ? Do you have no grain to live on ?" "No, we have none," he answered. So they gave him seeds of gherkins, rice and millet and taught him how to sow them when the birds returned.

Later on, another hunter, who had also strayed and could not find his way back appeared. In the evening he lit a fire and began to prepare his food. The inhabitants of *Mayal* came and wanted to look on. But the hunter thought they were intruders ; he turned furious and tried to drive them off by force. Upon which they said : "In this place no one gives blows ; but all live in peace. Take your things, go away quickly and leave the district, or our dogs will come." He looked and saw dogs resembling tigers and bears, and he was frightened and ran away as quickly as possible. Great storms broke out behind him and there were huge-land slides, the mountains tilted over and all entries were sealed off. Since this event, the entrance to *Mayal* has been blocked. (Report from Kalimpong ; cf. op. cit. p. 33)

Another Lepcha named *Ti gung a thik* and *Nyi gung a ngal* as original ancestors. They led a happy life, and could hunt and roam wherever they wished. They found food everywhere, and did not know sufferings and death. The land was called *Nemayal*. Once it happened that two Lepcha hunters came there. The people of the place gave them the seeds of gherkins, millet, rice and maize. But the hunters forgot to ask when they should sow them. So they went back again and asked for instructions. The *Mayal* people said : "When the ducks come back to Tibet, then you must sow the seed." That meant February or March. But they did not know the seasons of the other seeds. So they had to spend a long time experimenting before they found the right time for sowing. Rice was supposed to be used only for sacrifice. When they tested it to see if it was ripe by biting the husk with their teeth, they found it sweet and began to use it as food for themselves. (Report from Sam sing near Maria Basti ; cf. op. cit. p. 35).

(3) MYTHS OF THE DELUGE

The myth of the deluge is also known among the Lepchas, as *Dän si Bong thing* of the *Song bur mu* tribe told me. *It bo* first created a man called *Ti gung thik*. Then he took a piece of bone from this man and made a wife from it. The place where the first human being lived was called *Da lon par tan*. There they were happy and contented until they became sinful. Upon which *Rum*, God,

punished them by sending great floods which lasted fifteen days so that all were drowned. Only one Lepcha couple were able to save themselves in a wooden ship. There is still another legend which goes into more detail :

“Originally, men were good. Then, later, they became more and more sinful, and *Rum* was annoyed and sent a great deluge to destroy them. Only one high mountain peak remained above the water. This peak was originally called *dōng grung*, a ladder which links earth with heaven ; now it is called *dān dong*. In order to appease God and to make the floods abate, the people sacrificed chi, millet-beer, through the bird *ko hon* (partridge). As the bird sprayed the chi in sacrifice to heaven, some fell on its breast. So that even today the breast of the partridge tastes bitter. This sacrifice appeased God and he stopped the flood.

“We *Rong* (Lepcha) have another version of this tradition. *Rong nyo*, the female river, and *Rong nyit*, the male river, deliberated how they would join together at the beginning of the jungle on the plain. In the Lepcha language, this place is called *pa sog*. *Rong nyo* chose the snake to be her guide through the mountains. The snake glided along a straight path to the goal. *Rong nyit* made the partridge his guide. The bird flew here and there and went round many ways. So that *Rong nyit* had to flow in many directions and came late to the meeting place. As he saw that *Rong nyit*, his wife, had already reached the place, he turned angry. He said furiously: “I am going back ;” and as he flowed back, the waters rose higher and higher and soon covered the mountains. All mankind was drowned. Only one couple saved themselves, on the high peak *dān dong*. Upon which, the female river bade a priest—offer sacrifice to *Rong nyit* to appease him so that the floods may turn back. The priest did so, performed the sacrifice there, and the flood subsided. Then *Rong nyo* said : “I am the woman, I will therefore be obedient and the lowest. The man shall flow over me.” So it happened that at the meeting of the rivers, *Rong nyit* streams over *Rong nyo* which flows deeper. (Kalimpong traditon ; cf. op. cit. p. 40 :eq.)

There is also a saga of a great tower. In *Git Biyong* I heard the following version of the saga : The Lepcha filled many pitchers with earth, and piled them one on top of another, always higher and higher, in order to reach the heavens. The man on top reached so high that he could, with a long hook, easily take hold of heaven. So he shouted down : “Pass me up a hook”. “Hook” and “cut off,” sound the same in Lepcha language. The people cried out : “Why cut if off ?” From above came the answer : “Quick, the hook!” They understood, “Quickly cut it off.” So the people cut off the connecting line and the whole tower fell to pieces. The Lepcha possess the myths of the flood and the tower like so many of the South Asian peoples, e.g. the Miau, Lolo, Thai, Mikmir, etc. (cf. op. cit. p. 43)

4. *The conception of God.*

As a general name for God, the Lepchas use *Rum*, meaning gods and spirits which are favourable to men and protect them. In contrast to *Rum* is *Mung* which indicates the demons and goblins harmful to mankind. The simple name *Rum*, without any addition, denotes the High God. Words which express special tributes of the Supreme God are often joined to *Rum*. Thus *pum* means the *first cause, the essential, the absolute, the first beginning*. *Pum rum, Pum thing* or *Pum thing rum* are popular names for the High God expressing this meaning. *Ayit (it), (ay) it de, de bo*, or *(ay) it bo* means *to create, to produce*. Therefore the combinations *It rum, De rum, It bo, Pum bo*, mean the God of creation, who created the universe and mankind. Some Lepchas believe that the Supreme God is not the creator but entrusted a minor god with the work of creation. In the conception of the Rong we also observe that some original functionaries of the Supreme God became independent beings and are looked on as helpers who support the High God. In this way the genealogy of the gods partly originated, resulting in a kind of demigod and other forms.

Some *Mun* and *Bong thing*, the *pujaris* of the Lepchas, call the Supreme God *Sa dzug rum*. *Sa dzug* is the sun ; connected with *rum*, it means both Sun god and God of heaven. Another name frequently used is *Ta she thing*. Su li man, a Lepcha from the Bam ling tribe who lives in Se ryo cha, told me : "*Ta she thing* is the Supreme God who is everywhere, and everyone who understands the rites may offer him sacrifice." The expanded name, *Ta she tak bo thing* also appears. *Tak bo thing*, or *Tok bo thing*, is considered by some to be the son of *Ta she thing*.

Most Lepchas believe that *Rum*, the Supreme God, has no wife, but the sun has. So *Han bu ni Mun* near Git biyong assured saying: "*Sa dzug rum* has a wife called *Gor song mu*." *Sa liang*, son of the *Bong thing Ong di* near Git biyong, stated, on the contrary : "*Sa dzug rum* has no wife but has four helpers. These are four spirits who cause disquiet and suffering in the world. Because of this they must also be appeased by sacrifices, which we perform twice each year. *Sa dzug rum* is not the god of creation, which took place through another god."

According to the *Dän si Bong thing* from Ka fär, the genealogy of the gods is as follows : In the beginning there was only *Rum*, the High God. He had no special name. The demons, *Mung*, did not yet exist. Then came the first pair of deities, *Agek rum* and *Alat rum*, the god and goddess of procreation. There was also *Ta she thing* and *Tak bo thing*. As the god of creation there existed *It bo* and his wife *De bo*. *It bo* created *Ti gung tik*, the first man. Because of the influence of other people, there are many different traditions among the Lepchas relating to their gods. But all agree that there is one High God who dominates all the minor gods and spirits, and that no goddess takes the highest place as *Gorer* supposes

when he considers *It bo mo* to be a female and the supreme deity. (G. Gorer, *Himalayan Village*, London 1938, p. 235). We have already seen that *It bo* or *Ayit bo* means the god of creation.

Another important deity is the god of hunting, *Pun rum*. He is also called *Dju thing* or *Pong rum*, and has other names as well. *Dju thing* is honoured as a three-fold being. In the highest mountains he is called *Mon nom dju*, for he leads chamois and wild sheep called *Mo nom* into the hands of the hunters. In the lower hills, he is the *Se go bu log dju*, because he delivers up stag, bear and other game. In the plains his name is *Se wing dju*, "he who drives the game of the plains." Other hunting gods who call the hunters and inspire them with a passion for hunting are *Kom shi* and *Kom yu rum*. The god of hunting is honoured by men alone to the strict exclusion of the woman folk. We shall report the sacrifice later. The Lepcha say : "*Rum zong pa no* gave us the bow and arrow and the knife, and taught us how to shoot fish."

The wife of the latter is *Na li pun di*, who instructed women in farming, the weaving of clothes and house work, and gave them the sickle. Another god of agriculture is *Sa dju* who gets possession of women. When the possessed woman dies, the god continues with one of her daughters, even if she has meanwhile left the family through marriage. This deity appears to the women in dreams as an old man. When he has a large goitre, then the coming crop will be rich ; when he has no goitre, it signifies a bad harvest. Thus, the Lepchas recognise many gods and spirits, and take pains in arranging them in male and female couples.

In contrast are the innumerable hoards of demons and goblins who harm men, animals, fields and forests. Tracks in the mountains are looked on as the foot-steps of the gigantic monster, *Mi gat mung*. *Ma ra mung* is a evil demon, who flies up into the skies and reveals himself there in the form of comets, northern lights and other astral phenomena. Any single disease is regarded as a demon ; consumption is *Ru mung* ; and leprosy is *Dom mung*. *Mung* is the general name for evil spirits. Goblins and witches lurking in mountains and woods, in gorges and deserts. The Lepchas try very hard to get protection and preventives against these evil spirits and awful demons. They entrust this duty of protection to their magicians and pujaris, the *Mun* and *Bong thing*. This institution of medicine men is traced back to the Supreme God who entrusted certain men with the means to counteract evil and endowed them with power and knowledge. *Mun* and *Bong thing* are only allowed to practise white magic which helps people, and are forbidden to use black magic to harm people. They show many similarities with the Barwas, Parihars and Mantravathis in primitive India and can be linked with a very old institution in mankind. In this short sketch I cannot give a detailed report on the *Mun* and *Bong thing*. (cf. M. Hermanns, *The Indo-Tibetans*, Bombay 1954 p. 40 seq).

