# SCIENCE NEWS

*By Watson Davis, Managing Editor of Science Service*

## PAPERS AT THE BOULDER MEETING OF SOUTHWESTERN DIVISION OF THE AMERICAN ASSOCIATION

PROFESSOR T. D. A. COCKERELL, zoologist of the University of Colorado, who resembles the great Huxley in his widespread interest in nature and science, told the scientists of the southwestern division of the American Association for the Advancement of Science, meeting at the University of Colorado, what Huxley might say if he were among us to-day. Referring to fundamentalists in religion and science, Professor Cockerell continued: "Those who would insist on confining the growing living science and religion of the day within the boundaries of ancient tradition are themselves the wasters of that which they hold most precious."

Contrasted with this modern attitude toward the forces of nature was the study of ancient Indian religion that was presented to the scientists on behalf of Kenneth M. Chapman, of the School of American Research, Santa Fé, New Mexico. Through many centuries the Zuni Indians have used the form of the bird on their pottery as a method of sending their prayers to the Sky Father. So ancient is this custom that the pictures of the bird have been conventionalized until they are hardly recognized as such. Even to-day there survives the ancient belief in the mythic power of all bird kind which acted as an intermediary between the Indian and the mysterious sky forces. In some cases these distorted bird symbols have lost their names among the Indian women who use them in decorating pottery. "We like to make them," they say in explanation when asked why they continue to use these designs, "because our mothers did."

Why some parts of the body are invaded by disease germs and others are not was stated by Dr. Elliott C. Prentiss, of El Paso, Texas, in his presidential address, to be one of the most important medical questions now awaiting solution. He pointed out that in tuberculosis, a disease of great interest to the Southwest, lungs, pleurae, larynx, brain and bones are most frequently attacked by the bacillus, while the tissue of the human body that is least often infected is that of the muscles. This is true in spite of the fact that the germ gets into the general circulation of the blood and goes impartially to all parts of the body. A method of treatment of tuberculosis based on this differential immunity may be evolved, Dr. Prentiss said, and he announced that some experiments were in progress. After attempting the immunization of guinea pigs with injections of muscle tissue and after trying the injections on himself, he applied the new method to several advanced human cases of tuberculosis with inconclusive but promising results.

Evidence that a race of prehistoric Americans closely related to the ancient peoples of Australia and Melanesia existed in the great American Southwest about two or more millenniums before Christ was presented by Professor E. B. Renaud, of the University of Denver, who by careful measurements of human skulls unearthed from ancient graves discovered only during the last two and three years has concluded that these peculiar relics of an extinct race give evidence of a paleoamerican culture more antique than any heretofore recognized.

The junction of what is now the four great states of Utah, Colorado, Arizona and New Mexico was the country that this race inhabited. The ruins of their burial caves, sites and implements have caused portions of this paleoamerican race to be called the basketmakers, but Professor Renaud by a comparison of their skulls with those from South America, Australia and the islands near Asia has concluded that they were of a race that preceded the Pueblo Indians and also antedated the better known plains Indian. The American basketmakers with the similar races of South America formed a substratum of aboriginal Americans with long narrow heads instead of the broad heads of the later Indians.

Professor Renaud was led to his results by the fact that the heads of the ancient race were not deformed or flattened at the back portion like the crania of the Pueblo Indians. Moreover the skulls give evidence of being so similar to those of primitive Negroid and Australoid races that Professor Renaud labels them as protonegroid and protoaustraloid.

Whence came this race? From the close relationships of the skulls Professor Renaud concludes that it was the result of an infiltration of peoples from somewhere in southern Asia by way of Siberia and Alaska. Probably different branches of migrants at somewhat different times went into northeastern North America and into South America, for in these localities the undeformed skulls are also found. The heads of the paleoamericans were not flattened due to the fact that unlike the Pueblos they used a soft cradle board upon which to carry their young.

Other ancient inhabitants of western America, the oldest ant and the oldest wasp known to the world, were described by Professor T. D. A. Cockerell, of the University of Colorado. Nature embalmed these insects many millions of years ago in the oil shale beds of Eocene age that occur over a very large area of Colorado, Wyoming and Utah and they have just been dug out.

"The ant represents a primitive type allied to certain ants of Australia, but the wasp has a very modern aspect, not differing materially from those which may be caught in Colorado to-day," Professor Cockerell explained. "Thus we are sure that the wasps must have originated very much earlier. No butterflies or bees have yet been found in the oil shales, but we have many beetles and beautiful butterfly-like Homoptera, resembling kinds now inhabiting India."

