at least, in the specific polysaccharides. This structural peculiarity, or multivalence, is not shared by lipins, and this may possibly be a factor contributing to the difficulty of demonstrating antigenic properties in lipins. The multivalence of the antigens is not necessarily confined to a single serologically active grouping, but may readily be a property of several such groupings, so that it is not surprising to find that a single, crystalline antigenic substance, such as egg albumin, may give rise to more than one antibody, or even a whole series of antibodies. And since there is every evidence that these antibodies are modified serum globulins they also afford the opportunity of recurrence of serologically reactive groupings, or multivalence, so that antibodies, even to a single crystalline antigen, may differ both as to the number and character of their reactive groupings. These relationships are reflected not only in the wide range of combining proportions between antigen and antibody—often a tenfold one—shown by quantitative studies on the precipitin and agglutination reactions, but also by qualitative and quantitative differences in the reaction between antigen and fractionally absorbed or precipitated antibodies.

In conclusion, our knowledge of the structure of antigens, while still fragmentary, has at least progressed to the extent that we possess some knowledge of their chemical character and some inkling of the chemical differences between antigens which may be expected to give rise to differences in serological specificity. We are also beginning to acquire precise data on other chemical substances which we have hitherto designated rather vaguely as antibodies, and there would even appear to be certain advantages in considering the reactions between the chemical substances known as antigens and antibodies as chemical reactions, complicated, it is true, but subject to the same laws as simpler chemical systems. Our young science of immunochemistry has thus demonstrated its utility and promise as a powerful aid in the solution of many of the most puzzling problems both in biology and in immunity to infectious disease.

SCIENTIFIC EVENTS

THE NORWEGIAN MEDICAL ASSOCIATION, 1886–1936

THE jubilee of the Norwegian Medical Association is being celebrated this year. According to an account in *The British Medical Journal,* the secretary-general of the association, Dr. Jörgen H. Berner, has written its history in an imposing work of 353 pages, with portraits of the men who have played the most prominent parts in the life of the association since its foundation. During the fifty years under review the history of the association may be said to have been the history of the Norwegian medical profession and of Norwegian medicine. At the present time there are more than 2,100 doctors in Norway, and most of them are members of the association. Only a little more than a century ago, in 1816, there were exactly 100 medical men, of whom as many as twenty-eight were medical students. The number of practitioners enjoying the title of doctor of medicine was limited to twelve, whereas there were fifty-two surgeons. There was hardly any private practice in those days, most of the doctors being medical officers of health or in the employ of the army. By 1885 the number of Norwegian doctors exceeded 600. The *Journal* states that they lacked elbow-room, and that this was one of the motives for the establishment of a medical association which would keep discipline within the ranks and see to it that the overcrowding of the medical profession did not lead to a lowering of any of its standards. Another motive for the foundation of the association in 1886 was the revolt of the medical profession, its younger members in particular, against what seemed the reactionary attitude of the Faculty of Medicine in the capital. Medicine was splitting up into specialties, each of which created new educational demands, and the university teachers were unwilling or unable, probably both, to meet them. During the past fifty years the association has not only maintained discipline within, but has also generously shouldered its responsibilities in such important social problems as those of quackery, nursing, cancer and tuberculosis. The outstanding figure in the history of the association from 1898 to 1924 was Dr. Rasmus Hansson, secretary-general from 1900 to 1924. The present secretary-general, Dr. Berner, is also editor, jointly with Professor Carl Schiötz, of the association's journal, *Tidsskrift for den Norske Laegeforening.*

THE BRITISH PUBLIC HEALTH EXHIBITION

THE fifth British Public Health Exhibition was opened by the Minister of Health, Sir Kingsley Wood, at the Royal Agricultural Hall, Islington, on November 16. The exhibition is held in conjunction with the annual Public Health Congress.

One large group of exhibits was concerned with the work of hospitals for nervous and mental diseases. In the entrance hall was a collective display by manufacturers who have supplied apparatus and equipment for Runwell Hospital, the architects of which are Messrs. Elcock and Sutcliffe. This hospital will serve the needs of the county boroughs of East Ham and

Southend-on-Sea. It is built on the villa system, to accommodate 1,032 patients in nearly a score of separate buildings, and is claimed to be the most up-to-date hospital devoted to mental disease. The gallery of the Agricultural Hall gave a useful survey of what is being done for mental defectives by occupational therapy. The stands there displayed handwork of many kinds, the work of patients at mental institutions in different parts of the country.