5. *Some Sacrifices.*

Although the *Mun* and *Bong thing* wield such a great influence over the whole sacrificial organisation, and dominate it, there are yet some sacrifices which do not come under their control.

An old Lepcha told me : "As our original sacrifice we Rong offer *chi* (an intoxicating drink) in a wooden vessel, and rice and little dried birds on a banana leaf. The *chi* has to be prepared by a young girl who is still a virgin, and the little birds have to be shot by a young lad who has had no sexual relations. The name of this sacrifice is *Rum fat* or *Lyang rum fat*, which is offered to *Rum* or *Pum thing rum*, the High God, once a year in December or January. At the sacrifice, the little birds, as meat, may be dispensed with, but *chi* and rice are essential. Anyone who understands the rites may perform the sacrifice. Generally it is the master of the house, who is the family priest." (Report from Kalimpong; cf. M. Hermanns, op. cit p. 72).

Sam sing from Maria Basti described to me the hunters' sacrifice : "Our original Supreme God is also called *Assal*. We honour him but we do not know any longer where he lives. Therefore, each tribe honours more his own god of hunting. In my *Yok song mo* tribe we name him *Mut* and practise his cult by rearing cocks. When I go hunting, I take a cock and present it to the god. After the hunt, I kill and sacrifice the cock and eat the flesh by myself.

"Of all the game we hunt we have also to make a sacrifice to *Mut*. We cut little pieces from each part of the body of the animal, wrap them in leaves and offer them to the god. After the sacrifice we take the meat offered and eat it. No woman is ever allowed to be present during the sacrifice." On their return to the village, they are very careful that no women sees the animal's head, as this will augur bad for the future. Here we notice the same customs as we found among the Irulas. (cf. M. Hermanns, op. cit. p. 58 seq.)

The Lepchas are passionate hunters who believe that they get this passion from God. They also believe that the bow and arrow which they need are given by the deity, who provides them with the game.

It seems that the god of hunting appears sometimes in an extra-ordinary animal. This may be illustrated by the following hunter's story related to me by the son of the *A chi Bong thing* who was a very famous hunter. "We were hunting at the foot of the mountains and at the beginning of the plains, in the dense virgin forest. Suddenly I came across an enormous sleeping *Sa dzung big* bull (wild bison) with mighty horns. The sight so frightened me, I who feared neither tiger nor elephant, that I staggered like a drunkard to the ground and it seemed to me as if my soul had left my body. The animal could only have been the god of

hunting, and it was useless to shoot, as he is invulnerable. When the bull awoke, with a mighty bellowing, he drove the cows and calves still further into the thickness of the forest, remaining standing all the while. We withdrew to safety as quickly as possible." This wild animal is the gaur or mithan which is also called bison. (cf. M. Hermanns, op. cit. p. 77.)

Legends are also current of other curious creatures which are supposed to live in the thick virgin forests. There is the "Wild-man" known as *Sog pa* or *Bön män chi*, in Nepalese, who is said to be as large as a great monkey. Another monster is the *Bon sacri*, the wild magician who steals children, leads them away into the forest, instructs them in the art of magic and makes them get used to the forest life, after which they avoid people. The wife of the *Bon sacri* is *Lidini*, the "Wild wife." The Lepcha hunter must be proof against all these monsters, demons and goblins, and so he honours his hunting god, and begs his protection. All these customs and sacrifices show how strongly alive the traditions and habits of the hunters are among the Lepchas.

Of quite a different sort are the following sacrifices which are connected with agriculture and the harvest. We have already mentioned the goddess of farming who enters women by possession. The women perform sacrifices to her at least twice a year, before the sowing in the spring time and after harvest in autumn. Pigs and cocks serve as sacrificial animals, which are really the old breeding animals of farmers, as also of the Lepcha farmer. Men are allowed to be present at these sacrifices, and when women are prevented from offering, they perform the sacrifice.

Apart from this private sacrifice to the god of agriculture, there are also festival ceremonies which are solemnised by all the spring- and autumn-sacrifices. They are associated with the ancestors of *Mayal*, who indeed, as we saw earlier, provided mankind with the first seeds and gave instructions how they should be sown.

The spring sacrifice is simple. The autumn sacrifice, on the contrary, is very elaborate. For this an old, experienced man is elected to represent the ancestors of *Mayal*, and is called *Mayal mu*. A woman is selected to represent the *Talyeu-mu*, earth-sister. When the ceremony cannot be completed on the same day, those taking part stay together for the night and there is free intercourse between the sexes. However, the comprehensive ban on incestual relations is not broken. This recalls the sexual freedom indulged in at the spring and autumn festivals among many Asiatic peoples which is recorded by the old historians and modern research workers, and which I myself observed in the Tibeto-Chinese frontier provinces of Tsing hai and Kan su among the Chinese, Tujen, Tibetans, Mongols, etc. I got similar reports from Indian tribes. The representation of ancestors and agricultural spirits by masquerading is again a well-known custom at the New Year festivals of the primitive Asiatics. Thus the sacrifices of the farmers are in many respects in direct contrast to the offerings of the hunters. The Lepchas also offer

a family sacrifice to the Supreme God *Ta she thing*. *Su li ma* described it to me as follows: "Anyone who knows the rites of the *Ta she thing*-offering may perform it—whether man or woman. The person who offers it may fast three days before the ceremony ; he is not allowed to eat the chief meal of rice, but may eat the other dishes. During this time he has to take three baths at a bathing place which is prepared near the river. The bath consists of a complete immersion. After the last bath he comes into the house to perform the sacrifice at an altar, about 80 centimeters in height, which is erected there. He places bananas and roots as offerings on the altar, and flowers at the sides to the left and right. At this festival, which takes place in September, many people meet ; they eat food and drink millet beer after the sacrifice." (cf. op. cit. p. 82)

A common daily sacrifice of the Lepcha consists of sprinkling the air with some drops of tea or millet beer with the finger before drinking and the offering of a few morsels of food before eating.

The intoxicating *chi* offering is surprisingly similar to the old Indian *Soma-sacrifice* which I need not explain here in detail.

6. *The Social Position of the Lepcha.*

The Rong have the general tradition that they originally were hunters roaming about in the forests. They have an excellent knowledge of animals and birds, herbs, roots and fruits, both edible and poisonous. Even today, the Lepcha will not starve if the harvest turns out badly, as he can always resort to collecting edible forest products.

He is very well acquainted with poisons and knows the secret of a very quick working poison for arrows which he smears on the lower half of the arrow. An animal, only slightly wounded, will soon die of this poison.

According to established tradition, until the beginning of the seventeenth century, the Lepchas were exclusively nomadic hunters and food-gatherers. Later on they took to agriculture and now have a mixed economy.

The Lepchas have a monogamous family system with good morals. There is no legal promiscuity, polyandry or polygamy.

Their religious and worldly life illustrates a further stage in the true development of mankind, and is more complicated than the primitive life of the Andamanese, Pandarams and Kadar, but has much in common with the Irulas. Like these people, the Lepchas also claim to be the aborigines of the country, its very first inhabitants. This is the reason why I choose them as "living fossils" to illustrate

the early stages of human history which proves that primitive people may have a very simple and rude material culture, but still possess a high spiritual culture embracing monotheism, monogamy, and a high morality. Thus cultural anthropology demonstrates by the scientific method of culture-history that man did not evolve from any animal or brute-like being to the *Homo sapiens*, the wise man, and shows that the most primitive man was already a *Homo sapiens*, a wise and cultured man in the very first beginning. The essence of man as *incorporated spirit*, as spiritual entelechy animating a body, is revealed as soon as we are able to trace man by stone implements in the beginning of the Quarternary period. There is no ape-man or man-ape, half animal and half man, the link between animal and man.

Thus human genetics, physical and cultural anthropology and prehistory reveal that even the most primitive human being is a complete man who is endowed with the gifts of thinking, reasoning, speech and free will. Man alone possesses morality, religion, art and history. Such a spiritual man did not develop from a lifeless atom to a living amoeba, and from there through fish, amphibia, reptile and mammal to a conscious primate and finally to a spiritual man. Man was created as a spiritual man.

In order to show completely the falsity of extreme evolutionistic hypothesis of all the kingdoms of life, we deal at the end with palaeontology, the fossil records of the past life. Thus we complete the picture of life.

V. PALAEONTHOLOGY AND THE EVOLUTION OF MAN

(1) THE ORIGIN OF THE EARTH.

We must first know how the earth originated before we are able to explain the origin of life on our planet. There are many complicated and conflicting theories concerning the origin of the earth, such as the nebular hypothesis of *Kant-Laplace*, declaring that our sun-system with the earth developed from a nebular gasball, or the tidal-disruption theory ; but none of them is able to explain the source or the nature of the original matter of the universe. Such presumptions, however, do not exclude creation.

