

eral special cryogenic laboratories have been established for the prosecution of such researches, and a liquid-air plant is becoming a common adjunct to the equipment of the ordinary laboratory.

JAMES DEWAR.

(*To be concluded.*)

THE BUREAU OF GOVERNMENT LABORATORIES FOR THE PHILIPPINE ISLANDS, AND SCIENTIFIC POSITIONS UNDER IT.

THE Bureau of Government Laboratories for the Philippine Islands has now been organized for nine months and is at present quartered in a temporary building. The commission contemplates the erection of a comprehensive and fitting structure for scientific work, the detailed plans of which are about completed, and the government architect is ready to begin work as soon as the title to the land desired for the edifice is secured. This new structure will be fitted with all modern appliances for thorough scientific work. The individual working desks of the laboratory will be supplied with gas, water, vacuum and steam and air pressure; electric power is to be furnished wherever it is needed, and the equipment will be complete.

The scheme of the bureau contemplates a central institution in which laboratory work shall be done for all the bureaus which may need scientific assistance, so that a scattering of individual laboratories and a consequent loss of efficiency and equipment are avoided. The work is separated into two divisions, the chemical laboratory and the biological laboratory, each occupying a wing of the new building, with the Serum Institute located to the rear, in conjunction with the power house.

The building is divided into sixty rooms so that separate lines of work can be carried on in individual quarters, each person engaged in scientific investigation being

thus enabled to have his apparatus and appliances in the most convenient form. The division of the space is as follows:

GROUND FLOOR.

Physical laboratory with constant temperature room below.  
Assay laboratory.  
Balance room.  
Combustion room.  
Distilling room.  
Research room for vegetable products.  
Chemical stores.  
Apparatus stores.  
Storekeeper's office.  
Bacteriological diagnosis, two rooms.  
Animal parasites.  
Culture media.  
Mechanic.  
Incubator and cold storage.

FIRST FLOOR.

Mineral analysis.  
Director chemical laboratory.  
Director's office.  
Sugar and food analysis.  
Library.  
Plant pathology.  
Biological director's office.  
Biological director's laboratory.  
Biological research.  
Spectroscopic rooms.  
Chemical research.  
Pharmacology.  
Balance room.  
Photography.  
Collections.  
Pathology.  
Physiological chemist.  
Three research rooms.  
Outdoor laboratory.

POWER HOUSE.

Cold-storage plant and cold-storage rooms.  
Serum packing room.  
Serum laboratory.  
Serum kitchen.  
Crematory.  
Engine room.  
Boiler room.

The plans of the bureau contemplate research work not only in the resources of the islands, but also in the realm of tropical diseases. The work during the past year has included a large number of analyses for

the Custom House, Mining Bureau, Forestry Bureau, Agricultural Department and Board of Health; diagnostic work for the hospitals and others interested, and researches in gutta-percha, rubber and gums found in the islands, as well as investigations of some previously unknown forms of tropical diseases. The scope of the work is continually widening, and there is no doubt but that the bureau offers large opportunities for young men who desire to acquaint themselves with the products of the tropics and to advance our knowledge of lines of work which are each year concentrating more and more of the interest of the scientific world.

The positions in the bureau, outside of the directors, are all under the Civil Service, and qualifications can be obtained through the Civil Service Commission at Washington. The scheme of the bureau contemplates the following additions to the laboratory force during the next year:

1 Soil and water analyst.....	\$1,500
1 Plant pathologist.....	2,500
1 Physical chemist.....	2,400
1 Analytical chemist for mineral analysis .....	2,000
1 Assayer .....	1,500
1 Entomologist .....	2,500
1 Animal parasitologist.....	2,500
1 Pathologist .....	2,400
1 Drug assayer and toxicologist.....	1,800

The candidates for the higher salaried positions by understanding will not be subjected to a rigid examination, but their previous research work, experience, university degrees and general knowledge will qualify them, after the facts have been submitted to the Civil Service Board and found satisfactory.

The salaries for young men are good, and, although expenses in Manila are higher than in the United States, nevertheless, the difference in salaries is large enough so that prospective workers will be better paid here than they would in the beginning po-

sitions in the United States. It is the intention to engage none but the most efficient workers in the corps, and it is hoped, in the course of a few years, a connection with the Bureau of Government Laboratories will be equivalent to a certificate of the superior attainments.

The plan of the institution contemplates the reservation of a certain number of research rooms in the laboratory building. These are to be at the disposition of independent investigators who wish to come to the islands for a temporary period as the guests of the laboratories. These workers will be furnished all the laboratory facilities they desire, and it is hoped that the opportunities offered will render scientific study in the tropics easy of access to all who have planned to undertake certain lines of work in which they are interested.

PAUL C. FREER,

*Superintendent of Government Laboratories.*

#### THE CARNEGIE INSTITUTION.

AID to research may be given either to individuals or to groups or organizations of individuals.

One of the chief obstacles in this country at present to research by individuals is the lack of time for continuous, well-adjusted work. The majority of the persons engaged in active scientific investigation in the United States are connected with colleges or universities, and in nearly every instance definite accomplishment is expected from them in the way of instruction and administration. The exigencies—real or fancied—of university administration often lead to wasteful repetition of courses and to the exhaustion of energy in barren details of executive routine and elementary instruction. The most common complaint heard from American men of science is not regarding inadequate salaries, but regarding the scanty time afforded them for the work of investigation. While in some cases this