

SCIENCE NEWS

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THE BONES OF MEN AND APES

THE American Association of Physical Anthropologists at the recent meeting in Cambridge was addressed by Dr. Franz Weidenreich, of Peiping Union Medical College, leader in research on *Sinanthropus*, held by some investigators to be the most ancient of human species.

It has often been noted, according to Dr. Weidenreich, that the top skull bones of primitive human types are considerably thicker than the corresponding bones of modern skulls. But it has been rather generally overlooked that bones in the sides and base of the skulls compare in much the same way. Even the walls of the long limb bones show the same differences in thickness.

"When an average index is computed on the basis of nine measures of the main cranial bones the cranial wall of modern man is only half as thick as that of *Sinanthropus*, while the Neanderthals possess three quarters of the thickness of the latter." The wall of the modern human thigh-bone shaft is only three quarters as thick as that of the *Sinanthropus* thigh-bone.

Apes, modern and ancient alike, fail to show this great thickness of skull and skeletal bones; however, Dr. Weidenreich pointed out that "there are some indications suggesting that massiveness of the bones must have been a feature peculiar to the common ancestor of hominids and anthropoids, with a tendency to undergo reduction in both lines." That is, in this one feature at least, the earliest known extinct species of man retain a character more primitive than is found in any ape species, modern or extinct.

THERMOPERIODISM

THAT plants need the daily rise and fall in temperature, as well as the daily changes between daylight and dark, to produce fruits and seeds, has been demonstrated by Professor Fritz Wendt, of the California Institute of Technology. The results of his experiments are expected to be of great value to commercial greenhousemen and other plant growers, in addition to their significance in the purely scientific study of plant growth and reproduction.

Professor Wendt worked mainly with tomatoes, in a series of air-conditioned greenhouse rooms where temperature as well as hours of exposure to light can be accurately controlled. One set of plants, kept day and night at an unchanging temperature of 26 degrees Centigrade (79 degrees Fahrenheit), supposed to be optimum for plant growth, did grow and blossom, but failed to set fruit. A parallel set of plants, given exactly the same living conditions except that the temperature was dropped about ten degrees Centigrade every night and raised again in the morning, set fruit abundantly. These plants also showed better general growth.

In other experiments it was found that even tropical plants, like orchids, respond in the same way to daily fluctuations in temperature.

What the internal physiological changes are that underlie these responses, Professor Wendt is not yet prepared to say. It seems, however, he ventured, that they may

have something to do with the formation and translocation of food substances.

Somewhat similar responses to changes in hours of daylight, discovered about 20 years ago by Dr. W. W. Garner and H. A. Allard, of the U. S. Department of Agriculture, have been given the name "photoperiodism." It would seem appropriate therefore to give to the newly discovered temperature phenomenon the analogous name "thermoperiodism."—FRANK THONE.

CURARE

ONE of the deadliest of all poisons, used by South American Indians on their arrows to kill both game and enemies, will be made available in medicine as the result of studies reported at the Memphis meeting of the American Chemical Society by O. Wintersteiner and J. D. Dutcher, of the Squibb Institute for Medical Research.

The poison is known as curare, or more specifically as tube curare. It has long been known through study of arrow poisons obtained from the Indians, but because its source was uncertain, and because it was mixed with snake venoms and other foreign substances, its composition has remained a chemical puzzle and its medical use has been less dependable than physicians would like.

Like many other poisons, curare is a beneficial medicine when used in small enough doses. It is valued as a counteractant to metrazol, the shock-treatment drug now popular in medical circles, for "jolting" insane patients out of their unhappy state. Curare is also used in certain paralytic cases, to relax tightened muscles.

Messrs. Wintersteiner and Dutcher have succeeded in isolating the active principle of tube curare in crystalline form, which means they have obtained it chemically pure. In this condition it is four times more powerful than it is in the extract from which it was obtained. It is a white powder, and its chemical composition is expressed in the formula $C_{36}H_{44}O_6N_2Cl_2$. In such pure form, it is easily tested and its strength and uniformity of action can be maintained.

Tube curare is obtained from a vine of the upper Amazon and Orinoco valleys, known as *Chondodendron tomentosum*. It has no common name, but it is related closely to the ordinary moonseed, a wild vine frequently found in American woods.

A second kind of curare, known as calabash curare, quite different from tube curare, comes from an unrelated group of plants, another species of which is the source of the common poison, strychnine.—FRANK THONE.

THE SCIENCE CLUBS OF AMERICA

A NATION-WIDE search for scientific ability among boys and girls now in high school is to be conducted by Science Clubs of America, sponsored by Science Service.

Announcements of the distribution of more than \$12,000 in scholarships and trips to Washington have been sent to principals of secondary schools throughout America and preparations are being made for preliminary examinations on or about May 15.