Let us suppose that once upon a time a wisp of fiery gasses began to cool and to condense until finally it formed into a planet with an almost solid crust, which men later called the earth. How long ago the development of our planet took place is determined by very complicated calculations. In a recent paper on this question, the author concludes : "To one's great surprise it turns out that the values in the second column agree remarkably well and lead to the same conclusion that a few billion years, say between one and five billion years, is the length of the present epoch. The data of the Table 1 afford, as far as the present author can see, one of the strongest arguments against the hypothesis of continuous creation.

"Probably we can best end this paper, as we started it, by quoting *Chandra-sekhar* : 'To conclude, then, we see that the geochemical evidence bearing on the age of the earth and meteorites, the galactic star clusters, the statistics of binary stars, the clusters of extra galactic nebulae, and finally the system of the nebulae, all agree in pointing to a scale of the order of a few billion years. It does not seem that this can be accidental'. (*D. Ter Haar, The Age of the Universe*, in *The Scientific Monthly*, October 1953, p. 180 seq.)

Carnot-Clausius's law of entropy—the measure of the unavailability of a system's thermal energy for conversion into mechanical work—proves that the entropy increases and that it is not reversible. This law excludes the eternity of matter, which therefore requires a creation to make it possible for it to come in to existence. The age of the Universe does not go so far back as to be almost beyond human calculation, as some scientists wrongly assert.

In the formation of the crust of the earth, several strata are recognizable : the igneous rocks are regarded as the origin from which most of the later rocks have been derived. The secondary rocks are the sedimentary and the metamorphic. The whole profile would be thus : the top layer consists of loose earth ; then follow

sedimentary and later igneous rocks which have been thrown up by volcanic eruption ; beneath these outer strata is a layer of granite which covers a layer of basalt.

Within this profile, many different strata were produced during the earth's history by climatic changes. The factors effecting these changes are as follows :

a. *Terrestrial factors :*

1. Interior of the earth (cooling and radioactivity)
2. Surface of the earth (distribution of land and ocean, mountains and plains)
3. Content of salt in the oceans
4. Atmosphere (clouds, CO² content, volcanic ashes)
5. Migration of North- and South-pole and continental drifts

b. *Cosmic factors :*

1. Change of the element of the earth-orbit (periodical and non-periodical changes)
2. Absorbtion of interstellar matter.
3. Primary change of the sun's radiation.

(*M. Schwarzbach, Das Klima der Vorzeit, Stuttgart 1950, p. 162*)

These factors, when combined, produced the greatest climatic changes on earth, which formed the different geological epochs. There were, for example, three great glaciations : one at the transitional stage from the Algoncian to the Cambrian, the second during the turn from Carboniferous to the Permian, and the third during the Quarternary period, the time when mankind developed.

2. THE ORIGIN OF LIFE.

These different geological formations are mostly concerned with the inorganic matter. But was it possible, once the conditions were so suitable, that an inorganic atom could have changed into an organic protein molecule ? Could a lifeless element change into a living cell and produce in this way the first life on earth ? Let us see what an expert of the subject has to say on this point :

“The problem of the sudden appearance of life on earth is immensely complicated, because it is highly impossible to fix even the slightest basis for a calculation how life could appear. . . The elementary molecules of a living organism are characterized by an extreme assymetry. . . (p. 132).”

"The change to produce only one highly assymmetric molecule by the influence of thermic movement is practically nil. Even if the movement would shake 500 trillion in a second (5×10^{14})—which would be equal to the speed of light—, the formation of only one molecule of the 0.9 degree of assymetry in a space filled with the matter of the volume of the whole earth would require 10^{243} milliards of years. Since we know that the beginning of the formation of the earth's crust is surely less than two milliards of years (2×10^9), the chance-production of such a molecule would necessarily have to take place in the first milliard because it is a well supported supposition that life existed already on our earth one milliard of years ago. . . (p. 134)".

"Besides, the existence of only one such molecule would have been without any use because in any case the formation of several grams of protein were needed to develop life ; that would mean that several trillions of molecules would have to be produced. . . (p. 139)".

"Therefore, we accept the fact that protein was created and not evolved as soon as the formation of the earth-crust offered the conditions for life (p. 142)." (*Lecomte du Noüy, Der Mensch vor den Grenzen der Wissenschaft, Stuttgart, 1952.*)

Thus, scholars of natural science have come to the conclusion that the first life on earth must have been created and could never have developed from inorganic matter.

The following table shows the geological periods and time, combined with the fossils of the life-kingdoms : (cf. p. 118)

3. FOSSILS, THE DOCUMENTS OF LIFE

The documents of life's history are the fossils of plants and animals embedded in the rock layers of the earth. The geologically oldest strata contain the oldest fossils. The branch of geology dealing with strata accumulated in the course of time is called stratigraphy, which establishes the succession of the layers as we mentioned before. Thus it is possible to construct a geological and palaeontological time scale or "clock." Rocks without fossils of life belong to what is called the Azoic (lifeless) era which is followed by the Archaeozoic (oldest life) and Proterozoic (anterior life) era. The latter is also called Algonkian. Recent research found the oldest fossil-containing strata in the Algonkian period. The fossils are not well preserved but they can be determined according to Phylum, Class, etc. Fossil records from all over the world contain radiolares, sponges, worms, moluscs, brachiopods, articulates, beltina and, probably, enchinoderms and coelenterates. "Thus there are remainders of many Phyla of the non-vertebrates which were able to fossilize. The Phyla which are not presented yet will surely be testified

GEOLOGICAL TIME-TABLE AND FOSSIL-RECORDS

Era	Years	Periods	Fauna	Flora	
Cainozoic	15,000	Quarter- nary	Holocene	Homo sapiens	Most modern genera
	600,000		Pleistocene	Early Man	
	15M		Pliocene	Fauna modern	
	30M	Upper	Miocene		
	40M	Tertiary	Oligocene	First monkeys & apes	
	50M		Eocene	Age of mammals	
		Lower	Palaeocene	First lemurs	
Mesozoic	60M	Upper— Cretaceous	Great saurs		Angiosperms Cycads
	125M	Lower—	Age of the reptiles Ammonites		
	150M	Upper— Jurassic	First birds		Ferns Gingkos
		Lower—	Ichthyosaurs Flying saurs,crocodiles		
			Upper— Triassic	First non-placental mammals	
	180M	Lower—	First Hexacorals		
Palaeozoic	225M	Permian	Theromorphia, Tetracorals		Horsetails
	300M	Upper— Carboniferous	Amphibia, first winged Insects, first reptiles		Club-moss trees First conifers
		Lower—	First spiders		
	345M	Upper— Devonian	First amphibia		Psilophytales Gymnosperms First trees
		Lower—	Fish age Armoured jawless fish		
				First scorpions, sharks	First known land- plants
	375M	Silurian	Brachiopods, trilobites		
	435M	Ordovician	First corals, sea- urchins, Graptolites		
540M	Upper— Cambrian	Foraminifera, crinoids starfishes, snails, shells		Marine algae	
Lower—	Cephalopods, crustacea				
Proterozoic	1.000M	Algnocian	Radiolaria, worms, brachiopods, beltina, scorpion-like, echino- derms, coelenterates	Algae	
Archaeozoic		Scarcely any life			
Azoic	age without life.				

to by further research. Therefore I have not the slightest doubt that even the vertebrates may be found in the Algonkian era supporting our conviction. In its phylogenetical respect the Algonkian fauna represent the products of a very long evolution, because all the Phyla are more or less existing except the vertebrates. What should have slowly developed, successively one out of the other, appears simultaneously. Evolution requires theoretically the following line : Protozoa-Mesozoa-Coelenterata-Vermes-Tunicata-Verterbrata. How can phylogenesis explain this fact satisfactorily ? The only way out of this dilemma is to deny that the Algonkian life is the oldest, making the supposition that there are much older fossils which are not yet found. But such an arbitrary assumption, which is meant to save the idea of absolute evolution, is left without any basis, as the following consideration shows : thinking phylogenetically the animals have already completed the greatest part of the development in the Algonkian period, because only a single new type, the vertebrates, is added to the ground plan—of the Phyla already existing in that era. Why did not plants, which are regarded as the basis of animal's evolution, develop at the same time? They are more primitive than the animals, because they have no proper senses, muscles, or means of locomotion. (There are only thallophytes, algae, bacteria, at the Algonkian.) Why did the cryptogams for the first time appear in the Upper Silurian, when the vertebrates were already in existence ? According to the theory of evolution, ferns and monocotyledons (plants with a single cotyledon) had to be found in the Algonkian (but appeared in the Cretaceous)." (*O Kuhn, Die Deszendenztheorie*, München 1951, p. 50 seq.) This enormous discrepancy in the fossil records of animals and plants vehemently contradicts the theory of absolute evolution and makes impossible a gradual development, which the Darwinians start with the primordial cell of plant. No excuse that the plant-fossils are not so well preserved is possible. Plants, with their cellulose structure, can much more easily fossilize than the soft part of animals.

The fossil record of the era in which life can be traced first proves that most of the Phyla of the animal kingdom were in existence, whilst the plant kingdom has very few representatives. If in the future, fossils are found in layers older than the Algonkian, we cannot predict how many types will be found. To assume that the forms of a slow development with its intermediate types may be preserved in the pre-Algonkian is mere fiction without any fossil record as a real basis. The Darwinians always claim that the time-element is all important for evolution ; but the Algonkian and Cambrian fossil records disprove this time-element required by the evolutionists. To quote again:

"I have taken care not to overstate the case against evolution ; my figures are almost certainly too low.

