information, but also that resulting from hitherto unpublished research work, partly the author's own, and partly that of others contained in reports to the War Office, which he has been permitted to use. Professor Nuttall has generously presented a special edition of three hundred copies of the paper to the Allied Armies; and, in view of the recently established fact that the trench fever is conveyed by lice, this should prove a very timely gift.

The paper comprises 176 pages, with four plates and twenty-six figures in the text. Most of the pages are devoted to the practical consideration of louse destruction a great deal of the experimental evidence being given in detail. The results obtained demonstrate that nits are killed by dry heat at 65°–70° C. in one minute, and at 55°–61° C. in ten minutes, the active stages being killed by dry heat at 65°–70° C. in one minute and at 55° C. in five minutes. After allowing for a margin of safety in practise, immersion in hot water at 70° C. for a minute or two is amply sufficient to destroy lice, while 55° C. for ten minutes is equally effective, a point of great importance in relation to the washing of flannel garments.

Singeing, sun-baking, and the use of hot flat-irons are briefly dealt with. The various methods devised for disinfection by hot air and steam are treated of at length, and illustrated by text figures of disinfestors improvised for war purposes, together with plates depicting the more elaborate forms of disinfestors designed for use in peace time. We agree with the author that apparatus designed with a view to high efficiency against the resistive spores of bacteria is not adapted for rapid and economical use against lice. It should be replaced by more commodious hot-air and steam huts, or disinfectors planned on the improvised railway vans said to have been so successful in the east. Designs of this type of chamber should also be adapted for steam or motor lorries, as well as trailers, which could, if necessary, be horse-drawn.

Steam gives results superior to hot air if the destruction of pathogenic bacteria is an object, but dry heat possesses many advantages over steam if the destruction of body vermin is the end in view. The use of sulphur is treated of at some length. We endorse the author's remarks as to the failure of sulphur vapor to destroy all the nits exposed to it, while its relatively high cost, the danger of injury to clothing and its slow action are further disabilities of the method.

In the section dealing with insecticides and so-called repellents, the results of the great mass of experimental work are tabulated in detail, an unavoidable course owing to the wide diversity of method employed by the various workers. In these experiments lice and nits were immersed in, brought into contact with, and submitted to the action of the vapor of various substances and preparations.

THE FUR SEALS OF THE PRIBLOF ISLANDS

In the present calendar year to August 10, the end of the regular killing season, 33,881 sealskins were taken at the Pribilof Islands. Of these, 7,000 were taken on St. George Island and 26,881 on St. Paul Island. The Department had authorized a take of 35,000 skins, 7,000 on St. George and 28,000 on St. Paul. Some few seals will be killed from time to time during the remainder of the year for the purpose of furnishing fresh meat for the natives.

By the terms of the North Pacific Sealing Convention of July 7, 1911, 15 per cent. of this year's take of skins belongs to the Canadian government and a like proportion to the Japanese government. There will be no actual delivery of these skins, but, under the provisions of the convention, the market value of the skins will be credited to the respective governments as an offset to certain advance payments made to them by the United States.

A census of fur seals on the Pribilof Islands was conducted by G. Dallas Hanna, and preliminary figures, subject to slight modification when all the data have been carefully examined, have been received. The number of pups born was 143,005, and the number of breeding cows was the same. The approximate total size of the Alaskan herd was 496,-

600. The average harem, based on a count of seven rookeries, was 26.76. The census was of date of August 10, and did not include the 33,881 seals taken during the present calendar year.

Reports have been received from the superintendent and physician, United States Indian Service, Neah Bay, Wash., that he has authenticated 386 fur-seal skins taken this season by Indians dwelling on the coast of Washington. The seals were all speared from canoes and were taken from 10 to 25 miles west of La Push, Wash. The records show that 379 of the skins were taken in April, May and June, 1918, and that 245 of the seals were males and 139 females. The superintendent also stated that a few skins remain untagged, and a report on the number will be made at the close of the season.

The lighthouse tender *Cedar,* which had on board some of the heavier portions of the equipment for the new by-products plant for St. Paul Island arrived at the island on August 11. The material was successfully landed, and ground for the foundation of the plant was broken on the 14th. The balance of the equipment for the plant was delivered by the *Roosevelt* in August. The active sealing operations were over by the 10th, thereby permitting the energies of the station to be devoted largely to the erection of the plant. It is hoped to push the work of constructing the buildings and installing the machinery rapidly to completion and to begin the manufacture of oil and fertilizer from seal carcasses this season. The carcasses of approximately 27,000 seals which have been killed on St. Paul Island this year will furnish ample material for preliminary operations.

RESEARCH GRANTS FROM TRUST FUNDS OF THE NATIONAL ACADEMY OF SCIENCES

DURING the twelve months preceding the annual meeting of the academy the following grants for the promotion of research were made from the trust funds of the academy.

GRANTS FROM THE BACHE FUND

No. 205, T. H. Goodspeed, University of California, $100. For studies of inheritance in *Nicotiana* hybrids.

No. 206, Reginald A. Daly, Harvard University, $700. For the completion of the deep sea thermograph designed and partly constructed under Grant No. 194. In continuation of No. 194.

No. 207, T. H. Gronwall, New York City, $300. To complete and extend mathematical researches on conformal representation.

No. 208, A. Franklin Shull, University of Michigan, $400. To investigate the cause of sex production and the life cycle of rotifers, together with artificial modification of life cycle; differential factors in fertilization of male-producing and female-producing rotifers; sex determination and the life cycle of the thrips; cause of sex production, wing production and other cyclical phenomena in aphids.

No. 209, Cecil K. Drinker, Harvard Medical School, $350. For the closer study of the factors involved in extension of unchecked red cells and leucocytes in the dog.

GRANTS FROM THE WATSON FUND

No. 16, Herbert C. Wilson, Goodsell Observatory, $300. For a continuance of the work of the determination of the position and brightness of asteroids (chiefly those discovered by Watson by the photographic method, together with a study of the brightness of some variable stars. (Supplementary to Grant No. 15.)

No. 17, John A. Miller, Sproul Observatory, $500. To measure plates for determining stellar parallaxes. (Supplementary to Grant No. 14.)

GRANTS FROM THE J. LAWRENCE SMITH FUND

No. 9, S. A. Mitchell, University of Virginia, $300. To continue his researches on the paths, radiants and orbits of meteors. (Supplementary to Grant No. 8.)

GRANT FROM THE MARSH FUND

No. 2, M. Ferdinand Canu, Versailles, France, $250. For investigation in cooperation with Dr. R. S. Bassler, of the United States National Museum, of the early tertiary bryozoa of North America.

SCIENTIFIC NOTES AND NEWS

PROFESSOR ERNEST FOX NICHOLS, of Yale University, has been given further leave of absence to continue his work in the Ordnance Department.

LIEUTENANT COLONEL DR. JOHN M. T. FINNEY, surgeon-in-chief of the American Expeditionary Forces, on his recent visit to the United States laid plans before the President