More than a thousand kinds of fossil insects have been discovered in the Miocene Florissant beds near the base of Pike's Peak, but strangely no trace of the near relatives of the common house fly, stable fly or blue-bottle fly have ever been found. But Professor Cockerell has unearthed four different kinds of tsetse flies, a genus no longer existing in the northern hemisphere, but practically the same as the deadly insect that spread sleeping sickness among men and cattle in Africa to-day.

A warning against the further destruction of wild animals and fishes and the pollution of the rivers and streams was sounded by Dr. Henry B. Ward, of the University of Illinois, in an address. Many species of fishes and animals are about to disappear from the face of the earth, he said, just as the last fifty years has seen the disappearance of large numbers of wild animals on land, birds in the air and fish in the water. Not only does man's destruction include large animals and other fauna, but it menaces worms, insects and minute organisms in ponds and brooks necessary to keep nature in a state of balance. It is just as bad to pollute the water highways or rivers with city sewage and manufacturing wastes as it is to pitch trash and filth into the public highway or city street.

The planet Mars supports life and enjoys a temperature that at times ranges from 50 to 60 degrees Fahrenheit, according to the conclusions of a paper presented by Dr. A. E. Douglass, professor of astronomy at the University of Arizona.

Measurements at two large observatories showed that there is sufficient heat on the earth's next-door neighbor in the solar system to allow some sort of organic life to grow there and at two other observatories distinct photographs of the markings on Mars were obtained at the time of the planet's close approach to earth last summer.

"These new facts do not mean that there is intelligent life on Mars, like the hypothetical Martians of fiction, but we do find that conditions are favorable to the existence of some low type of living matter, probably vegetable."

The temperature measurements were made by C. O. Lampland at the Lowell Observatory at Flagstaff, Ariz., with the cooperation of Dr. W. W. Coblentz, of the National Bureau of Standards, and at the Mount Wilson Observatory. Dr. Douglass, working at the Steward Observatory, of which he is director, and astronomers of Lick Observatory, California, independently photographed the disputed markings on the surface of the planet through the use of specially sensitive photographic plates.

After using ordinary plates in attempts to record the Martian landscape, Dr. Douglass discovered that special plates, sensitive only to light longer in wavelengths than the red we see with our eyes, would demonstrate the markings with greater distinctness and contrast than even the eye could distinguish. That the failure of the ordinary photographic plate to record the Martian markings is due to the fact that the atmosphere of Mars scatters the blue light to which the ordinary plate is most sensitive was proved by Dr. Douglass by experiments in photographing Arizona mountains through his astronomical telescope. Selecting a hill about five miles away he found that ordinary photography did not bring out details while red-sensitive plates make the trees and rocks stand out like a close-up photograph.

Dr. Douglass has also seen the neutral dark area near the equator of Mars turn to an unmistakable green as the Martian caps became smaller, presumably due to the melting of snow and the consequent growing of vegetation spurred on by moisture.

The planet Venus is the only rival to Mars and the Earth in the possibility of supporting life, but since its surface is continually cloud-covered Dr. Douglass is doubtful how soon we shall be able to investigate this point.

Often the supposed desert spaces on Mars can be seen tinted with red and Dr. Douglass has concluded that this is due to the presence of iron, just as deserts and waste lands on earth are known to owe their ruddy cast to colorful compounds of this plentiful element.

In fact, coloration due to iron brings about a kinship of the "Garden of the Gods," the familiar red barn, Martian deserts and Indian pottery. For Professor Frank E. E. Germann, of the University of Colorado, through chemical analysis has found that the Indians utilized the iron ore, hematite, for the red pigment of their pottery and the iron compound, magnetite, as the black pigment. He declared that the use of these two oxides of iron should be regarded as notable scientific achievements of the Indians and evidence that the cheap barn paint of to-day dates back to the American aborigines.

A new disease attacking the alfalfa fields of Colorado was reported by Professor L. W. Durrell, of the Colorado Agricultural College. It is a bacterial root rot that occurs in them when the plants are three or more years old.

Interesting evidence that a microorganism can become the factory for the growth promoting vitamin B needed by man and animals for healthy existence was presented by Professor Robert C. Lewis, of the University of Colorado School of Medicine. He found that rats deprived of the vitamin but fed on a day-old growth of colon bacilli thrived happily and concludes that the germs actually make the vitamin.

## ITEMS

AN all-American cold cure, based on home-grown menthol, is a possibility held out by the Bureau of Plant Industry of the U. S. Department of Agriculture. Inasmuch as menthol is now imported at a cost of more than a million dollars annually, government botanists point out that menthol-bearing mint plants can be made a profitable crop if properly cultivated in regions where the climate is suitable. Experimental plantings in various parts of the United States during the past year have shown that the mint does not produce a high enough percentage of menthol in southern states, but in the cooler and moister northern states its culture can be made to pay.