

ANTHROPOLOGY

# Earliest Americans Hunted Ice Age Beasts With Stone Darts

20,000-Year-Old Dart Points Found at Scene of Huge Hunt Are Marvels of Primitive Workmanship in Stone

**W**HEN the first human beings came to the western world, what kind of animals they hunted, and what kind of a climate they knew, were subjects of a specially arranged symposium in Pasadena this week, at the meeting of the American Association for the Advancement of Science.

Twenty thousand years was set as a definitely possible figure for man's antiquity in America by Barnum Brown, of the American Museum of Natural History. This estimate is the result of investigations of the famous find of bison bones at Folsom, N. M., which has yielded 17 peculiarly worked flint arrow or dart points closely associated with the skeletons of from 30 to 40 buffalo of an extinct species, one of them a great bull that stood seven feet high at the shoulders, all buried under several feet of wind-blown dust.

The first discovery of the bones was made a generation ago by a ranch foreman, but the scientific exploration of the bed was not begun until within the past five or six years. The flint weapon points were all found in such positions as to preclude the possibility of later burial, and the most natural inference seems to be that they were sticking in the bison when the animals fell. To guard against too hasty judgment by the discoverers themselves, whenever a point was found in a critical position it was left exactly in place, covered with a small box to protect it from the weather, until other scientists could be called in to see it.

## Best American Workmanship

These flint points were, in Mr. Brown's phrase, "of a workmanship that equals, if it does not surpass, anything heretofore discovered in America." They are of an entirely unique pattern, having a broad groove down the side. This was interpreted at first as a "blood groove," to enable the wound to bleed more freely. However, this interpretation is not now regarded as correct; it is more likely that the effect of this groove, removing a considerable bulk of

superfluous stone, was to make the point a more penetrating, and hence a more efficient weapon.

Mr. Brown compares the workmanship with that of the Solutréan flints found in France. The Solutréan hunters were members of the great Crô-Magnon race of Old Stone Age times, and flourished, according to some estimates, about 20,000 years ago.

The points are frequently referred to as arrow-heads, but for a number of reasons it seems more likely that they were used on hand-flung darts or javelins, and that the people who used them did not know the use of the bow.

## All Tails Missing

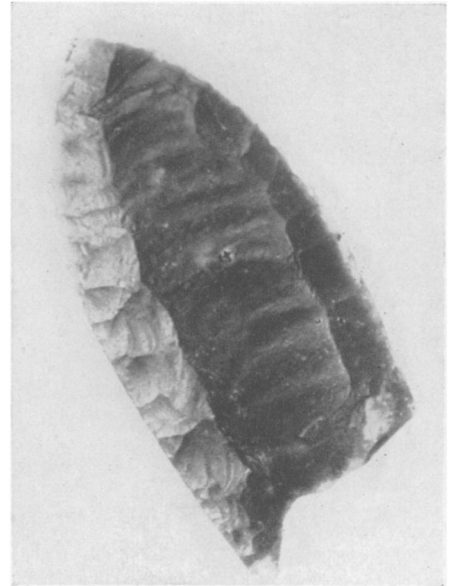
One final and curious bit of evidence from the skeletons themselves, rather than from the flint points, is adduced by Mr. Brown in favor of the view that the animals were killed in a great hunting drive. Bones from all parts of the skeleton have been found, with the single exception that all the tails are missing. Mr. Brown interprets this as

SEISMOLOGY

# Moon Found to Have Influence On California Earthquakes

**T**HAT RECENT earthquakes in southeastern California follow the passing of the moon overhead was announced to the meeting of the Seismological Society of America by Dr. Maxwell W. Allen of Sanger, Calif.

These earthquake shocks are not caused by the moon, said Dr. Allen, and they would have occurred anyway without its assistance. But in far more cases than chance would allow, the earthquake occurs when the moon is in a certain part of the sky. The critical time seems to be about five hours after the moon has reached its highest point in the sky and again some twelve hours



**SLEW GIANT BISON**

*Seventeen of these stone points, grooved for better penetration, were found with the Folsom bison bones*

meaning that the hunters took hides as well as meat, and that they carried off the tails with the hides.

The place where the bones were found fits in well with the hunt theory. It was at the bottom of a coulee or ravine that lay within a shallow canyon—a very natural place for a game herd to gather and drink, affording at the same time good cover for a hunting party bent on stalking them.

The findings elsewhere of man-

later. Earthquakes do occur at other times but less frequently.

