News of Science

NSF Appropriation

The U.S. House of Representatives has approved a budget of $115 million for the National Science Foundation, as compared with the Administration's request for $140 million. In effecting a net reduction of $25 million below the President's budget amount of $140 million, the House followed the report of its Committee on Appropriations in recommending $107 million for continuing programs (all funds requested, except $5.3 million for research facilities) and $8 million for "the most promising new programs."

The full request for $40 million for grants for basic research was approved. The House specifically disallowed funds for the Southern Hemisphere astrograph, solar research telescope, university research, reactor and computing facilities, and the optical astronomy observatory.

The full request for $54,220,000 in support of scientific manpower under the continuing programs was approved. The request for $27 million for new programs in this area was disapproved, though the programs were not specifically disallowed.

It is expected that there will be an effort before the Subcommittee on Independent Offices and General Government Matters of the Senate Committee on Appropriations to restore the $25 million cut by the House. Senator Warren G. Magnuson of the state of Washington is chairman.

The Erect Posture and the Skull

Much has been written about the position of the foramen magnum as an index for determining the posture of such fossil primates as the australopithecines of South Africa and of Neanderthal man. A recent intensive and extensive comparative study of the skulls of living primates by J. Biegert [*Morphol. Jahrb.* **98**, 77 (1957)] is pertinent to this problem. Biegert concludes that changes in the skull during human phylogeny have been bound up with two evolutionary tendencies: (i) an increasing development of the brain and (ii) an increasing reduction of the masticatory apparatus. The cranium became higher, the frontal bones elevated, and the supraorbital torus reduced as the orbits and jaws increasingly came to lie beneath the presellar brain-space; and the facial profile became more orthognathous as the sagittal bending of the cranium increased. Concurrently, the foramen magnum was displaced ventrally.

Biegert therefore concludes, in opposition to Weidenreich (1924) and Clark (1955), that acquisition of the erect posture did not markedly influence the structure of the skull, but that the ventrally displaced foramen magnum is the result of changes initiated by extreme cerebral development. Thus he believes that an erect posture cannot be assigned to a fossil hominoid, such as an australopithecine, on the basis of skull structure or position of the foramen magnum. This can only be determined from the postcranial skeleton, above all, from the pelvis.—W. L. S. JR.

Barenblatt Case and Congressional Investigations

The U.S. Supreme Court agreed on 15 April to review the case of Lloyd Barenblatt, former Vassar College psychology instructor who was convicted of contempt of Congress for refusing to answer questions by the House Un-American Activities Committee 4 years ago about alleged Communist connections. Barenblatt's case is a sequel to the Watkins case of last year.

The Court reversed the contempt conviction of union organizer John T. Watkins on grounds that the House Committee should have, but did not, tell Watkins how questions put to him were pertinent to its legislative function. At the time the Court majority also criticized the vagueness of the House resolution creating the Un-American Activities Committee and spoke of possible infringement of constitutional rights. In another case decided the same day some of the justices spoke of the need for education to be free from pressures of investigation of speech and beliefs.

The Supreme Court sent Barenblatt's conviction back to the Court of Appeals for the District of Columbia to decide how it conformed with the Watkins decision. By a 5–4 vote the Court of Appeals in January reaffirmed the conviction. The majority held that the pertinence of questions was made clear to Barenblatt. The four dissenting justices felt that the Supreme Court had outlawed investigations in the field of education. Two of them also felt that the Court had struck down the resolution creating the House Un-American Activities Committee, thus stripping it of power to investigate anything.

Barenblatt's Supreme Court appeal asks whether or not the Court did invalidate the establishment of the Un-American Activities Committee, whether or not Congress had authorized the committee to investigate education, whether or not such an investigation is constitutional, and whether or not he was told the pertinence of questions.

Other cases raising similar questions and involving the Senate Internal Security Subcommittee and state antisubversive investigations are before or on their way to the Supreme Court.

Television and Film Instruction

The potential benefits and dangers of secondary-school instruction by films and television are examined in a report published recently by the Advisory Board on Education and the Division of Mathematics of the National Academy of Sciences–National Research Council. Although the report, prepared by a specially appointed Film Evaluation Board, addresses itself only to films and kinescopes prepared for the teaching of mathematics, many of its observations and recommendations might be applied to other sections of the secondary-school curriculum. The report, entitled *Films and Television in Mathematics Education,* was based on a joint viewing by the board of most of the mathematics films and kinescopes now available for teaching purposes. Several days of continuous sessions were required for the assignment. The board reported that:

"There is little doubt that the more specific, more tangible needs of group instruction can be met acceptably by recorded sequences of sufficiently high quality. It is not essential, either, to sacrifice entirely the less specific, less tangible aims. A carefully prepared recorded sequence, especially done by an expert, may in fact convey healthier scientific attitudes and deeper insights than a routine classroom lecture by a teacher who is uninformed, unresponsive, or otherwise inept."

On the other hand, the board also saw the possibility of "wide dissemination of erroneous ideas and unfortunate pedagogical stereotypes."

"Mass media entail a heavy responsibility. A single misunderstanding communicated in a presentation to a large group of students can handicap the efforts of all the teachers who must deal with the students personally."

Acknowledging the concern of many educators lest the use of instructional film series seriously undermine the traditional and vital personal interchange between teacher and student, the board pointed out that, on the contrary, proper scheduling of recorded material can actually release a faculty for more individual contact with students than is now permitted by many teaching schedules. Further, it was the unanimous opinion of the board that in "an extended system of presentations offered in connection with a more or less conventional academic course . . . not more than half the time allotted to formal group instruction should be used for presentations [and] that such presentations should be devoted primarily to the exposition of basic ideas and principles. . . ."

