reading public opinion. And he could always wait. If his carefully matured project for some new public health activity which science and the time seemed to have made feasible went shipwrecked on legislative stupidity or on political ambitions or on professional jealousies, he never railed but serenely sought some other way or patiently bided his time awaiting, or more commonly, assisting, the slow growth of mass enlightenment.

Under his leadership the policies and organization of the Health Department of the State of New York have steadily developed until at the time of his death it was one of the most effective ministers to the public health in the United States and one of the foremost in the world.

It was obvious when the Board of Scientific Directors of the Rockefeller Institute was being formed that his intimate knowledge of the domain of public health, practical medicine and the new outlooks in research which were so inspiring at that time should lead to the selection of Dr. Biggs as one of the men to initiate the new venture. His interest in the progress and successes of the Institute has been keen. He has been most helpful in the deliberations of the board as well as in the adjustments of the relationship of the Institute to outside phases of practical medicine and research.

He was wise in counsel, he was ready in service, he was a good comrade; we shall miss him on this board.

SCIENTIFIC EVENTS

EXPERIMENT STATIONS IN FINLAND[1]

AGRICULTURAL experimentation in Finland is now being reorganized under a law passed this year, putting this work on a permanent basis. Research is now being conducted mainly by eight institutions. Of these the Central Agricultural Experiment Station situated at Dickursby, Anas, about 10 miles from Helsingfors, is operated by the government. It is organized into departments of plant cultivation, agricultural chemistry and physics, biology of domestic animals, plant bacteriology and diseases, and agricultural entomology. Each department is under the direction of a professor of the University of Helsingfors, and the staff also includes an assistant and a clerk with university training. Besides comparative vegetable tests, plant breeding is carried on, special attention being given to the breeding of oats. Many students of the agricultural department of the university are given training each year.

The Government Bureau for the Examination of Butter and other Edible Fats is situated at Hango. Its principal work consists in the examining of butter to be exported from the country, but it also conducts investigations of other food fats. It has a staff of dairy experts and chemists.

The Economic Investigational Bureau of the Agricultural Administration at Helsingfors conducts inquiries based on data procured from several hundred privately owned farms. The chief object is to furnish information in regard to the costs of agricultural production and the profitableness of various sized farms in different parts of the country.

The agro-geological section of the Geological Commission, also at Helsingfors, conducts investigations in regard to soils and prepares agro-geological maps for the different sections. This institution is maintained with state funds.

The Swamp Cultivating Experimental Station of Lettensue, about 75 miles north of Helsingfors, is owned by the Suomen Suoviljelysyhdistys (Finland Swamp Reclamation Society), which receives financial aid from the state. The station conducts experiments in the cultivating, ditching and fertilizing of swamps. Similar stations are located at Ilmajoki, about 270 miles north of Helsingfors, where special attention is given to pasture studies on peat bogs, and at Tohmajarvi, about 417 miles east of Helsingfors.

The Plant Breeding Station of Tammisto at Malm, about seven miles from Helsingfors, is owned by the Keskusosuusliika Hankkija (Hankkija Cooperative Society). Its work consists in the breeding of the more important plants, and it is under the direction of a trained specialist.

In addition to the foregoing, the cattle breeding societies operating in Finland and receiving state aid conduct, in connection with the keeping of records of purebred stock, investigations in regard to the heredity of domestic animals. Of these societies the most important are the Society for the Breeding of Ayrshires at Helsingfors, the West Finnish Society for the Breeding of Domestic Animals at Karkku (near Tammerfors), and the East Finnish Society for the Breeding of Domestic Animals at Kuopio.

[1] From the *Experiment Station Record.*

ROTHAMSTED EXPERIMENTAL STATION

ACCORDING to the London *Times*, the report of the Rothamsted Experimental Station, Harpenden, for 1921–22, which has recently been issued, contains information which will be of value to the agricultural community. Perhaps the most significant remark in the whole report is contained in a comment on the expenditure and cash returns per acre of the ground cultivated by the station. Profits are shown in the period from October, 1919, to September, 1920, but thereafter practically every item is a deficit, and it is observed that "from 1920 onwards the financial results are deplorable and show clearly why many of the arable farmers of to-day are in their present position."

