News of Science

Power of Radar Increased

The U.S. Air Force and Columbia University have announced the development of new techniques that increase the power of radar in "extremely large, effective amounts." At a press conference John R. Dunning, dean of the Columbia School of Engineering, described the increased effectiveness as "many hundreds of times" by comparison with World War II radars. Dunning also called the work "probably the greatest single advance in radar work since the start of World War II."

The 3-year research project was carried out in the Electronics Research Laboratories at Columbia under an Air Force research contract. The sponsoring agency was the Rome, N.Y., Air Development Center of the Air Research and Development Command.

The new techniques do not actually increase the power used, but instead employ a method of "signal enhancement" which raises the strength of a radar signal reflected from an aircraft or a missile "to an unprecedentedly high level." This has particular significance for radar installations in regions like the Arctic, where it is extremely difficult to supply fuel and other facilities for producing large amounts of power.

Oreopithecus bambolii

In June of this year, I spent the better part of a week in Basel, Switzerland, studying the specimens of *Oreopithecus bambolii* which Johannes Hürzeler has assembled at the Natural History Museum from various European collections.

Oreopithecus is a fossil catarrhine or Old World pithecoid primate from the Pontian (Upper Miocene or Lower Pliocene) of Tuscany, Italy, roughly some 10 million years in age. It is a highly controversial creature which has given rise to diverse interpretations since Gervais first described the type specimen, a mandible with teeth, in 1872 [*Compt. rend. Acad. Sci.* **74** (1872)]. Some authors have regarded it as a peculiar anthropoid ape, others as an aberrant cercopithecoid or Old World monkey, and still others as a sort of *forme de passage* or link between the two preceding groups. Majority opinion, however, labeled it a cercopithecoid of some sort. There the matter rested until 1954, when Hürzeler [*Verhandl. naturforsch. Ges. Basel* 65, 88 (1954)] rescued *Oreopithecus* from paleontological oblivion by the startling claim, based on detailed study of the dentition, that this animal actually is not only a hominoid—that is, a member of the taxonomic group that includes the pongids (anthropoid apes) and hominids (man and his immediate forerunners)—but, more precisely, a primitive hominid and hence a representative of the specific evolutionary line that led to man.

The material which Hürzeler has brought together at Basel comprises the remains of at least 50 different individuals. Although teeth and jaws predominate, some important parts of the skeleton of both the trunk and the limbs are included.

The dentition of *Oreopithecus* is not, as is often claimed, of a cercopithecoid type. Indeed, it is typically hominoid, although of a generalized nature. Moreover, it is not pongid; rather, it exhibits a number of characters which can be regarded only as hominid.

Knowledge of the skull is as yet incomplete. Even so, the known portions of cranium and jaws exhibit features which suggest that the skull of *Oreopithecus* was hominid, rather than pongid, in pattern.

The available limb bones or fragments thereof (especially the proximal part of an ulna, some hand bones, and the major portion of a foot which has not yet been completely freed from its matrix) appear to be those of a hominoid more generalized in limb structure than existing pongids. In some characters they are, in fact, hominid. In other characters, the resemblance is closer to cercopithecoids than to pongids; such characters are best interpreted as generalized catarrhine ones. The present picture of the extremities, although admittedly quite fragmentary, is by no means incompatible with what might be expected in an early hominid.

Portions of the vertebral column of two animals have been recovered: (i) parts of the last three lumbar (of which the two more caudal ones are largely complete) and the first two sacral vertebrae (the second of which is fragmentary), and (ii) most of the sacrum. These are distinctly hominoid, and in no manner cercopithecoid. Indeed—startling though this suggestion may seem to be—the lumbar vertebrae are so relatively large and robust as not to exclude the possibility that *Oreopithecus* was capable of walking upright! On the other hand, their massiveness may be in the nature of a preadaptation.

It appears that the most reasonable interpretation of the available *Oreopithecus* material is that this animal not only is a hominoid but actually belongs to the hominid line of that evolutionary radiation. There is no good reason for regarding *Oreopithecus* as a pongid of any sort. Nor is it any sort of cercopithecoid, aberrant or otherwise, as has again, recently, been claimed by Remane [*Akad. Wiss. u. Lit., Mainz, Abt. Math.-naturw. Kl.*, 469 (1955); *Primatologia* **1**, 267 (Basel, 1956)] and von Koenigswald [*Riv. Sci. Preist.* **10**, 1 (1955)]—an interpretation to which Robinson is also inclined [*The Dentition of the Australopithecinae* (Pretoria, 1956)]. These writers have considered only the teeth; yet Hürzeler has made it clear that even the teeth are not truly cercopithecoid in pattern.

Although *Oreopithecus* is, in the present state of our knowledge, best classified as a hominid, there is, of course, no way of knowing whether it represents a form directly on the line leading to man, for the hominid line of evolution, like other vertebrate lines, quite likely produced more than one branch. In any event, this in no way decreases the probable significance of *Oreopithecus*; for, if the foregoing assessment of its zoological affinities is valid, this Tuscan primate represents our first glimpse of a Tertiary hominid of any sort. One cannot, naturally, overlook the possibility that *Oreopithecus* is a representative of some hitherto unknown line or radiation of Old World primate evolution quite independent of the hominid, pongid, and cercopithecoid lines. This interpretation is unwarranted, however, on the basis of existing evidence and, hence, on the principle of parsimony.

In this evaluation of the status of *Oreopithecus,* I am in essential agreement with Hürzeler [1954; also *Problèmes Actuels de Paléontologie* (Paris, 1956), pp. 115–121] and also with Heberer [*Primatologia* **1**, 379 (Basel, 1956); also see de Terra, *Science* **124**, 1282 (1956)]. A detailed description of the *Oreopithecus* material is being prepared by Hürzeler.

