To develop greater facilities for research and investigations, the Graham Brothers Truck Co., Evansville, Ind., manufacturer of motor trucks, has completed plans for a new metallurgical laboratory, to be two-story, brick and concrete, 50 x 60 feet, costing about $30,000, with equipment.

UNIVERSITY AND EDUCATIONAL NOTES

THE Rockefeller Foundation has given 10,000,000 dinars (about $200,000) to Jugo Slavia for the construction of a school of hygiene at Zagreb, the administrative capital of Croatia; $40,000 for the improvement of sanitary institutions in Belgrade, and $15,000 for the aid of needy students abroad who pledge their services after graduation to the public health service in Jugo Slavia.

UNDER the terms of the will of the late George St. John Sheffield, of Providence, son of the founder of the Sheffield Scientific School at Yale University, the university will receive the greater portion of the testator's estate after the death of his widow.

UNDER the terms of the will of the late R. J. Edwards, of Boston, a trust is established for the benefit of his two sisters, and on their deaths $100,000 will go to the Harvard Medical School to create the "Jacob Edwards Fund" in memory of the testator's father. The income of the fund will be used for research.

FIRE, believed to have been caused by an overheated furnace, completely destroyed the mines building at the University of Washington on December 17, with a loss of more than $125,000.

DR. JAMES C. FLIPPIN, professor of clinical medicine at the University of Virginia Medical School, has been appointed acting dean of the school, following the death of Dean Hough.

DR. A. C. BACHMEYER, superintendent of the Municipal Hospital, Cincinnati, has been appointed dean of the Medical College of the University of Cincinnati.

JOSHUA A. COPE, assistant state forester of Maryland, has been appointed assistant extension professor of forestry at Cornell University, and John N. Spaeth, formerly at the Harvard University Forest, was recently named assistant professor in the College of Agriculture.

CHARLES E. PACKARD has been appointed instructor in zoology at Allegheny College.

DR. RENÉ LERICHE, agrégé professor of surgery at the Lyons Faculty of Medicine, has been called to the chair of surgery at the University of Strasbourg, which has been vacant for some time.

DISCUSSION AND CORRESPONDENCE

SPECTROSCOPIC OBSERVATIONS OF THE ECLIPSE OF JANUARY, 1925

MAY I call the attention of physicists whose laboratories are situated outside of the track of totality of the eclipse of January 24, 1925, to the fact that for certain spectroscopic observations they are better placed than if they were situated within the track. For points where from 92 per cent. to 99 per cent. of the sun's diameter is covered by the moon, it has been shown that the spectrum of the lower chromosphere can be studied at length with the slit spectroscope and exposures may be made many times longer than in the two or three seconds that are possible at the beginning and the end of totality. By keeping the tip of a cusp on the slit interesting results may be expected. A large objective is not necessary for forming the solar image, but of course the low altitude of the sun will be unfavorable at this eclipse. Those interested should consult the articles by Professor H. F. Newall, of Cambridge, and Professor A. Fowler, of London, giving the results of their observations of the partial eclipse of April, 1912 (see the *Monthly Notices* of the Royal Astronomical Society, Vol. 72, pages 536–541). Those not having access to this volume will find a quotation from these articles in *Popular Astronomy,* vol. 26, no. 255, May, 1918. This will be the last total solar eclipse visible in the United States for twenty years.

EDWIN B. FROST

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HOW THE WORKS OF PROFESSOR WILLARD GIBBS WERE PUBLISHED

IN SCIENCE of September 26, 1924, Supplement, p. x, Professor F. G. Donnan, of London, is reported to have quoted Henry Adams as saying that after Benjamin Franklin, Gibbs was the greatest man of science that America has produced, and that "Gibbs ranks with men like Newton, Lagrange and Hamilton." Similar statements were made by speakers at the dedication of the new Chemical Laboratory of Yale University and elsewhere. It is not my purpose to oppose such opinions, nor to question his eminent ability.

