

capable of adsorbing oxygen, carbon monoxide or hydrogen. The maximum quantities of oxygen and carbon monoxide corresponded to monomolecular layers. The oxygen could not be driven off either by heat or by pumping. When the platinum was in contact with an excess of oxygen the amount of oxygen adsorbed increased as the temperature was raised, but the action was irreversible. Adsorbed carbon monoxide could not be removed by pumping at room temperature, but at 300° part of it could be pumped off. When oxygen was brought in contact with carbon monoxide adsorbed on the platinum it reacted rapidly to form carbon dioxide,

which at room temperature showed no tendency to be adsorbed on the platinum. In a similar way carbon monoxide brought into contact with adsorbed oxygen reacted immediately. These cases of adsorption are clearly due to chemical forces of the primary valence type.

Further work needs to be done to determine the cause of the activation of the platinum.

In conclusion, the writer wishes to express his appreciation of the valuable assistance of Mr. S. P. Sweetser, who carried out the experimental part of this investigation.

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ASTRONOMY

Earth Apparently Missed Main Leonid Meteor Swarm

FEARS of astronomers that the expected display of Leonid meteors might again fail to appear as it did in 1899 have been justified.

From the Flower Observatory of the University of Pennsylvania, of which he is director, Dr. Charles P. Olivier, president of the Meteor Commission of the International Astronomical Union, observed these shooting stars at the rate of thirteen per hour, during the early morning hours of Wednesday, Nov. 16. Correcting for the proximity of the bright moon, this would mean that about thirty might have been seen every hour after midnight had the sky been dark. This is far inferior to the display of last year, which it was hoped might be the forerunner of a brilliant shower this month, possibly rivalling that of 1866.

One Was Persistent

The midwestern display of Leonid meteors was disappointing, Prof. James Van Allen of Iowa Wesleyan College at Mt. Pleasant, Iowa, reported. Bright moonlight hampered observations. Relatively few meteors were seen; one, however, left a trace that lasted fifteen seconds. The largest single count, by an observer facing the radiant or center of meteor flight, was 46 during the period from 2:30 to 5:00 A. M.

In the Southwest, observing conditions were also unsatisfactory, Prof. C. C. Wylie of the University of Iowa reported. Prof. Wylie had led an expedition to the neighborhood of Flagstaff, Ariz.

Heavy clouds blanketed the sky, rendering the astronomers' vigil almost useless for scientific purposes. However, many spectacular meteors seen through the clouds verified the prediction that the shower would start at that time.

It seems probable that the damage done to the meteor swarm by Jupiter before 1899, in pulling aside the center part so much that it missed the earth, though the beginning and end reached us in 1898 and 1901, has not yet been repaired. It had been thought that Jupiter might since have pulled the swarm into line again.

Thus it seems likely that 1933 may also be deficient in meteors of the Leonid swarm, but that in 1934 we may have one like last year's. Or we may have a shower like that of 1901, when the meteors fell at the rate of more than a hundred an hour.

But Dr. Olivier again emphasized the uncertainty of predicting meteors' behavior, since we only see them in their dying moments, and unlike other astronomical bodies cannot observe them over a large part of their orbits.

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In Massachusetts, where vaccination against smallpox is compulsory, there were 408 cases of smallpox from 1919 to 1928; in Arizona, Utah, Minnesota, and North Dakota, which have a total population about equal to Massachusetts, there is no compulsory vaccination and there were 46,130 cases of smallpox in the same period.

PHYSIOLOGY

Yellow Dextrin Found Harmful To Mice

A PARTIALLY digested food may be more harmful than a non-digested one, it appears from recent experiments by Prof. Lillias D. Francis and Dorothy F. Johnson of Wellesley College, Wellesley, Mass.

Dr. Francis and Miss Johnson found that the use of yellow dextrin, an intermediate product in the digestion of starch, in the dietaries of her mice was followed by severe diarrhea, loss of weight, and finally death. If, however, the dextrin was replaced by starch, the more complex carbohydrate from which the dextrin may be derived, the mice did not develop any abnormal symptoms and thrived. Not only that but if, after the animal was suffering with all of the typical symptoms of this "dextrin poisoning," starch was substituted for dextrin in the diet of the animal, it was cured. A return to the dextrin-containing diet at any time was always accompanied by a return of the diarrhea.

The degree of the "toxicity" of the dextrin seemed to be dependent upon the amount of it used; thus, if 38 per cent. dextrin was used as the source of carbohydrate in an otherwise adequate diet the mice suffered for five to eight days and then recovered. If 52 per cent. dextrin was used the animals suffered a great deal more and if 70 per cent. was used they lived only a few days. All control animals on similar diets but with corn starch instead of dextrin were quite normal. About 68 animals of three different ages have been tested so far.

The cause of the death, according to Dr. Francis, is not known. She has found that the caecums of the affected animals are distended by gas to almost 300 per cent. of their normal size and she has suggested that there is a possibility that a changed bacterial flora in the intestine may have been induced by the imposed dietary regime.

"It is also very interesting that young mice are more susceptible to the deleterious and lethal effects of dietary dextrin than are adult animals," says Dr. Francis. "We are investigating the condition and hope to be able to offer an explanation for it in the near future. It is particularly interesting that this seems to be the only evidence of dextrin's having such a harmful effect."

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