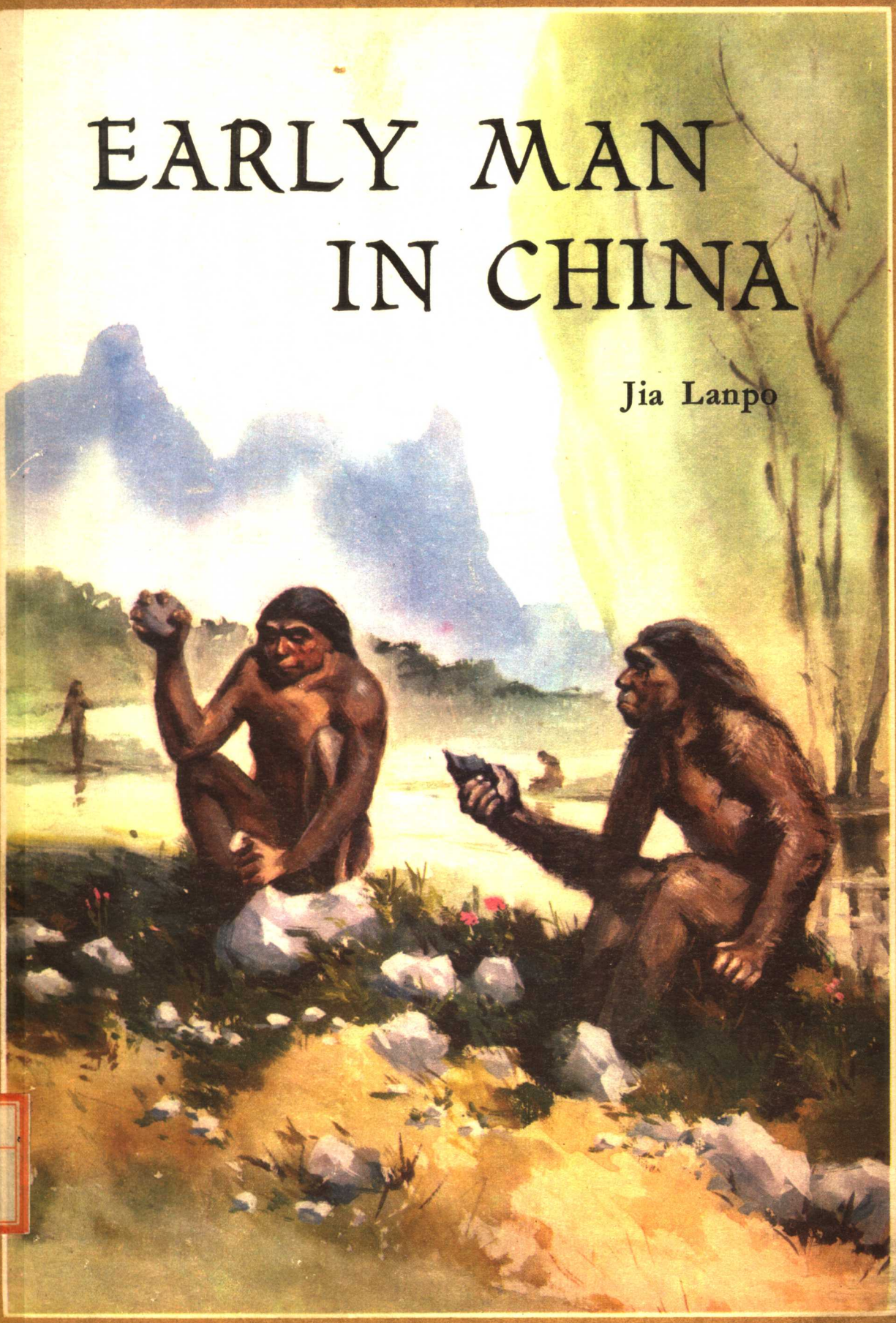
EARLY MAN IN CHINA

Jia Lanpo



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By Jia Lanpo

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FOREWORD

Man's history can be divided into three great periods on the basis of the type of tools he produced. They are the Stone Age, the Bronze Age and the Iron Age. The Stone Age is further divided into the Old Stone Age and the New Stone Age, or Paleolithic and Neolithic ages. Briefly, Paleolithic implements were manufactured by indirect percussion through an intermediate object — a stone pounder or a billet of wood or by pressure chipping. By the Neolithic Age tools were sharpened by rubbing or grinding. The manufacture involved three steps. First, by hammering bits off a large lump of stone into the desired shape of a hand-axe for example, then retouching it to produce a rough edge and finally grinding the implement against another stone to get a smooth surface.

