OCEANOGRAPHY

Mile-Deep Record Sought By Underseas Explorer

➤ EXPLORING the sea bottom one mile straight down, in a massively constructed sphere equipped with wheels, is the ambition of Otis Barton, underseas explorer, now in Bermuda to make preliminary arrangements. He hopes to be able to make his preliminary dives by the summer of 1947.

Record for human descent into the ocean is at present held by Dr. William Beebe of the New York Zoological Society, who in 1934 descended in his bathysphere to a depth of 3,028 feet, or about three-fifths of a mile. The reel which Dr. Beebe used is still in Bermuda, and Mr. Barton is arranging for its use.

There is a difference in purpose between Dr. Beebe's bathysphere and Mr. Barton's apparatus, which he calls a benthoscope. The former was used in studying free-swimming creatures in the water at great depths; the latter is intended for work among the fantastic animals that crawl on the ocean bottom, or are even grown fast to it, like plants. Hence the wheels on Mr. Barton's submarine vehicle. It will not attempt movement under its own power, but will be towed by a cable from a ship.

Mr. Barton had a project for the construction and use of a benthoscope on foot just before the war, and had to suspend action on it until the close of hostilities.

Dr. Beebe, who is also in Bermuda at present, is collecting apparatus which he intends to use in shallow-water undersea exploration off the coast of Venezuela.

Science News Letter, October 20, 1945

MEDICINE

Large Doses of Vitamin D May Be Harmful

➤ PERSONS who take all types of vitamins indiscriminately and in large amounts are warned by Dr. Jere M. Bauer, of the University of Michigan Hospital, that vitamin D in large doses may be harmful and should be taken only under the direction of a physician.

The first death of an adult as a result of vitamin D intoxication with metastatic calcification, that is, the deposition of calcium in the kidneys, heart, and arteries causing the death, is reported by Dr. Bauer. In this particular case, the woman, who was suffering from arthritis, had been administering the vitamin to herself without a doctor's prescription, and had taken at least 100,000 to 500,000 units per day for a year.

The lay person who gives vitamin D to himself, Dr. Bauer said, is usually ignorant of toxic symptoms. When taken in excess of tolerance this vitamin produces characteristic symptoms consisting of loss of appetite, nausea, vomiting, diarrhea, muscular weakness and soreness, fatigue, frequency of urination and headaches. If these symptoms occur, administration should be stopped or the dose reduced.

The intoxicating dose depends upon several factors and varies in different individuals and at different times, Dr. Bauer said.

In the case reported, the total amount of vitamin D consumed appears to be larger than in previously reported children's cases with fatal intoxication. If, however, the dose is calculated in units per kilogram of body weight, it is seen that the dose was rather small and was far below the amount usually considered the toxic level for humans.

Concentrated vitamin D preparations, Dr. Bauer concluded, should be considered as potentially toxic drugs and should be taken only on the advice and under the supervision of a physician.

Science News Letter, October 20, 1945

ANTHROPOLOGY

Skull from Africa Is More Man-Like Than Supposed

➤ A NEW restoration of the skull of an ancient animal intermediate in physical characteristics between a man and an ape shows it to have been less ape-like, more man-like, than preliminary studies indicated. The creature, called *Plesianthropus* (Greek for "almost man"), represented thus far by skull fragments, brain cast and a few teeth, was discovered near Johannesburg, South Africa, by Dr. Robert Broom, well-known anthropologist who has done much work on the fossil primate remains of that region.

The present restoration, made by Dr. William K. Gregory and Dr. Milo Hellman of the American Museum of Natural History, is not intended to be the final one: too many parts are still missing. But so far as it has been made, on the basis of casts and minutely detailed measurements sent to this country by Dr. Broom, it takes an intermediate position between apes and men.

Details regarding the new restoration are published in the *Journal of Physical Anthropology,* (Sept.)

Science News Letter, October 20, 1945

IN SCIEN

PHARMACOLOGY

Ergot Successfully Grown Under Tropical Conditions

➤ ERGOT, a fungus drug widely used in obstetrical medicine, has been successfully propagated artificially under tropical conditions in the province of Bengal, India, J. C. Saha and S. K. Bhattacharjee of Presidency College state in a report sent to the English scientific journal, *Nature,* (Sept. 22.) Present world supplies of this drug come principally from wild sources in Spain and Portugal. If the experiments in India can be followed up by successful commercial-scale production, India may eventually have ergot for export after supplying home needs.

Ergot is made from a parasitic fungus that invades the tissues of plants belonging to the grass family, forming long, dark masses of fruiting bodies in place of part of the grains in the normal head. These fruiting masses, dissolved and purified, are the source of commercial ergot.

In the experimental propagation, four small plots of ground were planted in rye. When the grain was in flower, a suspension of ergot spores in sterile water was sprayed over them. Shortly thereafter signs of infection appeared on the plants, and in due time large grains of high-quality ergot were produced.

Ergot cultivation has been tried out on an experimental basis in England, Wales and Australia, but the present tests are believed to be the first to be attempted in a tropical country.

Science News Letter, October 20, 1945

AERONAUTICS

Propellers Enable Plane To Land on Short Runway

See Front Cover

➤ THE REVERSIBLE PITCH propellers of the B-32 Bomber, shown on the front cover of this SCIENCE NEWS LETTER, enable the plane to land on a shorter runway and increase its maneuverability during ground operations. They are the largest-diameter propellers installed on any production airplane.

A complete story on the B-32 appeared in the August 4 issue of SCIENCE NEWS LETTER, just after the details of its construction were released.

