Climatic Thermal Adaptation

In a paper devoted to the evolution of climatic adaptation in homeotherms, [*Evolution* **9**, 15 (Mar. 1955)], P. F. Scholander points out that heat dissipation is the only main avenue for climatic thermal adaptation in birds and mammals. The "critical temperature," the lowest air temperature at which a bird or mammal can rest at a basal heat production, is a fundamental measure of overall climatic thermal adaptation. The lower critical temperatures found in arctic species result chiefly from the heavy body insulation of fur or feathers, together with marked tolerance of low tissue temperatures in poorly insulated peripheral parts, such as legs, tail, and face, in which vascular control governs heat dissipation.

Scholander questions the validity of regarding the minor and erratic subspecific trends expressed in Bergmann's and Allen's rules as reflecting phylogenetic pathways of heat conservation. Behind both of these rules is the idea that in going to colder environments the total surface area of animals, relative to weight, should decrease, bringing about a decrease in heat loss. Scholander points out, however, that cold climates do not produce large, globular species with small protruding parts. Apparently, then, surface area as such has not been a factor of general morphogenic importance in the evolution of races found in hot or cold climates; and this would seem to apply to man as well as to other homeotherms.—W.L.S., JR.

Quick Morphine Detection

Development of a rapid and simple method of detecting morphine in body fluids and tissues has been reported by a group of pharmacologists at the University of California Medical Center in San Francisco. The method will prove useful in the diagnosis of morphine poisoning and in the detection of the presence of the drug in suspected addicts and in attempted suicides, and it may become a useful tool of pathologists doing post mortems. The method is already being used in several California diagnostic laboratories.

In the past no simple method has been available because of the difficulty of separating morphine from biological materials. Although various new scientific techniques, such as counter current distribution, paper chromatography, and electrophoresis, are useful in separating morphine, such methods require very special laboratory equipment and are often time-consuming.

The medical center group has developed a single extraction process, using routine chemical equipment, which permits determination of morphine in urine in less than 90 min. This is the fastest method so far developed. The drug can be detected in quantities as small as 1/100,000 g.

The research was carried out by James M. Fujimoto, teaching assistant in pharmacology and toxicology, Charles H. Hine, and E. Leong Way, associate professor of pharmacology and toxicology.

■ The Department of Agriculture and the Department of State have announced that 12 representatives of American agriculture will comprise a delegation scheduled to visit the U.S.S.R. between 15 July and 15 Aug. Since the visit to the Soviet Union will be unofficial, no provision will be made for payment of travel expenses from U.S. Government funds. The delegation will be broadly representative of American agriculture, and its members will be persons who are recognized in farming and in agricultural research and extension. It is understood that the itinerary will include various rural areas of the Soviet Union and agricultural research and educational institutions.

Several hundred persons have expressed interest in making the trip. The national farm organizations, Iowa State College, and other land-grant colleges have been invited to make preliminary nominations. Final selections will be made by a nonofficial public group to be designated.

The visit to the U.S.S.R. is of a reciprocal nature. The Soviet Union is sending to the United States an agricultural delegation of similar size during the approximate period 10 July to 10 Aug. A considerable amount of time will be spent in Iowa, in accordance with the expressed Soviet interest in corn-hog production.

■ Jacob Bjerknes and Yale Mintz of the meteorology department of the University of California at Los Angeles have completed a 6-year study that may make it possible to forecast weather for a whole hemisphere. The project was sponsored by the U.S. Air Force's Geophysical Directorate.

■ Representatives of the governments of Switzerland and the United States have initialed a 5-year agreement for cooperation in connection with the purchase by Switzerland of the research reactor that is to be a central feature of the official U.S. exhibit at the United Nations' International Conference on Peaceful Uses of Atomic Energy at Geneva, 8–20 Aug. Under the provisions of the U.S. Atomic Energy Act of 1954, certain procedural steps must be taken by the executive and legislative branches of the U.S. Government before the initialed agreement may be signed and entered into force.