When the Neolithic Age began about 10,000 B.P., the last glaciation was ending. The earth's climate turned temperate, the fauna and flora became more or less like those of the present, and man's features came close to what they are today. During this period, pottery, herding and farming appeared, ushering in a new era.

The geological age of this planet is estimated to be 4,500 million years, while the first appearance of man, according to available evidence, is believed to have occurred only two million years ago. There was no life on earth until one-cell organisms came into being 3,500,000,000 B.P. These living things were not identifiable as plant or animal. From them, fish developed 400,000,000 B.P., which, in turn, gave birth to amphibians 280,000,000 B.P. From the amphibians, reptiles evolved 250,000,000 B.P., and from the reptiles, mammals were differentiated 150,000,000 B.P. At a later stage, mammals branched off, one branch developed into apes, which are ancestral to man.

To get a clearer idea of these proportions of time, we may conceive the entire course of 4,500 million years of the earth's life in terms of a 24-hour day. It would then work out like this: Beginning from zero hour until 5:44 a.m., there was no life on earth. After that, one-cell organisms appeared. Subsequently, fish emerged at 9:12 p.m., amphibians at 10:32 p.m., reptiles at 10:48 p.m., mammals at 11:13 p.m., and man at 11:59 and 14 seconds p.m. Modern man, however, did not appear until the last 0.7 second of the day.

The discipline that deals with man's past, the fossils and artifacts he left and the social landscape at every stage of history, is called archaeology, and the branch of science devoted to the study of man himself — his physiological characters in various periods and their evolutionary relationships — is called palcontology. Although the two disciplines differ in their approach, they share one common aim, which is the reconstruction of the entire history of man as it had happened — how man had come into being and evolved into what he is today. As there is no recorded history of the Stone Age, this is the silent page of history. What the investigator relies on are fragmentary evidence dug up from the earth. There was a time when this period of history was considered beyond understanding. This is idealistic agnosticism. Although there are still links missing, the mist once obscuring our vision is lifting and the blurred outlines of the origin of man are now better defined through the painstaking efforts of generations of archaeologists and paleontologists.

Should the question of the origin of man be approached from an idealist or materialist point of view? These two diametrically opposite views have long been locked in fierce confrontation. Even in prehistoric times in the classless pristine society, man had tried to

find the answer to the problem of his origin, but in those days the level of production was such that a scientific explanation was out of the question. Legends were advanced to fill in the void. Nearly every nation has its myths concerning man's origin. Books of ancient China giving the story of Nüwa making man out of clay is an example. These tales became spiritual shackles holding people down.

Even now, confrontation between the idealist and materialist standpoints on the origin of man is still a living issue. This book is an attempt by a materialist to give an account of the primeval men in China.

In passing, I would like to deal with the question of how socialism has spurred the development of this branch of science raised by some readers of my book *The Cave Home of Peking Man,* published in 1975 by the Foreign Languages Press, Beijing. This requires more than a sentence or two as many factors are involved, but in my view, it is mainly the leadership of the Communist Party of China and the mass line that have brought about the progress in paleontology and other branches of scientific endeavour in this country. A brief account of my own experience may be helpful.

A few months after the liberation of Beijing in February 1949, when the hot summer still lingered, the head of the Office of Geological Survey in Beijing called on me at home to ask me to draw up a plan for resuming excavations at the Zhoukoudian site. I must admit I was amazed. "The new government has its hands full already, with all the mess left over by the Kuomintang. An undertaking like this at this moment seems quite out of place," I said to myself. Afterwards, however, I worked out a plan. But there were more surprises ahead. The first draft, and later its revised versions, were all returned with the comment that they were too modest in scope. An extensive plan was finally accepted, and funds were provided accordingly.

How does this compare with what happened before liberation? We need not mention the years during the war against Japanese aggression, for even after V-J Day, when the Cenozoic Research Laboratory in which I worked was re-established under the Kuomintang regime, we had not enough funds to make even a survey near Beijing, let alone undertake excavations.