A lignite mine at Baccinello (Gros-

seto), Italy, has proved to be a unique and most prolific source of specimens of *Oreopithecus*. This source has been and is being assiduously utilized by Hürzeler with the full cooperation of the miners (also see de Terra, 1956). As I write, I have before me a letter from Hürzeler, written from Baccinello on 11 July 1957. In it he states that on his recent arrival there he found awaiting him a large number of new specimens of *Oreopithecus,* some of which appear to be of prime importance. He adds that the miners at Baccinello make every effort to see that the specimens are delivered to him as intact as possible. The conditions of mining are such, however, that they are unable to prevent damage by the chopping machine. Hürzeler feels certain that virtually complete skeletons have thus been destroyed—truly a tragedy.

I am greatly indebted to Hürzeler for his kindness in providing me with the opportunity to study the specimens of *Oreopithecus* in his custody, as well as for his generous permission to publish the present account of them. I also am greatly indebted to the Wenner-Gren Foundation for Anthropological Research for a grant which made my visit to Basel possible.

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Wasp Collection

A collection of 5.5 million gall wasps, which was built up by the late Alfred C. Kinsey, Indiana University entomologist and student of human sexual behavior, has been donated to the American Museum of Natural History, New York, by Mrs. Kinsey. In addition to the insect collection, the museum received several hundred volumes used by Kinsey in his research.

Fulbright Awards

U.S. Government awards for the academic year 1958–59 authorized by the Fulbright Act for university lecturing and postdoctoral research have been announced. Awards are made under the auspices of the Department of State and the Board of Foreign Scholarships and are made for the full academic year, but in exceptional circumstances applications will be considered for research for periods of not less than 6 months, or for lecturing for a semester or for the full period of an established summer school. Awards may be made for only one country, and arrangements will be made for those selected to be affiliated with an institution of higher learning abroad.

Awards for lecturers and research scholars made in the currency of the host country usually include round-trip transportation for the grantee (provision is not made for the transportation of accompanying dependents); maintenance allowance which may be adjusted to take into account the expenses of up to four accompanying dependents; a small supplemental allowance for travel in the host country and books or equipment purchasable abroad. Maintenance allowances are calculated on the basis of living costs in the host country and therefore differ from country to country in dollar equivalents. In terms of purchasing power, they are approximately equal.

To be eligible for an award, applicants must be U.S. citizens. Those applying for lectureships are expected to have at least 1 year of college or university teaching experience in the U.S. or abroad. Applicants for research awards are expected to have a doctoral degree from a recognized institution of higher learning in the U.S. or abroad at the time of application, or recognized standing in their respective professions.

Applications for university lecturing and advanced research in Austria, Belgium and Luxembourg, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, the Netherlands, Norway, Turkey, and the United Kingdom and colonial territories must be made no later than *1 Oct.* For application forms and additional information, write to: Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D.C.

Arctic Institute

The 1957 field research program of the Arctic Institute of North America is the most extensive yet undertaken by that organization in a single season. Thirty-seven grants-in-aid have been awarded for northern studies this year, as against 31 in 1956. This year's projects bring the research efforts sponsored by the Arctic Institute, since its founding in 1945, to a total of more than 260.

Twenty-five of the current investigations are in biological sciences, including studies directed toward a better understanding of the physiological adaptive mechanisms of arctic mammals and fishes. The earth sciences are represented by ten of the 1957 projects, including the continuation of long-range microclimatological studies and studies of soil-forming processes.

Two archeological investigations are set at strategic points on the migration routes of ancient man. These may add to the meager knowledge of early man on this continent.

The Arctic Research Laboratory of the Office of Naval Research, Point Barrow, Alaska, the northernmost laboratory on U.S. soil, will be the base for 16 of this summer's studies. The program receives support from the Office of Naval Research, the Canadian Government, the Sir Frederick Banting Fund, and private industry and individuals on both sides of the border.

Tomb in Turkey

A large burial mound of the seventh century B.C. that may be the tomb of King Gordius, father of King Midas, has been excavated in Gordium, Turkey, capital of ancient Phrygia. The tomb was opened by Rodney S. Young, director of a University of Pennsylvania archeological team that has been uncovering ancient Gordium since 1950. The expedition is being financed by the Pew Foundation of Philadelphia. Last year Young found a smaller, timbered wooden tomb containing the remains of a 5- or 6-year-old prince of about the same era of Phrygian history.

Cerebral Palsy Grants

The U.S. Public Health Service has announced grants to New York Medical College and University of Oregon Medical School for research into the cause of cerebral palsy, mental retardation, and allied neurological disorders. This makes a total of 11 medical schools and hospitals which have joined with the USPHS National Institute of Neurological Diseases and Blindness in a long-range nation-wide study in this field.

The investigation is specifically concerned with brain damage that occurs during the perinatal period. It will seek to evaluate such factors as lack of oxygen, brain injuries, blood incompatibility, and infections during pregnancy. Hereditary factors, although they are believed to play a minor role in cerebral palsy and mental retardation, will also be evaluated.

New York State Radiation Code

Violations of the New York State safety code on the industrial use of radioactive materials were found in 6 percent of the plants surveyed during the first 18 months in which the code was in effect. Of the ten plants involved, eight have brought their dose rate down to the prescribed level, one moved out of the state, and one, against which the state has taken court action, has not complied.

Morris Kleinfeld, acting director of the Division of Industrial Hygiene of the