"The lowest estimate of the time taken for evolution of a new species is 500,000 years. As the differences between two genera of a family are at least tenfold greater than those between two species of a genus, the minimum time needed for

the evolution of a genus is $500,000 \times 10$, or five million years. As the differences separating two families of an order are ten times as great as those that separate two genera of a family, fifty million years are needed for the evolution of a family, and, for similar reasons, the evolution of an order needs 500 million, that of a class 5,000 million, and that of a phylum 50,000 million years. . .

“The gradual conversion of a Protozoan into a Mammal involves the evolution of two Phyla—a simple Metazoan, such as a jelly-fish, and a Vertebrate (fish)—a matter of 100,000 million years. The conversion of a fish into a mammal involves the evolution of three classes—Amphibia, Reptilia and Mammalia—requiring 15,000 million years, thus the whole process is a matter of 115,000 million years.” (*Douglas Dewar and H. S. Shelton, Is Evolution Proved?*, London 1947, p. 149). According to the latest views of scholars, the earth has not been in existence for more than 1,000 to 5,000 million years and was not habitable before the formation of the crust. (*D. Ter Haar, The Age of the Universe*; in *The Scientific Monthly*, Oct. 1953, p. 180) The Azoic era is supposed to have lasted 1,500 million years, the Archaeozoic from 1,500 million to 825 million years, when the Algonkian period with the first fossils begins. (*Fr. E. Zeuner, Dating the Past*, op. cit. p. 309, Fig. 82)

Supposing the time-table of the eras is correct, the time for life's development from the beginning of the Archaeozoic era to the Algonkian would be 725 million years. If there were only two Phyla in the Algonkian time, then 100,000 million years would be needed for their development, but many Phyla exist already. Thus the all important time-element of the Darwinians is ruled out.

In the next period, the Cambrian, the fossils of the different non-vertebrate phyla are more abundant, but the vertebrates are not surely in evidence; they appear in the following Silurian, where the first fish (agnathi) and the oldest sharks are traced. It is not necessary to go through the fossil records of all the eras, but some peculiar facts may be stressed.

One of the most drastic and abrupt appearances in many different types and forms is that of the fish. A layer of 4-8 inches of the Upper Devon of Wildungen, Germany, which contains abundant fossilized fish, shows almost every type. *Jaekel* collected about 50 different species.

Winged insects offer a similar instance. These animals are not present in the Lower Carboniferous; but in the Upper Carboniferous 18, in the Permian 30, and in the Mesozoic 22 new orders are represented. An exceptionally large number of new orders comes into existence suddenly without fore-runners in a comparatively short time, and is followed by a period in which the rate of new orders is slowed down. Another example may illustrate what happened in nature: “During the Upper Cretaceous period, most of the reptiles dominating this epoch perished

through causes which are not yet clarified leaving a very few types which continue to exist till today. At the same time, a completely new flora spread very quickly all over the whole world. Dense prairie-grasses, herbs full of honey, flowers and trees with abundant green foliage, and soft seeds offered inexhaustible resources of food. In the beginning of the Tertiary one of the most amazing events of life's development took place—in the victorious rise of the mammals in innumerable species." (*J. Walter, Fortschritt and Rückschritt im Laufe der Erdgeschichte, quoted by H. Conrad-Martius, Abstammungslehre, München 1949, p. 144 sq.*) All the different orders of mammals (the carnivores, ungulates, proboscideans, rodents, primates, etc.) appeared suddenly. (*H. Conrad-Martius, op. cit. 142 sq.; Fr. E. Zeuner, op. cit. p. 359 seq.*) About 28 genera and species of the primates are recorded from the oldest layer of the Tertiary. Such examples of the sudden appearance of new Classes, Orders, Families, Genera and Species are abundant in the history of life.

4 CREATIVE EVOLUTION OR EVOLUTIONARY CREATION

Balked by these facts, many experts explain them as "explosive" or "creative" evolution, meaning that the major systematic units, Phylum, Class, Order and Family, appear abruptly and more or less simultaneously and are divided into many different species. But are not "evolving" and "explosive," "developing" and "creative," words which contradict each other? To evolve means to unfold, to open out, to change gradually; "explosive", on the contrary, suggests the sudden appearance of completely new types without any intermediate stages; and "creative" stresses the same process more strongly. At the end-conclusion we refer again to creative evolution.

Another fact is very important. The oldest types are not always the most primitive and unspecialized in every respect. Within the geologically older groups are some characteristics which are already more highly specialized than in younger groups. For instance, the older Nothosaurus has a more primitive structure in general but is highly specialized in the form of his palate; the younger Plesiosaurus has a more developed body-organisation but his hard palate is more primitive than that of the Nothosaurus. There are many instances of this kind where primitive and specialized strains are mixed in the oldest type. This peculiar morphology is so marked among the fishes, and their crossing of specialization is so predominant, that it is not possible to construct their phylogenetic tree of succession of Classes and Orders. (*O. Kuhn, op. cit. p. 57 seq.*) These facts again conflict with the Darwinian theory.

The same difficulty occurs in the derivation of one Phylum from another, one Class, or Order from another. For instance, what is the common ancestor of the vertebrates, whose first representatives are the fishes, which, as we saw, appeared

in the Silurian period suddenly in so many different types? Which is the primeval fish? Scholars suppose that the following animals are the common ancestors of the vertebrates: (1) spider, (2) limulus, (3) sagitta, (4) ringed worm (annulates), (5) enteropneusta, (6) tunicates, (7) nemertines, (8) cystoides. "Each of them has something in common with the vertebrates, which could be used theoretically to make it an ancestor; the jump can start here or there. But such theories are without any control and are mere phantasy without any scientific value." (*O. Kuhn*, op. cit. 65)

The Classes of some Phyla appeared more or less simultaneously like the Classes of the molluscs and of the echinoderms. But the Classes of the vertebrates arose successively; the fishes in the Silur, the amphibians in the Devon, the reptiles in the Carboniferous, the mammals in the Trias, and the birds in the Jurassic period. But a successive appearance in time does not imply a succession in genealogy that the amphibians developed from the fishes, etc. What difficult implications such an evolution from one Class to another suggests, may be seen from the following:

"The supposed gradual transformation of a Reptile into a Mammal. If you believe that this transformation took place, please describe:

(1) How the reptilian lower jaw, with its six bones on either side, articulating with the skull by means of the quadrate bone, could become a mammalian jaw with one bone on each side, articulating directly with the skull.

(2) How the columella of the reptilian ear could come to be replaced by the incus, malleus and stapes of the mammalian ear.

(3) How the creature contrived to feed and hear while these transformations were being effected.

(4) The stages by which the respiratory system of the reptile could become converted into that of the mammal; and how the creature contrived to breathe during the period of transition.

(5) How and why each of the following changes took place:

(a) The substitution of one aorta for two.

(b) The substitution of hair or of fur for scales.

(c) The substitution of non-nucleated red blood corpuscles for nucleated ones.

(d) The replacement of uric acid by urea, as the chief excretory product.

(e) The replacement of striped ciliary eye muscle by unstriped.

(f) The replacement of an ankle joint between the two rows of ankle bones by one at the root of the toes.

(g) Acquisition of mechanism for keeping the temperature of the body constant.

(h) The replacement of an alimentary canal whose longitudinal muscles are inside the circular ones by a canal whose longitudinal muscles are outside the circular ones." (*Douglas Dewar, L. Merson Davies, and J. B. S. Haldane, Is Evolution a Myth?* London 1949, p. 15 seq.) These are some of the difficulties and many others could be added, e.g., the change from a cold blood system into a

warm blood system ; the reptile's procreative organs produce eggs which are hatched and the young, creeping forth, lives independently from the first moment; a mammal's generative organs provide a uterine development of the foetus, and the young has to be suckled by the mother (which gives the name mammalia). When we examine in detail the characteristic ground plan of the Phylum, Class, Order, or Family, we recognize the great essential changes which are needed if one Phylum, Class, etc., should evolve from another.

The testimony of the geological fossil record is as follows. A great and diversified fauna appears in the Algonkian era with startling abruptness. In this very first beginning the animal kingdom is sharply differentiated into Phyla, Classes, Orders, Families, Genera, and Species, with well organised and even specialized individuals, which do not suggest slow evolution. During the following periods every new type of animal appears suddenly provided with all its characteristic attributes. Palaeontologists following the evolution theory were not able to produce a series of fossils demonstrating that one Phylum has gradually been converted into another Phylum or one Class, Order or Family into another. "While the geological record suggests that some species have changed into new species, it shows that some species are very stable and have persisted during an immense stretch of time." (*Douglas Dewar and H. S. Shelton*, op. cit. p. 130) The change of species is not conclusive for a similar change of Phylum, etc.

5. THE PRIMATES

Exactly the same thing happened with the primates, as the following survey of their fossil record shows. As the first primates appear Lemuroids and Tarsioids at the beginning of the Tertiary period. The lemurs represent the most primitive type, looking like squirrels with fox-like heads. They live on trees and are mostly nocturnal in their activities, sleeping during the day. The tarsiers differ from the lemurs in morphological structure ; but are also tree-dwellers moving during the night. Evolutionists suppose that the lemur developed from an animal like the tree-shrew. Because the tarsier is more specialized but contemporaneous, it is supposed to have a separate development from another insectivore similar to the tree-shrew. What about the primates older than lemurs and tarsiers ? "Today four distinct families are recognized from the Paleocene—the Anaptomorphidae, the Apatemyidae, the Carpolestidae, and the Plesiadapidae. Several genera and a good number of species are distinguished in each of these families. . .

