numbers every meeting in which arrangements had been made for it. The local committee on arrangements and the medical profession of Chicago are to be congratulated on the results of this session, and the thanks and appreciation of every Fellow of the American Medical Association is due them.

THE PRODUCTION OF OPTICAL GLASS IN THE UNITED STATES

The War Industries Board authorizes the statement that before the war little effort was made to produce optical glass in the United States. Manufacturers of optical instruments were able to obtain optical glass in desired quantity and quality from Europe and consequently did not feel the necessity for making it themselves. In 1912, however, the Bausch & Lomb Optical Co., of Rochester, N. Y., built an experimental optical-glass plant and placed a practical glassmaker in charge; by 1914 this company was able to produce a few types of optical glass which was used in optical instruments.

By the end of 1914 the importation of optical glass had become difficult and uncertain. Other firms, as Keuffel & Esser, of Hoboken, N. J., and Spencer Lens Co., Buffalo, N. Y., and the Bureau of Standards of the Department of Commerce, at Washington, began to experiment in making optical glass. By 1917, when the United States entered the war, the optical glass situation had become critical. The European supply was practically cut off. Optical glass had to be made in this country if our army and navy were to receive the fire-control instruments which they needed.

The Geophysical Laboratory of the Carnegie Institution of Washington was called upon to aid in the production of high-grade optical glass. A party from the laboratory was stationed at the plant of the Bausch & Lomb Optical Co. in April, 1917, and for seven months all efforts of the laboratory were concentrated at this plant. At the end of 1917 the essential details of the manufacture had been developed and glass in considerable quantities was being produced. The efforts of the laboratory were then extended to the Spencer Lens Co. and to the Pittsburgh Plate Glass Co., Pittsburgh, Pa. During this period the Bureau of Standards rendered effective aid.

At the present time, as a result of cooperation between the manufacturers and scientists, large quantities of optical glass of the kinds needed for military fire-control instruments are being produced of a quality equal in practically every respect to the best European glass. The need for a continuous and assured supply of optical glass is so great that the workmen trained in the details of manufacture and subject to draft, are being withheld from the draft in order that their technical training may be utilized at this time. The required information and details of manufacture and the skill necessary for proper production have been gained at great expense and under high pressure.

THE SOURCE OF TRENCH FEVER[1]

A cablegram from the commanding general of the American Expeditionary Forces to the Secretary of War reports the success of a trench-fever investigation, which was made possible through the willingness of sixty-six American soldiers to risk their lives. The message contains the names and home addresses of the men who submitted to inoculation. All of them now are either cured or convalescent.

These men were from field hospitals and ambulance organizations, units commonly designated as noncombatant. They were selected from a large group of volunteers as the healthiest and consequently the best able to withstand a long siege of trench fever, which has been one of the most baffling diseases which the allied armies have encountered. The men selected were sent to a hospital behind the British front line in January.

Trench fever is a disease which has been common on the western front. It may have existed before, but has not been either frequent or severe enough to direct the attention of the medical profession. Now it represents one of the greatest causes of disability in the allied armies. Nothing definite was known about either the cause or mode of spread of this disease.

[1] Publication authorized by the Secretary of War.

While it is probably never fatal by its nature, through frequent relapses and debilitating effects it may render a certain proportion of men permanently unfit for military service, and the approximate average time lost from this disease is six months. Therefore, in spite of the fact that it is not a fatal disease, from the military point of view it has been a serious one.

The problem of protecting our men, if possible, from this added suffering, was one of the first questions faced by the American Expeditionary Forces. Before any intelligent protective measure could be taken there were two points to be established. First, was this disease caused by germs? Second, if it was a germ disease how was it spread?

Attempts were made to use animals to establish these points, but no animals susceptible to this disease could be found. Therefore, as was the case of Walter Reed and his work on yellow fever, it was necessary to resort to volunteers from our army, who would be willing to sacrifice themselves that the many might be saved.

The first question studied was whether this was a germ disease. No germs could be seen with the microscope, but the Medical Department knew that there are numerous germs which can not be seen by even the most powerful magnification. Therefore this point had to be established by taking blood from men with the fever and injecting it into healthy men. Out of 34 such individuals inoculated with blood or some constituent thereof, taken from 7 cases of trench fever, 23 volunteers developed the disease. Out of 16 healthy men inoculated with whole blood from a trench-fever case 15 developed the disease. These experiments prove that trench fever is a germ disease and that the germs live in the blood of men so infected.

The next question was "How is this disease spread?" Naturally the body louse was to be considered first. Large numbers of these were collected from patients with trench fever and also some of the same kind were brought from England, which had been collected from healthy men. The lice from trench-fever cases were allowed to bite 22 men. Twelve of these later developed the disease, while four men bitten by lice from healthy men remained free from the disease. Eight other volunteers living under exactly the same conditions, in the same wards, but kept free from lice, did not develop trench fever. After blood inoculation the disease developed in from 5 to 20 days. After being bitten by infected lice the fever required from 15 to 35 days to develop.

With these facts in hand, namely, that trench fever is a germ disease and that it is carried by lice, it is now possible to take up the question of controlling, in an intelligent manner, the disease. As long as the protection of the men from lice was only a matter of comfort and of no military importance, their extermination did not warrant extraordinary measures, but now that it is known that it is not simply a matter of discomfort, but that the "cootie" (trench vermin) is incidentally one of the largest causes of disability, it is deemed worthy of extraordinary efforts to control these pests. It is a repetition of the question of mosquito control, yellow fever having been eliminated on the Panama Canal by these means.

It is no mean thing that these volunteers did in France. To face illness of weeks, with extreme suffering, requires peculiar valor. The average loss of weight for these men was from 20 to 25 pounds. Incidentally the hospital in which the experiments were carried out was shelled by the Germans in the early part of their March drive. It is believed by the Army Medical Corps that the sacrifice of this group of 66 men will in time lead to the protection of thousands of men from the ravages of trench fever.

SCIENTIFIC NOTES AND NEWS

AT the commencement exercises of Yale University the degree of doctor of science was conferred on Edward Sylvester Morse, director of the Peabody Museum, and on Dr. Henry Drysdale Dakin, the physiological chemist.

THE honorary degree of A.M. has been conferred by Harvard University on Outram Bangs, curator of mammals, Museum of Com-