was made by scratching the skin and rubbing in, eleven crushed lice in one case, and excreta voided by the lice in the other. Both men developed typical symptoms of the disease, with a relapse in six to eight days. The inoculation of louse excreta into scratches has been repeated a number of times, and in every case an attack of the disease has resulted.

It was found that the incubation in man, when infected by scarification, was remarkably constant, *i. e.*, six to eight days, and the ease and certainty with which infection could be produced pointed to the inoculation of the contents of crushed lice or louse excreta as in all probability the common, if not the invariable, method of transmission.

The excreta obtained by shaking through the gauze cover of the boxes in which the lice were confined were used in the form of a dry powder, which remained infective for at least sixteen days. In parallel experiments with the excreta of normal lice which had not been fed on trench-fever patients no symptoms of the disease were produced.

That a very small amount of blood, such as might be contained in ten lice, does not directly convey the disease through an excoriation of the skin, is indicated by the negative result obtained by rubbing 5 c.mm. of infective blood into scratches on the skin of a volunteer.

Moreover, the following series of experiments points to the fact that the louse, after a meal of infected blood, does not void infective excreta for some days. Lice were fed on a trench-fever patient on one day only, and then on healthy men. Excreta collected on the first, third, fifth and eighth days after infection gave negative results, while those collected on the twelfth and twenty-third days proved virulent. The virus, therefore, would appear to undergo some preparation in the insect before it becomes infective. Whether this change in the louse is due to a simple multiplication on the part of the hypothetical microorganism, or to a cycle in its development, is as yet undetermined. Further, it was shown that the ingestion of louse excreta did not produce trench fever in two men who daily swallowed a dose for seven and fourteen days, respectively.

GRANITE FOR BUILDING IN 1917

THE total value of granite sold for building stone in 1917 was $2,881,128, a decrease of $1,083,305, or 27 per cent., compared with 1916. The rough stone sold was valued at $590,310, which was $312,736, or 35 per cent. less than in 1916; the dressed or manufactured stone was valued at $2,290,818, which was $770,569, or 25 per cent., less than in 1916. Accurate figures showing quantities are not yet available, but owing to a general increase in price the decrease in percentage of output was considerably more than in value.

The statistics given were compiled under direction of G. F. Loughlin, of the United States Geological Survey, in cooperation with the National Building Granite Quarries' Association and the State Geological Surveys of Georgia, Maryland, Minnesota, Missouri, New Jersey, New York, North Carolina, Pennsylvania, Virginia, Washington and Wisconsin.

Sales of granite for building were reported from 26 states in 1917 compared with 28 in in 1916. Massachusetts, with a total value of $646,506, and Maine, with $525,604, ranked first and second. New Hampshire, second in rank in 1916, was third in 1917, with a value of $337,233. Massachusetts, with $132,700, and Maine, with $109,941, were the only states whose sales of rough granite exceeded $100,000 in 1917, and each of these showed a decrease of about one third compared with 1916. New Hampshire followed with $78,484, a gain of about one quarter. Pennsylvania, which ranked first in sales of rough granite in 1916, with a value of $224,360, was credited with only $87,978 in 1917. The few other states that showed gains had values of less than $15,000.

In sales of dressed granite also Massachusetts, with $513,806, and Maine, with $424,663, were the leading states. Maine, however, has made continuous gains in 1916 (2 per cent.) and 1917 (55 per cent.), whereas Massachusetts in the same years has suffered losses of 17 per cent. and 19 per cent., respectively. North Carolina's output, chiefly stone for mausoleum work, though classed previously as

building stone, has been transferred to monumental stone, the class in which it more properly belongs. New Hampshire, Vermont, California, Georgia, Rhode Island and Minnesota had values in excess of $100,000 in 1917. Of these Georgia made gains in the last two years, its value for 1917 nearly doubling that of 1915, and Rhode Island more than tripled its value for 1916. The other states named showed decreases of 10 to 50 per cent.

The reduced output during the last year was due to a marked increase in the cost of labor, material and freight. The general average increase was probably about 30 per cent., but some items increased much more.

Prices increased, though in most places not in proportion to the increase in costs. Some producers reported an increase of 20 to 30 per cent. One company in Maine reported an increase of 50 per cent., and two companies in New Jersey an increase of 100 per cent. for rough stone. A few companies in New Hampshire, Maryland and the District of Columbia reported no increase in price.

The demand was prevailingly small, owing to a general curtailment in the erection of both government and private buildings in which granite is ordinarily used. This curtailment in turn was caused by a shortage of labor for building, a shortage of other building materials, and the increased price of these materials and of building stone.

As building operations were very active early in 1917, the curtailment in them not becoming marked until about midsummer, the production in 1917 may be considered an average between very good and very poor. The period of severe depression continued through the first six months of 1918, and as there is no prospect of early improvement the production of building stone, as well as of other materials that are used mainly in buildings of the better classes, will probably be considerably less in 1918 than in 1917. The present abnormal period, in which most of the buildings erected are temporary, will probably be followed by a period in which permanent buildings of high architectural merit will be constructed, and this change will be reflected in a rapid recovery of the building granite industry.

THE PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES

The following report from the editorial board of the *Proceedings of the National Academy of Sciences* was presented by the chairman, Raymond Pearl, at the spring meeting of the academy and is now printed in the *Proceedings*.

1. Three volumes of the *Proceedings* have been completed, and four numbers of the fourth volume have been issued.

The statistics as to the make-up of the third volume, both in respect of subject-matter and of source of the contributions, have been printed in the Annual Report of the Academy for 1917, and need not now be repeated except so far as covers one point.

The statistics of articles by members of the academy as compared with articles by non-members are interesting mainly in showing a progressive diminution in the percentage of articles by members, despite the increase in membership of the academy. If there are obstacles which can be removed and which hinder members of the academy from printing in the *Proceedings*, would it not be well to make efforts to remove them? The academy represents the highest point in American research, and if the *Proceedings* should actually contain articles representing the totality of the investigations of members of the academy it would become thereby largely representative of all American research and of very high grade, and furthermore it would be more truly the proceedings of the academy in the sense that corresponding publications of foreign academies are representative of their research.

2. At the autumn meeting the terms of office of five members of the editorial board expired, and new appointments were made by the council as follows: Jacques Loeb, W. M. Wheeler, E. B. Frost, E. L. Thorndike and E. H. Moore.

3. At the autumn meeting the board decided to put into operation certain changes in the typographical make-up of the *Proceedings* in the interest of economy. These changes have been made with satisfactory results.

4. The editorial board is of the opinion that in view of the now established and recognized position of the *Proceedings* as a medium of scientific publication, the members of the academy might well contribute more of their own papers to its pages than they now do, both from the standpoint of self-interest as well as from a sense of duty to the academy and what it stands for. In this con-