

pelled, for a long period, to revolve nearer to that planet than it does at present; and again by coming into a similar position with respect to the Earth, its orbit might be enlarged, and its periodic time increased, so that it might for a long period revolve nearer to the earth than before. I am not able at present to assign the amount of these disturbing forces, but it is easy to see that they exist, and must greatly influence the motions of the body.

The reader will very naturally suppose that, if a comet had approached so near to the earth, having the plane of its orbit in the zodiac, it would have been visible, first on one side of the sun, and then on the other, like an inferior planet. There are grounds for believing that such is the fact, and that a body answering to the conditions of the supposed comet, has been seen, at intervals, ever since the 13th of November, and is still (March 31st) visible in the west after sunset. . . .

1. *Such a luminous appearance was exhibited on the morning of November 13th, being seen in the east before the dawn of day. . . .*

2. *A peculiar light was seen eastward of the sun, visible in the west after sunset, as early as the first of December. . . .*

From our theory we should farther anticipate, that the comet will disappear by or before the first of May, being too near the sun to be visible; and that after the month of May, if seen at all, it will appear on the western side of the sun and rise before him, until the month of August, when it may possibly reap-

pear for a little while in the evening sky.

Should future observations conspire with those already made, to establish such a period to this remarkable light, it will probably be regarded as a cometary body, and as the source of the meteors of Nov. 13th. But it will be remarked, that the several arguments alleged to prove the connexion of that phenomenon with a comet, are entirely independent of this light.

From all the foregoing considerations, I feel authorized finally to conclude, *That the Meteors of Nov. 13th, consisted of portions of the extreme parts of a nebulous body, which revolves*

around the sun in an orbit interior to that of the earth, but little inclined to the plane of the ecliptic, having its aphelion near to the earth's path, and having a periodic time of 182 days, nearly.

I have supposed that a nebulous body, revolving about the sun in an eccentric orbit, might properly be called a comet, but should any one think that the analogy is not strong enough to authorize us to rank it among bodies of that class, he can apply any other name which seems more appropriate. Changing the name will not affect the validity of the theory.

Science News Letter, November 5, 1932

CHEMISTRY

Octane Rating of Gasoline Not Wholly Dependable

THE MUCH-ADVERTISED "octane rating" of gasoline is not wholly dependable in selection of automobile fuel, according to Dr. Arthur Lachman, petroleum research chemist.

Since motor-car manufacturers have taken to building high-compression engines, old-fashioned straight-distilled gasoline is just not so good. Such fuel was made by simple methods much like the old process of turning out moonshine whisky. It was about the only kind of "gas" the public knew ten years ago.

A new test fuel, known commercially under the inexact name of iso-octane, and designated more precisely by chemists as 2,2,4 trimethyl pentane, has been chosen as an ideal standard of anti-knock performance. It would be wonderful if it did not cost \$20.00 per gallon. The new commercial gasolines of premium and standard grades are being treated chemically so as to give a relatively high "octane number," in engineering parlances. This number indicates how closely the gas approaches the figure of 100 par for trimethyl pentane.

Dr. Lachman points out that a gasoline which has passed the anti-knock engine test with a high score does not necessarily give superior results in an engine working at a different temperature. For example, an air-cooled motor, working at high cylinder temperature, will often not recognize a high-octane gasoline as a superior fuel. On the other hand a low-temperature water-cooled motor may accept the fuel in question

to great advantage. The moral for the consumer is simple: Try out the different brands on your own motor and make your own scientific decision.

Rumors have gained credence that "high octane" is just another form of commercial buncombe originating in the advertising departments. Critics voicing these rumors base their conclusions on the fact that the oil companies do not advertise the actual octane numbers of their several motor fuels. Dr. Lachman comes to the defense of the oil company. As long as one cannot with certainty predict from octane number just how good performance will be, just so long would it be misleading to coax a purchaser into line by quoting numbers.

Incidentally experiments show that gasoline which attains good anti-knock quality by addition of chemicals is more steady at different temperatures than gas of naturally high octane rating.

Science News Letter, November 5, 1932

ANTHROPOLOGY

Peking Man's Wrist Bones Found at Original Site

NEW FOSSIL remains of Peking Man, *Sinanthropus Pekingensis*, have been found at the Chou Kou Tien, China, site where the original skull was discovered in 1929. The new find consists of fossilized small bones from the wrist. They are reported to be definitely human in character.

Science News Letter, November 5, 1932

▼ The Science Service radio address next week will be on the subject,

R NOVEMBER METEORS

by

A Dr. Charles P. Olivier

D Director of the Flower Observatory of the University of Pennsylvania and president of the American Meteor Society.

I FRIDAY NOV. 11

O at 12:45 P. M., Eastern Standard Time

Over Stations of

▲ The Columbia Broadcasting System