News of Science

Hunters or Hunted?

During recent years, Raymond A. Dart, to whom belongs the credit of having discovered the first of the Australopithecines, has written at considerable length about the social life of these interesting and controversial "man-apes" from the early Pleistocene of South Africa. In various papers, from 1948 onward, he has pictured these creatures as fire-users, hunters, and bone-collectors (more specifically, head-hunters), and as possessing a primitive bone-tooth-horn culture. One must perforce admire the ingenuity and imagination displayed by Dart in his reconstruction of australopithecine society. Yet the data upon which his deductions are based, and hence his conclusions themselves, have proved somewhat short of convincing to at least some students of human evolution.

The evidence advanced by Dart [*Am. J. Phys. Anthropol.* N.S. **6**, 259 (1948), *et seq.*] for the deliberate use of fire by these creatures has not withstood critical analysis [Oakley, in *An Appraisal of Anthropology Today,* Tax *et al.,* Eds. (Univ. of Chicago Press, 1953), pp. 29–31; *Weekly Evening Meeting Roy. Inst. Gr. Brit.* (20 Nov. 1953); *Am. J. Phys. Anthropol.* N.S. **12**, 9 (1954); also see comments by Straus, *Science* **120**, 356 (1954)]. Moreover, competent students, such as Oakley [*Weekly Evening Meeting Roy. Inst. Gr. Brit.* (20 Nov. 1953)] and Von Koenigswald [*Proc. Koninkl. Ned. Akad. Wetenschap. Ser. B* **56**, 403 (1953)] have ascribed the accumulations of nonaustralopithecine bones found in the australopithecine deposits to the activities of carnivores, including hyenas. Yet Dart and his pupil Hughes have persisted in their attempts to dismiss the bone-accumulating hyena as a myth [Hughes, *Am. J. Phys. Anthropol.* N.S. **12**, 467 (1954); Dart, *Ann. Rept. Smithsonian Inst. for 1955* (Washington, D.C., 1956), p. 317; Dart, *Am. Anthropologist* **58**, 40 (1956)] and to attribute these amassments to deliberate, selective, collecting proclivities of the "man-apes"—this despite well-attested evidence of bone-accumulation by cave-dwelling hyenas in the Pleistocene [Zapfe, *Forsch. u. Fortschr.* **15**, 269 (1939); *Z. Gesamtgebiet Geol. u. Mineral. sowie d. Angewand. Geophys.* Suppl. **12**, 1 (1954)]. Indeed, Dart [*Ann. Rept. Smithsonian Inst. for 1955* (Washington, D.C., 1956)], with more fervor than persuasiveness, has conjured up an "osteodontokeratic culture" for the Australopithecines from these piles of bones and has reconstructed therefrom his notions of the hunting techniques of these animals. To equate the supposed weapons of the Australopithecines with those of Hercules and Samson may appeal to one who is convinced that these Pleistocene primates are his lineal ancestors; but it is scarcely justifiable.

Just as Oakley (*vide supra*) demolished the supposed proofs of australopithecine pyrotechny, Washburn [*Am. Anthropologist* **59**, 612 (Aug. 1957)] recently has presented evidence which seriously questions the reality of the so-called "osteodontokeratic culture" of the "man-apes." While looking for baboons in the Wankie Game Reserve, Southern Rhodesia, in 1955, Washburn made systematic records of the bones found in 35 recent kills of carnivores. The distribution of bones in these kills (skulls and vertebrae preponderating) caused him to conclude that the high frequency with which nonaustralopithecine skulls, jaws, and upper cervical vertebrae occur in australopithecine deposits does not necessarily constitute evidence that the "man-apes" were hunters; rather, it may be a consequence of selective eating by carnivores, for such a type of bone collection is the result of the normal eating habits of these animals. Although he emphasizes that a variety of animals may have been involved as agents in the production of these accumulations of fossil bones, Washburn is strongly inclined to the belief that hyenas were an important factor. He notes that the brown hyenas of Kruger National Park collect the heads of medium-sized antelopes, baboons, and a few carnivores. Not only are these the kinds and distribution of bones found in australopithecine deposits, but in addition, hyena coprolites have been found therein. Washburn thus concludes that it is "probable that the australopithecines were themselves the game, rather than the hunters."

