

World music, Miss Densmore disclaims any intent to theorize on the Indians' past. She is merely presenting facts, which may have significance.

From an authority on Oriental music, Miss Densmore learned that Japanese got the idea of raised pitch in war singing

from Chinese priests, who brought it from India in the seventh century. If Pueblo ancestors got the idea from a common source—or invented it—in the Old World, that must have happened far earlier. Pueblos were well established in the Southwest by that time.

GEOLOGY

Iron Masses Under Meteor Crater Shown Magnetically

Modern Prospecting Method Indicates Presence of Five Deeply Buried Fragments of Original Projectile

SCIENTISTS now have real evidence, for the first time in over 30 years of exploration, that there exist beneath Arizona's famed Meteor Crater large masses of what well may be parts of the giant meteor itself. Despite the name of the baffling giant pockmark in the earth's crust, scientists have not always been sure of this fact.

Yet scattered tiny surface fragments indicated that a meteor, containing 92 per cent. iron and 8 per cent. nickel, probably struck in that spot. And the veritable treasure of a tremendous deposit of almost pure iron buried beneath was an economic incentive which has attracted mining engineers to the spot.

Electrical Prospecting

New measurements, by electrical prospecting, have disclosed five giant masses of magnetic material—probably iron—lying 1,200 feet beneath the crater. Hans T. F. Lundberg, Canadian geologist, told of his discoveries at the recent New York meeting of the American Institute of Mining and Metallurgical Engineers.

Recurrently, through the years, drilling operations have sought to strike the supposed underground iron deposits which would bring wealth to the finder. But the fractured underground rock structure and swift currents of underground water hampered the work. Indeed, in 1931, drilling at the site was abandoned and geologists were about to place the mystery of the crater's origin among the unsolved problems of science.

Mr. Lundberg's new technique was to plot the area for more than a mile around the crater for its magnetic variations. If large masses of magnetic materials were buried deep underground

they would produce magnetic anomalies in the observable magnetic field. Systematically plotting the whole area, Mr. Lundberg finally detected two anomalies directly under the crater and three others slightly south of it.

To explain previously the absence of large masses of the meteor geologists have suggested that the great meteor blasted out the crater and then—when it struck water underground—exploded into small fragments which were scattered about the neighboring region. Now, however, it appears that at least five large parts escaped this explosion and have penetrated to great depths.

Further electrical prospecting, suggests Mr. Lundberg, may now make it feasible to plan the exploitation of these rich iron deposits. Such prospecting would particularly seek to fix the paths of the underground streams hampering mining operations.

Indirect Approach

It might be best to sink a shaft away from the crater itself and then—at the proper depth—make a horizontal drift into the iron masses. Such drift operation is easier in water-carrying ground than is shaft sinking, says Mr. Lundberg. Work of this nature has been accomplished elsewhere by new sealing methods. "Is is now hoped," he adds, "that by this method the long searched-for meteor will be reached and the mystery of Meteor Crater solved."

Science News Letter, February 26, 1938

Beaver hats aided in exploration of America—the search for beaver pelts to make these fashionable hats led trappers and traders into various wilderness regions.

PHYSICS

New Swedish Process Freezes Salt From Ocean

SWEDEN has no salt and no fuel; the latter fact being significant because one can evaporate salt water if an abundance of fuel is at hand for a fire. Yet Sweden has an abundance of hydroelectric power and thereby has one key with which to unlock the doorway which guards the salty waters of its majestic fiords.

Sweden is now building an experimental factory on Gullmar Fiord in which salt will be produced by freezing. The U. S. Bureau of Mines reports that Gullmar Fiord contains a very high percentage of salt in its waters. At the experimental plant this water will be frozen by the abundant electric power in mechanical freezing units and a very concentrated salt solution thus obtained. This salty brine is then evaporated by heat, but much of the work of getting the final salt crystals has already been done by the freezing.

Science News Letter, February 26, 1938

EVOLUTION

Animals of Cooler Regions Larger Than Warm-Land Kin

SCIENCE now provides support for the common observation that races living on mountain heights or in northern latitudes are on the whole larger than those living at low levels and farther south. This opinion, usually held only as regards human beings, is extended to include animals as remote from man as birds and insects, in studies made by Prof. Theodosius Dobzhansky of the California Institute of Technology.

