Cruz, short visits were made at the Polynesian islands of Tikopia and Nupani.

On May 10, the ship anchored at the atolls of Sikaiana, where a study was made of the prevalence of tuberculosis, yaws, filaria and malaria, and of the religious beliefs, customs and social organization of the little known people.

At Tulagi, the next port visited, Dr. Lambert began his intensive research among the Melanesian population, while the other members of the expedition were landed on Guadalcanal Island to collect insects, plants and fish. A week later the entire party journeyed to Malaita Island, where with the assistance of Messrs. Barley and John White of the government of the Solomon Islands, a very successful and large tuberculin and anthropometrical survey was made in the Tai district.

On completion of the work at Malaita the expedition sailed to Rennell and Bellona islands, the chief objectives of the expedition. These two large isolated atolls, which at some time have been thrust out of the sea, are bordered by abrupt, almost impregnable coral walls. The unattractive coasts, without safe landing beaches and without products of commercial value, have remained almost free from European contact. Missionaries and traders have no foothold there. Here are two islands where Polynesian inhabitants are living much as they did when their ancestors arrived some 20 generations ago. Virulent European diseases have not been introduced, and the plant, bird and insect life has remained undisturbed.

With this virgin field before them, the expedition worked unceasingly to make the most extensive collections possible and to learn as much as possible of the native life and customs.

Through friendships established on a previous visit with the Whitney South Sea expedition, Dr. Lambert was able to immediately bring to a tiny beach on the coast the population of one district, and make an intensive study of disease and general health. Dr. Hynes, who assisted in this medical research, acquired a large number of blood samples for filarial tests and blood groups.

On Bellona Island the annual religious ceremony of offering the first fruits of the harvest was in full swing when the expedition landed. The unusual opportunity was offered of recording this in motion pictures and making extensive notes on religion and particularly the conduct of priests, while the gods were "dwelling" in their bodies.

After completing the work at Bellona and Rennell, Tulagi was revisited, and the medical and health survey was continued at San Cristobal, Santa Anna and Santa Catalina islands. On the return voyage from the Solomon Islands the small Polynesian settlements in the Swallow Islands and at Anuda (Cherry Island) were visited.

On July 23 the expedition reached Suva, where Dr. Lambert and his assistant left the party, and Mr. Crocker and Mr. Willows took ship for San Francisco. The remaining three members of the scientific party sailed to the Phoenix Islands *via* Pago Pago to investigate the "stone ruins" reported in the British Naval Survey of 1889.

The *Zaca* returned to Honolulu with about 3,200 artifacts from Polynesia and Melanesia, a large entomological collection, many rare plant specimens, a great quantity of small fish taken with dip nets, land and sea shells, and some 1,400 photographs and numerous sketches, mainly of marine life. The botanical and malacological collections and a representative ethnological collection of material were deposited in the Bernice P. Bishop Museum. The insect material is deposited with the California Academy of Sciences. The results of a special study of canoes made by Mr. Crocker will be sent to Dr. A. C. Haddon, of the University of Cambridge. The remainder of the collections will be presented to various institutions in America and Europe. Reports by Dr. Lambert will be published by the Rockefeller Foundation. The results of the anthropologic studies will be published by the Bishop Museum.

QUOTATIONS

WILLIAM H. WELCH

THE appointment of a man even of outstanding attainments to fill a chair in a university is not ordinarily an event of historic importance. But when Johns Hopkins made Dr. William H. Welch its first professor of pathology fifty years ago this month, it took a step that influenced the development of medicine and therefore affected the well-being of a nation. The highly trained, white-clad nurses in private and hospital practice, the hospitals themselves, the hundreds of laboratories where pathological specimens are examined by experts in diagnosis, the physicians who have mastered half a dozen sciences, and, above all, the research institutions where explorations in new fields of biology and medicine are planned and undertaken—they are all his products, the flowers that sprang from the seed then planted.