The station, which has been in receipt of government grants since 1911, has been organized so as to bring it into touch with modern conditions of agriculture, on the one side, and with scientific advance, on the other. Its activities range from oil cultivation to fertilizer investigations, the effect of manures on crops, and plant diseases. As the fundamental basis of agriculture is the production of crops, the work at Rothamsted is mainly concerned with this, and the natural subdivisions of the investigation are soil cultivation, the feeding of crops, and the maintenance of healthy conditions of plant growth. Cultivation has been reduced almost to a fine art, but as costs are the dominating factor in practical farming experiments are continually carried out with the object of discovering means of reducing expense. For instance, the power needed for ploughing can be reduced by suitable treatment of the land. Chalking heavy soil may effect a saving of as much as 15 per cent. in the power used, while farmyard manure, coarse ashes and even artificial manure can all effect similar economies.

As more than thirty artificial manures are now available to the farmer, and as their effect varies on different farms and with the weather, there is an obvious need for some general rules by which farmers may be guided. The report, having stated that a risk must always attach to crop yields, adds that it is hoped that they may eventually become calculable and therefore insurable. The difficulties of the work are great, but they are being steadily overcome, though at present the effect of differences in soil type and climatic conditions are not known with certitude for various parts of the country.

The complete report may be obtained from the Secretary of the Rothamsted Experimental Station, Harpenden.

SYMPOSIUM ON HEAT TRANSFER

A SYMPOSIUM on heat transfer will be held at the spring meeting of the American Chemical Society, under the auspices of the Division of Industrial and Engineering Chemistry.

While the final program is not available, a number of papers are in preparation by writers well versed in various applications of heat transference. These papers may be classified as follows:

Heat Losses by Radiation plus Convection, through Bare and Insulated Surfaces.
- a. From Pipes.
- b. From Furnace Walls.
- c. From Miscellaneous Shapes.

Heating or Cooling of Non-Condensable Cases.
- a. The Warming of Air in Hot-blast Heaters.

Heating or Cooling of Liquids Flowing Inside Pipes.
- a. Water.
- b. Oils.

Condensation.
- a. In Surface Condensers and Water-heaters.

Evaporation.
- a. The Analysis of Certain Comparative Tests on Evaporators.
- b. Heat Transfer in Enameled Apparatus.

Miscellaneous Topics.
- a. "A Heat Meter."
- b. The Determination of Air in Steam, and the Importance of this Factor in Heat Transmission.

In order that those interested may have ample time prior to the meeting to prepare discussion of these papers, it has been decided to issue advance copies, or preprints, bound under one cover. To this end it is necessary that the complete manuscript be in the hands of the chairman not later than January 15, 1924.

Professor W. H. McAdams, of the Massachusetts Institute of Technology, is chairman of this symposium. It is of such an important nature that two half days will be devoted to the presentation and discussion of papers.

Should preprints be issued, a copy will be sent to each paid member of the division.

ERLE M. BILLINGS,
Secretary

THE SEISMOLOGICAL SOCIETY OF AMERICA

AT a meeting of the board of directors of the Seismological Society of America held in San Francisco on October 19 the following officers were elected for the year 1923–24: Bailey Willis, of Stanford University, *president;* W. W. Campbell, University of California, *first vice-president;* R. W. Sayles, Harvard University, *second vice-president;* H. O. Wood, Carnegie Institution, *third vice-president;* S. D. Townley, Stanford University, *secretary-treasurer.*

During the past year the Seismological Society published a large Fault Map of California on the scale of eight miles to the inch. This has been distributed to the members of the society and subscribers to the quarterly *Bulletin* published by the society, and the remaining copies are now on sale. The sale of the maps is in charge of the secretary of the society, Stanford University, California. When mounted the map is 6 x 7 feet in size. The base of the map was prepared by the U. S. Geological Survey and all known active and dead faults have been drawn on it from the best information available. The map also contains the offshore contour lines from San Diego to San Francisco. These were determined by the Hydrographic Office of the U. S. Navy Department, in the fall of 1922, by the use of the Sonic method. The data of the fault lines were compiled by Bailey Willis and H. O. Wood and the publication of the map has