On the other hand, after liberation, the People's Government put the Zhoukoudian Peking Man site and its surrounding hills under the charge of the Chinese Academy of Sciences, and later declared the area one of China's major government-protected cultural sites. The surrounding hills were reafforested and a small display centre for the finds was built. This was later replaced by a large exhibition hall. A road was built to connect the site with Beijing proper. It has become a place of popular interest ever since.

In 1953, the Cenozoic Research Laboratory was reorganized into the Laboratory of Vertebrate Paleontology, which later became the Institute of Vertebrate Paleontology and Paleoanthropology of the Chinese Academy of Sciences. It now has an extension office at Zhoukoudian. The staff of the institute is 60 times larger than that of its pre-liberation precursor, the Cenozoic Laboratory.

At the time of liberation in 1949, I was one of four old research staff members left. Obviously, it was impossible for us to conduct operations embracing the whole of China and do a good job of it. It was imperative to train more personnel. In the 1950s, live-in workshops to this end were established. These have turned out great numbers of professional workers for the various museums and research institutes across the country. Some provincial and municipal authorities still sponsor such workshops to train additional personnel. Recently some universities, departments of history and departments of biology offer courses in archaeology and anthropology to turn out more trained personnel.

Then, there is the mass line, which has afforded us enormous help from the general public. As Chairman Mao said: "The masses are the real heroes, while we ourselves are often childish and ignorant, and without this understanding it is impossible to acquire even the most rudimentary knowledge."* On another occasion he said: "We should go to the masses and learn from them, synthesize their experience into better, articulated principles and methods, then do propaganda among the masses, and call upon them to put these principles and methods into practice so as to solve their problems and help them achieve liberation and happiness."** We have followed these teachings and this has contributed greatly to the growing dimensions of our work. I remember in the past when we were doing field work, we never bothered to inform the local people what we were up to, so they were always puzzled and took us for queer creatures who had nothing better to do than go digging to work off their indigestion! We realize today what a tremendous reservoir of enthusiasm for a good cause there is in the people. Once they have a clear idea of the purpose and significance of our work, they helped in many ways and things are done better than we could merely by ourselves. As a matter of fact, most of the sites described in this book were discovered by local people. Every year our institute receives numerous letters from people reporting finds, and although most may eventually turn out to be merely vertebrate fossil remains, such leads have frequently resulted in discoveries of great significance.

I for one have learned a lot from the people. One unforgettable instance was when we were working on a shell fossil site near the coast in the Guangxi Zhuang Autonomous Region. We had found many perforated clam shells which looked very much like those used for ornaments unearthed at the Upper Cave Man site at Zhoukoudian. But we were told that these were used for shrimp-net sinkers. Later, in a fisherman's house where we stayed overnight, we did see many small nets with strings of these shell sinkers along the edges. Another time when we were mulling over some blunted bone arrowheads we had found, an elderly villager came and quickly solved the question. The arrowheads, he said, were used to shoot birds with exotic feather for the market. The points were purposely made blunt so as not to stain the valuable feathers with blood.

The Party uses every opportunity to educate the masses in dialectic materialism. Not very long after liberation, a full-scale exhibition on man's evolution was held in Beijing, which attracted droves of visitors. Many provincial and municipal museums and other cultural agencies have also sponsored similar exhibits for the public. This has led to the bulk of the Chinese people becoming familiar with the materialist concept of the origin of man, so much so that the idealistic concept of "god creating man" is rapidly becoming discredited. As one who has worked in the field of paleontology and paleolithic archaeology for many years, I am elated by the progress that has been made in this respect over the last three decades in socialist China.

It is the correct leadership of the Party and selfless support from the people that have enabled us to accomplish what we have in so short a time.

From 1921, when the Peking Man site at Zhoukoudian was discovered, to liberation in 1949, besides the Peking Man and Upper Cave Man homes at Zhoukoudian, only a small number of sites had come to light and the antiquities they yielded were few and fragmentary. These sites were the Sjara-osso-gol site in Nei Monggol (Inner Mongolia), the Shuidonggou

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* "Preface and Postscript to *Rural Surveys*," *Selected Works of Mao Zedong*, Foreign Languages Press, Beijing, 1967, Vol. III, p. 90.

