

ARCHAEOLOGY

Colorado Yields Half Ton of Indian Weapons and Tools

HALF A TON of stone axes, arrow points and other weapons and tools once used by Indians who lived in Colorado have been gathered by an archaeological expedition from the University of Denver, led by Prof. E. B. Renaud.

The expedition, which has returned to the university, covered 10,000 miles in making the first archaeological survey of eastern Colorado. More than 250 Indian sites were found. The survey fits into the Smithsonian Institution's program of locating as many of the old Indian camping grounds, villages, and shelters as can be identified today.

Indians of different parts of the region explored used different materials for their stone implements, the survey found. Petrified wood from the Black Forest was found "just as good" as ordinary stone in the central highlands. Quartzite of varied colors was most used in some other sections. Flint was common in the northern part, and a black slaty material was much employed in the southwest.

Science News Letter, October 11, 1930

CHEMISTRY—ARCHAEOLOGY

Glass Is Called a Liquid, With Qualifications

GLASS which has been stuff of mystery and secrecy for thousands of years, is now explained in scientific terms, and the explanation is as much like magic as the ancient Assyrian formulas. Glass is a liquid, George W. Morey, of the Carnegie Institution of Washington, has concluded. It is a liquid in a state of suspended animation.

Only three ingredients mixed in the proper proportions and melted and cooled can produce this unique state of matter, and it is one of the strange facts of prehistory that this narrowly limited combination was discovered by primitive men, probably in Syria, perhaps as far back as 5500 B. C.

"To keep the secret of the proper proportions of the various ingredients of glassware has been the prime motive of the secrecy and mysticism within which glass manufacture has been shrouded from the earliest times to the past decade, and from the influence of which the industry has not yet freed itself," declares Mr. Morey in *Art and*

Archaeology. "The reason for this restricted composition range is to be found in the physico-chemical relationships of the ingredients, and once these relationships are known, long-cherished glass formulæ become obvious deductions from them. These physico-chemical relationships have only recently been discovered by workers in the Geophysical Laboratory of the Carnegie Institution of Washington."

The secret is simple, once it has been found out, Mr. Morey points out. The three ingredients of glass—lime, soda, and sand, when mixed in certain proportions have a particularly low melting point. As a result of this, by the time the mixture reaches its freezing temperature it is so stiff and viscous that the molecular change which would cause the glass to become opaque can hardly take place. Too little or too much of any of the ingredients and the glass becomes opaque, not durable, or otherwise worthless.

Science News Letter, October 11, 1930

MEDICINE

U. S. Following Europe In Medico-Legal Practice

EUROPEAN countries are far ahead of the United States in the practice of legal medicine, Col. Calvin Goddard of the Scientific Crime Detection Laboratory of Northwestern University has told members of the Association of Military Surgeons of the United States.

In 13 European countries which he just visited, Col. Goddard did not find a single police commissioner who was not either a doctor of medicine, a doctor of laws or a doctor of science. The medical expert for the court is a respected, honored person in Europe. He must have a degree in legal medicine as well as his regular medical degree, and he is expected to find the facts, not to help convict a prisoner or suspected criminal.

At the Northwestern University laboratory, work paralleling that of the medico-legal institutes of European countries is being undertaken. Identification of bullets with the guns from which they were fired; analysis, examination and identification of material scraped from the finger nails of a dead man or a suspect; and lectures to state's attorneys, police lieutenants, and detectives are among the many ways in which the new laboratory is assisting in clearing up crimes. The laboratory or school is the first of its kind in this country.

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IN SCIENCE

ARCHAEOLOGY

Dogs Sacrificed With Babies At Babylonian City, Kish

NUMEROUS jars containing remains of babies, found at the ancient Babylonian city of Kish, suggests that children were sacrificed to the gods in that city. Small dogs buried with some of the children indicate that these pets were also sacrificed so that they might protect the babies in the future world. These discoveries from the ruins of the city are described by Henry Field, anthropologist of the Field Museum of Natural History, in a statement from the museum.

Mr. Field, who was with the Field Museum-Oxford University Joint expedition at Kish for some time, states that during the excavations in the Babylonian levels, approximately 2,500 years old, numerous burial jars containing children, were unearthed. The majority of the babies were girls.

"The burial jars had been placed along the walls of the more important buildings," he explains, "and it seems plausible to suggest that these babies may have been sacrificed to propitiate the gods in whose honor the buildings were erected."

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ZOOLOGY

Thousand Sporting Whales Sighted By Airplane

USE OF the airplane for scouting various fishes has been successful in many places, but an unusual sight was revealed to Aviator Frank Dorbandt while flying high above Cook's Inlet, Alaska, recently. Fully a thousand whales played and sported in the sea under him and to assure himself of their numbers he circled over them several times. Spouting, rolling and diving the whales seemed given more to basking in the sun than to seeking or pursuing any species of food fish. Some kinds of whales migrate in the late summer to the south and it is possible the pilot noted one of these movements.

