

AVIATION-PHYSIOLOGY

Pilots Can Fly Higher Without Death Danger

AIRPLANE pilots could rise to altitudes of fifty thousand feet, nearly ten miles, without danger of death from the rigorous experience if the nitrogen gas in their bodies is expelled before they leave earth by breathing oxygen for one hour before the ascent.

Sir Leonard Hill, the eminent British physiologist, has so concluded in a communication to *Nature*, as the result of experiments on animals under low pressure conditions.

Previous experiments in France had led to the conclusion that about 45,000 feet is the limit of altitude that can be reached by man with safety, even when oxygen-equipped, unless his whole body is enclosed in a pressure chamber that shields him from the effects of the great height. Death from high altitude might sometimes come the day after the experience, experiments on animals showed.

Science News Letter, September 24, 1932

GEOGRAPHY

Greatest Ocean Deeps Listed By Hydrographic Office

THERE'S a hole in the bottom of the sea. There are, in fact, several. A summary of the deepest "deeps" in each ocean has just been officially published by the Hydrographic Office, under the authority of the Secretary of the Navy.

The greatest known ocean depth is in the Pacific, under the shadow of the American flag. This is Mindanao Deep, 35,400 feet, near the Philippine Islands, in latitude approximately 9 degrees, 41 minutes, 18 seconds north, longitude 126 degrees 50 minutes 15 seconds east. This is the most recently discovered of the great deeps, having been found in 1927 by the new German cruiser Emden. Other soundings of more than 30,000 feet have been made in several places in the western part of the North Pacific. In the South Pacific the greatest depth is the Aldrich Deep, north of New Zealand, 30,930 feet.

The Atlantic cannot boast such depths. The deepest sounding known in the North Atlantic is Nares Deep, approximately 27,972 feet, in West Indian waters. The deepest spot in the South Atlantic is a sounding of 26,575 feet made in 1926 by the German survey ship Meteor. This is far out at sea, the

nearest land being the forsaken island of South Georgia, east of the southern tip of South America.

The other oceans show lesser depths than this. The Indian Ocean has the Wharton Deep, about 22,968 feet, south of Java and east of Cocos Island. A sounding of 17,850 feet was made in the Arctic Ocean by Sir Hubert Wilkins in 1927, and a depth of 14,274 in the Antarctic is shown by a British Admiralty chart.

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ANTHROPOLOGY

Norwegians Always Same, Archaeologist Declares

NORTHERN Norwegians have been Norwegians ever since the Stone Age, Prof. A. W. Brøgger, Norse archaeologist, declares. His investigations have shown a continuous culture, with no evidence of new racial additions, from the time the first Germanic settlers went into the country on the heels of the retreating glaciers of the Ice Age. He has traced the story of his countrymen through Stone, Bronze and Early Iron Ages. Throughout their long history, they have been what they are today: farmers on the land and sailors, especially whalers, at sea.

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GENETICS

Intelligent Race of Rats Shows Way to Super-Man

ARACE of super-men in intelligence might be attained through selective breeding, provided social factors ever permitted the experiment, it is indicated by experiments reported to the American Psychological Association by Dr. R. C. Tryon of the University of California. Such a super-intelligent race has actually been produced among rats in his laboratory, he reported.

He has also produced by selective breeding a race of moron rats. The bright "family" display their superiority throughout most of the life span, and are succeeded by superior progeny.

In this first experiment thus demonstrating the hereditary nature of intelligence, the entire environment was kept strictly the same for both races of rats. The inheritance of physical factors such as weight, sex, pigmentation, and fertility seemed to have no relation to the inheritance of mental ability.

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IN SCIENCE

PSYCHOLOGY

Citronella Odor Makes Sight Keener

A WHIFF of the odor of oil of citronella will make you see better, it is indicated by experiments reported to the American Psychological Association by Dr. George W. Hartmann, of Pennsylvania State College. Stimulation of other senses has a similar effect on vision, he found.

"Apparently lights, sounds, smells, pressures and pains do have some property or properties in common, for how otherwise would one account for their similar influence on visual acuity?" he said. The results suggest that one sense might replace another, he concluded.

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BACTERIOLOGY

Doubt Cast on Antiquity Of Bacteria Found in Coal

BACTERIA found inside lumps of hard coal are not necessarily as old as the coal, in the opinion of Prof. Homer G. Turner of Pennsylvania State College. They may be of quite recent origin, and have been carried into the coal through pores or crevices by water.

Prof. Turner has examined anew the evidence advanced by Prof. C. B. Lipman of the University of California, for the great antiquity of bacteria which he found within lumps of anthracite.

The coal seam from which Prof. Lipman's samples came, Prof. Turner reports, is closer to the surface than was at first considered to be the case. Moreover, it slopes upward to a surface outcrop, through which water can filter, and conceivably carry bacteria with it. As a further possibility of bacterial contamination from the outside, Prof. Turner points out the constant presence of bacteria carrying air and water in the mine itself. He also suggests the improbability of the delicate living protoplasm of bacteria surviving the terrific pressure and the probable high temperatures of the earth.

