study the feasibility of determinations of longitude by wireless at widely distributed stations, and report on what seems to be the proper time and method for such undertakings.

*Committee on Solar Radiation:* C. G. Abbott was asked to prepare a report on solar radiation.

*Committee on the Spectroheliograph:* The Mount Wilson Solar Observatory was asked to prepare a report on work with the spectroheliograph.

*Committee on Reform of the Calendar:* R. T. Crawford, chairman; W. W. Campbell, Harold Jacoby.

The question of delegates to the Paris meeting was left to the executive committee with power.

It was voted that the section offer to act in astronomical matters as the agent of the Division of Physical Sciences of the National Research Council.

Various other items of organization and scientific interest were discussed by the section at the morning and afternoon sessions, and in the evening, without formal action.

Joel Stebbins,
*Secretary*

## SCIENTIFIC EVENTS

### WAR RESEARCHES AT ST. ANDREWS UNIVERSITY

The University of St. Andrews, as reported by the London *Times*, has an interesting record of scientific service during the war, notwithstanding the fact that nearly all the men students and members of the staff of military age joined the fighting forces.

One of the early difficulties encountered by the British Admiralty and War Office was the provision of the scarce and costly kinds of sugar used in bacteriological work, which before the war had been prepared in Germany. The St. Andrews Laboratory was able to provide supplies for the British and Allied governments. In some cases the raw material itself was not to be had and new synthetic methods were devised for its production. The laboratory took part in preparing novocain and the corresponding intermediates, new processes being developed which have been adopted successfully on a manufacturing scale. Other synthetic drugs were also produced.

Professor Irvine, the director of the laboratories, acted as chemical adviser to the Department of Propellant Supplies, and for two years and a half was responsible for investigations relating to the manufacture of the materials needed for making cordite. During the last eighteen months of the war the laboratory carried on researches into chemical shellfillings.

The general work of the university was restricted during the war. But, owing to the large number of women students, the courses qualifying for useful professions were kept up with the help of senior officials, who undertook additional duties, and of extra women teachers.

Without knowing what financial help will be forthcoming from the government or the Carnegie Trust, it is impossible to say anything very definite on the developments which will take place in the new conditions created by the war. The endowments of St. Andrews leave little margin for expansion. But in general the policy of the university authorities is rather to increase the facilities for higher study and research in existing departments than to dissipate energies over a wider range of subjects. The training of graduates in research methods has been a special feature of the university for many years. It is hoped to extend the research laboratories and to enable research graduates in chemistry to combine with a training based on fundamental scientific principles a better knowledge of the necessities and methods of manufacture. A start has indeed already been made in this direction.

The university has felt justified in providing a Ph.D. degree open to graduates of British, colonial and foreign universities on terms similar to those which govern graduation in German universities. Students who wish to enter the university at a later age than usual are to be encouraged by the removal of the bar which they have hitherto met with in the preliminary examinations. In pure science the way is opened to more intensive specialization in the study for honor degrees. Syste-

matic courses of instruction in commerce have been instituted, leading to graduation.

The number of graduates and students who served with the forces during the war was about 800. Of these 96 have been killed or reported missing.

### THE DEPARTMENT OF BACTERIOLOGY AND PUBLIC HEALTH IN YALE UNIVERSITY

AN outline of the work planned by the department of bacteriology and public health of Yale University, is given by Professor C.-E. A. Winslow in a recent number of the *Yale Alumni Weekly*. After consultation with the leading eastern universities a comprehensive program has been prepared leading to the Certificate in Public Health and the Doctorate in Public Health as well as to the Doctorate in Philosophy.

The Certificate in Public Health, which is to be conferred for one year of post-graduate study, is designed for two classes of students. On the one hand, young men and women who are just graduating from a college or technical school and desire to enter the field of public health, will be given a broad training in bacteriology, sanitation, health organization and vital statistics which will fit them for positions in health department laboratories and statistical bureaus, in bureaus of child hygiene or in other state and municipal departments. Outside of this district field of public service, experience has shown that those who hold the Certificate in Public Health may frequently find attractive positions as health executives, or as secretaries and field agents of various private organizations such as anti-tuberculosis societies, housing associations and the like.

A second class of students of maturer years for whom provision must be made, includes persons who have already specialized in some field related to public health, in medicine, for example, or sociology, or psychology or sanitary engineering, and desire to apply their special knowledge in the campaign for public health. The course for the Certificate in Public Health, with the freedom of election permitted to such mature students, is well adapted to give them a grasp of the general tendencies of the public health campaign and the special training they need in order to apply their knowledge in this field.

For students who desire to specialize in greater detail in certain of the various lines discussed above, opportunities will be offered to pursue a course of study of three years leading to the degree of Doctor of Philosophy, with opportunities for major specialization in problems of sanitation, epidemiology and industrial hygiene (with Professor Winslow); in public health bacteriology (with Professor Rettger); in the hygiene of the respiratory and central nervous system (with Professor Henderson); in immunology (with Professor Smith); in nutrition (with Professor Mendel); in problems of sanitary engineering (with Professor Barney); in problems relating to school and child hygiene (with Professor Gessel); and in vital statistics (with Dr. Dublin).

Both the Certificate in Public Health and the degree of Doctor of Philosophy are open to any college graduates, either men or women, provided they have pursued during their college course certain necessary prerequisites.

Beginning next autumn a new course of two years will be offered to medical graduates for which the degree of Doctor of Public Health will be conferred. It is believed that such a course, embodying not only class work but practical field work in a municipal health department, and the completion of study of a special problem designed to test and to develop the power of individual initiative, should furnish an ideal education for the public health administrator of the future.

### BASE HOSPITAL NO. 21 OF THE WASHINGTON UNIVERSITY SCHOOL OF MEDICINE

ON April 20, 1919, Base Hospital No. 21, formed from the faculty of the Washington University school of medicine, St. Louis, landed in New York after 23 months service with the American Expeditionary Forces in France. The unit, in command of Major Fred T. Murphy, was in the first one thousand troops to go overseas; it was attached during the greater part of its service to the British forces and stationed at Rouen. Lieutenant Colonel Walter Fischel was in charge of the medical service. A part of the hospital, oper-