Bowditch. (H. P.)

5

THE

SCHOOL OF PHYSIOLOGY

AT

LEIPZIG.

By H. P. BOWDITCH, M.D.

Reprinted from the Boston Medical and Surgical Journal for April 21, 1870.

BOSTON:
DAVID CLAPP & SON.
1870.

THE

SCHOOL OF PHYSIOLOGY

AT

LEIPZIG.

By H. P. BOWDITCH, M.D.

Reprinted from the Boston Medical and Surgical Journal
for April 21, 1870.

BOSTON:
DAVID CLAPP & SON.
1870.

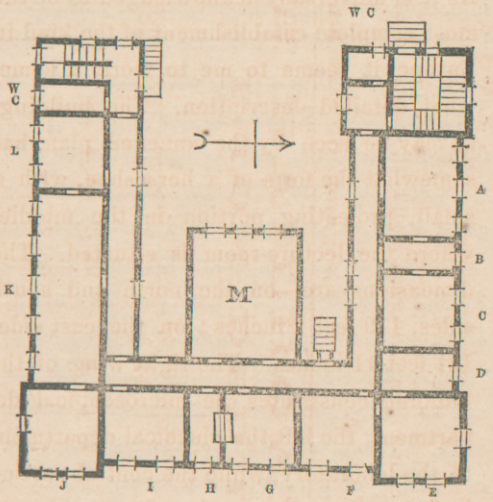
LETTER FROM LEIPZIG.

LEIPZIG, March 8th, 1870.

MR. EDITOR,—Thinking it may interest your readers to hear something of the way in which physiology is studied and taught at Leipzig, I venture to ask a place in your columns for the following communication.

Leipzig is a city very little visited by American medical men, for whom the larger cities, such as Berlin and Vienna, offer in general greater attractions in their superior opportunities for clinical observation. The student of physiology and chemistry, however, finds here facilities for prosecuting his studies which are not surpassed in any city in Germany.

The physiological laboratory, where I am at present working, owes its existence to he energy of Prof. Carl Ludwig and to the liberality of the government of Saxony. As it is universally acknowledged to be the most complete establishment of the kind in Europe, it seems to me to merit a somewhat detailed description. The building, as may be seen by the annexed plan, has somewhat the form of a horseshoe, with a small, projecting portion in the middle, where the lecture-room is situated. The dimensions are—on the north and south sides, 119 feet 2 inches ; on the east side, 121 feet 11 inches. The right wing of the building constitutes the microscopical department, the left the chemical department of the laboratory, while the central portion is devoted to the study of experimental physiology in the narrower sense of the word.


W C
W C
L
K
M
A
B
C
D
J
I
H
G
F
E

To describe the rooms more minutely. Room A is arranged for the accommodation of beginners in the study of microscopy, and is furnished with boxes to contain the microscopes, and a large ground-glass tablet, by means of which the lectures on microscopy are illustrated with drawings in colored chalk. Room B is the private study of the assistant in microscopy. Room C is intended for more advanced students in microscopy, and contains an injecting apparatus, by means of which three different fluids can be injected simultaneously under any required pressure and for any length of time, while the injection mass and the tissue to be injected are heated over a water bath. Room D contains a small library, consisting of such books as are most needed for constant reference. Room E is furnished with glass cases, in which physiological apparatus is kept when not in use. As a rule, no experiments are performed in this room. Rooms F, G and H are devoted

to experimental physiology, and are furnished with operating tables, with bellows attached for keeping up artificial respiration on *curarized* animals, registering apparatus of various sorts for recording the pressure of the blood, water baths where any required temperature may be kept up indefinitely, an injecting apparatus like that in the microscopical department, evaporating closets, glass cases for apparatus, &c. Between rooms G and H is a small closet arranged for observations with the spectroscope. Room I is the chamber where all experiments are performed which require the use of large quantities of quicksilver. It contains two quicksilver pumps for extracting gases from fluids, instruments for measuring the activity of the respiration in man and the lower animals, &c. Room J is divided into two portions, one of which is used for a weighing room and the other for experiments in acoustics. Rooms K and L contain, besides the ordinary furni-

ture of chemical laboratories, the ingenious air pump of Bunsen, by which the process of filtering is so greatly accelerated. The lecture room, M, accommodates about one hundred students. Tables running on a small railroad in front of the seats, enable the lecturer to demonstrate his experiments very considerably. The room is lighted from above as well as from the side, and if necessary, can be darkened completely, for optical experiments.

In the basement of the building is a small gas-engine of about one-horse power, which drives the respiration apparatus, registering instruments, &c. In the basement are also the rooms where the animals are kept (one room being devoted entirely to frogs), a chamber furnished with refrigerators for performing chemical experiments, where a low temperature is required, a chamber containing furnaces for fusion, a work-shop, store-rooms, &c.

The second story of the building contains

the rooms of Prof. Ludwig and his family, and those of other persons connected with the laboratory. In the court-yard is a small building containing the necessary arrangements for experimenting on horses and other large animals. Here, also, are an aviary and a small fish-pond.

Besides the permanent and stationary apparatus already described, the laboratory is well supplied with all sorts of instruments for physiological experiments, and new apparatus is constantly ordered for special investigations. There is also a very skilful mechanic living in the laboratory, whose duty it is to make alterations or repairs in the apparatus as circumstances may require.

Prof. Ludwig directs personally all the work done in the laboratory, devoting his whole time to the superintendence of his pupils, and making no independent investigations. Each of the pupils, at present nine in number, makes, under the direction

of the Professor, a series of experiments with a view of settling some special point in physiology. The results arrived at are published at the end of the year, sometimes under the names of the Professor and pupil together, and sometimes under that of the pupil alone. The whole work of the laboratory forms every year a pamphlet of 150 to 250 pages.

Prof. Ludwig lectures five times a week on physiology, and his assistants, viz., Prof. Schweigger-Seidel in microscopy, Dr. Hufner in chemistry, and Dr. J. J. Müller in physics, also lecture on their specialties, besides superintending the work done in their respective departments.

It will thus be seen that abundant facilities are here offered, not only for learning the existing state of physiological science, but also for becoming familiar with the manner in which physiology is at present studied in Germany. The patient, methodical and faithful way in which the pheno-

mena of life are investigated by the German physiologists not only inspires great confidence in their results, but encourages one in the hope that the day is not far distant when physiology will take its proper place as the only true foundation of medical science.

H. P. Bowditch.