

nature

The Living Record of Science 《自然》百年科学经典

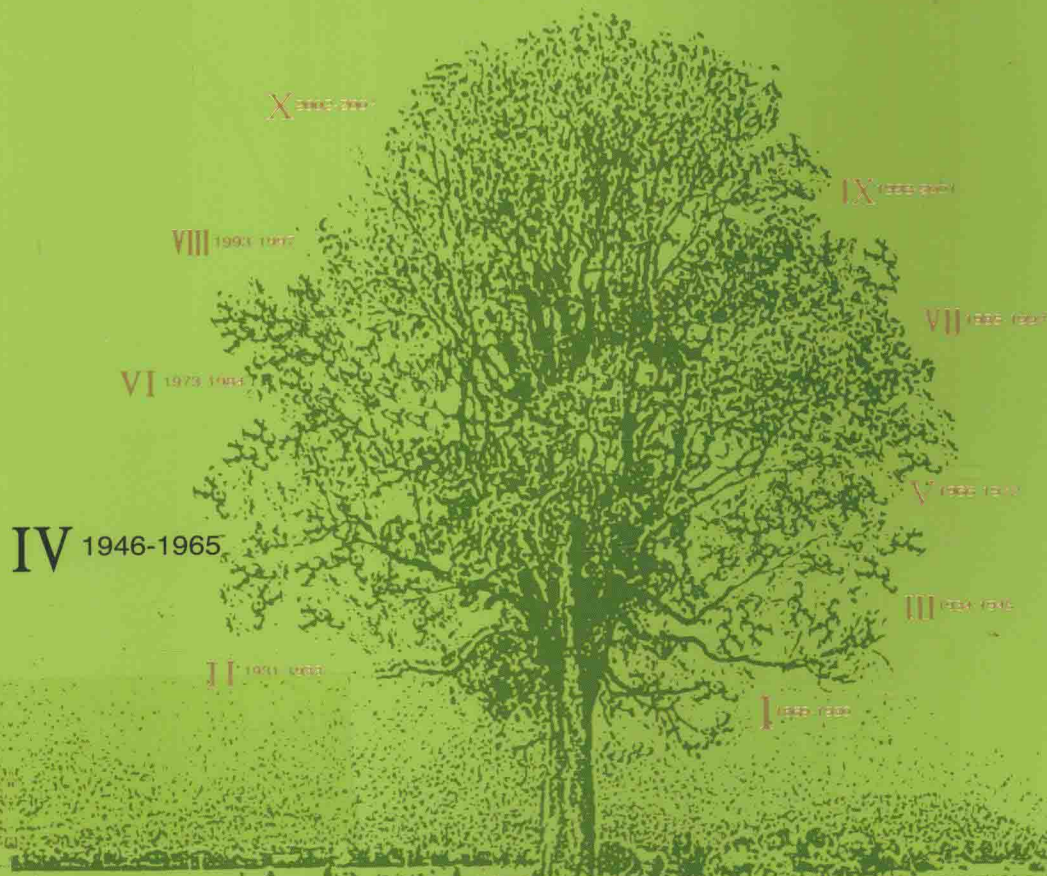
英汉对照版 (平装本)

第四卷 (上)

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



外语教学与研究出版社 · 麦克米伦教育 · 自然科研

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS · MACMILLAN EDUCATION · NATURE/RESEARCH

nature

The Living Record of Science

《自然》百年科学经典



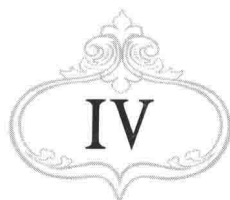
英汉对照版 (平装本)

第四卷 (上)

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



1946-1965

外语教学与研究出版社 · 麦克米伦教育 · 自然科研

FOREIGN LANGUAGE TEACHING AND RESEARCH PRESS · MACMILLAN EDUCATION · NATURE RESEARCH

Original English Text © Macmillan Publishers Limited
Chinese Translation © Foreign Language Teaching and Research Press

This edition is published under arrangement with Macmillan Publishers (China) Limited. It is for sale in the People's Republic of China only, excluding Hong Kong SAR, Macao SAR and Taiwan Province, and may not be bought for export therefrom.

