PALEONTOLOGY

Six-Horned Beasts Sought in South Dakota

SIX-HORNED beasts that lived in South Dakota 30,000,000 years ago will be sought in the Dakota badlands during the coming field season by a joint expedition of the National Geographic Society and the South Dakota State School of Mines.

The animals, known as protoceras, were not giants. They were only about the size of sheep, and they were remotely related to deer and antelope. In addition to the six horns or knobs that adorned his head, the male also had a pair of slender tusks.

The expedition will also hunt for the bones of titanotheres, which were rhinoceros-like animals as tall as elephants.

President Joseph P. Connolly of the School of Mines will be in charge of the researches, assisted by James D. Bump, curator of the School's museum.

Science News Letter, March 16, 1940

ARCHAEOLOGY

Oldest Steel Weapon Was Made About 1500 B.C.

THE WORLD'S oldest steel weapon, a battle-axe made by expert munitions makers of about 1500 B.C., has been unearthed in Syria by the French Archaeological Expedition to Ras Shamra.

Praising technical skill of the makers, Dr. Claude F. A. Schaefier, director of the expedition, attributes the battle-axe to Mitannians from the Euphrates region, who were outstanding militarists of their time.

The axe blade is of iron put through steel-making processes, he explains. Long before modern steel puddlers began to melt iron to harden it by sudden cooling, it appears that the ancient Near East achieved a primitive kind of steel by shaping the iron blade, then heating and plunging it into cold water.

Fastening the iron axe blade to the handle was a beautifully ornamented bronze socket. Two lion heads and a wild boar, cleverly designed, are the decorations. The socket was shrunk on to the blade, so that no rivets were needed.

Mittanians are credited with great skill in horse breeding, and their handling of horse-drawn chariots in war was one of the "modern" developments of fighting in their age.

When found by Dr. Schaeffer, the axe was in a sanctuary in the ruins at Ras Shamra. Military officers worshipped there, he infers, since the adjoining building was a great riding hall and communicating with that was a fine stable. In ashes that covered the ruins, were discovered many arrows and pieces of armor, indicating that the building served also as an arsenal for chariots.

Ras Shamra, in northern Syria, was the ancient city known as Ugarit. Since 1928, when a Syrian peasant dug his way into a vaulted tomb containing gold objects, the French National Museums have sent nine expeditions to dig at the site. Inscriptions of great importance, including some in a new script, are among revelations from the site. Deciphering them, scholars now have evidence of the lost Canaanite literature, which explains the origin of many ideas and customs of Hebrews in the Bible.

Science News Letter, March 16, 1940

PHYSICS—MEDICINE

Radioactive Indium Metal May Have Medical Uses

THREE new forms of artificially radioactive indium, created by bombarding the rare metal with high-voltage X-rays, have been manufactured by a Massachusetts Institute of Technology research group.

The discovery, reported to the American Physical Society, confirmed the findings of Notre Dame physicists that high-voltage X-rays would produce radioactivity. The artificially activated indium made in that experiment had a half-life of four hours but M.I.T. scientists have uncovered a whole range of activities, from one with a half-life of 4 hours to one with a half-life period of only 12 seconds.

Substances with short half-life periods are expected to be very valuable in the medical applications of these substances.

The report was an unprogramed supplement to a scientific paper on the high-voltage production of positive ion and electron beams with the M.I.T. giant electrostatic generator. The research was done by Dr. Robert J. Van de Graaff, Dr. Lester C. Van Atta, Dr. Chester M. Van Atta and Doyle L. Northrup.

Evidence of the new activities was detected with the generator operating at a little under 1,000,000 volts, considerably lower than had been expected, and the yield mounted rapidly as the voltage was increased.

Indium is a rare metal with properties similar to aluminum. It is silver-white in color, softer than lead and about the same weight as tin. It is found chiefly in zinc sulphide or zinc blende ores.

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IN SCIEN

ORNITHOLOGY

Imperial Penguin Comes to National Zoological Park

See Front Cover

FIRST of its kind to arrive in the United States, an imperial penguin, one of the largest and most dignified of penguin species, has been received at the National Zoological Park in Washington, D. C., and is shown on the cover of this week's SCIENCE NEWS LETTER.

It was captured in Antarctica by Malcolm Davis of the "Zoo" staff, now with the Byrd expedition, and photographed by Fremont Davis, Science Service staff photographer.

Sex of the newcomer has not been determined, since male and female emperor penguins are exactly alike in external appearance.

Science News Letter, March 16, 1940

ENGINEERING

Blotting Paper Principle Makes Harder Concrete

THE U. S. Reclamation Bureau engineers have perfected a new, inexpensive method of hardening concrete surfaces, which compacts the concrete and avoids the forming of "voids" within it. They use "blotting" paper.

To improve the surface of the spillways of its giant dams, over which billions of gallons of water glide yearly, government engineers tried a highly absorbent wall fiber board, similar to the board you use in your home, except that it is even more absorbent. They found the paper, unrolled on the spillway concrete while it was still soft, drew out excess moisture and allowed air bubbles to escape from the drying mixture. There is a double-action effect. The concrete dries evenly, the fiber board remaining moist and protecting the surface.

The resulting spillway surfaces were satin-smooth. Tests indicated that the concrete was unusually hard and wear-resistant.

The new process was reported by C. O. Crane, assistant engineer of the Bureau, to the Colorado Engineers' Society.