Out of that school, the first in this country modeled after corresponding European institutions, came the deans and leaders of American medical research—pupils of Welch himself and of Osler, Halsted, Kelly, Howell and Abel, all his appointees to a faculty the like of which had never been assembled in this country. Henceforth the physician who decided to forego

practice and devote himself to research was no longer regarded as an eccentric. With a new generation trained in accordance with the highest ideals not only in every branch of medicine but in the collateral branches of physics, chemistry and biology, Welch could move on to wider fields. The Rockefeller Institute was founded, with Welch as the one president that its scientific board has ever had. The Carnegie Institution was created, with Welch a dominant force. Conscious of the needs of humanity cluttered in cities, he established the Johns Hopkins School of Medicine and Public Health and made it so pre-eminently the leading institution of its kind that one quarter of its students are foreigners. Himself a man of wide culture, a living piece of scientific history, he capped this by founding and heading the Institute for the History of Medicine, not as an academic ornament to a university already great, but as a practical school where trends in medical research are studied and linked with the pulsating life of the world.

For fifty years Dr. Welch has been the guiding genius of medical research and teaching in this country, the most potent influence in raising the standards of public and private practice. "In the short span of a lifetime," Dr. Simon Flexner, his pupil, has written, "he raised medicine in the United States from a beneficent art to an expanding science."—*The New York Times.*

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED TECHNIQUE FOR THE ARTIFICIAL FEEDING OF THE BEET LEAFHOPPER WITH NOTES ON ITS ABILITY TO SYNTHESIZE GLYCERIDES

INSECTS vary greatly in their feeding habits, as many studies have revealed. They not only represent an exceedingly large group of organisms, but their life histories are most often very complex as well. Their nutritional requirements during the larval and adult stages are often quite distinct, and comparatively few chemically controlled nutritional experiments have been carried out with them.

Loeb[1, 2] found that *Drosophila* could be raised on a sterile medium containing sugars, ammonium tartrate and inorganic salts. However, when the flies were raised from the eggs under sterile conditions they were unable to propagate in the artificial medium. This difference is attributed to the fact that the larvae use yeast as their principal food.

Abderhalden,[3] in his experiment with the feeding of the beetle, *Anthrenus museorum,* on a diet of pure silk, observed that the insect was able to build from amino acids all the substances necessary in the economy of the larva and adult.

Because of the general physiological interest which attaches to this ability of certain insects to elaborate complex nutritional substances from simple diets, the present note is published in order to call attention to the ability of a homopterous insect (*Eutettix tenellus* (Baker)) to synthesize fats from simple carbohydrates, and also to call attention to an improved technique for feeding such insects upon artificial solutions of known composition.

Relatively few controlled studies have thus far been made on the nutrition of phytophagous sucking insects because of the difficulty in securing satisfactory feeding under artificial conditions. Carter,[4, 5] in two publications, has described a method applicable to the feeding of known solutions to homopterous insects. Carter's technique is, however, unsatisfactory from the standpoint of manipulation, changing feeding solutions, sterilization and—most important of all—in securing uniform feeding on the part of all caged leafhoppers owing to the difficulty experienced by the insect in finding and maintaining a satisfactory position upon the feeding membrane. Recently, Fife[6] has described a new technique designed primarily for observing the feeding of individual insects upon small droplets of nutrient solution.

Neither the Carter nor the Fife methods were entirely satisfactory for the purpose in view. In consequence, an attempt was made to devise a method whereby reasonably large numbers of leafhoppers could be fed simultaneously upon a nutrient solution —one which would obviate the error resulting from the failure of individual insects actually to find the nutrient solution, and in which mechanical difficulties in the way of feeding, resulting from the insecure foothold provided by the animal mesentery or capping membrane, recommended by Carter, could be eliminated.

[1] J. Loeb, "The Simplest Constituents Required for Growth and the Completion of the Life Cycle in an Insect (*Drosophila*)," SCIENCE, 41: 169–170, 1915.

[2] J. Loeb, "The Salts Required for the Development of Insects," *Jour. Biol. Chem.*, 23: 431–434, 1915.

[3] E. Abderhalden, "Beitrag zur Kenntnis der synthetischen Leistungen des tierischen Organismus," *Zeitschr. physiol. Chemie,* 142: 189–90, 1925.

[4] Walter Carter, "A Technic for Use with Homopterous Vectors of Plant Disease, with Special Reference to the Sugar-beet Leafhopper, *Eutettix tenellus* (Baker)," *Jour. Agric. Res.*, 34: 449–451, illust., 1927.

[5] Walter Carter, "An Improvement in the Technique for Feeding Homopterous Insects," *Phytopathology,* 18: 246–247, 1928.

[6] J. M. Fife, "A Method of Artificially Feeding the Sugar-beet Leafhopper," SCIENCE, 75: 465–466, illust., 1932.