图书在版编目 (CIP) 数据

《自然》百年科学经典. 第四卷. 上, 1946—1965: 英汉对照 / (英) 约翰·马多克斯 (Sir John Maddox), (英) 菲利普·坎贝尔 (Philip Campbell), 路甬祥主编. — 北京: 外语教学与研究出版社, 2016.9

ISBN 978-7-5135-8075-5

I. ①自… II. ①约… ②菲… ③路… III. ①自然科学—文集—英、汉 IV. ①N53

中国版本图书馆 CIP 数据核字 (2016) 第 225018 号

出 版 人 蔡剑峰
项目负责 章思英 王 勇
责任编辑 何 铭 蔡 迪
执行编辑 张梦璇
装帧设计 孙莉明 张子煜
出版发行 外语教学与研究出版社
社 址 北京市西三环北路 19 号 (100089)
网 址 <http://www.fltrp.com>
印 刷 北京华联印刷有限公司
开 本 787×1092 1/16
印 张 40.75
版 次 2016 年 9 月第 1 版 2016 年 9 月第 1 次印刷
书 号 ISBN 978-7-5135-8075-5
定 价 168.00 元

购书咨询: (010) 88819926 电子邮箱: club@fltrp.com

外研书店: <https://waiyants.tmall.com>

凡印刷、装订质量问题, 请联系我社印制部

联系电话: (010) 61207896 电子邮箱: zhijian@fltrp.com

凡侵权、盗版书籍线索, 请联系我社法律事务部

举报电话: (010) 88817519 电子邮箱: banquan@fltrp.com

法律顾问: 立方律师事务所 刘旭东律师

中咨律师事务所 殷 斌律师

物料号: 280750001

《自然》百年科学经典（英汉对照版）

总 顾 问：李政道（Tsung-Dao Lee）

英方主编：Sir John Maddox

中方主编：路甬祥

Philip Campbell

编审委员会

英方编委：

Philip Ball

Vikram Savkar

David Swinbanks

中方编委（以姓氏笔画为序）：

许智宏

赵忠贤

滕吉文

本卷审稿专家（以姓氏笔画为序）

于 涌	王有刚	王秀娥	王晓晨	邓祖淦	厉光烈	冯兴无
邢 松	同号文	吕 扬	朱永生	刘 武	刘京国	江丕栋
李三忠	李芝芬	李素霞	杨茂君	肖伟科	吴秀杰	吴新智
沈志侠	张 旭	张元仲	张忠杰	陈继征	陈新文	林圣龙
尚仁成	昌增益	金 侠	周筠梅	孟庆任	赵见高	赵凌霞
胡 荣	袁 峥	顾孝诚	高守亭	崔 巍	董 为	蒋世仰
熊秉衡						

编译委员会

本卷翻译工作组稿人（以姓氏笔画为序）

王耀杨	刘 明	刘晓楠	关秀清	李 琦	何 铭	沈乃澍
张 健	郭红锋	黄小斌	蔡 迪	蔡则怡		

本卷翻译人员（以姓氏笔画为序）

王耀杨	毛晨晖	尹 金	田晓阳	冯 翀	刘振明	刘皓芳
齐红艳	孙玉诚	孙惠南	苏 慧	杜 丽	李 响	李任伟
吴 彦	沈乃澍	张玉光	张立召	张锦彬	金世超	周志华
郑建全	荆玉祥	胡雪兰	钱 磊	高如丽	郭 娟	崔娅铭
彭丽霞	曾菊平	蔡则怡	樊 彬			

本卷校对人员（以姓氏笔画为序）

王帅帅	王阳兰	王晓萌	王晓蕾	王赛儿	甘秋玲	丛 岚
乔萌萌	刘 明	刘丛丛	许向科	孙 娟	孙瑞静	杜赛赛
李 四	李 梅	李 琦	李 景	李红菊	肖 莉	吴 茜
张 帆	张世馥	张亦卓	张媛媛	周玉凤	周平博	郑期彤
赵凤轩	姜 薇	郭 琴	唐 颖	黄小斌	崔天明	葛云霄
韩少卿	潮兴娟	潘卫东				