Dart's "osteodontokeratic culture" hitherto was, at best, *sub judice*. Washburn's dispassionate and objective study now makes its actuality even somewhat less than improbable.

WILLIAM L. STRAUS, JR.
Johns Hopkins University

NSF Support for Life Sciences

The Division of Biological and Medical Sciences of the National Science Foundation has announced that the next closing date for receipt of research proposals in the life sciences is *15 January 1958*. Proposals received prior to that date will be reviewed at the winter meetings of the foundation's advisory panels, and disposition will be made approximately 4 months after the closing date.

In addition to funds for the support of basic research in the life sciences, limited funds will be available during the current fiscal year for the support of research facilities and programs at biological field stations. Inquiries should be addressed to National Science Foundation, Washington 25, D.C.

AEC Office in Tokyo

An Atomic Energy Commission office was opened in Tokyo, Japan, on 15 November. W. H. Pennington has been appointed scientific representative to head the office, with P. A. Roessler as assistant.

The Tokyo office will aid in the scientific and technical aspects of the rapidly expanding atomic energy developments in Japan. The new unit's activities will include liaison with the Japanese atomic energy authorities and scientists in connection with implementation of the bilateral agreement for cooperation in the uses of atomic energy. The AEC scientific representative will also assist the Department of State, the International Cooperation Administration, and the U.S. Information Agency.

Engineering Salaries

The average engineering teacher in American colleges and universities earns a salary of $6634 per year. He adds consulting and other engineering work to bring his total annual earnings to $8862. He earns more if he teaches in a privately endowed institution than he does if he teaches in a public institution, and he earns more on the Pacific Coast than anywhere else in the nation.

These figures come from a new survey by the American Society for Engineering Education of 1956 engineering salary figures originally gathered by the Engineers Joint Council. The A.S.E.E.'s

analysis was made in connection with a high-priority study of how to increase the supply of competent teachers for engineering colleges.

The survey found that average salaries for young engineers serving as instructors range from $4214 in public institutions to $4374 in privately supported schools. Department heads' salaries average $9117 and $9839, respectively. Deans earn $10,932 and $11,829, respectively, on the national average.

Of the 4000 engineering teachers surveyed, 80 percent earned income beyond their teaching salaries from the practice of engineering. Instructors earned an average of over $1000, professors from $2436 (public institutions) to $4716 (private institutions). On the average, teachers in public institutions had outside earnings of $2333, those in private institutions $3634.

Engineering teachers' salaries do not vary widely across the nation. Averages in public institutions range from a low of $4086 in the Mountain states to $6886 in the Midwest, in private institutions from $5133 in the Mountain states to $7613 on the Pacific Coast. But average annual incomes vary more, from a low of $7319 in the Mountain states to $12,500 in the Pacific states, and there is a substantial spread around the national average.

The figures released by the A.S.E.E. were based on replies from more than 4200 engineering teachers, 35 percent of the 12,000 engineers engaged in teaching in the United States. Revised salary data will be presented in a final report, together with recommendations of the Committee on the Development of Engineering Faculties. This is scheduled for release early in 1958. The A.S.E.E. project was made possible by grants from the National Science Foundation and from private and industrial organizations.

Books for Asian Students

In the past 2½ years the Asia Foundation's special project, Books For Asian Students, has sent 600,000 books to more than 1200 universities, colleges, libraries, and civic groups in Asia. These books were donated by 700 university and college groups, publishers, libraries, and individuals in the United States. The great need for books continues, as evidenced by increasing requests.