** "Get Organized!" ibid., p. 158.

site in the Ningxia Hui Autonomous Region, the Qingyang site in Gansu Province, and a section of the Huanghe River (Yellow River) bank between Shanxi and Shaanxi provinces. They all happen to be in north China. The greater part of the country, particularly the southern area had been an unknown entity. But the past 30 years since the founding of the People's Republic, the deficiency has been swiftly and abundantly corrected. Over 50 important sites, distributed all over China, have been discovered and excavated, bringing forth a huge harvest of specimens representing various stages of man's evolution. However, in this book, only the more important ones will be dealt with.

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1. Where Is the "Cradle of Man"?

Probably because of my work, I have often been asked: Where did man first emerge? This is indicative of the widespread interest in this subject. I would like to start off with my own views, which might help the reader to a better understanding of the early man of China.

A simple answer is not enough; evidence is necessary for a fully satisfactory one. Fortunately, in the last 50 years or so, investigators of various countries have collected a fairly substantial amount of specimens which adds immensely to the credibility of paleontological propositions. But the interpretations based on the evidence available so far are not incontrovertible. They are unavoidably inferences. Perhaps in another generation or so sufficient material will have been amassed to upgrade the inferences to firmly grounded concepts.

What answers do we have at present on the question of man's place of origin? Paleontologists still differ. Some hold that it is Africa, others Europe, and many believe it is Asia. For many years contention has been centred on these three continents, while Antarctica, Oceania and the Americas have not been considered at all. Discounting the Antarctica, the earliest reliable evidence unearthed in North America merely goes back less than 30,000 years and in South America, the sites in Venezuela have yielded specimens of no more than 14,000 years in antiquity. The further down the south of that continent, the shorter the history of the evidence. Human fossil remains at the southern tip is only some 10,000 years old. In Oceania, no cultural objects older than 20,000 years have yet been found.

Europe was once claimed to be the place of man's origin when the first discovery of Paleolithic industry was made there in the 1830s, and a chronology of the Paleolithic Age of Europe was compiled by the end of the 1860s. But, up to now, taking the world as a whole, Europe has yielded much less human fossils and artifacts of great antiquity than Asia and Africa.

Africa is the home of the gorrilla and chimpanzee which are close to the human species. Since the 1920s, more anthropoid ape and early man fossils have been found on that continent, giving rise to high popularity of the thesis that man had first evolved in Africa. But Asia is the place which has yielded the greatest number of fossils of simian species that had not known tool making but are most akin to man.

The thesis that Southern Asia is man's brithplace seems more tenable. As Frederick Engels held: "Many hundreds of thousands of years ago, during an epoch not yet definitely determinable of that period of the earth's history which geologists call the Tertiary, and most likely towards the end of it, a particularly highly-developed species of anthropoid apes lived somewhere in the tropical zone — probably on a great continent that has now sunk to the bottom of the Indian Ocean."* This assertion on the location as well as geological age has been corroborated by later finds consisting of fossil remains of *Ramapithecus* (Rama Ape) of Upper Miocene and Lower Pliocene, the human fossils of the Lower Pleistocene, and the geographical distribution of cultural sites contemporaneous with the last.

* *The Part Played by Labour in the Transition from Ape to Man*, FLP, Beijing, 1975, p. 1.

Of all known ape fossils, those of *Ramapithecus* have attracted the most attention. This generic name was first given to the owner of a hominid-simian right upper-jaw fragment found in 1933 by a local resident in the Siwalik Hills in northern India. Many anthropologists have since then considered this genus as a whole to be the ancestral basis from which modern man evolved, and taxonomically, some scholars have frankly placed it under Hominidae.

Fossils of a similar type have been found in Upper Miocene or Lower Pliocene deposits in Kenya, East Africa and were given the generic name *Kenyapithecus* (Kenya Ape) in 1962. The evidence consists of only upper and lower jawbones and teeth.

In 1957 and 1958, at Xiaolongtan, Kaiyuan County, Yunnan Province, five fossil teeth were unearthed successively in Lower Pliocene coal seams. To these Professor Wu Rukang gave the name *Dryopithecus kaiyuanensis* (Kaiyuan Oak Ape), but further studies resulted in grouping the 1957 Kaiyuan finds with the fossils collected in Kenya and India under one generic name, *Ramapithecus punjabicus* (Punjab Rama Ape). Although the diversity of views on the taxonomical classification of *Kenyapithecus* is not yet resolved, this grouping has provided a more creditable outline of the evolutionary lineage from ape to man.