Some weak part of the San Jacinto fault is believed to be the origin of these minor quakes. Probably at some relatively shallow depth, there is a point little able to resist the forces created by the moon and the quake is "set off" at this point.

Strong shocks, on the other hand, continued Dr. Allen, take place a few days after the moon is either new or full. Evidently the sensitive spot of the crust in this case is deeper and more plastic. Forces can thus deform this layer without causing a disturbance.

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#### COLD-BLOODED MATERNITY

*The joys of motherhood are too often thought of as a monopoly of warm-blooded creatures: we think altogether of the woman in her home, the lioness in her den, the brooding bird on her nest. Yet even the alien creatures in the cold-blooded phyla are not shut out from a knowledge of maternal solicitude. If they cannot keep their offspring warm, and nourish them with milk, many of them jealously guard their eggs, or even attach them to their bodies and laboriously carry them about during the time of incubation. In this picture Cornelia Clarke shows the personal "nursery" of a crayfish.*

worked flints and other artifacts associated with the bones of long-extinct animals has roused much speculation and discussion, said Prof. A. S. Romer, of the University of Chicago. Bones of elephants, ground-sloths, giant bison and other ice-age animals have been found in geological formations belonging to the last days of the glacial period, so that finding these with relics of human occupation presents no special difficulties. But human traces have also been found with the bones of extinct species of camel, horse and other animals, and about these there seem to be difficulties aplenty. For these latter beasts are supposed by some scientists to have been extinct for half a million years at least, while the human bones are like those of modern Indians and the flints and other implements are also "modern" in type.

In Prof. Romer's opinion the apparent discrepancy in age between man and animals whose remains are found together is not to be sought by supposing the men to have been as ancient as 500,000 years, but by adopting the idea that the animals lived on a good deal longer than they were at first supposed to have done. Thus we might have man on this continent hunting humpless camels and giant ground-sloths as recently as 20,000, or perhaps only 10,000 years ago.

#### Gypsum Cane Discussed

The significance of the human and animal remains in the now famous Gypsum Cave in Nevada was discussed by M. R. Harrington, of the Southwest Museum, Los Angeles. Deposits in this

cave indicated successive occupations by ancient men at a time when horses and camels roamed the country, as a den by giant ground-sloths whom other ancient men hunted, by Basket-Maker Indians of some three thousand years ago, by early Pueblos and finally by the modern southern Paiute Indians.

The presence of extinct horses and camels indicates a fairly moist, rainy climate, quite unlike the aridity of the region at present, Mr. Harrington said. This was followed by a drier time, when the region was invaded by the great sloths, and this in turn by the full desert conditions of modern times. The rainy epoch, he believes, coincided with the last days of the glaciers on this continent.

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#### PHYSICS

## New Slow Electron Compass Points East Instead of North

**A** NEW compass using no magnet has been devised for airplanes by Dr. Ernest Brüche of the Technical University of Dantzig. A stream of electrons scintillating on a screen is used in this device and differences in the way the apparatus is pointed are shown in changes of the trace of the electrons on the screen.

The device is similar to the electric vacuum-discharge tube invented by Sir William Crookes in which the existence

#### MEDICINE

## X-Rays Relieve Baby's Stomach Obstruction

**X**-RAY TREATMENT relieves obstruction of the lower opening of the stomach in new-born infants, Dr. Orville Barbour of Peoria, Ill., told members of the American Medical Association. He reported that the method was successfully used in 33 out of 37 cases during the last five years.

This condition, known by the medical term of pyloric stenosis, is extremely serious. The obstruction prevents the food from passing through the infant's alimentary tract in the normal way and severe vomiting occurs.

Special diets, drugs, and surgical operation to remove the obstruction have all been found effective methods of relieving the condition in many cases. The advantage of the new method which employs X-rays is the saving of time. The radiation takes effect within 24 hours if it is effective at all, whereas if medical treatment is tried it may require a week or two to be effective. By that time, if it is not effective, the child may be so weakened that he cannot stand an operation, if one is considered necessary.

Dr. Barbour and associates discovered the effects of the X-rays accidentally. They were making an X-ray photograph preparatory to an operation when they noticed that after the exposure to the rays, the vomiting ceased. This cessation was temporary at first, but became permanent in response to subsequent application of the X-rays.

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of the electron was first discovered. It has been known since the time of the German physicist, Wilhelm Hittorf, that a horseshoe magnet placed near such a tube will bend the stream of electrons out of their straight course. However, the magnetic forces of the earth which cause a mariner's magnet to swing towards the north are much too small to show any effect on the electrons of the Crookes tube.

The reason for this is that the elec-