

sional astronomers will be stationed along the path in eastern Canada and New England, the chances for clear weather are approximately the same all the way from the St. Lawrence to the Atlantic Coast. The eclipse will not be seen any better from one of the professional stations than from a point some distance away. The astronomers will be very busy for some time before the eclipse, making final adjustments, and during the eclipse they will give it their undivided attention. Even after it is over, they will still be busy, developing photographs, and taking down their apparatus. Consequently, most of the parties will have very little time to entertain visitors.

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ASTRONOMY

New Comet Visible Through Binoculars

WITH THE AID of binoculars a comet is visible in the northeastern evening sky. It is Peltier-Whipple comet, named after the two Americans who discovered it a few days ago. It is one of the brightest comets of recent years but will probably not become visible without slight aid in the form of a small telescope or good field glasses.

At present it is in the constellation of Perseus not far from the bright star Algol. It is moving rapidly northward several degrees a day and slightly eastward. It has a tail one degree long, or twice the diameter of the full moon.

An orbit computed by Dr. Fred L. Whipple of Harvard College Observatory, one of the discoverers, shows that the comet is about fifty million miles from the earth and that it will come closest to the sun at its perihelion near the end of August. The astronomers can not identify the comet with any previously observed and it is therefore considered a new one.

The Peltier-Whipple comet is magnitude 7 or 8. The comet was discovered by two American astronomers independently but so nearly at the same time that it will bear their names jointly. Leslie C. Peltier, an amateur of Delphos, Ohio, who has comets discovered in 1925 and 1930 to his credit, is one discoverer, while Dr. F. L. Whipple of the Harvard College Observatory also found it on a Harvard photograph.

The discovery was confirmed by Dr. H. M. Jeffers of Lick Observatory, California, and by an observation in Europe.

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ANTHROPOLOGY

New Evidence Unearthed That Man Lived in Ice Age America

Science Service Investigators Study Folsom Type Dart Point Newly Found With Bison Bones in Nebraska Quarry

THAT ANCIENT man hunted strange bison in the Ice Age of ancient America, thousands of years before the accepted coming of Indians to America, receives further support through the investigation of discovery made in Nebraska by C. Bertrand Schultz, geology student of the University of Nebraska.

Science Service was notified of Mr. Schultz's discovery of a dart point associated with fossil bison in the Scott's Bluff quarry and authorized Dr. Earl H. Bell, anthropologist, and Dr. Edwin H. Barbour, geologist, of the University of Nebraska to investigate under the Science Service plan for archaeological and anthropological investigations.

By DR. EARL H. BELL, University of Nebraska

THE DISCOVERY of a Folsom type dart point associated with fossil bison in a quarry near Scott's Bluff, Nebraska, was reported on August 4.

In 1929 from Custer County, Nebraska, and 1931 in Hall County, Nebraska, Mr. Schultz had reported similar finds. Unfortunately, though due to no fault of Mr. Schultz, these were not immediately investigated.

On August 5, Dr. Edwin H. Barbour, chairman of the department of geology, University of Nebraska, and I set out for Scott's Bluff to investigate this last discovery on behalf of Science Service.

Upon our arrival we found that Mr. Schultz and his party had done everything possible to keep the point in situ. It was discovered by the accidental caving off of the face of the bank which left the point protruding about half out. A support was built from below, but the crumbly nature of the matrix allowed it to slide out. The remaining mould, however, made positive its original position.

The point was surrounded by bison bones and pointed toward the face of the bank. It rested not more than three inches above the Brule clay.

The artifact was about one foot back from the original edge of the bank and

one and one-half feet below the original surface. It was completely surrounded by bones, laid nearly horizontal and pointed outward.

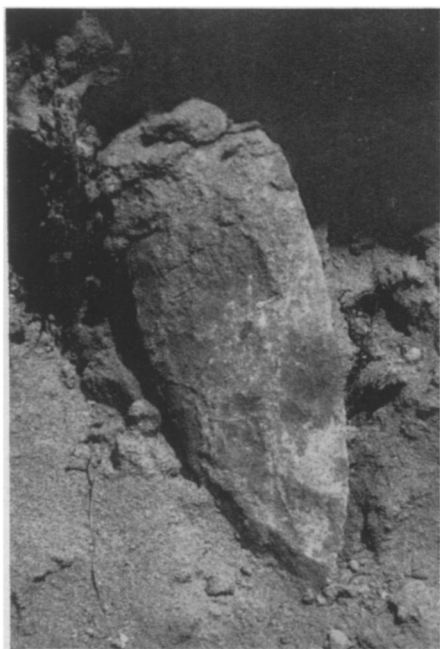
The point is two and three-fourths inches long and has a maximum width of one inch. The size and leaf-like shape indicate a dart rather than arrow point. The chipping is moderately good. It lacks the longitudinal groove but in general closely corresponds to one of the types found in the Folsom bison quarries in New Mexico.

The fossil bed in which the point was found is situated about three hundred yards north of Signal Butte and on the north bank of Spring Creek. Scott's Bluff, Nebraska, is about twenty-two miles northeast of the site. The exposed fossil layer is three feet thick, more than twenty feet long and was opened about six feet back for the face. The layer rested directly on the Brule clay, and is in an old river channel composed of water-worn pebbles of Brule, commonly seen in channel deposits of western Nebraska. Above the channel material is an over-burden of about fifteen feet of fine sandy material.