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THE FIELDS

ARCHAEOLOGY

New Paintings of the Buddha Found in Caves

PRICELESS frescoes and carvings of Buddhist art have been brought to light in the caves of Ajanta, in India. The discoveries include works of art that were previously known to exist but had been considered irrevocably lost.

The walls of these famous Indian caves are painted and carved with relics of the Buddhist religion and its founder, one of the great teachers in history, but a great many of these ancient scenes have never been recorded or described. The work of systematic preservation and cleaning was undertaken in 1920 under supervision of two Italian experts, and is now being carried on by Indian artists.

Among the Buddhist scenes brought to light is one showing girls bathing near a beautiful grove. This is a painting said to be at least two thousand years old.

A fresco of about the fifth century A. D. shows the incarnation of Buddha as an elephant, in which form he offers himself to hungry hunters to appease their need. Another scene of renunciation shows pieces of Buddha's flesh being roasted on a fire.

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ARCHAEOLOGY

Ancient Palestinian People Burned Bones of Dead

A STRANGE people who lived in Palestine thousands of years before Abraham saw the land, a people who practiced cannibalism and burned the bones of their dead, are described by Sir Arthur Keith, noted English anthropologist.

The remains of these people were found by Miss Dorothy Garrod of the British School of Archaeology in Palestine at Shukbah in the Judean hills and in caves on Mount Carmel. It is proposed to call them Natufians from the name of the cave in which they were found, and because they are like no known people. They appear, however,

to be related to the Mediterranean stock, having affinities with the New Stone Age people of the Alta, and with the negroid skeleton remains found in the Cave of Grimaldi on the Riviera or with the predynastic peoples of Egypt. They were a long-headed people of short stature, not more than five and a half feet tall.

It was the habit of these people to extract two of the upper front teeth from jaws of their women in their youth. They also appear to have practiced cannibalism, judging from the way the bones are cut and fractured.

Their most curious practice, however, was that they collected the bones of their dead after they had been freed from animal matter by burial or exposure and burned them.

Curiously enough the same custom seems to have been practiced at Ur. Sir Arthur Keith has received from Dr. Leonard Woolley a box of bones from under the foundations of Ur which had also been cremated when dry. The bones of women predominated. Similar burial skulls had been found in the ruins of Zimbabwe in Rhodesia.

Was there, asks Sir Arthur, a custom in ancient times of digging up the bones of ancestors and submitting them to the ordeal of fire?

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PHYSICS

Another Step Taken Toward Absolute Zero

ABSOLUTE ZERO, the completely cold point at which all temperature ceases, is only seven-tenths of a degree beyond the reach of physics now. Absolute zero is 273 degrees Centigrade below the freezing point of water; and Prof. W. H. Keesom of Leiden University has succeeded in producing a temperature of minus 272.3 degrees.

This is one-tenth of a degree lower than the previous record. A tenth of a degree does not amount to much at ordinary temperatures, but when the almost unattainable cold of absolute zero is the goal, the last few tenths of degrees are like the last few hundreds of feet to alpinists trying to climb to the summit of Mount Everest.

Prof. Keesom obtained his low temperature by keeping a small quantity of liquid helium constantly stirred while he produced a high vacuum over it by means of a pair of powerful mercury pumps.

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PHYSICS

New Atomic Particle Suggested by Experiments

THE PROBABLE existence of a new particle of matter is reported by Dr. Carl D. Anderson of the California Institute of Technology, who works in association with Dr. Robert Andrews Millikan. It is a positively charged particle of the mass of the familiar negative electron. The usual positive particle is the proton that has a mass 1850 times that of the electron.

The evidence for the new light-weight positive particle is contained in several photographs made while measuring the energies of charged particles produced by cosmic rays. Some tracks were found which seem to be produced by the new positive particles. The only alternative, Dr. Anderson states in his report to *Science*, is that two electrons made independent tracks on the photographs as they had the same point of origin. This probability is very unlikely.

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MEDICINE

Liver Extract Wins Place In New Pharmacopoeia

LIVER EXTRACT, used in treating pernicious anemia, is one of the remedies discovered since 1920 to win a place in the new U. S. Pharmacopoeia.

This volume is the legal standard for drugs in the United States and Cuba. It is revised only once in ten years.

One hundred and eight titles of drugs contained in the U. S. P. X. have been dropped from the U. S. P. XI, the General Chairman, E. Fullerton Cook of Philadelphia, has just announced.

Among the 24 new admissions are: anti-meningococcus serum, used for treating meningitis; anti-pneumococcus serum used for pneumonia; carbon dioxide, used to treat gas poisoning; diphtheria toxin for the Schick test for susceptibility to diphtheria; diphtheria toxoid for giving protection against the disease; ephedrine and ephedrine sulphate, remedies used for relieving hay fever and asthma among other conditions; ethylene, a new anesthetic; rabies vaccine, used as a preventive of rabies or hydrophobia; and typhoid vaccine, for protection against typhoid fever.

Other titles includes insulin, for diabetes, and viosterol, a vitamin D preparation, have been tentatively admitted.

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