"The available remains of fossil Paleocene primates do not permit of any definite conclusions concerning the relationship of these forms to the later Eocene primates." (*M. F. Ashley Montagu, An Introduction to Physical Anthropology Springfield 1951, p. 89 sq.*) With the primates, it is again the same story ; the root from which the new order might have developed cannot be traced.

The lemuroids are excluded from the pedigree of the higher primates which should have as ancestor one of the tarsiers. Among the earlier tarsiers are highly specialized branches like the modern tarsiers which show peculiar specialisations of the teeth, skull and ankle bones. For these reasons *Wood Jones* states that the tarsiers are most closely related to man, thus, he, not the ape, being his ancestor.

Other fossils make the picture more complicated. In the same Eocene, the New World monkeys are recorded. They comprise two different families ; the marmosets or Hapalidae with about five genera and forty species, and the Cebidae with ten genera and about 102 species. The marmosets are squirrel-like animals, living on trees during the night. The Cebidae are quite different, indulging in flying leaps and having a more highly specialized internal organisation of the brain than even the ape. The New World monkeys are often called *Platyrrhini* because their nostrils are widely separated at the base and tend to look outwards.

Their counterpart are the Old World monkeys, called *Catarrhini*, with nostrils close together and looking downwards. They exhibit the greatest variety of specializations and even have one genus, the baboon, which is terrestrial in its habit, living in rocky places. Their fossils appeared in the Miocene of Europe and India (Siwalik deposits). The Old World monkeys are so strongly differentiated that the evolutionists themselves suppose that they originated independently from some tarsiod stock in the Oligocene, and do not have a common root with the New World monkeys. This is a mere assumption, because no transient stages of fossils are available. But it is an accepted fact that all these various families of the Primates are very different and are not connected through a common ancestor.

In reconstructing the pedigree of evolution of the Old World monkeys, *Parapithecus* is considered to stand between the Eocene tarsiods and the Oligocene Old World monkeys. The fossil which should prove the connection is a lower jaw which was found in the Lower Oligocene of Faiyum, Egypt. Because there are two premolar teeth, it is supposed to be a primitive catarrhine. The only remains which could link up the stages are a single jaw and nothing else.

Another lower jaw of a more monkey-like animal has been recorded from the same layer. This creature is called *Propliopithecus*, which, according to the structure of its jaw and teeth, is supposed to represent a better ancestor of ape and man. These two small fragments are the only basis on which to build up the ancestry of ape and man.

From the Upper Miocene and the Lower Pliocene strata, fossils of a gibbon-like ape were recovered, called *Pliopithecus*, which is not considered to be in the human ancestral line, because it is too specialized and off the main line. But who constituted and continued this main line ? Palaeontologists are not able to give a satisfactory answer.

In the Middle and Upper Miocene, apes appear in several genera and species, among which the best known are the *Dryopithecus* of Europe, the *Sivapithecus* of Asia, and the *Proconsul* of Africa. The fossil remains of these apes consist mostly of jaws and teeth with occasionally fragments of the skull. The conclusion of their phylogenetic relationship, drawn through a study of their teeth, is that the *Sivapithecus* group resembles the orang-outang and the *Dryopithecus* more the chimpanzee-man. But the students must admit : "We see not so much a gradual evolution towards the hominid type of jaws and teeth, but rather a great many variant forms. Some with manlike anterior and apelike posterior teeth, and vice versa, and some with such specialized canine teeth that, because of their resemblance to those of the chimpanzee and gorilla, lead us to believe that forms such as these must be ancestral to the modern African apes. On the other hand, in certain members of the *Dryopithecus-Sivapithecus* stock, such as *Dryopithecus rhenanus* and *Sivapithecus sivalensis*, the dentition has retained many primitive features, and is of such a nature that it would take but a few slight modifications to produce the characteristic dentition of man." (*M. F. Ashley Montagu*, op. cit. p. 59) The teeth of the *Dryopithecus* and *Sivapithecus* show a wide range of variations, specialization and mixtures. These teeth alone offer no solid basis for a pedigree of ape and man. How careful must we be when relying on teeth alone ! The *Swartkrans* ape-man, (*Paranthropus crassidens*) of South Africa has an ape-like skull ; but the front teeth, incisors and canines are typically human, and the very large pre-molars and molars are also human-like. The jaw has little chin, or mere traces of a chin. Notwithstanding the human-like traces, the discoverer *Broom* states "This jaw with the human chin is not a *Homo* but certainly a *Paranthropus*." (*R. Broom, Finding the Missing Link*, London 1951, p. 82) Convinced that man evolved from a member of the family *Australopithecidae* perhaps in the Middle of the Pliocene period, *Broom* nevertheless admits : "All scientists are agreed that man has been evolved from some primate ancestor ; but there is much difference of opinion as to whether the ancestor was a higher anthropoid such as the gorilla or chimpanzee, an earlier anthropoid like the fossil Miocene ape *Dryopithecus*, a still earlier type of anthropoid such as one of those found in Kenya, a very early Oligocene anthropoid like *Propliopithecus* or an Eocene lemur-like *Tarsius*, but without the specializations.

"Of course the difficulties in settling the question are very great. The early fossil primates are in very few cases known by more than teeth and fragmentary jaws. Many are known only by a single tooth. Then the living anthropoids are so few in number, and so specialized, that the evidence they afford is often confused. (Their number is not so small : New World monkeys : *Halapidae* about 40 species, *Cebidae* some 102 species ; Old World monkeys : *Cercopithecinae* some 137 species, *Semnopithecinae* 78 species ; apes : *Pongidae* 4 species, *Hylobatidae* 9 species. M.H.). Further scientists differ very greatly as to what points in the evidence should carry most weight. And where experts differ, who is to decide ?

"An authority on the brain, like Elliot Smith, naturally places most weight on the cerebral structure. . .

"That the brain structure may be misleading is shown by comparing the brains of the Old World monkeys and those of the New World. (The brain of the *Platyrrhini* is comparatively larger than of the *Catarrhini*. The internal organisation of the brain of the *Cebidae* is more highly specialized than in any of the Old World monkeys, apes and even man. M. H.). . .

"The tooth structure seems to form the most reliable guide, and the only one that can be used for comparison with early fossil forms. . .

" . . . But here again the evidence is not very satisfactory. We want more than lower jaws, and we want milk-teeth. Then, with only a few teeth, we have often difficulty in defining what *Dryopithecus* is. Thus some imperfect jaws found in India were at first referred to species of *Dryopithecus* by some authors, and to different genera by others. . .

"Weidenreich has agreed that all the anthropoids have a type of dental arrangement different from that found in man. . . He therefore holds that man must have evolved from a pre-anthropoid which does not have locking canines." (*R. Broom*, op. cit. p. 90 seq.) Although there are no reliable criteria to assure the pedigree of evolution, *Broom* is confident that man has evolved from an Old World primate. But "we cannot say what has brought about evolution," he continues.

"*Darwin* will always live as the scientist who first convinced the thinking world that man has evolved from some type of ape ; but the main theory which he proposed has by no means been universally accepted. . .

" He thus seems to admit that many human characters could not have arisen by Natural Selection, and he proposed a new theory. (Sexual Selection). . .

"And *Darwin* has placed himself in an awkward position by having two theories, and even a third. . . It makes one feel that none of these theories is the true one.

"*Bergson* proposed a theory of quite a different nature. It was that evolution took place because it had to take place ; just as an egg, if incubated, must turn into a chicken. He believes there is some force or agency in Nature, which he calls the *élan vital*, which forces most types of animals to evolve into higher types. . . In the opinion of many palaeontologists this steady evolution cannot be explained by Natural Selection nor by Lamarckism, and certainly not by Sexual Selection. And it looks as if some agency has been driving evolution along to a definite end. . .

"Some of us consider that the 'modern studies of genetics and selection' are not any more 'established' than are the Thirty-Nine Articles. . . and I may here state as definitely that I am equally convinced that *Hunt Morgan* and other geneticists have also completely failed to find an explanation. . .

"*Russel Wallace*, who in 1858 proposed the theory of Natural Selection along with *Darwin*, gradually changed his views. . .

"In the last work of *Russel Wallace*, published in 1910, three years before his death, he says : 'In the present work I recur to the subject after forty years of further reflection, and I now uphold the doctrine that not man alone, but the whole World of Life, in almost all its varied manifestations, leads us to the same conclusion—that to afford any rational explanation of its phenomena, we require to postulate the continuous action and guidance of higher intelligences ; and, further, that these have probably been working towards a single end, the development of intellectual, moral and spiritual being.'

"One of the ablest thinkers of today, who died recently, *General Smuts*, the famous statesman, general and philosopher, wrote in 1926 a very remarkable book, *Holism and Evolution*. He saw not a haphazard Universe, but a Universe that seems to be alive and ever on the move, moving towards definite ends. In an address he gave in 1932, he suggested that a synthesis of mind and matter is looming ahead and that 'a spiritual view of the universe may not only be justified but may receive firm support from science itself.'

". . . 'Our knowledge is too fragmentary, our interpretation of what we do know too vague and uncertain to entitle us to definite conclusions. It appears to be a great Plan—with a Planner in the background. And yet that seems unduly anthropomorphic, unduly to simplify what must be a most complicated affair of the universe. And so I continue to look around for clues, knowing that *Darwin* and his successors have not read the riddle, but neither have *Paley* and his friends. . . .'

"The greatest physicists of the world—*Newton*, *Faraday*, *Clerk Maxwell* and *Kelvin*—have all felt like *Smuts* that there is a great mystery, and yet a great reality behind it all.