Prof. Dobzhansky bases his conclusions both on studies of specimens collected in the field and on the growth of a number of different kinds of organisms in the laboratory.

Races of mammals inhabiting cooler regions, although they may be in general larger, have shorter body appendages (tails, legs, ears) than races of the same species from warmer regions. Among birds the same is true for the relative lengths of beak, legs, and wings. Races of mammals and birds and some invertebrates living in cooler climates are larger in body size than races of the same species in warmer climates. In mountain countries races from higher elevations are larger than those from the lower ones.

Science News Letter, February 26, 1938



TO BE MINED FOR THE SKY'S IRON?

Airplane view of Meteor Crater, under and near which five large magnetic masses have recently been located by geophysical methods.

AVIATION

Tandem Propellers for Planes Turn in Opposite Directions

HIGH SPEED airplanes of the not-too-distant future may be pulled through the air by the whirling blades of tandem propellers mounted close together, one behind the other, and rotating in opposite directions on concentric propeller shafts.

Forced by the growing size and weight of propellers needed to deliver the full power of ever larger engines, U. S. Army aeronautical engineers at Wright Field, Dayton, Ohio, are experimenting with a set of such propellers and are planning the construction of two more sets for further study.

Two propellers mounted eight inches apart in tandem style would cut the size of the propeller in half. Propellers needed on the most powerful planes flown by the Army Air Corps are now 13 feet in diameter and are relatively heavy. More powerful engines contemplated by aeronautical engineers and a certain aviation development of the next few years will require larger propellers still.

The world airplane speed record, 440.681 miles per hour, set by Lt. Francesco Agello of Italy in October, 1934, is held by the only tandem propelled plane now flying. Designed to compete in the Schneider Trophy Races in England in 1931, the ship was not completed in time and was used instead for

several successful assaults on the speed record. No other such plane is known to exist.

The most powerful engines in use today have about reached the limit in size of the accompanying propeller. The tandem propeller scheme is one possible attack on the problem of cutting down the size of the whirling blades.

The twin propellers being tested by the Army are of the fixed pitch type, Brig. A. W. Robins, chief of the Materiel Division of the Air Corps reports, while the two sets under design and construction are controllable. Construction of the propeller shafts, involving one shaft inside the other and rotating in opposite directions, represents a difficult engineering problem.

Science News Letter, February 26, 1938

RADIO

U. S. Joins 14 Other Nations Using Robot Radio Alarm

SAFETY at sea on American ships has now moved up to par with that of fourteen other nations by official approval of the robot radio alarm system which makes it possible for small freighters to detect SOS signals even though their single radio operator may be asleep in his bed. The Federal Communications

Commission has approved for installation on American vessels the automatic radio alarm system that is already in operation on more than 3,000 vessels of other nations.

The radio alarm listens, thinks and acts in a way that truly makes it a robot mechanism. On completion of his watch the radio operator leaves the cabin and sets the alarm.

It is set to recognize a distress call of a series of dashes lasting four seconds each, spaced a second apart. It has a memory long enough to realize if four or more of these dashes come in sequence, when it rings a bell in the radio operator's room and also on the navigation bridge.

Finally the device also warns both the radio operator and the bridge officers when it fails to function.

The robot alarm, a product of the Radiomarine Corporation of America, is not designed as a substitute for radio operators but may be used by cargo vessels of over 5,500 gross tons employing only a single operator in order that a continuous radio watch can be maintained for distress signals.

Science News Letter, February 26, 1938

METALLURGY

Draw-Casting New Trick In Making Copper Rods

THE ART of making castings is old but there is a new technique which is only now coming into production. It is called draw-casting. It consists of drawing, directly from a bath of molten metal, rods and tubes of copper.

Dr. Byron E. Eldred, new president of the Engineers Club, New York City, and one of the nation's few remaining independent research scientists, is the inventor of draw casting.

Dr. Eldred melts his copper in a furnace which has one or more holes in the bottom. In each of these holes is inserted a copper rod that is going to be the "parent" of hundreds of feet of additional rod the same size. These parent rods are cooled by a surrounding water chamber and transmit their coolness up into the molten copper. Around each of their tips the melted metal starts to "freeze" and in turn becomes cooler. As the metal in the bath freezes, from the inside out as it were, the rods are pulled out and continually solidify more metal within the furnace.

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Night drivers travel five to ten miles an hour slower than daytime drivers.