A CHAPTER of Sigma Xi, national honor society in science, was installed at Carleton College, Northfield, Minn., on April 22, with Dr. William F. Durand, of Stanford University, national president, and Dr. Ross A. Gortner, of the University of Minnesota, as installing officers. Two chapters of Sigma Xi exist in Minnesota, at the University of Minnesota and at the Mayo Foundation in Rochester. Carleton is the first liberal arts college in the West to be granted a chapter. Nineteen members of the Carleton faculty are members. Five of these are graduates of the college who were elected into the society while doing graduate work at other schools.

THE first International Conference on Fever Therapy is to be held at Columbia University, New York City, from September 29 to October 3. The subjects to be discussed will include physiologic and pathologic changes as well as the treatment of gonorrhea, gonorrheal and non-specific arthritis, syphilis, neurologic conditions such as multiple sclerosis, chorea, paresis, tabes, skin diseases, etc. The meeting will be held under the chairmanship of Baron Henri de Rothschild, of Paris, France. The French committee, of which Professor d'Arsonval is honorary president, is under the chairmanship of Professor Abrami. Other members of this committee include Professors Alajouanine, Binet, Claude, Janet, Lardennois, Laubry and Levaditi and the general secretaries of the committee, Drs. Halphen and Auclair. The American committee consists of Drs. Desjardins, Bierman, Hartman, Hinsie, Neymann, Simpson and Warren. National European committees are being formed under the direction of Professors Maranon, of Spain; Frugoni, of Italy; Volhardt, of Germany; Wagner-Jauregg and Eppinger, of Austria; Michaux, of Switzerland; Bessemans, of Belgium, and Danielopolu, of Roumania. Abstracts of the papers to be read are to be published in the volume of the transactions in English, German and French. Information regarding this conference may be secured from the General Secretary, Dr. William Bierman, 471 Park Avenue, New York City.

TWENTY students received certificates from the New York Botanical Garden on April 20 in recognition of their completion of two years of work in the course for professional gardeners. This is the third and largest graduating class in the history of the course, which was established in 1932 in order to give the gardeners employed at the Botanical Garden a background of the sciences underlying their work. Gardeners from estates around New York have also been permitted to take the work, and this year several florists, nurserymen and landscape gardeners have also been among the students.

THE American Institute of Physics has changed its address to 175 Fifth Avenue, New York City. The founder societies of the institute, which include the American Association of Physics Teachers, the Society of Rheology, the Acoustical Society of America, the Optical Society of America and the American Physical Society, will hold regular meetings jointly in New York from October 28 to 31, to signalize the fifth year of their cooperative association. In addition to the customary technical sessions there will be a Symposium on Industrial Physics and an anniversary dinner.

THE League of Nations will award the Darling prize of 1,000 Swiss francs this year for the best work in the pathology, etiology and prophylaxis of malaria. Works which have been published within the last five years, as well as unpublished works, may be submitted.

AN anonymous donor has given £10,000 for the establishment of an Institute of Experimental Psychology at Oxford University. A decree has been proposed allocating to the Institute £500 and £150 a year for five years from the fund of the Rockefeller Foundation for research in social sciences.

DISCUSSION

THE DELPORTE PLANET 1936CA

ON February 12, 1936, the astronomer, Delporte, at the Belgian National Observatory at Uccle, Belgium, discovered a tiny object, which was later identified as a planet. When the orbit of the body was calculated, it was found that it had passed very close to the Earth. In the press, many persons have speculated as to what might have happened if the object had struck the Earth. In most cases, the picture painted has been rather pessimistic.

In the accompanying figure is shown the path of the object as well as the paths of Mercury, Venus, the Earth and Mars. It should be noted that the planes of the paths are not the same but are inclined to each other at small angles. Consequently, what appear to be intersections on the diagram are only close approaches in reality. For instance, when the Earth passed the point marked E_1 on the diagram about February 7, the small planet was very near this point, in fact only about 1,200,000 miles away. About January 19, 1936, the object passed close to the path of Venus at the point marked v_2; at that time Venus was in another part of its path, namely at V_2. Before that, it had passed its point of closest approach to Mercury's path at a distance of about 13 million miles.