The price of the reactor, building, associated machinery, and exhibits is to be $180,000. The United States will lease to Switzerland sufficient enriched uranium for initial and replacement fuel for the reactor. The quantity of uranium under such lease shall not contain more than 6 kg of U^{235} (maximum enrichment, 20 percent), plus such additional quantity as the AEC may deem necessary to permit the efficient and continuous operation of the reactor while replaced fuel elements are radioactively cooling in Switzerland or while fuel elements are in transit.

■ Plans for six more nuclear reactors were announced in the British House of Commons on 13 June. These are in addition to the 12 commercial atom stations scheduled in the 10-year program authorized in February [*Science* **121**, 324 (4 Mar. 1955)]. The commercial stations are being built for the Central Electricity Authority. The six new reactors are for the British Atomic Energy Authority.

They are to be dual-purpose plants. Their production of fissile material will greatly strengthen Britain's military potential; they will also produce electricity for the national grid system. The new atom plants are expected to make "a useful contribution" to Britain's fuel supplies within the next 5 years.

The first two of the CEA's commercial atom stations are also scheduled to be in operation by 1961. According to the original plan, nuclear power would be providing one-quarter of Britain's requirements for new electricity generating capacity by 1965. This now appears to be an underestimate.

■ On 22 June the HMTS *Monarch* weighed anchor and proceeded northeastward from Newfoundland. The British ship's mission is the laying of the first transoceanic telephone cable—spanning the Atlantic between Newfoundland and Scotland. The project is a joint undertaking of the American Telephone & Telegraph Co., the British Post Office, and the Canadian Overseas Telecommunication Corp. and will cost about $40 million. Service is scheduled to be established late in 1956.

The *Monarch* must lay a cable across 2000 mi of ocean bottom by summer's end, for summer is the only time the Atlantic is calm enough to permit such an undertaking. The ship can lay up to 6 nautical miles of cable per hour. A second cable is to be laid from Scotland to Newfoundland in the summer of 1956.

The new twin-cable system will greatly improve the telephone service between

the United States and Great Britain. This service was inaugurated in 1927 and is handled entirely by radiotelephone.

Each of the transatlantic cables will be equipped to transmit speech in one direction: thus voices from New York will travel eastward over one cable, and voices from London will be carried westward over the second cable. The system will be able to carry 36 conversations at the same time, almost tripling the present radiotelephone capacity between the United States and Great Britain.

In 1927, when radiotelephone service was initiated, there were 2000 calls made. The annual telephone traffic between the two countries today is more than 30 times as heavy.

■ The widely held belief that cattle do not sweat has now been disproved by research conducted by the Commonwealth Scientific and Industrial Research Organization in Sydney, Australia. Investigators compared a purebred Ayrshire calf with two Zebu-cross calves. The animals were kept in a hotbox and a small, shaved area of the coat was examined for traces of sweat. All three calves produced beads of sweat. The Zebu-cross calves produced about 4 times more sweat than the pure British breed.

The Zebu-cross calves kept their temperature normal at 102°F when they were in a hotbox at 115°F. The temperature of the purebred British calf rose to 105°F under the same conditions, and it showed signs of heat distress. It seems likely that the greater amount of sweat produced by the Zebu-cross calves helped them adjust satisfactorily to the hot environment.

Scientists in the News

GERTRUDE D. MAENGWYN-DAVIES, assistant professor of ophthalmology in the Wilmer Institute, Johns Hopkins Medical School, has been appointed an associate research professor in the department of pharmacology at the George Washington University Medical School, Washington, D.C., effective 1 July.

In a presentation ceremony that took place at Washington University (St. Louis) on 6 June, ALLEN O. WHIPPLE, professor emeritus of surgery at the College of Physicians and Surgeons of Columbia University, received the first Graham award for outstanding contributions to surgery. Funds for the award were set up by associates and former students of EVARTS A. GRAHAM, emeritus Bixby professor of surgery at Washington, at the time of his retirement in 1951. The medal will be awarded every 3 or 4 years to the surgeon who, in the opinion of the selection committee, has made the most significant contributions to his profession.