Contents

目录

Significance of the Australopithecinae.....	2
南方古猿亚科发现的意义	3
Australopithecinae or Dartians.....	14
南方古猿亚科或达特猿.....	15
Discovery of a New Skull of the South African Ape-Man, <i>Plesianthropus</i>	16
一件新的南非猿人——迤人头骨的发现.....	17
Processes Involving Charged Mesons	22
涉及带电介子的过程	23
Jaw of the Male Sterkfontein Ape-Man	38
斯泰克方丹男性猿人的颌骨	39
A Floating Magnet.....	42
悬浮的磁体.....	43
Observations on the Tracks of Slow Mesons in Photographic Emulsions.....	46
感光乳胶中慢介子径迹的观测	47
Evidence for the Existence of New Unstable Elementary Particles	62
新的不稳定基本粒子存在的证据	63
A New Microscopic Principle	74
一种新的显微原理.....	75
African Fossil Primates Discovered during 1947	80
1947年间发现的非洲灵长类化石	81
A (?) Promethean <i>Australopithecus</i> from Makapansgat Valley.....	90
在马卡潘斯盖河谷发现的一种普罗米修斯南方古猿(尚未确定).....	91
Another New Type of Fossil Ape-Man	96
又一新型猿人化石	97

Observations with Electron-Sensitive Plates Exposed to Cosmic Radiation	102
在宇宙辐射下曝光的电子敏感底片的观测	103
A New Type of Fossil Man	126
一种新型人类化石	127
New Evidence on the Antiquity of Piltdown Man	132
皮尔当人年代的新证据	133
Ape or Man?	148
是猿类还是人类?	149
Spiral Growth on Carborundum Crystal Faces	158
碳化硅晶体表面的螺旋生长	159
Determination of the Absolute Configuration of Optically Active Compounds by Means of X-Rays	164
用X射线方法测定光学活性化合物的绝对构型	165
Evidence for the Pauling-Corey α -Helix in Synthetic Polypeptides	170
合成多肽中存在鲍林-科里 α 螺旋的证据	171
A Structure for Deoxyribose Nucleic Acid	178
脱氧核糖核酸的结构	179
Molecular Structure of Deoxypentose Nucleic Acids	184
脱氧戊糖核酸的分子结构	185
Molecular Configuration in Sodium Thymonucleate	194
胸腺核酸钠盐的分子构型	195
Genetical Implications of the Structure of Deoxyribonucleic Acid	204
脱氧核糖核酸结构的遗传学意义	205
Piltdown Man	216
皮尔当人	217
Chemical Examination of the Piltdown Implements	220
对皮尔当工具进行的化学检验	221
<i>Pithecanthropus</i> , <i>Meganthropus</i> and the <i>Australopithecinae</i>	224
爪哇猿人、魁人与南方古猿亚科	225

Structural Changes in Muscle during Contraction: Interference Microscopy of Living Muscle Fibres	236
肌肉收缩时的结构变化: 使用干涉显微镜观察活体肌纤维	237
Changes in the Cross-Striations of Muscle during Constriction and Stretch and Their Structural Interpretation	248
肌肉收缩与拉伸过程中的横纹变化及结构上的解释	249
Man-Made Diamonds	264
人造金刚石	265
Errors in Diamond Synthesis	280
金刚石合成中的失误	281
Correlation between Photons in Two Coherent Beams of Light	286
两个相干光束中光子间的相关性	287
Chinese Astronomical Clockwork	296
中国的天文钟	297
Structure of Vitamin B ₁₂	306
维生素B ₁₂ 的结构	307
The Neutrino	318
中微子	319
A Test of a New Type of Stellar Interferometer on Sirius	336
一种新型恒星光干涉法对天狼星的测试	337
Production of High Temperatures and Nuclear Reactions in a Gas Discharge	348
气体放电中产生的高温和核反应	349
Co-operative Phenomena in Hot Plasmas	364
热等离子体中的协同现象	365
A Three-Dimensional Model of the Myoglobin Molecule Obtained by X-Ray Analysis	370
利用X射线分析获得肌红蛋白分子的三维模型	371
Sexually Mature Individuals of <i>Xenopus laevis</i> from the Transplantation of Single Somatic Nuclei	388
源于单个体细胞核移植的非洲爪蟾性成熟个体	389

