

ASTRONOMY

Carbon Dioxide Discovered In Atmosphere of Venus

DISCOVERY that carbon dioxide is probably present in the atmosphere of the planet Venus, next-door neighbor of the earth toward the sun, has been announced by the Carnegie Institution of Washington.

Speculation as to the existence of life on the earth's twin sister planet will be revived by the studies of the infra-red or heat spectrum of Venus made with the world's largest telescope, the 100-inch reflector, at Mt. Wilson, Calif., Observatory by Dr. Walter S. Adams, director, and Dr. Theodore Dunham.

The reported discovery is also notable because it is the first time that a gas of any kind has been detected upon any planet except the earth.

For years it has been known that Venus is covered with an atmosphere of considerable extent. Upon the rare occasions of the transit of Venus, when it passes in front of the sun, the planet is surrounded by a ring of light when it is in line with the edge of the sun. This light aura is due to refraction of the sun's rays by the atmosphere of Venus. Clouds cover the surface of Venus so completely that it is believed that astronomers seldom if ever see its real surface. The thickness of the atmosphere below the clouds is estimated to be about 4,000 feet.

Drs. Adams and Dunham used a powerful telescope and spectroscope on the infra-red sunlight reflected from Venus and discovered that three bands of invisible heat-light were missing. These were absorption bands that they concluded were due to carbon dioxide in the Venus atmosphere cutting off these particular wavelengths as the light passed through the planet's atmosphere.

Previous searches for Venus gases, such as oxygen, water vapor and carbon dioxide, all essential to life as we know it on earth, were fruitless.

Carbon dioxide is the gas given off by animal and plant breathing and used by plants in the making of starches and sugars. Its discovery on Venus will justify renewed discussion of the possibility of life of some sort on that planet. Research has shown that the surface temperatures of Venus are somewhat like those of the earth although

probably warmer. If future researches should show oxygen and water present, life on Venus might be considered more probable.

The Mt. Wilson discovery of carbon dioxide on Venus will undoubtedly encourage those who like to believe that the earth is not the only life-bearing speck of dust in the universe.

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PUBLIC HEALTH

Depression Blamed For Increase in Trench Mouth

DEPRESSION is blamed for an increase in trench mouth, scientifically known as Vincent's infection, Dr. Alfred Walker of the American Dental Association has announced after studying data secured in a survey by the association. The disease has increased 100 per cent. in New York State in the last nine years, the survey showed. Similar alarming increases have been reported elsewhere.

While kissing was formerly blamed for the spread of this gum and mouth infection, lowered resistance due to worry over the depression is now sharing the blame in the opinion of dentists. Use of glasses instead of paper drinking cups in public places, and of unclean tableware is also blamed for the spread of the disease. The disease is extremely contagious. In the mild form it attacks the gums, resulting in a tender mouth. In the extreme cases it is characterized by high temperature, headaches, nausea, loss of appetite, bleeding and glandular enlargement. Death may follow an acute attack. The chronic form is more prevalent now, the survey showed.

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PSYCHIATRY

Mental Disease In Identical Twins Affects Both

NEW LIGHT on the relative importance of heredity and environment as factors causing certain types of mental disease, and also juvenile delinquency and criminal tendencies, is gained as a

result of a study of identical and non-identical twins being conducted at the University of Southern California by Dr. Aaron J. Rosanoff.

A total of one thousand pairs of twins with mental diseases is being sought by the scientist, and already records of 404 have been obtained. This is believed to be the largest collection of such records ever gathered. A preliminary report of the data now available will be published in *Eugenical News*.

Of those twins that were of the same sex and probably with origin in a single ovum, or egg cell, and therefore with the same hereditary equipment, 116 pairs had both twins affected and only fifteen pairs with but one individual affected, it was found by Dr. Rosanoff.

An entirely different picture is presented by the group containing twins of opposite sex and therefore origin in separate egg cells with different heredity. Of these 26 pairs had both twins affected and 75 pairs where only one member was involved.

Of the twins of the same sex, but probably non-identical, 53 pairs had both members affected and 67 had only one with the trouble.

The "disorders" considered included mental deficiency, epilepsy, dementia praecox, manic-depressive psychoses, and also behavior problems in children, adult crime, and juvenile delinquency.

As a check on these results, an associate of Dr. Rosanoff, Doncaster G. Humm, has undertaken a parallel study of brothers and sisters who are not twins.

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GENETICS

Flower Surgery Makes Heredity Control Possible

DELICATE surgical operations on parts of flowers are used by three research scientists at the Station for Experimental Evolution at Cold Spring Harbor, N. Y., to control the heredity of the plants in their breeding experiments. The experimenters are Dr. J. T. Buchholz and C. C. Doak of the University of Illinois, and Dr. A. F. Blakeslee of the Carnegie Institution of Washington.

When pollen grains are deposited in a flower, they adhere to the sticky end of a long, slender projection called the "style," which rises from the seed-bearing part or ovary. Each grain then sprouts a slender tube, that grows downward through the style until it reaches the ovary. This is a real race of males,