

their limbs intersected each other.

As *Venus* advanced, the point of the Pyramid still grew lower, and its circular Base wider, until it met the light which crept round from the points of intersection of the two limbs; so that when half the planet appeared on the Sun, the other half yet off the Sun was entirely surrounded by a semi-circular light, best defined on the side next to the body of *Venus*, which continually grew brighter, till the time of the internal contact.

Imagination cannot form any thing more beautifully serene and quiet, than was the air during the whole time; nor did I ever see the Sun's limb more perfectly defined, or more free from any tremulous motion; to which his great altitude undoubtedly contributed much.

When the *internal contact* (as it is called) drew nigh, I foresaw that it would be very difficult to fix the time with any certainty, on account of the great breadth and brightness of the light which surrounded that part of *Venus* yet off the Sun. After some consideration, I resolved to judge as well as I could of the co-incidence of the limbs; and accordingly gave the signal for the *internal contact*, at 2<sup>h</sup>. 28' 45" by the clock . . . and immediately began to count seconds, which any one, who has been accustomed to it, may do for a minute or two, pretty near the truth. In this manner I counted no less than 1' 32" before the effect of the atmosphere of *Venus* on the Sun's limb wholly disappeared; leaving that part of the limb as well defined as the rest. From this I concluded that I had given the signal for the *internal contact* too soon; and the times given by the other observers at *Norriton* confirm me in this opinion.

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## ZOOLOGY

## "Riotous Living" Doubles Weight of Town Skunk

**T**HE PRODIGAL skunk that deserts his country home and goes to live in town increases his substance by riotous living.

Prof. J. W. Hamilton, Jr., of Cornell University, has examined nearly five hundred specimens of skunks, and finds that those caught in towns weigh ten or twelve pounds, as against five or six pounds for their countrybred brethren. The town skunks' stomachs showed that they were devotees of the easy living offered by garbage piles; they contained breadcrusts, meat, eggshells and fruits.

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## COSMOLOGY

# Entire Universe Still Young, Little Older than Earth Itself

**T**HE FAR-FLUNG universe of stars, nebulae and star-dust is not much older than the solar system and the earth itself.

This startling conclusion was presented by Dr. Ernst J. Opik of Tartu University Observatory, Esthonia, now serving as lecturer in astrophysics at Harvard, who closed a symposium on the time scale held during the dedication of the new Harvard Observatory astrophotographic building.

Facts gathered by Dr. Opik indicate that the age of our universe is not very much more than 3,000 million years. The probable length of known geologic time is something like 1800 million years.

This reduction in the time that the universe could have existed may have far-reaching effects on astronomical theory and conceptions. It deals a severe blow to the idea that the universe of stars and nebulae is an outgrowth of a process of relatively slow evolution.

"We infer that not much more than 3,000 million years have elapsed since the spiral nebulae, the stars, and the star-dust or meteors were born out of the original parent system, which we call chaos because we do not know much about it," Dr. Opik said.

Most impressive was evidence of the universe's youth brought to earth by meteorites or "falling stars." Dr. Opik reported that Prof. Fritz Paneth, chemist at the University of Königsberg, Germany, has determined the age of a number of meteorites by analyzing their relative contents of helium and radium. He found values ranging from 100 to 2,900 million years. Pultusk stone meteorites which were seen to fall in 1868 gave a preliminary age of 500 million years, which due to loss of helium in space and in museums during sixty years is probably a minimum age. Astronomers are confident that these meteorites came from interstellar space. These chemical determinations of age suggested to Dr. Opik a low age for the stellar universe.

Double stars also shine evidence that the universe is young. Dr. Opik found that statistics of the distribution of distances and relative magnitudes in double stars indicate that since their origin

the masses of the stars could not have decreased appreciably. The drop in luminosity of an average dwarf star since its origin can not have been more than half a magnitude, Dr. Opik found as another indication of the universe's youth.

"Stars of different spectral classes cannot have evolved from one another," he said. "They must have been created simultaneously and their age is too short for any appreciable evolution."

The terrific rushing away of the nebulae as signalled in the reddening of their light, which is considered evidence of an expanding universe, indicates, in Dr. Opik's opinion, a possible age of the extragalactic universe of only a few thousand million years.

Ten years ago the universe was thought to be ten million million years old; now Prof. Opik divides these old estimates by a million or so and makes the universe about the same age as the earth, about three thousand million years.

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## ARCHAEOLOGY

## Doubt Raised That Troy Is Located Correctly

**T**HE TROY that millions of high school students have laboriously located on the map of Asia Minor may not be the Troy of Homer, after all.

Critics are raising new doubts that Hissarlik, commonly accepted to be Troy, fits the specifications of the historic city. The mound of Hissarlik was excavated by Heinrich Schliemann in 1870, and ruins of nine successive cities were found on the site. The sixth of these cities, built about 1500 B. C. and destroyed some three centuries later, is the one known as the Trojan War city.

Homeric scholars are disturbed by the revival of doubts, long dormant, that Hissarlik is the scene of Troy, reports *Antiquity*.

The latest declaration that the site of Troy must still be sought is by a French scholar, M. Vellay. The Greek ships that sailed to Asia Minor for the siege of Troy must have been drawn up on the Hellespont, M. Vellay emphatically