Whipple is director of a new project by which the American College of Surgeons will be associated with the U.S. Foreign Operations Administration in bringing to this country doctors from the NATO countries who might train in American hospitals.

Two new appointments in the department of mechanical engineering at Massachusetts Institute of Technology are as follows: KNOX MILLSAPS, chief of the applied mathematics research branch at the Wright Air Development Center, Wright Patterson Air Force Base, Dayton, Ohio, will be visiting professor for the 1955–56 academic year; and, effective 1 July, JAMES A. FAY, assistant professor in the department of engineering mechanics at Cornell University, will become an associate professor.

Last month ROBERT C. BERSON, dean of the Medical College of the University of Alabama, was formally installed as the university's vice president for health affairs.

Both Berson and THOMAS F. PAINE, Jr., professor of microbiology, have recently accepted additional appointments as professors of medicine. These appointments are on a voluntary basis; each man will offer his services from time to time when called upon by the chairman of the department.

W. MAURICE EWING, director of Columbia University's Lamont Geological Observatory, Palisades, N.Y., and a pioneer scientist in underwater sound research, has received the U.S. Navy's Distinguished Public Service award for his outstanding contributions to the science of undersea warfare. The presentation was made by Assistant Secretary James H. Smith, Jr., in a ceremony that took place in Washington on 31 May.

For his outstanding contributions to gliding, RALPH S. BARNABY, chief of the aeronautics section of the Franklin Institute Laboratories for Research and Development, was honored by the Federation Aeronautique Internationale during its 1955 General Conference in Paris, 1–25 June. He received a Paul Tissandier diploma, awarded annually by the FAI to representatives of the various member nations "who by their action, work, initiative, their devotion or any other manner, serve the cause of aviation in general, and private and sporting aviation in particular."

An especially prepared issue (May 1955) of the *Stanford Medical Bulletin* has been dedicated to ARTHUR L. BLOOMFIELD, emeritus professor of medicine, by more than 150 former students and colleagues. A tribute written by Emile F. Holman, head of Stanford Medical School's department of surgery, describes the noted internist as a "profound student, incomparable teacher, superb diagnostician, and relentless foe of the pusillanimous."

Bloomfield, who retired last year as head of the department of medicine after 26 years of teaching at Stanford, was particularly well-known for his ward rounds. Holman says: "His ward rounds were a delight. In the midst of a scholarly medical review he would suddenly present an apt quotation from Cicero or Shakespeare or the more homely philosopher, O. Henry, to give color, point, and zest to his teaching."

JOSEPH T. VELARDO, research associate at the Harvard Medical School and the Peter Bent Brigham Hospital, Boston, is the recipient of the Rubin award for his work in reproductive physiology and sterility. He was honored during the annual meeting of the American Society for the Study of Sterility that took place in Atlantic City, N.J., 4–5 June. Velardo's paper "Effect of various steroids on gestation and litter size in rats" helped bridge the gap between basic studies and clinical applications.

ARTHUR KNUDSON, professor of biochemistry at the Albany Medical College, will depart in July for Djakarta, Indonesia, where he will serve as visiting professor of biochemistry. During the 2-year appointment he will participate in the University of California–University of Indonesia project in medical education that is being sponsored by F.O.A.

The council of the Royal College of Surgeons of England has announced that LOYAL DAVIS, chairman of the department of surgery at Northwestern University Medical School, who is known for his work in surgery of the nervous system, has received an honorary fellowship.

The fellowship is awarded to outstanding surgeons who have made significant contributions to their field. The Royal College also awarded fellowships to ROBERT JANES of Toronto, Canada, and WILLIAM DOOLIN of Dublin, Ireland.

CARL R. MOORE, professor and chairman of the University of Chicago's department of zoology, has been awarded the first Endocrine Society medal. The medal has been established to honor distinguished scientific research in the study of the endocrine glands.

Moore is one of the pioneers in the study of sex glands and hormones. His researches began almost 40 years ago and have led to new information on sex-