Specialists in other very different sciences might, and probably do, have other estimates. Many would, perhaps, name Professor James D. Dana as the greatest scientist, for he was eminent in three very diverse sciences: Geology, mineralogy and zoology,

to all of which he contributed classical works, as well as widely known text-books.

It may be of some historical interest to recall the peculiar circumstances connected with the publication of the famous memoirs of Professor Gibbs on which his great reputation rests. They were published in the Transactions of the Connecticut Academy of Sciences, which at that time was not connected with Yale University and received no support from it.

Much later Yale decided to grant the Academy $1,500 annually towards its publications, which are now marked as Yale Publications. When Professor Gibbs presented his papers the academy had no regular publication funds, except the annual dues of the members—about 100 at that time.

I was on the publication committee in each case and was president of the academy during most of that period. As I am the only survivor of the committee I take the liberty to refer to the difficulties encountered in publishing those articles.

They were expensive to set up, owing to the complex mathematical formulae. Our funds were small. On nearly every occasion we had to go out and raise a subscription to pay the cost, partly among college men and partly among the business and professional men of New Haven. Long discussions took place as to our ability to print the articles. Two able mathematical professors were on the committee—Loomis and Newton. Both protested that they did not understand Gibbs's papers at all. One insisted that no man ever lived who could except Maxwell and he was dead. Yet we all believed that what Gibbs wrote must be of intrinsic value in his branch of science. Therefore we raised the money and printed each paper as it came in. I remember that on one of these occasions Professor Loomis, as chairman, appointed Professor Newton as one to raise funds. Professor Newton begged off because he had done that duty so many times, but Loomis would not excuse him because he was the most successful, and then in his usual sudden or abrupt way, he adjourned the meeting and seized his cane and tall silk hat to leave the room.

Professor Newton jumped up and said, "Hold on, Professor Loomis, I have something to show you." Then he took from his pocket a subscription blank already prepared and said, "I want you to head the list with $100.00." We all laughed, of course. Professor Loomis looked at us with a broad smile and without a word wrote his name down on the $100.00 page.

Not long after the publication of his papers, Professor Gibbs asked me to request a vote of the academy at a regular meeting as to giving permission to somebody in Germany to reprint his papers there. I told him that it was not necessary, for they were not copyrighted. He rather insisted on a vote. The vote was put and the vote was unanimous in favor of giving permission. Soon afterwards they were printed in several other European countries and finally became text-books in some of the universities.

Whether any other American society would have undertaken to publish those very advanced papers I do not pretend to know, but I think it very doubtful. We knew Gibbs and took his contributions "on faith." Yale University, as such, had no part in it. Most of the Yale scientific professors were members of the academy, but they acted individually for many years. Yale had not then, nor does it now, have any adequate means for publishing the results of the researches of its scientific men, so that their works are widely scattered.

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AN EARTHQUAKE PREDICTION AT HAWAIIAN VOLCANO OBSERVATORY

A PREDICTION of earthquakes was issued by the Hawaiian Volcano Observatory on April 8, 1924, and shocks that verified the prediction were felt over southeastern Hawaii on the 10th and 11th.

As was pointed out by Milne[1] earthquake predictions in a country where shocks are very frequent are almost certain of verification, especially if instrumental records are consulted. An average of seven or eight earthquakes are recorded weekly at Hawaiian Volcano Observatory. Of this number, however, only about five or six per cent. are perceptible. To forecast perceptible shocks and to give approximate time is not so easy as the total number of shocks might indicate.

In Hawaii, as elsewhere, there are a great many people who think that they can sense the coming of earthquakes. While the movement of barometric minima may have a slight effect on the occurrence of earthquakes it does not follow, even in regions of high seismicity, that sultry weather is followed by earthquakes. During the first part of 1924 in Hawaii, for instance, there was a long spell of "earthquake weather," with an unusually small number of earthquakes.

The small shocks that often precede a major one do, however, frequently enable one to make forecasts. Probably all the bona fide predictions mentioned by Milne[1] based on noises, uneasiness of animals or changes in underground water are due to fore shocks.

It has long been known that internal stresses of the earth are often shown at the surface by either

[1] Milne, "Earthquakes," pp. 301–310.