The layer is exceedingly rich in fossil bison bones, a large proportion of which are articulated. The bones distinctly differ from those of the modern bison and approach *Bison texanus* in form.

Fossil Seeds Significant

In evaluating this find as proof of Pleistocene man in America we are forced to consider two elements. In the first place: Is the stratum Pleistocene? In an unglaciated area such as western Nebraska, the stratigraphy must be largely determined by fossils. Dr. Barbour carefully studied the total situation, and besides the fossil bison he discovered freshwater and land snails, and pelecypod shells such as are commonly found in the western loess. In addition to these were the fossil hackberry seeds, *Celtis besseyi*, which are common in western Nebraska from the Pliocene upward into the Pleistocene. Dr. Barbour considered these very significant.



ICE AGE DART POINT

Discovery of this dart point in a Nebraska quarry may strengthen the theory that man lived and hunted in America during the Ice Age, thousands of years before the Indians came.

The presence of so many articulated bones bars the possibility of the stratum being redeposited Pleistocene. Dr. Barbour is certain that the deposit is Pleistocene.

The second problem is that of the possibility that the point may be intrusive to the bone layer. Unfortunately the point was not sufficiently below the surface totally to eliminate the possibility of accidental intrusion through earth cracks or gopher holes. However, the fact that the point lay flat and was surrounded by bones makes such a possibility at least unlikely. The fact that the artifact pointed outward eliminates the possibility that it may have been shot into the bank. The fact that the articulated bones rule out the possibility of redeposition also eliminates that external factor as a possible explanation of the association.

Dr. Barbour and I came to the conclusion that although conditions do not permit us to be absolutely positive that the point found by Schultz was made by a Pleistocene American and shot into a now extinct bison, the facts do lead us toward that position. Taken in conjunction with the other finds; the evidence for Pleistocene man in America is accumulating.

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PHYSICS

Cosmic Ray Study Is First In Importance for Piccard

THE MOST important observations to be made by Prof. Auguste Piccard in his second ascent to the stratosphere will be measurements of the cosmic rays, which are also being given intensive recordings in all parts of the world by American scientists.

For scientists are not greatly excited over the possibility of a new manned balloon record being set in the event that the shining white aluminum gondola carries its human freight farther from earth than any instrument has transported men. Neither are they vitally interested in the records of temperature, pressure, or other properties of the upper atmosphere that Prof. Piccard and his assistant will undoubtedly make.

Sounding balloons, carrying continuously recording instruments, have risen to altitudes of over twenty miles, twice as high as Prof. Piccard hopes to go. These balloons of science, not carrying observers, have brought back reliable information about the region of no weather, where the temperature is always about 70 degrees Fahrenheit below zero and the air is so thin that no human being could suck enough oxygen out of it to keep alive.

Ten Miles of Weather

The Piccard balloon will pass through all the weather there is in rising to the lower part of the stratosphere. All the clouds that fill the sky, as well as the strongest winds that blow, are found below the ten-mile height which is the goal. There the sun will shine brightly in a black sky. One of the most surprising discoveries of the science of weather occurred thirty years ago when sounding balloons brought back the information that temperature above about ten miles up did not constantly decrease with height as it does lower down in what is known as the troposphere or zone of weather.

The flight of the giant balloon with its sealed spherical shell containing Prof. Piccard and his assistant will be a thrilling experience, comparable in the ocean of atmosphere to William Beebe's descents in his bathysphere to depths of about a quarter mile into the ocean.

The cosmic rays measurements which will interest scientists most will be made with an electroscope within the aluminum gondola. The measurements when compared with those being made under the direction of Prof. Arthur H. Compton of the University of Chicago this summer may throw light on the mystery of the cosmic rays.

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ANTHROPOLOGY

Three Thighbones Confirm Java Ape-Man's Position

PITHECANTHROPUS *erectus*, the ape-man of Java, has had his existence as a true zoological genus confirmed through the recent discovery of three more thighbones by Dr. Eugene Du Bois, Dutch surgeon-scientist famous for his original find of the much-disputed fossils over forty years ago. This is the opinion of Prof. G. Elliot Smith, English anthropologist.

The three newly discovered thighbones will be eagerly awaited by scientists, the more so because the original, or "type" specimen, is flawed with a bony outgrowth that probably made its owner lame. Except for this imperfection, the three new bones are declared to be identical with the *Pithecanthropus* type in every respect; and they were found at Trinil, the site of the original discovery.

During recent months, Java has been the scene of several dramatic developments in the story of early man. First came the discovery by W. F. F. Openoorth and C. ter Haar of remains of a race resembling Neanderthal Man, which has been named *Homo (Javanthropos) soloensis*. This greatly extends the known range of Neanderthaloid men, and casts doubt upon Dr. Henry Fairfield Osborn's theory that *Pithecanthropus* was a form that developed in Java because the tropics did not favor the evolution of higher types. Then came Dr. Du Bois' statement, a little over a month ago, that two other skulls found in Java suggest the origin of the black natives of Australia from a race that migrated via the East Indies.

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