It is generally believed that *Ramapithecus* lived in tropical or semi-tropical forest and savanna areas. Members of this genus are in general 1.1 to 1.2 metres in height, with a short face, vaulted palate bone, and teeth and upper and lower jawbones similar to that of *Australopithecus* (Southern Ape). As the dentition shows many characters like that of *Homo sapiens* in its rudimentary form, the genus can nearly be identified as the precursor of *Homo sapiens* who lived 15-10 million years before the present. There is no evidence on hand to show whether *Ramapithecus* walked with an erect gait, as no cranial and pelvic fossils have been found. Nevertheless, since *Australopithecus* has been shown capable of doing so, his lineal precursor *Ramapithecus* may be inferred as being able to walk in a transitional semi-erect gait. No sites have yet yielded any artifacts to show that this genus could make tools.

Among all known ape fossils, *Ramapithecus* is the closest to man, possessing more human characteristics than any other genera. Judging by this fact and the period in which he lived, he may be considered as man's simian ancestor who had inherent qualities enabling him to evolve into man. He had crossed the threshold into the stage of hominids.

Increasingly more evidence has been unearthed to show that man's birth place is Asia. Recently, fossils of *Ramapithecus* have been discovered at sites in Pakistan and in Lufeng County (25.7N, 102.7E), Yunnan Province, China. A Pliocene coal seam at the latter site has yielded an almost complete mandible and a few teeth in association with a good collection of mammalian fossils. These specimens are under study. We have only to look at the map of the world to see how *Ramapithecus* fossils and the early Pliocene cultures are distributed. The westernmost site which has yielded *Ramapithecus* remains, if *Kenyapithecus* is included, is Fort Ternan (0.12S, 35.21E), Kenya; the Siwalik Hills (31N, 77E) site in northern India is in the centre, and the easternmost site is at Xiaolongtan, Kaiyuan County, Yunnan Province, China. Connecting these three points, we get a triangle of unequal sides, with its central area in southern Asia. This roughly corresponds to what Frederick Engels had observed.

The sites yielding Lower Pleistocene human remains and cultural relics are located around this triangle. These were Sterkfontein (26.03S, 27.42E) and Taung (27.32S, 24.45E) in South Africa on the southwesternmost side; the Grotte Du Vallonnet at Menton (43.49N, 7.29E), France, on the northwesternmost side; Xihoudu Village, Ruicheng (34.41N, 110.17E), Shanxi Province, China, on the northeasternmost side; and Sangiran (7S, 112E), Java, Indonesia, on the southeasternmost side.

According to available evidence so far, the vast area of southwestern China is within this region where man first appeared. In Yunnan, not only *Ramapithecus* fossils have been found, but teeth and lithic culture of Yuanmou Man dating back to Lower Pleistocene (about 1.7 million years B.P.) have been unearthed as well, which is very revealing evidence.

Neither can the Qinghai-Tibet Plateau be ignored as a possible place of man's origin. In the Tertiary period, the geographical features of this region were quite different from today. Successive explorations in the Qomolangma (Jolmo Lungma) area carried out under the auspices of the Chinese Academy of Sciences have produced abundant scientific data. We know from the flora here that in the Upper Pliocene, the ecological environment in the Mount Xixia Bangma region at that time was marked by sub-tropical climate with a yearly mean temperature of about 10°C and precipitation around 2,000 mm. (See Guo Xudong's paper in *Scientia Sinica*, 1974, No. 1). In 1975 at a site in the Jilong Basin, which is 4,100-4,300 m. above sea level, on the northern slope of Mt. Xixia Bangma in the middle section of the Himalayas, fossil remains of the Pliocene three-toed horse (*Hipparion*) were found. This species of forest-grassland dweller is at home in a temperate climate. Sporo-pollen analysis has also produced evidence of a flora that included *Loropetalum*, palm, quercitron, goosefoot, cedar, pea and other sub-tropical plants, which tallies with the climatic conditions shown in the composition of local clay minerals. A geological report made on April 16, 1977 by a young geologist Chen Wanyong concluded: "In the Pliocene the Himalayas were about 1,000 metres above sea level and not as pronounced a barrier to the monsoon from the Indian Ocean as it is today, hence both the south and north slopes were benefited by that seasonal, warm, moist wind. It can be safely said that the Himalayas and the Qinghai-Tibet Plateau have since the Pliocene been rising at the rate of approximately 0.025-0.03 mm. per year, with an obvious higher rate of uplift after the Middle Pleistocene. The present-day elevation is at least 3,000 metres higher than in Pliocene times." This information is of great value. It suggests that during the transition from ape to man, the Qinghai-Tibet Plateau was a region still suitable for the evolution of higher Primates, which makes the region a hopeful place for seeking missing links in the evolution of man.

