

## ANTHROPOLOGY

**Human Race is Just About One Million Years Old**

**Y**EAR ONE for the human race came at the division-time between pliocene and pleistocene, usually reckoned as about a million years ago, Dr. Hellmut de Terra of Yale University told the American Philosophical Society meeting in Philadelphia. Dr. de Terra's estimate is based on studies which he and his colleagues have been conducting during the past year on evidences of geologic cycles in India.

The pleistocene was the great Ice Age, that began approximately a million years ago. The pliocene was the longer age immediately preceding it.

Peking Man lived on the ice-free hills of China about the middle of the Ice Age, and men of comparable stages of bodily evolution and cultural attainments were widespread in Asia, Europe and Africa during the same period. This means of course that the human race had already been in existence a long time by the middle of the Ice Age.

In Java, evidences of human existence trace back to early pleistocene times. The fossil beds of India of pliocene age yield remains of strikingly manlike apes, but as yet no true human relics. This gives a "bracket" for the probable origin of the human race as between pliocene and early pleistocene, Dr. de Terra concluded.

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## DENDROLOGY

**Giant Sequoia Trees Have Tiny Beginnings**

**T**HE WORLD'S mightiest, most majestic trees, the giant sequoias of the California hills, have never had their story fully told. A new chapter was read before the meeting of the National Academy of Sciences at the University of Chicago, by Prof. John T. Buchholz, of the University of Illinois. Prof. Buchholz told the story of the Big Trees' cones.

Sequoia cones, though shapely and slightly enough, are not proportionate in size to their huge parents. Many smaller evergreens bear much larger fruits. But they do emulate the trees that bear them, to a certain extent at least, in their longevity. Sequoia cones cling to their trees for many years.

It takes three years for them to come to ripeness, Prof. Buchholz said. In

their first season, they form at the tips of branches. They pass the first winter within a bud, and in April receive the pollen, but actual fertilization does not take place then. During the summer of the second year, the cones become much larger, becoming full grown, hard and woody in August.

Actual fertilization occurs during August, but the embryo plants within the seeds are still far from full development when another winter comes. They reach complete growth only in the following season, the third from the tiny beginning of the cone on the branch tip.

From the tiny embryo plant within the sequoia seed to its final development as the giant of the vegetable kingdom, there is an almost incredible amount of growth. Prof. Buchholz has measured the minute bulk of the smallest sequoia embryo he could find, and compared it with the estimated cubical contents of the General Sherman, commonly considered to be the biggest of the Big Trees. The difference is of the order of 82 times 10 to the fifteenth power, or 82,000,000,000,000,000.

Prof. Buchholz put it graphically: "The mature specimen of *Sequoia gigantea* is as much larger than its embryo as the earth is larger than the dome of the Adler Planetarium."

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## ASTRONOMY

**Common Shooting Stars Are From Distant Space**

**C**OMMON "shooting stars" that appear scatteringly in the night sky all the time are produced by the burning up of particles from interstellar space, as distinguished from the "showers" of similar flashes that appear at regular intervals, which come from particles belonging to the Solar System itself, declares Dr. Cuno Hoffmeister of the Berlin Observatory.

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## CHEMISTRY

**Oxygen From Air Heavier Than Oxygen in Water**

**O**XYGEN from the air is heavier than oxygen obtained from water, it has been found by Scientists Edgar R. Smith and Harry Matheson of the National Bureau of Standards. The difference of the density of water made from atmospheric oxygen over that made from aqueous oxygen was 8.5 parts per million.

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**IN SCIENCE**

## ENTOMOLOGY

**Mystery Gland in Bees Unlocks Nursery Doors**

**E**VERY worker bee carries a gland that is of no use to her but serves the coming generation. The existence of this gland, under the bee's lower jaw, has long been known, but nobody knew what it was used for.

Now Dr. Karl Dreher, of the Marburg Zoological Institute, has found that this maxillary gland, as it is called, secretes a substance that dissolves the cocoons in which young bees develop, when they are ready to emerge.

This gland is indispensable for the life of the hive, as a matter of fact, because the young bees cannot break the cocoon cases themselves, and the jaws of the nurse-bees are too short and blunt to open them by biting. This is especially true for the queen-bee cocoons, which are larger and tougher than those of the young workers.

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## ARCHAEOLOGY

**New Architecture Shocked 13th Century Americans**

**M**ODERNISTIC buildings of thirteenth century America, that looked as new to gaping Indian crowds as streamlined buildings look to us today, are described by H. E. D. Pollock, archaeologist of the Carnegie Institution of Washington.

Round buildings were new-fangled notions to Indians of Yucatan almost seven hundred years ago. Mr. Pollock, lecturing on Mayan Indian architecture, told of the unique circular tower at Chichen Itza, Yucatan, which archaeologists have partly restored. Round buildings continued rare in Mayan cities.

Another new and exotic idea in thirteenth century America was to replace interior walls with rows of columns. This produced temples with great colonnades roofed by vaults or relatively light, flat ceilings.

Indian invaders from Mexico, Mr. Pollock said, influenced the Mayas in their architectural new era.