"We know that when the earth cooled sufficiently, life appeared—perhaps about 1,500,000,000 years ago. How it arose or where it came from we do not know. But from the first life we know that there evolved quite a large number of types of living beings. And when we come to the Cambrian Age, about 500,000,000 years ago, we find on the earth practically all the main types of life, so far as we can judge by skeletons, that we have today. We may even have had ancestral fishes. But while evolution has gone on in the last 500,000,000 years, and we know the

history of it fairly satisfactorily, the very strange fact strikes us that though hundreds of thousands of new varieties of animals have arisen, all belong to the same large groups as were already on the earth in the Cambrian.

"The later history of evolution is even more remarkable than the early. In Eocene times—say between 50,000,000 and 30,000,000 years ago—small primitive mammals rather suddenly gave rise to over a dozen very different Orders—hoofed animals, odd-toed and even-toed, elephants, carnivores, whales, rodents, bats and monkeys. And after this no more Orders of mammals ever evolved. There were great varieties of evolution in the Orders that had appeared, but strangely enough Nature seemed incapable of forming any more new Orders. What is equally remarkable is that no new types of birds appear to have evolved in the last 30,000,000 years. And most remarkable of all, no new family of plants appears to have been evolved since the Eocene. All major evolution has apparently come to an end. No new types of fishes, no new groups of molluscs, or worms or starfishes, no new groups even of insects appear to have been evolved in the last 30,000,000 years. Of course, there have been lots of new species formed, but all seem to belong to families that had already appeared millions and millions of years ago. All important evolution is at an end—except the evolution of man, who can go a good deal further." (*R. Broom*, op. cit. p. 98 seq.)

I like to quote *Broom* at length to show that it is not just because of prejudice against Darwinism that I reject this hypothesis of absolute evolution. Many other scientists, palaeontologists, biologists, geneticists, morphologists and anthropologists have refuted and still refute this hypothesis. What is confusing in *Broom's* opinion is that while it rejects Darwinism, it nevertheless postulates it: "All scientists are agreed that man has evolved from some primate ancestor;" "Man has evolved from an Old World primate." Is that not the same hypothesis as *Darwin* and the *Neo-Darwinians* proposed? As long as the aim of evolution is to explain the whole life process in a purely materialistic, mechanico-causal way without any plan and planner behind it to direct the powers completing the plan, we have absolute atheistic or deistic evolution.

The biologist *Wolff* states: "In reality, the doctrine of evolution is an hypothesis. An hypothesis can more or less be justified, but can never be the basis of a science. The foundations of every science are the basic facts alone. A fact is only that which can be observed or which can be concluded by logical necessity from exact observations. There is nobody who was able to observe the evolution of different species, and we do not know any facts from which the doctrine of evolution could be concluded with logical stringency. The fact that evolution is a mere hypothesis should not any more be disputed." (*O. Kuhn*, op. cit. p. 165)

Unfortunately, this is mostly forgotten and evolution is generally regarded as a well-proved fact. The evolution of organic life from inorganic matter by itself,

the development of Phylum, Class, Order and Family from another Phylum, Class, Order or Family by itself is not only disproved by palaeontology but is also against the law of the "sufficient cause" that maintains that nothing can go behind its own nature by itself ; that nothing can come into existence without sufficient cause. The three kingdoms of life are essentially different. The structure of a plant has the essence of a plant. The animal body is different from a plant and has the nature of an animal. That a plant cannot develop into an animal is proved by overwhelming facts. How then could an animal body have evolved into a human body which is essentially different, which is formed and animated by a spiritual soul ? Man is incorporated spirit ; a spirit using a body as his instrument. The very first human body needed a special creation by God like the creation of the spirit, as we have already explained.

6. HOMO SAPIENS.

The extraordinary position of man amongst the primates is so striking that even *Ashley Montagu* is forced to confess : "All the living forms of man belong to the single genus *Homo*, and the single species *sapiens*. Although man is unquestionably a member of the giant anthropomorphous primates, he differs in so many respects from them as to justify his inclusion in a separate family, the *Hominidae*.

"The following are some of the many features distinguishing man from the living anthropoid apes :

1. Fully erect posture
2. Bipidal locomotion
3. Legs much longer than arms
4. Greater average relative length of lower limbs
5. Shortest average relative length of upper limbs
6. Longest thumb in relation to hand length
7. Earliest disappearance of independent *os centrale*
8. Straighter fingers and palm
9. Shortest relative length of toes, excepting big toe
10. Non-opposable great toe, set in the line with other toes
11. Foot arched transversely and longitudinally
12. Lowest shoulders
13. Lowest placed nipples
14. Least increase in average stoutness of trunk
15. Highest average total number of vertebrae
16. Highest average number of thoracolumbar and coccygeal vertebrae (except gibbons)
17. Relatively longest cervical and lumbar regions of spine
18. Relatively greatest distance between thorax and pelvis

19. Relatively much shorter pelvis
20. Much greater curvature of iliac blades
21. Iliac fossae of pelvis face one another
22. Presence of a true inguinal ligament
23. Absence of penis bone
24. Absence of ischial callosities
25. Shortest height of face
26. Relatively greater distance between eyes
27. Absence of highly developed laryngeal air sacs
28. Great reduction of the projection of the jaws
29. Great reduction in size of canine teeth
30. Equality of sexes with regard to size of canine teeth
31. Much later completion of eruption of permanent dentition
32. Extremely early fusion of facial maxilla with premaxilla
33. Absence of premaxillary bone from anterior aspect of face
34. Late closure of bregmatic fontanelle
35. Late closure of metopic suture
36. Rarity and lateness of fusion of nasal bones
37. Absence of a diastema in the upper jaw for the reception of the tip of the lower canine tooth.
38. Prominent bony nose with elongated fleshy tip
39. Median furrow or philtrum of the upper lip
40. Outward rolled mucous membrane forming lips
41. A well marked chin
42. Absence of simian mandibular shelf
43. Great reduction in density of hair (except on scalp)
44. Absence of tactile hairs
45. Occurrence of wavy and curly hair
46. Brain more than twice as large
47. Greatest weight at birth in relation to body weight in adult life
48. Most retarded skeletal maturity at birth
49. Longer growth period and slower rate of development
50. Longer life span.

"There are numerous other morphological and particularly physiological characters in which man differs from the anthropoids, and an even larger number in which both man and the anthropoids differ from the Cercopithecidae or non-anthropomorphous catarrhines (Old World Monkeys)". (*M. F. Ashley Montagu*, op. cit. p. 84.)

But not the physiological differences between man and ape show man as the *Homo sapiens*. Much more the psychic characteristics are those which reveal that man is totally different from any animal. It is this human spirituality which forms and organizes the human body accordingly.

VI. CONCLUSION

From the combination of human genetics, physical and cultural anthropology pre-history and palaeontology emerges the following picture : The fixed limits between creation and evolution would be these :

1. According to geophysics and astrophysics, the origin of the first matter and energy requires a creation through an out-of-the-world-creator because the existence of eternal matter and energy is impossible and contradictory. Also the law of entropy excludes the possibility of the existence of an eternal matter. Therefore, a *creatio ex nihilo* (creation from nothingness) was required to bring out the first matter.

2. The once created matter and energy evolved by intrinsic laws and forces, which came into existence by the same creative act, into the various sun-systems, the macrocosm, and the atom-systems, the microcosm. Thus our earth developed till the conditions became suitable for life. During this process, evolution was, and is, the effective cause.

3. Because an inorganic atom is not able to change by itself, through its intrinsic power, into an organic protein-molecule which is the basis for life, the very first life demands again a creative act to come into existence. This creation is, however, not a creation from nothingness because it pre-supposes the existing matter. This event is proved through the sudden appearance of fossils as evidence of the living kingdoms in the Algonkian epoch, revealing that the various Phyla, Classes, Orders and Families of animals and plants came into existence simultaneously and abruptly without any intermediate stages. Again the various, contemporaneous Phyla are so totally different in their fundamental structure, that a gradual evolution from each other requires such an immense interval of time which is not available within the span of the life-period on earth as we proved in detail above. It is not a question of whether it was possible or not for all the different Phyla to develop from one single cell only. There are, of course, many possibilities. But we have to prove it by the facts alone ; and these are the fossil records which prove the following: The various Phyla sprang up simultaneously and abruptly, thus requiring a creative act to come into existence ; e.g. the one cell animals, the moluscs, the worms, the brachiopods, the spiders, etc. More or less all the Phyla are represented already in the Algonkian time, that is about one milliard years ago.

Not only the Phyla arose simultaneously but also their Classes. Therefore the same causes determined the Classes of animals and plants because their ground-plans of structure are essentially different. Consequently, within the Phylum of the vertebrates the fishes, the reptiles, the amphybians, the birds and the mammals

could not have evolved from each other. As a matter of fact, the Classes also appeared suddenly and abruptly without transitory stages. As such, they also required a creative act to come into existence.