Ignoring for the moment the changes in the path

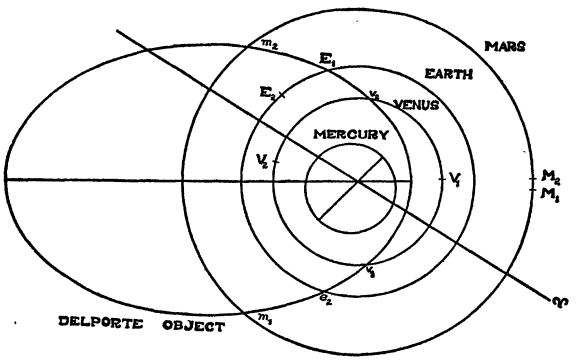

FIG. 1

due to the gravitational attractions of the major planets, let us consider the motion of the object under the gravitational attraction of the Sun alone. It would have passed the point m_2 near the path of Mars about March 17, while Mars was actually at the position marked M_2. It would again be near the path of Mars at m_1 about January 25, 1938, and again Mars will be at a distant point, M_1. It would reach e_2 near the Earth's path about March 5, 1938, at which time the Earth will be at the position marked E_2 on the diagram. It would reach the point v_1 near Venus's orbit about March 25, 1938, when Venus will be at V_1. As it approaches v_2 again, it will likely be subject to large perturbations by Venus.

Some persons have viewed with alarm the close approach of this Delporte planet, telling sad stories of what might have happened if the planet had struck the Earth. Unquestionably the results of such a collision would be unfortunate, but one finds from calculations based on reasonable hypotheses that, of all the bodies coming within a million miles of the Earth, only sixteen in a million will strike the Earth. Of those striking the Earth, about 73 per cent. will fall in oceans or seas and 23 per cent. will fall in sparsely inhabited territory. Thus, of bodies coming within a million miles of the Earth, less than one in a million will strike cultivated sections of the Earth.

It is encouraging also to note that the Delporte planet, like most objects traveling in periodic paths in this part of the solar system, is moving in the same direction about the Sun as the Earth. In the event of a collision, it would be a rear-end one rather than a head-on one. For example, when the Delporte planet was nearest the Earth, it was moving with a speed of about 23 miles per second while the Earth was traveling in approximately the same direction with a speed of 19 miles a second. The relative speed of the two was only about 4 miles a second instead of approximately 40 miles a second as in the case of a head-on collision.

Though it is impossible at the present to predict precisely where the object is going in the distant future, one need not worry too much about one's safety on the Earth.

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THE DENSITY OF PURIFIED NEVADA HOT SPRING AND SURFACE WATER

THANKS to the kindness of S. C. Dinsmore, state food and drug commissioner, the University of Nevada, in supplying me with samples of water from several Nevada hot springs, from melting snow at an elevation of 6,000 feet in Nevada near Reno and from the earth's surface near one of the hot springs, it has been possible to compare the density of these waters with the water of Lake Michigan. The Nevada surface water and the water from three different hot springs all have the same density (after purification, of course) within the limits of experimental error[1] and are lighter than Lake Michigan water to the extent of 2.8 ± 0.6 p.p.m. The density of the water from melting snow appears to be intermediate between that of the hot springs and of Lake Michigan, but the supply unfortunately gave out before the density had been exactly determined.

At the suggestion of Professor Urey the Nevada water was analyzed in order to find out whether the deficiency in density was due to the hydrogen or to the oxygen. A sample of Nevada water was electrolyzed and the cell oxygen combined with tank hydrogen; a sample of Lake Michigan water was treated in exactly the same way, the resulting water in the former electrolysis being 2.2 p.p.m. lighter than the water resulting from the latter electrolysis. Thus the difference in density between Nevada and Lake Michigan water is seen to be due primarily to the oxygen in the two waters and not to the hydrogen. One wonders if this difference is due to the isotopic exchanges theoretically treated by Urey and Greiff;[2] apparently the juvenile nature of the water affects its density in no way.

The author gratefully acknowledges the suggestions given by Dr. Charles H. Behre, Jr., chairman of the department of geology and geography of Northwestern University, regarding sources of juvenile water and the problem in general.

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ORIENTATION OF A DISK SETTLING IN A VISCOUS FLUID

To the best knowledge of the writers, all theory and experiments dealing with the position of stability of a disk settling through a viscous liquid under the force of gravity have indicated that the disk will orient itself so that its major plane is horizontal.

[1] For experimental details see M. Dole, *Jour. Chem. Phys.*, 2: 337, 1934; *Jour. Am. Chem. Soc.*, in press.

[2] H. C. Urey and Lotti J. Greiff, *Jour. Am. Chem. Soc.*, 57: 321, 1935.