

# nature

The Living Record of Science

《自然》百年科学经典



(英汉对照版)

## 第四卷

总顾问：李政道 (Tsung-Dao Lee)

英方主编：Sir John Maddox  
Philip Campbell

中方主编：路甬祥



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**Volume IV**  
**(1946-1965)**

# Significance of the Australopithecinae

W. E. L. G. Clark

## Editor's Note

The Second World War inevitably put a stop to the previously avid search for evidence for the antiquity of human beings. As if to display the eagerness of palaeontologists to resume their previous work, Sir Wilfred Le Gros Clark, by then the doyen of British palaeontology, wrote the following article for *Nature* in which he expressed enthusiasm for the work of Raymond Dart and in particular for Dart's identification of the Taungs skull as a representative of the genus *Australopithecus*. He also urged further research in southern Africa for additional specimens.

IN 1924, the immature skull of a large ape-like primate was discovered in some lime workings at Taungs in the valley of the Harts River, South Africa. It was briefly described by Prof. R. A. Dart, who regarded it as representing an extinct race of apes intermediate between living anthropoid apes and man. To this extinct race he gave the name *Australopithecus africanus*. There followed a mild controversy on the interpretation of this fossil, but many anatomists quite properly preferred to wait before committing themselves to definite statements until a full and systematic report on the original remains should appear. Twelve years later, Dr. Robert Broom, who had decided to search for more remains of *Australopithecus*, paid a visit to a cave at Sterkfontein, near Krugersdorf. Here he found portions of skulls and jaws of a fossil primate similar to *Australopithecus* but (in his opinion) sufficiently distinct in some of its characters to be referred to a separate genus. He called it *Plesianthropus transvaalensis*. Then, in 1938, the remains of what were taken to represent still another type, called by Broom *Paranthropus robustus*, were brought to light at Kromdraai, two miles east of Sterkfontein. Thus there are now available for consideration three series of extinct ape-like primates from South Africa, which are believed to be representatives of one sub-family, the Australopithecinae. Excellent casts of the skull of *Australopithecus* have been available in Britain for many years now, and during the course of his excavations since 1936 Dr. Broom has been extremely generous in distributing casts of most of the valuable material which he has collected. Thus anatomists in Britain have for some time had this sort of evidence before them. Now there has appeared the long-awaited report on the Australopithecinae by Dr. Broom and Dr. Schepers<sup>1</sup>. In this monograph, which is abundantly illustrated and incorporates numerous comparative studies, Broom deals in considerable detail with the osteological material, while Schepers discusses the endocranial casts. Apart from the obvious fact that access to the original material is really necessary to complete the evidence on which to base a considered opinion, it is now possible, at least in general terms, to assess independently the significance of these remarkable fossils.



# 南方古猿亚科发现的意义

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## 编者按

第二次世界大战无疑使先前急切寻找古人类证据的工作停滞下来。似乎是为了表示古生物学家们对他们以前的工作又恢复了热情，时为英国首席古生物学家的威尔弗雷德·勒格罗·克拉克爵士在《自然》上发表了这篇文章，文中他对雷蒙德·达特的研究工作，尤其是对达特把汤恩头骨鉴定为南方古猿属的代表表现出极大的兴趣。为得到更多的标本他还强烈主张在南非进行更进一步的研究。