For reasons stated above, I am for the assertion that man's place of origin is in the southern part of East Asia.

(1) *Who Was the Earliest Ancestor of Tool-Making Man?*

In 1924 kiln workers in South Africa (Azania) found in a cave near the railway station at Taung, 80 kilometres north of Kimberley, the skull and a natural endocranial cast of an immature individual which show features of both the anthropoid ape and Hominidae. Except for the greater part of the skullcap, the upper and lower jawbones and dentition are well preserved. Simian in appearance, the specimen has a number of structural features approximating closely to the Hominidae. This specimen of an ape of great antiquity unknown until then was given the name *Australopithecus africanus* (African Southern Ape) by the Australian Professor R. A. Dart. It was reputed then to be the ape nearest to man.

Over the half century since this discovery, similar types of fossils have been found in Africa and elsewhere in the world. These include: Sterkfontein, Kromderaai, Makapansgat and Swartkrans in South Africa, Olduvai Gorge in Tanzania, Kanam in Kenya, Chad and Tell Ubeidiya in Palestine. The most significant among these is the discovery made at the Olduvai

Gorge site. It is a fairly complete skull imbedded in the first layer of the gorge bottom. The fossil shows a low vault, prominent brow ridge, large facial skeleton, relatively small incisors but robust cheek teeth and a well-developed sagittal crest. It was found by Mrs. Leakey and her husband, who first gave it the name *Zinjanthropus* (Eastern African Man). In the same stratum were tools fashioned from pebbles, from which comes the term "pebble culture" or "Olduvai culture." Along with these were remains of small amphibians, reptiles, rodents and fish.

In 1960, in deposits about 270 m. away from the site and some 60 cm. lower than the stratum that yielded the *Zinjanthropus* skull, more Hominidae remains were found, consisting of immature and adult individuals. Judged from the much lighter and smaller skulls, the new hominid shows a closer approximation to man than *Zinjanthropus*. To it the Leakeys gave the name *Homo habilis* (Able Man). Found in association with these were stone tools, worked animal bones and fossils of tortoises, water birds and sabre-tooth tigers.

Though a variety of names have been given by authorities to the fossil material collected in Africa, they are now mainly defined under the subfamilial term australopithecinae, and most of them are regarded as belonging to the genus *Australopithecus*. Some paleontologists have lumped *Homo habilis* of Olduvai Gorge and *Meganthropus paleojavanicus* (Giant Man) found in the Djetis stratum, Java, into the australopithecinae, but the majority holds that *Homo habilis* is taxonomically correct and recognizes it as the earliest representative of man's ancestor capable of making stone tools.

Over the years, more remains of the *Australopithecus* have been discovered. The collection consists of more than 90 individuals, ranging from nearly complete skulls to lower jawbones, teeth, broken shoulderblades, arm bones, hand bones, pelvic bones, leg bones, and foot bones, of both sexes and all ages. The skulls are characterized by their protruding snout, absence of a chin eminence, and flat and low-vaulted skullcap and receding forehead, which give the owners an ape-like look, but they have a mean cranial capacity of 600 C.C., which is greater than that of any anthropoid ape, and in some individuals the brow ridges are not prominent. The dentition conforms to the hominid type, the big cavity at the cranial base (*Foramen magnum*) is positioned nearer to the forehead and much lower down than apes, indicating erect bipedalism. This is corroborated by pelvic features and strongly suggests that they are not really apes.

The australopithecinae survived for a very long period. The earliest ones appeared over three million years ago, while the most recent, one million years or less. A small number persisted into the time of Peking Man. Such overlapping of generic types is common in animal species, too.