A New Fossil Skull from Olduvai	394
来自奥杜威的新的头骨化石	395
The Affinities of the New Olduvai Australopithecine.....	408
新型奥杜威南方古猿亚科的亲缘关系	409
Stimulated Optical Radiation in Ruby	422
红宝石中的受激光辐射.....	423
Four Adult Haemoglobin Types in One Person	426
一人体内的四种成人血红蛋白	427
Gene Action in the X-Chromosome of the Mouse (<i>Mus musculus</i> L.).....	438
小鼠(小家鼠)X染色体上的基因作用	439
General Nature of the Genetic Code for Proteins.....	444
蛋白质遗传密码的普遍特征	445
Chemical Difference between Normal Human Haemoglobin and Haemoglobin-I	468
正常的人血红蛋白和血红蛋白I之间的化学差异.....	469
Fossil Hand Bones from Olduvai Gorge	474
来自奥杜威峡谷的手骨化石	475
Investigation of the Radio Source 3C 273 by the Method of Lunar Occultations.....	484
用月掩的方法研究射电源3C 273.....	485
3C 273: a Star-Like Object with Large Red-Shift	498
3C 273: 一个具有很大红移的类星体.....	499
Molecular Biology, Eugenics and Euphenics	504
分子生物学、优生学和人种改良学	505
Magnetic Anomalies over Oceanic Ridges	514
大洋中脊上的磁异常	515
A New Species of the Genus <i>Homo</i> from Olduvai Gorge.....	528
在奥杜威峡谷发现的一个人属新种.....	529
Haemoglobin G _{Accra}	542
血红蛋白G _{阿克拉}	543

<i>Homo “habilis” and the Australopithecines</i>	556
“能人”和南方古猿	557
 <i>Dimensions and Probability of Life</i>	 572
生命的维数与可能性	573
 <i>Possible Anti-Matter Content of the Tunguska Meteor of 1908</i>	 582
1908年通古斯陨石可能含有的反物质	583
 <i>Genetic Code: the “nonsense” Triplets for Chain Termination and Their Suppression</i>	 606
遗传密码: 终止翻译的“无义”三联体及其抑制机制	607
 <i>A Radar Determination of the Rotation of the Planet Mercury</i>	 630
雷达测定水星的自转	631
 <i>Rotation of the Planet Mercury</i>	 634
水星的自转	635
 <i>Time’s Arrow and Entropy</i>	 638
时间之箭和熵	639
 <i>Experimental Evidence of a Twinkling Layer in the Earth’s Atmosphere</i>	 646
地球大气闪烁层存在的实验证据	647
 <i>Opening Electrical Contact: Boiling Metal or High-Density Plasma?</i>	 658
断电接触: 沸腾的金属还是高密度等离子体?	659
 <i>Abnormal Haemoglobins and the Genetic Code</i>	 670
异常的血红蛋白及其遗传密码	671
 <i>A New Class of Faults and Their Bearing on Continental Drift</i>	 684
一类新断层及其与大陆漂移的关系	685
 <i>A Physical Basis for Life Detection Experiments</i>	 706
生命探测实验的物理基础	707
 <i>Spectral Data from the Cosmic X-Ray Sources in Scorpius and near the Galactic Centre</i>	 718
天蝎座和银河系中心附近的宇宙X射线源光谱数据	719
 <i>Positions of Three Cosmic X-Ray Sources in Scorpio and Sagittarius</i>	 734
天蝎座和人马座中三个X射线源的位置	735