1924年，在位于南非哈茨河流域的汤恩，人们在一些石灰岩矿区内发现了一种类似猿类的大型灵长类动物的幼年个体头骨。达特教授对其进行了简要描述，他认为这代表了一种已经灭绝的介于现存类人猿与人类之间的猿类。他将这种已经灭绝的猿类命名为南方古猿非洲种。随后产生了少许争论，但许多解剖学家在作出他们最终判断之前明智地选择了等待，等待一份关于这类化石详尽而系统的研究报告的发表。12年后，致力于搜寻更多南方古猿化石的罗伯特·布鲁姆博士考察了克鲁格斯多普附近的斯泰克方丹的一个洞穴。在这里他发现了类似于南方古猿的灵长类动物的部分头骨和颌骨化石，但是（他认为）这些化石所具有的一些非常独特的特征使之能被划分为一个独立的属。他把这些化石命名为德兰士瓦人。随后在1938年，在斯泰克方丹以东2英里的克罗姆德拉伊发掘出的化石又被用来代表另一个种类，布鲁姆将其命名为粗壮傍人。因此现在可以对来自于南非的3组已经灭绝的类似猿类的灵长类动物化石进行研究，这些化石被认为属于同一个亚科，即南方古猿亚科。多年以来，在英国就可以得到极好的南方古猿头骨模型，而且自从1936年布鲁姆博士开始他的发掘工作以来，他一直都极为慷慨地分发出大部分他所收集到的极其珍贵的化石的模型。因此一段时间以来，英国的解剖学家们已经在使用这一类证据了。现在期盼已久的由布鲁姆博士和舍佩尔斯博士合著的关于南方古猿亚科的研究报告终于公之于世<sup>[1]</sup>。这份专题论著图片丰富，并且结合图片进行了大量对比研究。在报告中，布鲁姆对骨骼材料做了非常详尽的论述，舍佩尔斯则主要对颅内模进行了论述。显而易见的事实是确实需要通过原始的化石标本来获取证据以便在此基础上建立一个成熟的学术观点，除此之外，至少现在有可能在大体上对这些著名化石的意义独立地作出评价。

Dr. Broom has demonstrated beyond any doubt at all that the Australopithecinae are extremely important for the study of human evolution, since they present an astonishing assemblage of simian and human characters. Such an assemblage, indeed, might well be postulated, entirely on indirect evidence, for hypothetical ancestors of the Hominidae. Thus it should be said at the outset of this review that Dart's original interpretation of the *Australopithecus* material has in several respects been completely vindicated. Some of the most outstandingly human features of the Australopithecinae are undoubtedly those of the teeth and jaws. In both the deciduous and permanent dentitions, the incisors and canines are of human rather than simian proportions and pattern. The deciduous premolars are quite similar to those of the human child, while the permanent premolars, though very large, have the distinctive human pattern. The permanent molar teeth, in spite of their size (which is exceeded only by male gorillas and certain large extinct apes such as *Sivapithecus giganteus*), also show some approach to man in the disposition of their cusps. The dental arcade forms a rounded curve as in man and not an elongated U-shape such as is characteristic of modern large apes. The nature of the wear of the teeth and the anatomy of the temporo-mandibular region show, also, that the teeth and jaws were used in human fashion. In contrast with the remarkably human features of the teeth, the skull as a whole resembles in its general proportions those of anthropoid apes; and in a number of details, for example, the great facial extension of the premaxilla, the contour of the mandibular symphysis, and the apparent absence of a foramen spinosum, it is entirely simian and departs widely from the human condition.

So far, then, the Australopithecinae might perhaps be regarded as a group of extinct apes, somewhat similar to the gorilla and chimpanzee, in which the characters of the dentition had developed (possibly independently) along lines almost identical with those of human evolution. But Dr. Broom has also, in his indefatigable search, brought to light some most important fragments of limb bones, which allow, and even make probable, a much more startling interpretation of these fossil remains. For example, of *Paranthropus* there are available the lower end of the humerus, the upper end of the ulna, and the talus. Judging from casts and Dr. Broom's illustrations, the humeral and ulnar fragments are entirely similar to those of *Homo sapiens*. Indeed, anatomists without the full evidence before them might well be excused if they expressed scepticism at their association with the skull of *Paranthropus*. But Dr. Broom states explicitly that the skull, jaw, humeral and ulnar fragments and the talus were all obtained from one mass of bone breccia less than a cubic foot in size, and that nowhere in any of the same deposits have remains of *Homo* come to light. Thus there seems no reason to doubt that this extinct ape-like creature had upper limbs of human proportions (at least so far as the elbow region is concerned), and which were evidently not used for brachiation. On the other hand, the talus is a remarkably small bone—in its dimensions, so far as these can be measured on a cast, it falls well short of the minimum recorded for modern races of mankind (cf. the data for Japanese women reported by B. Adachi<sup>2</sup>). Compared with the humeral fragment (which presumably belongs to the same individual) the size of the talus indicates a disproportionately small tarsus—more so, indeed, than would be expected if *Paranthropus* used its hind-limbs for the bipedal mode of progression characteristic of man. Further, the unusual medial extent of the