Like the Phyla and the Classes, the various Orders exist at the same time and are constructed at the basis of a characteristic order-type ; e.g. the Order of the beast of prey (cats) and of the Primates (lemurs) at the Palaeocene epoch of the Tertiary period. The Orders are sub-divided into Families which rely on a fixed habitus—or form-type ; for instance, the Families of the apes and the monkeys which are entirely different in their construction. As soon as the Phylum sprang up, its sub-division into Classes, Orders and Families were there ; of course, at the beginning not all the Classes, Orders and Families existed. Some of them arose later in a sudden appearance. They belong to the Phylum vertebrates which appeared for the first time in the Silurian epoch as fossil-research shows today. Their first representatives were the jawless fishes. The first mammals sprang up in the Triassic time as non-placental mammals. But the climax of the mammals started in the Tertiary epoch when all the fundamental groups appeared suddenly in the Eocene period. Is this succession in time a clear proof of evolution from each other which can be explained by Lamarck's transformation, or by Darwin's selection, or by De Vries' mutation, or by a synthesis of all the different hypotheses ? Not at all, because succession in time does not necessarily include succession in genealogy. It is not permissible to identify the morphological pedigree with the phylogenetic scheme, as we stressed already. Even the most arduous evolutionist is obliged to admit that "palaeontology in general shows very few transitory forms and far fewer real primitive forms. . . at the moment we have only sporadic and very insufficient traces for it." (Lecomte du Nouÿ, op. cit. 181 sq.) *Hic Rhodos hic saltat* (the crucial point). "Sporadic and insufficient traces" are not a solid and reliable basis for such a far-reaching hypothesis as evolution is. These traces are not at all convincing proof that Classes, Orders and Families developed from each other. On the contrary, their sudden and abrupt appearance testifies that there was no slow and gradual transition between them. I would have no objection to the development of Classes, Orders and Families if it could be demonstrated by solid and reliable facts and not by mere suggestion, presumption and guess-work.

These dissimilar family-types arose at the same time with the Classes and Orders. There are no fossils to prove that the *Tarsidae* Family, for instance, or the *Haplorhinae* (marmosets) evolved gradually from the *Lemuridae* Family.

Thus the categories, Phyla, Classes, Orders, and Families, do not show any of the transitory linkage which could testify that the higher categories developed from the lower ones. When we deny such an evolution, it does not mean that we accept a creation out of nothing. Their sudden and abrupt appearance requires a *creative evolution*, if one is allowed such a terminology—otherwise creation and

evolution are contradictory causes. *Creative evolution* means that the essential entelechies of the Phyla, Classes, Orders and Families were virtually and latently, existent and remained recessive till suitable conditions of life were present when they could become creative, active and dominant. Their creative power produced the complete new creatures. Therefore, *creative evolution* does not demand a repeated creative act of a creator; first and foremost, it never requires a repeated *creatio ex nihilo*, creation from nothing, as many extreme evolutionists falsely interpret the supposition of their opponents. It is possible that all the different categories of the various life-kingdoms were virtually and potentially created when the first life was created and that they came into activity when their time came when conditions were fit for their active existence.

Thus it becomes evident that Phyla, Classes, Order, and Families could not have developed through the usual evolution but only through a *creative evolution*, which may also be called *macromutation*. A creative power is essential to bring about the existence of these higher categories. That is the reason why the different Families of the Order Primates cannot be traced back to one common ancestor; therefore, the ape and man cannot have a common ancestor from which they differentiated and developed into two separate families. The other far more convincing reason is this : first and foremost, the human spirit demands a creative act to become existent, because it is essentially different from the sensitive entelechy of the animal, from which it could not have evolved even gradually. Without a spiritual soul as the formative principle, it was impossible to develop an animal's body into a human body. The creation of the spiritual soul is again a creation from nothing, because spirit is beyond every matter and energy and beyond any dimension of the material universe, as well as beyond the vegetative life-principle of the plant and the sensitive entelechy of the animal.

4. Different from the higher categories, which demand a creative evolution, is the Genus, the sub-division of the Family, which is constituted through adaptation and is therefore called adaptation-type. For instance, the gorilla, chimpanzee, and orang-outang are three Genus of the Family *Pongidae* which separated through adaptation and developed into these three different groups of apes. Again, through specification, the Genus chimpanzee differentiated into three species, *Pan satyrus*, *Pan calvus* and *Pan paniscus*. The species separated by further specialisation into various races and sub-races.

Mankind is classified as Family *Hominidae* comprising one Genus, *Homo*, and one Species, *Homo*, but many different *races* and *sub-races*. As we have already proved, each Family of the living kingdoms requires a creative evolution to come into existence, so man demands, as a special Family, a special creation on account of his peculiar somatic family-type. Furthermore, man requires a special creation on account of his intellectual spirit, as shown above. These are the two causes for man's special creation.

The development within the same Family into various Genus, Species and Races is effected through evolution in its proper meaning, as an inner-organic and gradual growth which is also called micromutation. Thus we accept evolution within these fixed limits, in the limits within the same Family. Because the evolution of Genus, Species, and Races was falsely used to prove a similar evolution of Phyla, Classes, Orders, and Families, the whole question became terribly confused and opinions are so contradictory.

The origin of man and the question of evolution is not of mere academic and scientific interest ; it has far-reaching implications of great consequence. Since *Darwin's* time, the hypothesis of evolution of man from animal was a dispute not confined only to scholars, but was discussed in every walk of life, as social, religious and economic factors were involved. The capitalists and the upper classes saw in the doctrine of evolution "by natural selection and survival of the fittest" a universal law of nature that they could well use to justify their own grasping practices and to cloak their injustice and crimes against society.

The reaction to this industrial tyranny gave rise to *Marxism-Communism*. *Karl Marx* was deeply stirred by *Darwin's* writings. He named the *Struggle for Life* in nature as *Class-struggle* in society. Thus he appealed to the working classes to rebel in the name of science. When he read *Darwin's Origin* he wrote: "*Darwin's* book is very important and serves me as a basis in natural science for the struggle in history." He wished to dedicate his famous book, *Das Kapital*, to *Charles Darwin*, but the latter did not agree to it. *Marx's* evolutionary teaching stirred the workers to revolt, for it was against the law of nature that the poor should remain for ever in their lower stage. The struggle for life and survival of the fittest demand that they should rise, and fight for their rights either to conquer and to gain the power to dominate, or to perish in that struggle. Such class-struggles created mistrust and hatred throughout the whole world. *Marx* denied any higher motive in man's behaviour, for everything the higher class did, they did out of selfishness and egoism, using even religion as a *holy cloak* to cover their wickedness and brutality. "Religion is the opium of the people" was consequently the well-known slogan. Thus, *Marx* carried the hypothesis of *Darwin* to its logical extreme.

Lenin, *Trotsky* and *Stalin* were the docile followers of *Darwin-Marx*, and the Russian Communist Government sponsors evolutionary research and teaching, as I have mentioned already. Evolution is the backbone of the Communist world-view. The Communists claim to be the class destined for a glorious future. Through class-struggle, they must fight to conquer the whole world, to gain the final victory of the strong over the weak.

As the attitude of the Communists is completely dominated by evolution, so the outlook of *Mussolini* and much more of *Hitler* was captivated by evolutionary

ideas producing the mania of race-superiority. The outcome of such a mentality is the idea of the *superman* who is obsessed by the belief that human history is simply a struggle for the survival of the fittest. Therefore any force, or craftiness, or crime is permissible in order to facilitate the victory of the *superman-species*. Thus, the belief that life becomes an art and science beyond good and evil; and brutality, ruthlessness, immorality and crime are glorified as virtues. (cf. J. M. Barzun, *Darwin, Marx, and Wagner*, 1942 ; J. H. Hayes, *A Generation of Materialism*, 1941).

Such a mentality is nursed, supported and strengthened by certain philosophers. Idealism teaches that man is a mere idea, is a transitional stage of the absolute spirit, whose final goal is Pantheism. A similar doctrine is suggested by Dr. S. Radhakrishnan : "The Upanishads say that evolution proceeds from matter to life, from life to consciousness and from consciousness to intellectual man which has to be developed into what is called spiritual man." (Bombay-Address on January 12, 1954).

The passage referred to is the *Taittiriya Upanishad*, Second Valli. The first *Anuvaka* states : "... From that Self (*Brahman*) sprang ether (*akasa*, that through which we hear) ; from ether air (that through which we hear and feel) ; from air fire (that through which we hear, feel and see) ; from fire water (that through which we hear, feel, see and taste); from water earth (that through which we hear, feel, see, taste and smell). From earth herbs, from herbs food, from food seed (sperm), from seed man. Man thus consists of the essence of food. This is his head, this his right arm, this his left arm, this his trunk (*atman*), this the seat (the support)." (*The Sacred Books of the East*, Vol. XV, Oxford 1884, p. 54 seq.) This is a creation myth explaining how *Brahman* emanated and evolved the different elements, from which herbs, food, sperm and man arose.

The following *Anuvakas* contain further explanations, which characterize the different stages of evolution :—

"... From food are produced all creatures which dwell on earth. Then they live by food, and in the end they return to food. For food is the oldest of all beings, and therefore it is called *panacea*. . ." (op. cit. p. 55)

"Different from this, which consists of the essence of food is the other, the inner Self, which consists of breath. . ." (p. 55)

"... Breath is the life of beings, therefore it is called *sarvayusha* (all-enlivening) . . ." (p. 56) "... Different from this, which consists of breath, is the other, the inner Self, which consists of mind. . ." (p. 56)

"... Different from this, which consists of mind, is the other, the inner Self, which consists of understanding. . ." (p. 56)

"... Different from this, which consists of understanding, is the other, the inner Self, which consists of bliss." (p. 57)

Thus a cosmological myth explains the correlation between *Brahman* and the world and the soul. Similar conceptions of a cosmological process, which results

in a theory of evolution (*parinamavada*), are related in the *Chandogya* and *Aranyaka Upanishad*. The *Vedantic* view is the unity of the whole universe and of all the creatures in *Brahman* who is the first, the middle, and the last.