Chairman of the Film Evaluation Board was F. A. Ficken, University of Tennessee. Other members were A. M. Gleason, Harvard University; T. H. Hildebrandt, University of Michigan; G. Hochschild, Institute for Advanced Study, Princeton, and the University of Illinois; J. D. Mancill, University of Alabama; and B. E. Meserve, State Teachers College, Upper Montclair, N.J.

In reporting to the Academy–Research Council, the board recommended the establishment of a standing committee on mathematical presentations to offer guidance to schools and film producers and to promote the participation of professional mathematicians in the program. The board also advised formation of similar committees in other fields of the natural sciences. Formation of such committees has already been undertaken.

Atherosclerosis Research

A baboon airlift from Africa to Texas began last month when the Southwest Foundation for Research and Education in San Antonio imported 20 baboons from Nairobi, Kenya, for research on atherosclerosis. The baboon is the only mammal other than man that is subject to the fatty deposits that characterize atherosclerosis. The foundation already has 30 domestically bred baboons. It plans to increase the colony to 1000 this year. The rapid expansion of the baboon program has been made possible by a recent gift to the foundation of $50,000 by Douglas Marshall, a Houston oil man who is chairman of the Texas Heart Research Foundation.

Foundation scientists have joined with investigators from three other institutions to form a group that is known as Cooperative Research on Atherosclerosis. The group includes research workers from Louisiana State School of Medicine, New Orleans; the Oklahoma Medical Research Foundation, Oklahoma City; and the Enzyme Institute of the University of Wisconsin.

Soviet Antarctic Station

Gordon D. Cartwright, meteorologist for the U.S. Weather Bureau, has returned to Washington, D.C., after spending 14 months on an International Geophysical Year assignment at the Soviet Antarctic IGY station at Mirny. Cartwright joined the Soviet expedition at Capetown on the 26 December 1956 and left it at Adelaide, Australia, on 4 March 1958. In describing his winter at the Mirny Station, where he was the only American among more than 100 Russians, Cartwright said:

"This was the most stimulating experience of my life. Antarctica by itself makes a vivid and lasting impression on anyone who touches it, and in addition I had an unusual opportunity to observe a group of Russians at work and off duty. I found them warm, hospitable, and with broad scientific and cultural backgrounds. They had a keen sense of humor and their differences of outlook were, of course, sometimes delightful and sometimes difficult to understand."

Cartwright joined in the regular weather analysis work at Mirny, where he was responsible for the preparation of daily upper-air charts covering most of the Southern Hemisphere. The IGY network of observing stations in the Antarctic has made possible for the first time in history the drawing of reliable weather charts of the South Polar regions. Hundreds of cloud photographs and several thousand feet of time-lapse color pictures of special cloud developments in the polar region were taken by Cartwright.

The Soviet expedition is operating in one of the most difficult and least known areas of the Antarctic. The interior stations are located near the central dome of the East Antarctic ice plateau at elevations near 12,000 feet. In establishing these stations the Soviet group was faced with two major problems: the "height-cold barrier," a combination of intense cold and great height that places exceptional strain on both men and equipment; and "soft snow," which can bog down the most powerful tractors and can make ski landings of aircraft highly dangerous except on specially prepared runways.

Cartwright reports that the height-cold barrier and soft snow prevented establishment last year of two stations the U.S.S.R. had planned in the deep interior. However, by a massive effort during the recent Antarctic summer, and by using new equipment designed on the basis of last year's experience, both stations are now in full operation.

The U.S.S.R. is now operating six scientific stations in East Antarctica. Mirny, which is the main station, is on the Antarctic Circle at 93° East Longitude. A second Soviet station is located on the edge of the ice sheet at Bunger Oasis, and a third station, called Vostok, is in the region of the south geomagnetic pole. The newest station, Sovietskaya, is near the so-called "pole of relative inaccessibility." Two smaller U.S.S.R. observation stations lie on the tractor route to Vostok and Sovietskaya. The leader of the Soviet expedition, Alexei Fyedorovich Troshnikov, is well known for his work as a hydrologist in Arctic regions. The chief meteorologist, Oscar Grigoriovich Krichak, is a member of the Central Forecasting Bureau in Moscow.

Cartwright was especially impressed by the well-equipped ships, the *Ob* and *Lena,* which served not only as major transport ships for the U.S.S.R. expedition but also aided some of the most comprehensive oceanographic surveys and observation work ever made in Antarctic waters.

The scientific exchange in which Cartwright took part was so successful that U.S.A. and U.S.S.R. scientists have agreed that similar arrangements should be continued for another year. Morton J. Rubin, also of the Weather Bureau, is already at Mirny, where he will spend the next year doing meteorological work.

Atomic Clock Discrepancy

A discrepancy exists in radio comparison of British and American atomic clocks. These clocks, whose operation is based on the unvarying vibrations of the cesium atom, are accepted as the most accurate measurement standard available. The atomic clock, or Atomichron, has a possible accuracy down to one part in 10^9. Last summer the frequency of radio signals controlled by the cesium standard at the National Physical Laboratory, Teddington, England, varied by nine parts in 10^9 from the frequency of similar equipment in this country.

In an effort to solve the difference, two Atomichrons from the Army Signal Laboratories at Fort Monmouth, N.J., have been sent to Teddington for comparison. A third clock has been sent to Cruft Laboratory at Harvard University for radio checks with Teddington.

The Atomichron, which in terms of time has an accuracy of one second per 300 years, is of great importance to the