Contributions of books will be greatly appreciated. Items in every category on the university and college level, in good condition, published in 1948 or after, and works by standard authors, regardless of date, can be sent directly to: Books for Asian Students, 21 Drumm St., San Francisco 11, Calif. The foundation will reimburse donors for the transportation costs of substantial shipments to San Francisco. All contributions are tax exempt.

The Asia Foundation, a nonprofit, nonpolitical organization founded by private American citizens, supports individuals and groups in Asia who are working for the "attainment of peace, independence, personal liberty and social progress." The foundation maintains 18 offices in Asia.

Rockefeller Foundation Grants

Rockefeller Foundation grants during the third quarter of 1957 totaled $1,890,525. Grants in the field of medical education and public health amounted to $304,915; biological and medical research, $350,650; agriculture, $384,240; social sciences, $186,415; and humanities, $251,105; general appropriations totaled $413,200.

During the same period 123 fellowships that had been awarded to individuals from 30 countries and one international organization became active.

Ford Foundation Awards

The Ford Foundation recently announced grants and appropriations totaling $49,187,371 in the final quarter (July through September) of its 1957 fiscal year. The total includes $25.6 million in grants out of appropriations announced in previous quarters. Of this amount, a $24.5 million appropriation approved in March was granted during the final quarter to the Woodrow Wilson fellowship program to attract outstanding students to college teaching careers.

During the quarter the foundation completed its program in support of training and research in the behavioral sciences and mental health with grants totaling $9,819,150 to colleges, universities, and research centers. The largest award was a $5-million grant for the continued operation of the Center for Advanced Study in the Behavioral Sciences, Stanford, Calif., until August 1964.

UN Radiation Committee

The Scientific Committee on the Effects of Atomic Radiation, established by the United Nations General Assembly in December 1955, will hold its fourth session beginning 27 January 1958. The announcement of the date and agenda for the session has been sent to the committee's 15 members: Argentina, Australia, Belgium, Brazil, Canada, Czechoslovakia, Egypt, France, India, Japan, Mexico, Sweden, the U.S.S.R., the United Kingdom, and the United States.

When the committee was set up, it was asked among other things to collect all available information on the effects of radiation on man and his environment, and to develop by mid-1958 a summary and evaluation of the reports received. The first draft of this comprehensive report will be discussed at the January session.

A yearly progress report to the General Assembly that was distributed recently notes that the committee met twice in 1956 and again in April 1957. Zenon Bacq of Belgium is chairman, and E. A. Watkinson of Canada is vice-chairman. As part of its work of gathering information, the Scientific Committee so far has received 130 reports from 27 governments and U.N. specialized agencies.

Federal Research Budget

In fiscal year 1957, Federal Government expenditures for scientific research and development amounted to around $3 billion, according to a report released by the National Science Foundation. The $3-billion expenditure reflects an increase of almost 20 percent over the 1956 expenditure of $2.5 billion. The estimate is included in *Federal Funds for Science VI,* the latest in an NSF series of surveys of the Federal Government's research and development budget The NSF report includes an analysis of the Government's financial obligations in terms of administering agencies, character of work, scientific fields, and organizations performing the work.

In fiscal year 1957, the Department of Defense and the Atomic Energy Commission accounted for 85 percent of the funds. Along with these two agencies, six other agencies—the Department of Health, Education, and Welfare, the Department of Agriculture, the National Advisory Committee for Aeronautics, the Department of the Interior, the National Science Foundation, and the Department of Commerce—were responsible for all but 1 percent of the research and development budget.

More than 60 cents of every dollar for conducting research and development was obligated for development; less than 40 cents for research, both applied and basic. Basic research accounted for 8 cents.

Of the $964 million obligated for basic and applied research in fiscal year 1957, the physical sciences, including engineering, claimed 67 percent; the life sciences, 29 percent; and the social sciences, 4 percent.

Thirty-five cents of each Federal dollar for basic and applied research and development went to profit organizations, 14 cents went to educational insti-