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# E FIELDS

## MEDICINE

### Millionth Gram of Radium Detected in Human Body

**A** MILLIONTH of a gram of radium in your body (and that's enough to poison you, slowly) can be detected and its concentration measured by a new clinical machine described before the meeting of the American Philosophical Society by Dr. Robley D. Evans of the Massachusetts Institute of Technology.

Radium poisoning has assumed major importance as an industrial and public health hazard since the tragic poisoning of a number of watch-dial workers several years ago, who unwittingly doomed themselves to slow death by pointing up with their lips the small brushes used for applying radioactive luminous paint. Fake rejuvenation waters containing radium have also taken their toll of victims.

Besides measuring the disintegrating radium in the patients' bones (which is where radium usually lodges in the body), and studying its rate of increasing deposition or of elimination, modern radium-sickness clinical methods include measurements of radioactive gases exhaled from the lungs and radioactive substances eliminated in the body's excretions, since in this way accurate check can be made on how much of the deadly elements the body is able to rid itself of.

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## MEDICINE

### Diabetic Child Can Now Eat Nearly Normal Diet

**L**ITTLE children struggling to maintain health under the handicap of diabetes can now begin to eat normally.

Medical science has progressed to the point where it can keep these children alive and well without making them go hungry and without depriving their bodies of the foods they need to grow strong and tall, Dr. Hugh L. Dwyer, of Kansas City, Mo., advised the Southern Medical Association.

With the aid of insulin, the diabetic child can eat nearly the same meals that his normal brother and sister eat. He

may not need as much insulin when he eats the normal allowance of sugar and starch foods as he did when on a restricted diet. This does not mean that he can go on a candy jag or eat cake and ice cream to his heart's content.

Dr. Dwyer found that diabetic children eating the more normal diet got along better, needed less insulin, and had fewer complications such as coma and insulin shock.

"In the normal child's diet the total calories are made up of approximately 50 per cent carbohydrate (sugars and starches), 15 per cent protein (meat, eggs, etc.), and 35 per cent fat," Dr. Dwyer said. "We have found that diabetic children will usually do well on such a diet. Children on such a diet are more cooperative, diet infractions are less common and increased gains in height and weight are noteworthy."

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## PALEONTOLOGY

### Rhinoceroses Roamed West Of Fifty Million Years Ago

**T**HE WEST may have been wild and woolly in our grandsires' time, but forty or fifty million years ago it must have been wilder still. There were lots of assorted native-American rhinoceroses there in those days, the lower oligocene by the geologists' reckoning. To his fellow-members of the American Philosophical Society, Prof. William Berryman Scott of Princeton described three main lines of these ancient beasts.

Although the rhinoceros is by definition and name a horn-nosed beast, the ancient American rhinos did not go in much for such nasal weapons. One of the three lines only developed incipient twin horns suggestive of the modern Old-World rhinoceroses; the other two had quite hornless heads.

The second line of rhinoceroses described by Prof. Scott must have been more like modern horses or deer, for they were long-legged, built for running. Prof. Scott suggested that they must have depended on their speed to escape their enemies, rather than on charging like an armored tank, as a modern rhino would do. The third main division of the oligocene rhinoceroses of the Old West were built more like hippopotamuses, and very likely lived aquatic, hippo-like lives. They were big, lumbering brutes with enormous eye-teeth like those of the modern hippopotamus.

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## ASTRONOMY

### New Element Discovered In Interstellar Space

**D**ISCOVERY in far-off interstellar space of what is probably ionized gas of the element titanium, a find astronomers say is likely to prove of tremendous significance in learning the content and nature of these nearly vacuous regions, has been reported to the Harvard Observatory by the Mount Wilson Observatory in California.

The find was made by Dr. Walter S. Adams, director of the Mount Wilson Observatory, and Dr. Theodore Dunham, a member of the staff, while they were conducting research on the ultraviolet part of the spectrum of the bright star Chi 2 Orionis.

Harvard astronomers declared, "It seems probable that if the discovery of the interstellar titanium is confirmed it will give information concerning the content and nature of interstellar space that is of more importance than was the discovery of sodium and calcium of nearly empty space."

The star Chi Aurigae also shows the new titanium lines, Dr. Adams and Dr. Dunham reported, and it is probable, they added, that further research on the spectra of the hot stars will reveal the presence of this intervening matter in all directions from the earth.

In their announcement they give with high precision the wavelengths of the new interstellar lines and point out that their intensities as well as their wavelengths are essentially identical with those of the titanium lines known from laboratory researches. They will now attempt to find a confirming titanium line at a shorter wavelength.

In addition to the three sharp lines in the extreme ultraviolet that are almost certainly ascribable to ionized titanium gas, the two astronomers found two other ultraviolet spectral lines which they attribute to interstellar sodium. The presence of sodium and calcium in these spaces between stars has been known for many years, however. There still remain other interstellar lines found some years ago by Dr. Paul Merrill of the Mount Wilson Observatory which have not yet been identified.

The spectra were made with a special ultraviolet spectrograph in connection with the hundred-inch telescope. This instrument makes use of a quartz prism, a special Schmidt camera, and a large plane grating of remarkable qualities recently made by Prof. R. W. Wood of the Johns Hopkins University.

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