The body of the hall was largely devoted to bulky motor vehicles, including new types of sweeping, refuse-collecting, watering and gully-emptying machinery such as are in use by the sanitary departments of municipalities. Demonstrations were given in the adjoining Gilbey Hall, which had been laid with a patent iron paving. To show that this paving is as effective a safeguard against skidding as any yet introduced, a motor-cycle combination was ridden with one wheel in the air, or driven from the side-car, or with the rider standing on the saddle, and so on. Among the motor transports on show there were also motor ambulances, and a piece of apparatus which at short notice can be attached to a municipal vehicle for spraying highways with anti-gas chemicals. The Department of Scientific and Industrial Research had a large exhibit to which about twenty research establishments contributed.

STUDY OF AIRPLANE VIBRATION AT NEW YORK UNIVERSITY

THE Daniel Guggenheim School of Aeronautics at New York University will make a detailed survey of airplane vibration and flutter in cooperation with the New York State Aviation Commission and the WPA.

It is planned to investigate the effect of high speeds on airplanes which test strong under slow speeds and have passed satisfactorily all static tests showing a high factor of safety, but which develop serious vibrations and flutter under increased speeds. These planes often cause grave accidents with the complete failure of the wing surface.

Dr. Alexander Klemin, director of the Guggenheim School; Professor Frederick Ketchman and Everett B. Schaefer will represent the university in this study, which will be participated in by twenty-five investigators. The project will involve:

1. A complete bibliography of literature on vibration and flutter, which will be published in many languages. Technical translators and research workers are being supplied by the WPA.

2. Equipment will be developed for experimental investigation of the subject, along with mathematical investigations.

3. Wings will be vibrated on the ground by means of a special vibrometer in order to study the characteristics while the surface is being disturbed by violent air forces.

4. In the large air tunnel of the university, carefullly designed and built models will be mounted to study flutter and oscillation under disturbed air conditions.

5. Equipment will be developed for the study of vibrations in actual flight with the cooperation of leading airplane construction companies, and plane operators, in the vicinity of New York City, and records will be made by mechanical and electrical pick-ups and by oscillographs, which will give actual flight conditions.

The work has also been endorsed by the New York City Commission of Docks, the Department of Commerce, and prominent construction firms. Engineers and mechanics will be assigned through the Works Projects Administration and will be under the supervision of New York University experts.

THE AMERICAN SOCIETY OF TROPICAL MEDICINE

THE thirty-second annual meeting of the American Society of Tropical Medicine was held in Baltimore from November 18 to 20.

Thirty-six papers were presented in five sessions, one of which was in conjunction with the National Malaria Committee. Officers elected for the ensuing year are: *President,* Dr. Herbert C. Clark; *President-elect,* Dr. Mark F. Boyd; *Vice-president,* Dr. Karl F. Meyer; *Councilors,* Major James S. Simmons, Dr. Robert A. Lambert and Dr. H. H. Anderson. Dr. N. Paul Hudson and Colonel Charles F. Craig were reelected to the offices of secretary-treasurer and editor of the journal, respectively.

The first awards of the Walter Reed Medal were made on November 19, at the luncheon of the society. Dr. Henry E. Meleney, president of the society, presided. The medal was conferred on Mrs. Walter Reed by Colonel Joseph F. Siler and received by her son, Major-General Walter L. Reed. In compliance with the condition of award to "an individual or an institution in recognition of meritorious achievement in tropical medicine," a second medal was awarded through Dr. Richard P. Strong to the Rockefeller Foundation for meritorious achievement in the study and control of yellow fever. It was accepted by Raymond B. Fosdick, president of the foundation. The committee of award was composed of former presidents of the society, Dr. Richard P. Strong, Colonel Joseph F. Siler and Admiral E. R. Stitt.

The Charles Franklin Craig Lecture in Tropical Medicine was inaugurated at the meeting. It was given by Dr. Ernest Muir, of London, the general and medical secretary of the British Empire Leprosy Relief Association. His topic was "The Control of Leprosy." Dr. Muir was a guest to the United States of the American Leprosy Foundation.

N. PAUL HUDSON,
Secretary