The First Annual Science Talent Search, made possible by the Westinghouse Electric and Manufacturing Company as a contribution to the advancement of science in America, provides forty all-expense trips to Washington for a final examination with awards of eighteen Westinghouse Science Scholarships of \$200 each and two Westinghouse Science Grand Scholarships of \$2,400 each. One boy and one girl will be selected as winners of the Grand Scholarships.

The Science Talent Search is designed as a major step toward preventing diversion of America's potential scientific talent to tasks in war and peace which can be done just as well by those who do not have this talent. Boys and girls now in high school will be given an opportunity to develop their creative abilities so that in the next five years they may be able to take leadership in scientific research and engineering.

Objectives of the Science Talent Search are stated as:

1. To discover and foster the education of boys and girls whose scientific skill, talent and ability indicate potential creative originality and warrant scholarships for their development.
2. To focus the attention of large numbers of scientifically gifted youth on the need for perfecting scientific and research skill and knowledge so that they can increase their capacity for contributing to the task of winning the war and the peace to follow.
3. To help make the American public aware of the role of science in war and in the post-war reconstruction.

Each contestant will submit an essay of not more than 1,000 words on the subject: "How Science Can Help Win the War." It may describe a project in which the pupil has engaged or desires to engage, or it may contain an original idea, suggestion or invention of possible use to our armed forces or industry. Sketches or photographs may be submitted but are not required. Forty contestants, judged to have the best essays, will be invited on all-expense trips (transportation, hotel and other arranged expenses paid) to Washington, D. C., and return. All contestants invited to Washington will receive the Gold Emblem of Science Clubs of America.

Each scholarship may be applied toward a course in science or engineering at a degree-granting institution of higher education selected by the winner and approved by a Scholarship Committee named by Science Service. Science and engineering courses that may be pursued are those encompassed in the fields of activity of the National Academy of Sciences and the National Research Council.

ITEMS

TINY meteorites, "pebbles from heaven," weighing less than a 300th of an ounce have been discovered in Arizona by use of the magnetic needle. Since last spring, Dr. Frederick C. Leonard, associate professor of astronomy at the University of California at Los Angeles, has been experimenting with this method. Under certain conditions, he states, meteorites can be discovered when buried ten or twelve feet in the ground.

A NEW chemical, ammonium sulfamate, for killing poison ivy was tested last year by John Callenbach and John Carpenter, of the University of Wisconsin, who mixed it at the rate of one half pound to one pound per gallon of water. They applied about a gallon of spray to each 100 square feet of orchard area last June. The

chemical probably would not be safe for use near lawn grass. If the poison ivy fails to come back this season, the ammonium sulfamate treatment will be considered completely successful. A coarse spray was used to keep it from drifting, the spray gun was held as low as possible and the spray was directed just over the top of the ground cover. They used a spray gun equipped with a No. 7 disc and a pump pressure of 200 pounds. In Wisconsin the ivy-killer will be of particular interest to orchard owners and workers.

HOPE that sulfadiazine, one of the newest of the sulfa drugs, can be used to ward off whooping cough in children who have been exposed to the disease appears in the Public Health Reports by Dr. John W. Hornibrook, of the U. S. Public Health Service and National Institute of Health. When sulfadiazine was given to mice one hour before a small dose of whooping cough germs was dropped into each mouse's nose, the germs failed to grow in 19 out of 20 mice, although they did grow in 10 out of 14 untreated mice. Whether the drug would have the same effect in stopping growth of whooping cough germs that invaded a child's nose has not yet been determined. When the sulfadiazine was given to the mice after the dose of whooping cough germs, it failed to stop the growth of the germs, suggesting that the drug would not be effective as treatment for whooping cough once it developed.

THE possibility that by electrical stimulation of the eye, it may be possible to distinguish between blindness due to disease of the retina and blindness caused by disease of the optic nerve has been suggested by Dr. H. D. Bouman, of the University of Rochester. When a very faint, barely perceptible electric current is applied to the normal eye, an effect is noted when the intensity of the electric stimulation changes. This is due to action of the nerve fiber. Three patients with almost total blindness were examined by Dr. Bouman by the electric stimulation method. One of them showed complete loss of electric excitability in the blind eye; this patient suffered from one-sided neuritis of the optic nerve. The other two showed excitability, but the response was like that of dark-adapted eyes even though the patients were examined in broad daylight. These cases had diseases of the retina, not of the optic nerve.

A PLAN aimed at making the new Sister Kenny treatment for infantile paralysis more generally available is announced by the National Foundation for Infantile Paralysis. The treatment was originated and introduced into this country by Miss Elizabeth Kenny, an Australian nurse. Under the foundation plan, the University of Minnesota will arrange to teach certain physicians, physiotherapists and nurses Sister Kenny's technique. Later foundation chapters will extend such training in cooperation with local agencies such as hospitals and health departments. The limited number of trainees will depend upon the number of patients in the early stage of the disease being treated at Minneapolis hospitals. The Kenny treatment is confined to such cases. Both the foundation and the university are "doing all that is humanly possible to spread knowledge about this method of treatment of the acute stage of the disease."