It is *Sankhya* who developed a new system, a dualism of eternal matter (*prakrti* or *pradhana*) and of spiritual souls (*purusha*). *Prakrti* and *purusha* are existing since all eternity. By the impact (seeing, *darsana*) of *purusha* on *prakrti*, the process of the world's evolution started in the following order : the first step was the world-intellect (*mahat* or *buddhi*) ; the second was the individualistic ego (*ahamkara*) ; from *ahamkara* the following four arose : mind (*manas*), five senses of action, five senses of knowledge, and the five object forms (*tanmatras*) ; the *tanmatras* developed into earth (smell), water (taste), light (form and colour), air (touch), and ether (sound), the five gross elements. At a first glance, this pedigree seems to be a reverse of the *Vedantic* one, beginning with the highest plane, the world intellect, and ending with the gross elements. But *Sankhya's* start is primeval matter and eternal souls, a dualistic principle ; the *Vedantic* beginning, on the contrary, is *monistic Brahman*. There are other contradicting theories in Indian Philosophy of the origin of the world and man.

According to *positivism*, man is regarded as a mere mechanical, nature consisting of blind instincts and forces only. Existentialism believes that man's existence on earth is the only aim and with his death every thing ends.

Another great misunderstanding stems from the confusion of culture and civilization. Culture is the cultivation of the spiritual faculties and gifts of human nature. It is the development of humanity and spirituality, and the refinement of the human character and personality. Civilization, on the other hand, is the development of techniques. This is the conquest, use and control of the matter in nature. The purely materialistic civilization, as such, is no culture at all. But civilization may be called material culture, as opposed to spiritual culture. Primitive tribes, which possess a very poor material culture may have a high spiritual culture, a monotheistic religion, monogamous family life and high morals, as we have illustrated in previous chapters. The machine- and atom-age, on the contrary marks the greatest progress of civilization ; but by the use of the devices for destruction and mass-killing to gain dictatorship and to force tyranny upon mankind, to abolish personal freedom by forming shilly-shally-masses only, modern civilization reverses culture into the most cruel savagery and bloodthirsty barbarism. Absolute evolution sanctions and justifies such brutal methods, because it knows no absolute values and no objective truths. Its supreme rule is : the end justifies the means. To achieve the superman, every means is allowed. Therefore, the true knowledge of the origin of man, his real destiny and right position in the world and in the human society is most important in the theory and practice of life.

Acculturation	93sq	Darwin, Ch.	6sq,26sq,59sq,126sq
Aiyappan	85sq	Darwinism	4sq,26sq
Alpine	52	Darwinism, Neo-	128
Anatole France	45	De Beer	17
Anaximander	6	De Gross Clark, W.E.	40
Ancestor worship	72,74,92sq,104	Deluge	101,107sq
Andamanese	72sq	Demiurges	94
Animal rationale	34	Descartes	1
Animism	58,98	De Vries	27,132
Archanthropus	35sq	Dewar, S. D.	8,17,26,29,44,120
Aristotle	11,34	Diraric	52
Arrhenius	9	Dravidian	52
Artist	67sq	Dryopithecus	50sq
Ashley Montagu, M.F.	51,123sq	Dubois	35sq
Atom	1,9sq		
Australoid	54	Earth, age	115
Australopithecus	44,50sq	Earth, origin	115sq
		Egg (ovum)	12sq
Baby (immature)	18sq	Ehrenfelds, U. R.	80sq
Barclay, V.	35	Eickstedt, E.	39
Barzun, J. M.	135	Emeneau, M. B.	104
Bavink, B.	6	Empedocles	6
Belief, prehistorique	69sq	Entelechy	7sq,11sq
Bergson	126	Evolution	6sq,121sq,132sq
Bernheim, E.	61	Existentialism	136
Bhadra Kali	92		
Bhatt, Y. N.	4	Family, primitive	58sq
Boskop	43	Fertilisation	13
Brachycephaly	45sq	Fire	66sq
Brahman	135sq	Fluorine test	3,40
Brain	23sq	Florisbad	43
Bridge, Th.	61	Fontéchevade	4sq
Bloom, R.	44,125sq	Fossils	117sq
Burial	69	Frégians	59sq
Cannibalism	2sq,58	Galilee	47
Carbon 14 test	3	Galileo	1
Carnot-Clausius	115	Galley Hill	39
Caucasoid	54	Gehlen, A.	19
Cave paintings	67sq	Gene	11sq
Cell	9sq	Genotype	5sq
Cell-division	13	Gervaise	2sq
Chimpanzee	18sq	Geology and fossils	117
Chou kou tien	38	Gibraltar	47
Chromosome	11sq	Gigantopithecus	35
Communism	7,134sq	God	61sq,74,77sq,80sq,91sq
Conrad-Martius, H.	121	Golden age	89sq
Coon, C. S.	48	Gorer, G.	110sq
Copernicus	1	Gusinde, M.	59
Correns	27		
Creation, of man	84sq,106sq	Haeckel	6,16,35,41
Creation, of world	106	Haldane, J. B.	2
Cro-Magnon	2sq,48sq	Hayes, J. H.	135
Culture, prehistoric	70sq	Heidelberg man	40sq

Homo, faber	19sq	Mendelism	27sq
Homo, loquens	19sq	Menstrual cycle	12sq
Homo, sapiens	22sq, 129	Michurin	7, 28
Hooton	39	Microcosm	1
Hotu (Iran)	48	Mongoloid	54
Hunter	67	Monogamy	58
Hurst, C. C.	32sq	Monotheism	98sq
Huxley, Th. H.	6	Morgan	28
		Muk Raj Anand	4
Indo-Aryan	52	Mutation	27sq
Initiation	59sq	Mystery, of birth	68
Intelligence test	62	Mystery, of death	68sq
Intellect	59sq		
Irulas	110sq	Naga king	84sq
Iyer, L.K.A.K.	96	Neandertal	36sq, 44sq
		Neanthropus	48sq
Kadan	62, 80sq	Negroid	54
Kali	97sq	Ngandong	36
Kalin, J.	62	Nordic	52
Kanam	43		
Kant-Laplace	115	Oakley, K. P.	40
Keilor	36sq, 43	Oestrus cycle	12
Keith, A.	6	Offering, prehistoric	69sq
Kenya	43	Offerings	74sq, 79sq, 91sq, 104
Kiik koba (Krim)	45	Ontogenesis	15sq
Koenigswald, J. H. R.	36sq	Orang-outang	18
Koppers, W.	61	Oti-kult	97sq
Krapina	45sq		
Kuhn, O.	199sq	Palaeanthropus	44sq
		Palaeonthology	115sq
Lamark	132	Pandaram	75sq
Lamarkism	126	Paradise	85, 89sq
Language	20sq	Paranthropus	50sq
Leakey, L.S.B.E.	43	Pasteur	6, 9
Leibniz	45	Peking man	38sq
Lenin	7, 134	Phei	102sq
Lepcha	5, 106sq	Phenotype	35sq
Life	10sq, 116sq	Phylogenesis	15sq
Lloyd's skull	41	Pitldown	40
Lorenz	62	Pithecanthropus	35sq
		Plesianthropus	50sq
Macrocosm	1	Polyandry	58
Magic	58, 98	Polygamy	58
Maladevi (Mountain spirits)	86sq	Pongidae	56sq
Man, primitive	50sq	Portmann, A.	23
Man, modern	52sq	Positivism	136
Man and animal	58sq	Possessed	96sq
Manu	5	Posture, erect	20sq
Marx, C.	28, 134	Primates	123sq
Marxism	7, 134	Primitives (living fossils)	62sq
Masani	102sq	Primitives' spiritual power	63sq
Meganthropus	35sq	Proconsul africanus	50sq
Mendel, G.	27	Promoscuity	58
Mendelian law	28sq		

Protasius	2sq	Stalin	7,134
Psychology, primitive	58	Steinheim	41
Puberty	25sq	Stone implements	64sq
Puluga	74	Strata, geological	115sq
Pygmies	100	Swanscombe	39
Pygmoids	75	Swartkrans	44
Quinzano	43		
		Tasmanian	63
Races, primitive, as living fossils	62sq	Telanthropus	50sq
Race-differentiation	54sq	Teshik tash (Turkestan)	45
Races, fossil	50sq	Ter Haar, T.	115,120
Rays, cosmic and telluric	15	Tinbergen	62
Radhakrishnan, R.	135	Tool-maker	64sq
Record of human fossils	53	Tower	108
Record of prehistoric cultures	73	Trinil (Java)	35
Religion, primitive	58	Troll, W.	33
Rhodesian man	36sq	Tschermak	27
Routil, R.	23		
		Uexkull	18
Sacrifices	11sq	Universe	1
Sacrifice of first born child	79	Upanishad	136
Sahni, M. R.	2sq		
Sanctuaries, prehistoric	69sq	Vedanta	136
Sankhya	136	Veddas	63,75
Schmid, B.	22	Vitalist	11
Schmidt, W.	61	Vivasvat (Vivahvant)	5
Seitz	62	Wadjak	35sq
Sex-determination	14	Wallace, R.	127
Shelton, H. S.	17,44,120	Walter, J.	121
Shiva	84sq	Weidenreich, F.	35,39,56
Sinanthropus	36sq	Weiner, J. S.	40
Sivapithecus	50sq	Wendt, H.	25
Smuts, General	127	Wiegers, J.	41
Society	71sq	Wolff	128
Souls, three	101sq		
Sperm	12sq	Yama, Yima, Yi mon	5
Spiritual life of primitives	68sq	Yami	5
Spiritus incorporatus	34	Yamana	59sq
Spontaneous generation	6,9		
Spy (Belgium)	47	Zeuner, F. E.	30,120sq