Science News Letter, March 16, 1940

CE FIELDS

MEDICINE

Blood Grouping Shown On German Soldiers' Tags

EVERY German soldier has a new mark on his identification tag, around his neck, for use in case he becomes a casualty. In addition to name and outfit identification, the metal tag shows the soldier's blood group, saving valuable time in case a hurry-up blood transfusion is needed. Blood from a donor or bottled crimson fluid from a blood bank can thus be transfused without stopping to type the wounded man's blood. This information is from Berlin via American Medical Association. The Japanese army already does this.

Science News Letter, March 16, 1940

ARCHAEOLOGY

Pharaoh Psousennes Found In Gold Trappings

DISCOVERY of a 3,000-year-old Pharaoh shining in regal gold, announced by Prof. Pierre Montet of the University of Strasbourg, brings a new figure into the limelight, and into the ranks of Egypt's kingly mummies.

Little known to history, Psousennes I ruled during a troubled dynastic era, about 1000 B.C. Egypt's prestige abroad was low. Within the country, robbers had so persistently plundered tombs of Egypt's kings and queens at Thebes cemetery, that the living rulers had a serious problem to move the kings about to safer tombs. Eventually, many royal refugee mummies found a hiding place in the temple of Deir el Bahri at Thebes cemetery, and there a motley gathering of kings remained, some in their own coffins, some in borrowed trappings, until modern discoverers brought them to light in 1881. They have since been moved into what is coming to be the traditional resting place of Egyptian kingly mummies in our time—the Cairo Museum.

Psousennes and other kings of the tenth and eleventh centuries B.C., who saw the plundered wreckage of their predecessors' tombs, were themselves more fortunate. At least, so it appears from Prof. Montet's success thus far in finding tombs of the twenty-first and twenty-second dynasties in the Egyptian Delta. Shishak, whose gold and silver coffins were found by Prof. Montet just a year ago, lay undisturbed in his tomb, by the fortunate chance that a solid wall hid the place. Shishak and his treasures have joined the assembly in the Cairo Museum, greatest conclave of dead royalty anywhere on earth. And now comes Psousennes, whose career will be better understood when Prof. Montet has read inscriptions in his tomb.

Science News Letter, March 16, 1940

MEDICINE

Cold Blood Can be Used Safely in Transfusions

COLD blood from blood banks may safely be used for transfusions without previous heating, Drs. Elmer L. DeGowin, John E. Harris and E. D. Plass, of the State University of Iowa College of Medicine, announce. (*Journal, American Medical Association,* March 9)

"Economic pressure in the United States" and "military necessity in Europe" have stimulated interest in these banks of preserved blood for human transfusions, they point out.

The use of cold blood, at temperatures between 59 and 77 degrees Fahrenheit, without first warming it to body temperature of 98 degrees Fahrenheit, saves time and money in transfusions and avoids the danger of getting the blood too warm during the preheating. Cold blood does not significantly lower the patient's temperature nor does it cause consistent change in blood pressure or other untoward clinical symptoms.

The effect of storage on the blood was also studied by the Iowa investigators. They make it a rule, as a result of their studies, to discard citrated blood after 10 days of storage, and to discard blood in a dextrose-citrate mixture after 30 days.

For military purposes, when preserved blood for transfusion must be transported considerable distances, the studies show that the dextrose-citrate mixture is the preservative of choice and that the blood should be kept in flasks containing no air. These two measures help to prevent damage to the red blood cells by shaking of the blood in transportation. Rubber stoppers, a great advantage over cotton plugs from the standpoint of facilitating transportation, are as good as the cotton plugs for preserving the blood.

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PHILATELY

Scientists on New Stamps May Stir Contention

UPON new U. S. postage stamps there are appearing this year portraits of 35 intellectual leaders of America, five artists, five authors, five composers, five inventors and five scientists.

This recognition upon our stamps of other than military and political leaders will meet, in principle, with general approval. And it will not cost the government money because collectors buy stamps by the thousands that are never used for postage.

Whether the right five in each group has been picked is another question. Most lack of agreement with the P. O. Department's selection is likely to be expressed in connection with the selection of scientists: Luther Burbank, Dr. Crawford W. Long, Dr. Walter Reed, John James Audubon and Jane Addams.

Dr. Reed, who demonstrated the transmission of yellow fever by the mosquito, will meet with universal approval in science circles. Audubon, the pioneer American naturalist and gifted portrait painter of birds, will too win approval. Jane Addams, great humanitarian, is hardly considered a scientist in the strict sense. For great welfare workers why not a special series to do them honor?

Selection of Dr. Long revives the controversy as to who deserves the credit for ether anesthesia, this Georgia village doctor or William T. G. Morton, Boston dentist. Long was chronologically first, but the use of ether for operations spread from the Boston focus. Why not honor both with stamps?

Most controversy will be caused by the face of Burbank upon a stamp. He is rated a great gardener rather than a great botanist.

Scientists by the dozen have equal reason for being honored on our stamps. Joseph Henry, who ranks with Faraday as the father of the electrical industry; Benjamin Rush, early physician of Philadelphia; Josiah Willard Gibbs, founder of thermodynamics; Simon Newcomb, the astronomer; Asa Gray, the botanist; Benjamin Silliman, early Yale chemist; Joseph Leidy, E. D. Cope and Othniel Charles Marsh, great explorers of ancient and living animals; Dr. William H. Welch, great pioneer in medicine.

Two great scientists and a great agriculturalist, already honored with stamps, may be claimed by science: Benjamin Franklin, Thomas Jefferson and George Washington.

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