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FIELDS

CHEMISTRY

Ultraviolet Light Shows Up Check Raiser's Changes

THE TREATMENT of check paper with æsculin, a white powder obtained from the bark of the horsechestnut tree, makes it possible for the bank teller to detect with ease erasures and changes which otherwise might escape notice.

Æsculin fluoresces, or glows, when placed under ultraviolet light. An erasure on paper treated with this substance would show up as a dark spot on an otherwise luminous surface. A patent on the process has just been granted to Dr. D. Julian Block.

Science News Letter, October 11, 1930

SOCIAL SCIENCE

Modern Studies to Aid Retarded Deaf Pupils

A CHILD whose hearing is even slightly defective is handicapped in the race to keep up with the other children in school. Greater loss of hearing increases a child's difficulties. This is reported by psychologists and educators studying the causes and effects of deafness among children of Philadelphia.

The investigators report that children with impaired hearing made lower ratings on intelligence tests of a standard type, they were more retarded in progress from grade to grade, they made lower school records. They also suffered more from malnutrition, showed a higher percentage of sight defects, and a greater amount of speech defect.

The investigation was conducted by Dr. John L. Waldman and Dr. Francis A. Wade, supervising principals of the public schools, and by Dr. Carl W. Aretz, president of Ellis College. Dr. Thaddeus Bolton, of Temple University, has been directing the work, which links with his own studies on deafness.

In a cross-section of 1,600 children in public schools, five and a half per cent. were considered deaf enough to form a special problem.

With the improved instruments now available for detecting and measuring deafness, it is possible to accumulate facts about the situation more rapidly, and to develop new ways of aiding the deafened child, Dr. Bolton points out.

It was found that children who are partly deaf tend to develop unconsciously a skill at reading the lips of other people to compensate somewhat for their handicap. This shows the usefulness of formal training in speech reading for such children, Dr. Bolton declares.

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ORNITHOLOGY

Chimney Swifts Gathering To Leave for Unknown

A MYSTERY of the air that may not be solved until the forests of the Amazon have been explored lies in the sudden disappearance each fall of hosts of chimney swifts from the United States.

At various centers throughout the country these birds are flocking now in preparation for their scheduled take-off about the first of October. Travelling in clouds they will journey southward to the Gulf States. Their final destination is as yet uncertain and it is only recently that they have been seen outside the United States. They have been noted several times in Haiti and were in Mexico apparently en route to some point in South America. A foolish legend of earlier times had it that they hibernated beneath the waters of lakes and marshes.

While the secrets of many bird migrations have been solved by bird banding enthusiasts, the route followed by the chimney swifts remains in part uncharted. The little numbered identification tags have been placed on more than thirty thousand swifts and, although many have been retrapped at various points within the United States, none has ever been recovered outside of the national boundaries.

Frederick C. Lincoln, assistant biologist, in charge of bird banding operations of the United States Biological Survey, says that the swifts fly at high altitudes where they cannot be identified easily but that some have been sighted going over Haiti. He believes they spend the winter months in the little known Rain Forest of the Amazon River, in Brazil.

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PSYCHOLOGY

Mother More Important Than Father to Flappers

TO girls of the flapper age, mother is more important than father, Dr. Anne H. McAllister has reported to the psychologists of the British Association for the Advancement of Science after an examination of 233 original stories written for children by eighteen-year-old girls studying to be teachers. Only a fifth of the stories mentioned father at all. And then father figured in the stories as a mere background to mother, usually as the parent administering punishment for wrongdoing. Six out of every ten stories mentioned the mother. In the stories written by the eighteen year olds troubles always ended magically by flight from reality into utopia or fairyland, while punishment always came as direct retribution for wrong.

Thirty-year-old teachers were less idealistic. Their stories for children ended by bettering conditions as they actually were rather than escaping from them into fairyland. And the punishments written into the fiction of the older teachers were not vindictive, but aimed at the correction of vices.

Science News Letter, October 11, 1930

BOTANY

Strange Yellow Calla Lily Noticed By Botanist

A FREAK calla lily which may become a plant of floricultural value is reported by James Lambert, director of the botanic gardens of the University of Pennsylvania and formerly of Kew Gardens, London.

The plant, which appeared among the specimens of flowers in the experimental section of the garden, is a golden calla of the species *Zantedeschia elliotiana*. Unlike ordinary callas, however, it bears a leaf as well as a flower on its flower-stem, and the leaf is of the same bright color as the "spathe" or showy envelope of the inflorescence, which is itself slightly abnormal in shape and size. The rest of the foliage is of the usual green.

This species has long been known to have a tendency toward "sporting" in its flowers, but this is the first known instance of the flower giving its color to the leaf. It remains to be seen whether the tendency will be repeated in plants produced from the division of the root stock of this one.

Science News Letter, October 11, 1930