Known hominid fossils of the Lower Pleistocene are so morphologically disparate that there is taxonomical confusion on the genus level. This is one major cause of the controversy over naming them australopithecines. However, efforts in recent years have resulted in their recasting into two general morphological types, *Australopithecus africanus,* or Gracile African Southern Ape, and *Australopithecus robustus*, or Robust Southern Ape. Many authorities hold at present that the australopithecinae, which include *Homo habilis*, were the first toolmakers ancestral to man. But others assert that the line begins with *Homo habilis* through *Homo erectus* (Erect Man) which includes *Pithecanthropus pekinensis* (Peking Man) and finally to *Homo sapiens*. And although *Australopithecus robustus* could indeed make crude stone implements, this genus was morphologically so specialized that it became extinct by the time *Homo erectus* appeared on the scene. The genus Eastern African Man is a case in point.

In theory, the line of hominid evolution must have begun at a much more remote time than when *Homo habilis* lived, which was around 1.7 million years ago. In this period, the hominids had already been fanning out far and wide from their centre of origin, and by the time-scale of evolutionary change this must have taken quite a long time. In view of this, man's history could very well date back to some three million years.

The ability to fabricate implements is the basic criterion by which man and ape are distinguished. So long as a creature knows how to strike a stone with another to make a tool, no matter how primitive and crude this tool may be, the maker would have to be accepted as hominid, and the history of man began with him. As Frederick Engels has observed: "No simian hand has ever fashioned even the crudest stone knife."*

Australopithecinae have been referred to as "anthropoid apes approximating most closely to Hominidae," but their ability to make tools and their discovery at more than one site should make it more fitting to consider them as "Hominidae approximating most closely to anthropoid apes." The generic name *Australopithecus* was established half a century ago before artifacts were found in association with their fossils. These later finds of tools should have invalidated this name, which has been retained only through force of habit. Many authorities, however, have accepted their new zoological classification of Hominidae, to which man belongs.

(2) How Did Apes Evolve into Man?

The causes that made the hominid evolutionary sequence possible have been generally regarded by scholars to be external, such as crustal uplifts, volcanic eruptions, dehumidification of climates, etc. But these alone do not suffice, for there must be factors within the creatures themselves that enabled them to adapt to changing environments. Chairman Mao said: "Materialist dialectics holds that external causes are the condition of change and internal causes are the basis of change, and that external causes become operative through internal causes."** This truth gives us the key to solving the problem. Then what are these internal causes in apes changing into hominids? The following are, in my view, necessary for the change to take place:

— For part of their time, they must have lived on the ground, adapting themselves from arboreal to terrestrial living. That is, they constantly moved about on the ground where the time they spent was likely to be longer than in the trees — a necessary condition to free their hands.

— Could sit with hands free, like anthropoid apes do today, and occasionally stand erect or walked with bipedal gait which relieved the hands from the function of walking.

— Must have known how to use natural objects, such as a stick, or rock for a purpose, for self-defence or obtaining food.

— Must have relatively developed minds able to receive impressions from the objective world and turning them into conceptions, however crude.

— Could see straight ahead which would enlarge their vision and power of observation.

— Must have nursed their young longer so that their offspring would have time to develop mental faculties and learn the experience handed down to them.

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* Ibid., p. 3.

** "On Contradictions," *Selected Works of Mao Zedong*, FLP, Beijing, 1975, Vol. I, p. 314.

— Multiplication of the species must have reached a point that a population had come into being and the individuals lived gregariously, as described by F. Engels: ". . . Our simian ancestors were gregarious; it is obviously impossible to infer that man, the most gregarious of all animals, is descended from nongregarious immediate ancestors."*

— Must have eaten plant food as well as meat. The earliest tool-makers, the australopithecinae, were meat-eaters and hunters. It is said that over 10 million years ago *Kenyapithecus* already knew how to use a stone to crush bones to get at the brain and the marrow.

— Must have used voice and gestures to express themselves, call it the faculty of speech if you like, however undeveloped and painstaking. This may very well be the rudiments of language.

. . . . . .

Of course, external factors are needed to bring about the transformation. "In a suitable temperature," Chairman Mao pointed out, "an egg changes into a chicken, but no temperature can change a stone into a chicken, because each has a different basis."**

Then what was this external cause which brought about the transformation of ape into man? Inferences are many, but in sum they boiled down to a change of climate. As to this, the glaciation theory seems to be more widely accepted.

Judging by the evidence at hand, the earliest tool-making hominids appeared over two million years ago, but not over the three-million-year mark, when the Pleistocene began.

The Lower Pleistocene epoch of 3 million to 1,000,000 years B.P. saw more great changes on earth than any other epoch in geochronic geology. Glaciation occurred several times, which had a strong impact on all organisms including the precursors of men. During these tremendous changes, only species which could adapt themselves to the new environment managed to survive and develop along new directions.