A Model of the Quasi-Stellar Radio Variable CTA 102	748
类星体射电变星CTA 102模型	749
Haemoglobin J and E in a Thai Kindred	758
一个泰国家族中的血红蛋白J和E	759
Haemoglobin E in Vietnamese	766
越南人中的血红蛋白E	767
New Model for the Tropocollagen Macromolecule and Its Mode of Aggregation ...	770
原胶原大分子及其聚集模式的新模型	771
Formation of Oceanic Ridges	786
大洋中脊的形成	787
Submarine Fracture Zones, Aseismic Ridges and the International Council of Scientific Unions Line: Proposed Western Margin of the East Pacific Ridge	802
海底破碎带、无震海岭和国际科联划线: 东太平洋海隆西部边缘的推测	803
An Improved Method for the Characterization of Human Haemoglobin Mutants: Identification of $\alpha_2\beta_2^{95\text{GLU}}$, Haemoglobin N (Baltimore)	822
一种改进的研究人类血红蛋白突变体的方法: $\alpha_2\beta_2^{95\text{GLU}}$ 血红蛋白N(巴尔的摩) 的鉴定	823
The Bath-Tub Vortex in the Southern Hemisphere	836
南半球的浴盆涡旋	837
The Temperature Scale	842
温标	843
A Biological Retrospect	850
生物学回顾	851
Recent Developments in Cosmology	868
宇宙学的新进展	869
Pleistocene Glacial-Marine Zones in North Atlantic Deep-Sea Sediments	886
北大西洋深海沉积物中的更新世冰海区	887
Structural Basis of Neutron and Proton Magic Numbers in Atomic Nuclei	896
中子和质子在原子核中的幻数的结构基础	897

The International Biological Programme	902
国际生物学计划	903
New Limits to the Angular Sizes of Some Quasars	922
类星体角大小的新极限	923
Double Chromosome Reduction in a Tetraploid <i>Solanum</i>	932
四倍体茄属植物中染色体的双减数	933
Structure of the Quasi-Stellar Radio Source 3C 273 B	944
类星体射电源3C 273 B的结构	945
Character Recognition by Holography	962
利用全息术的字符识别	963
“Pink Spot” in the Urine of Schizophrenics	970
精神分裂症患者尿中的“粉红色斑点”	971
The Juvenile Hormone	984
保幼激素	985
Propagation and Properties of Hepatitis Virus	1000
肝炎病毒的繁殖及其特性	1001
Three Haemoglobins K: Woolwich, an Abnormal, Cameroon and Ibadan, Two Unusual Variants of Human Haemoglobin A	1006
三种血红蛋白K: 一种异常的伍力奇血红蛋白、两种人血红蛋白A的稀有 变体——喀麦隆和伊巴丹血红蛋白	1007
A Dense Packing of Hard Spheres with Five-Fold Symmetry	1024
具有五重对称性的硬球的密堆积	1025
Antimatter and Tree Rings	1030
反物质与树木年轮	1031
Drug-Dependence	1034
药物依赖	1035
A New Model for Virus Ribonucleic Acid Replication	1048
病毒RNA复制的新模式	1049

Virus Aetiology for Down's Syndrome (Mongolism)	1060
唐氏综合征(先天愚型)的病毒病因学	1061
Biological and Mental Evolution: an Exercise in Analogy	1064
生物进化与心理演进: 类推法运用	1065
Biological Systems at the Molecular Level	1082
分子水平的生物系统	1083
Globin Synthesis in Thalassaemia: an <i>in vitro</i> Study	1098
地中海贫血中珠蛋白的合成: 一项体外研究	1099
Reconstruction of Phase Objects by Holography	1120
用全息术实现的相位物体的重建	1121
Radio Structure of the Galactic Centre Region	1136
银河系中心区域的射电结构	1137
Formation of Hydroxyl Molecules in Interstellar Space	1144
羟基分子在星际空间中的形成	1145
Biochemistry and Mental Function	1152
生物化学与心理功能	1153
Malaria and the Opening-Up of Central Africa	1176
疟疾和中部非洲的开放	1177
Characterization of Glucose-6-Phosphate Dehydrogenase among Chinese	1190
中国人体内的葡萄糖-6-磷酸脱氢酶的特征	1191
Thymus and the Production of Antibody-Plaque-Forming Cells	1198
胸腺与抗体空斑形成细胞的产生	1199
Decay of Immunological Responsiveness after Thymectomy in Adult Life	1210
成年期胸腺切除后免疫应答能力的下降	1211
Delayed Effect of Thymectomy in Adult Life on Immunological Competence	1220
成体胸腺切除对免疫功能的延迟性影响	1221
Effect of Thymectomy in Adult Mice on Immunological Responsiveness	1226
成年小鼠胸腺切除对免疫应答的影响	1227
Appendix: Index by Subject	
附录: 学科分类目录	1235

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 Krugersdorp. 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. Schepers¹. 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

克拉克

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迹人。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^[1]。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. Adachi²). 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