Science News Letter, October 20, 1945

CE FIELDS

CHEMISTRY

Surplus Cotton to Make Stronger Currency Paper

➤ SURPLUS COTTON, one of the biggest of American economic headaches for the past couple of decades, is booked to strengthen the country's finances in a new and most literal way. Officials of the Department of Agriculture state that surplus stocks of short-staple cotton, up to 50,000,000 pounds, will be diverted for use in the direct manufacture of paper for use in dollar (and larger) bills, in Victory bonds, insurance policies, etc.

Paper containing cotton fibers is especially tough and long-lived, and is considered especially desirable for uses involving a lot of handling and folding, as well as preservation for long periods.

Because of the present government-supported high price of cotton, incentive payments to paper mills using this surplus are planned, to offset the difference between cotton price and the lower prices of rags and clippings commonly used for like purposes.

Science News Letter, October 20, 1945

BIOCHEMISTRY

New Antibiotic Comes From Wound Bacteria

➤ A NEW ANTIBIOTIC, or germ-checking substance of the penicillin type, has been discovered by a group of three researchers at the College of Physicians and Surgeons, Columbia University, Balbina A. Johnson, Herbert Anker and Dr. Frank L. Meleney. (*Science,* Oct. 12.)

It was first observed that certain rod-shaped bacteria isolated from wound infections exerted an inhibiting effect on other bacteria grown in the same laboratory dishes. A pure culture of these bacteria in broth was made, the living cells filtered out, and the clear fluid tested against other bacteria. When a number of these failed to grow in the presence of the fluid, it seemed evident that an antibiotic substance was present, and work was begun toward its concentration and isolation.

The discoverers have given their new antibiotic the name bacitracin. It is effective under laboratory conditions against a number of trouble-making bacteria belonging to the so-called gram-negative group, especially members of pus-forming, blood-poisoning streptococci and staphylococci, and also the germs of gonorrhea. Tried out on living animals, it has proved able to protect guinea pigs against gas gangrene and mice against one type of blood poisoning.

Tests on human beings have been made with extreme caution so far, but in cases where it has been injected under the skin of human volunteers it has caused no harm, and it has "given encouraging results" against local hemolytic streptococcal and staphylococcal infections. The results have been comparable to those obtained in the same class of cases with penicillin.

Science News Letter, October 20, 1945

AERONAUTICS

Planes Outlined For Sonic Speeds

➤ THE SILHOUETTE of the plane of the future is foreshadowed in the carefully formulated curves on which patent 2,385,845 was granted to George S. Schairer of Seattle. These outlines are intended to meet conditions imposed by speeds on the order of the velocity of sound. Most notable thing about them, to the layman's eye, is the lack of camber in the wing cross-section; all surfaces, lower as well as upper, tend to be convex. Patent rights are assigned to the Boeing Aircraft Company.

Science News Letter, October 20, 1945

ICHTHOLOGY

Carp Sent from U. S. To Stock Trinidad Waters

➤ A SHIPMENT of 800 fingerling carp has been sent by the U. S. Fish and Wildlife Service, to stock lakes and streams in the neighborhood of the American air base on Trinidad, off the northern coast of South America. The carp is an exceedingly adaptable and prolific fish, and even a small planting like this has a good chance of becoming established.

Introduced from Europe, the carp has never found much favor in this country. It is close to the bottom of the American market in order of preference as a food fish, and sportsmen generally consider it a pest. One virtue is grudgingly conceded to it: carp will survive in waters too polluted for any other species. Yet many peoples elsewhere in the world are very fond of it, and it has a long and honorable table history. Roman patricians used to have private carp ponds at their country villas, so that the fresh-caught fish could be carried directly to the kitchen.

Science News Letter, October 20, 1945

ENGINEERING

Smoke from Locomotives Abated by Steam-Air Jet

➤ LITTLE SMOKE will belch from coal-burning locomotives if they are equipped with steam-air jets properly designed and applied with adequate mufflers, it has been found by recent studies and field tests. The effectiveness of the steam jet in abating smoke has been known for years, but because of poor design of equipment has given unsatisfactory results in the past.

A report on the studies and tests was given during the recent meeting of the Cincinnati section of the American Society of Mechanical Engineers by R. B. Engdahl of Battelle Memorial Institute, Columbus, and E. D. Benton, fuel engineer of the Louisville and Nashville Railroad Company. These two men have worked on the smoke-abatement problem for two years, one in the laboratory and the other in the field, and have experimented with about 350 engines.

As a result of investigations by Mr. Engdahl, made in 1943, the values of some heretofore uncertain design features were discovered. These include steam-air entrainment ratios when steam pressure, nozzle and air tube diameters were varied over a range of practical values. Two years ago the two men undertook to develop for the locomotive a practical muffler and a method of control which would be automatic and also vary the quantities of overfire air in relationship to the amount of coal burned.

"In no sense of the word," the investigators stated, "should it be assumed that the steam-air jet is a complete substitute for a good fireman. Neither working independently of the other is able to do a satisfactory job at all times. When they complement each other they are an unbeatable team, even under adverse conditions."

Science News Letter, October 20, 1945

ENGINEERING

John Fritz Medal Awarded Dr. Zay Jeffries

➤ LEADERSHIP in solving problems affecting the production, conservation, substitution and scientific appraisal of metals and alloys during the war has won for Dr. Zay Jeffries, vice president of the General Electric Company, the 1946 award of the John Fritz Medal. Classed as the highest award in engineering, this medal is bestowed by four leading engineering societies.

Science News Letter, October 20, 1945