2. *Early Man of China*

(1) *Our First Encounter with Yuanmou Man*

This was an encounter of extraordinary significance. For details of the discovery, I called on the participants a number of times and studied their notes, including unpublished ones. This is what I have gathered:

It happened in 1965. When the Chengdu-Kunming Railway was being planned, the Chinese Institute of Geology dispatched a survey team to the Yuanmou Basin in Yunnan Province to obtain Quaternary geological and seismic data needed for the project and the development of the entire southwestern region of China. Being strangers to the locality, the team members made inquiries among the local people for clues on fossil-bearing sites. And instrumental in bringing about this encounter with the Yuanmou Man was an old cowherd.

When asked whether "dragon bones" had been seen in the vicinity, the old man answered without a pause, up in "Ten Dragon Pass," and pointed in the direction of the place. Ten Dragon Pass was the entrance to a gully leading into Upper Nabang Village, five kilometres

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* *The Part Played by Labour in the Transition from Ape to Man*, FLP, Beijing, 1975, p. 4.

** "On Contradictions," *Selected Works of Mao Zedong*, FLP, Beijing, 1975, Vol. I, p. 314.

southeast of the county seat of Yuanmou (25.38N, 101.58E). Quantities of "dragon bones" had been found there. The local people were interested in these bones for medicinal purposes and had collected them for years. These "dragon bones" were mammalian fossils.

The team lost no time. They went straight to where the old man had pointed and set up camp. The next day, they got up at the crack of dawn as usual and began work, examining geological phenomena, making geologic cross-section sketches and searching for fossils layer by layer. Finds were almost made daily and with the help of local inhabitants and their children, they amassed a sizable collection of specimens.

May Day is a big holiday in China, but this team of geologists did not stop to celebrate it. They went fossicking for fossils in a gully one kilometre to the west of the village. On a mound there they encountered Yuanmou Man. The land here was cut by a gully which left two walls standing exposed to erosion by the elements. The geologists could see fragments of mammalian remains standing out in the two walls. They were important clues for locating fossils.

Strange as it may seem, but at five o'clock that afternoon Qian Fang, a young geologist, saw signs of fossils at the base of a four-metre-high mound. Using the pointed end of his geological hammer, he began carefully to loosen the earth. He was startled by what he dug out. "Aren't these human incisors?" he cried, staring at the find. Two colleagues ran up to him. They took one look, and then all three capered about in great excitement. There was no wine, so they celebrated this extraordinary discovery with water from their flasks. This marked the first meeting with the representatives of the earliest hominid inhabitants on the continent of China.

Who Was the Owner of the Incisors?

Back in Beijing, the team handed the incisors to Hu Chengzhi, paleontologist of the Museum of Geology of the Academy of Geological Sciences. The results were published in 1973 (see *Acta Geological Sinica,* No. 1). The following is in part based on Hu's paper.

The two teeth are central upper incisors, one left, the other right, belonging to one adult. The crowns are well preserved, but the tips of the roots are slightly damaged. Highly fossilized, the teeth appear light greyish and there are cracks filled with brown clay on the surface. The teeth are big and strong, flat on the buccal surface and complicated on the lingual surface, distinctly different from the incisors of *Homo sapiens,* indicating their remote antiquity. According to Hu Chengzhi, they approximate closely to the incisors of *Pithecanthropus pekinensis* (Peking Man) at Zhoukoudian in their large size, robust build and complex pattern but differ in having a broader cutting edge, tapering roots and being of roughly triangular shape as seen from the lingual or buccal surface against the roughly square form of Peking Man's. He was given the name *Homo erectus yuanmounensis* (Yuanmou Erect Man), or Yuanmou Man for short.

A point of particular interest is that the two incisors have deep shovel-shape lingual surfaces similar to that of Peking Man's. Anthropologist Franz Weidenreich, in his study of Peking Man's teeth, pointed out in the 1930s the kinship of this early genus to the modern Mongolian race. This fact has attracted the attention of many other authorities too, as shovel-shape upper incisors are a dominant characteristic of the modern Mongolians. And since this is a feature especially obvious and prominent with *Homo* fossils found in China, it arouses our attention. Further studies made on these two incisors by paleontologists Zhou