

HISTORY OF DEPARTMENT

(Continued from page 57.)

available, however, a fair supply of miscellaneous microscopes which had been used in the old brick annex by Professor and Mrs. Ordway (who had given the instruction in Microscopy and Botany) and the basement laboratory belonging to the Natural History Society contained the necessary microscopes for the Zoological classes. Professor Ordway very kindly loaned his collection of microscopes to Professor Sedgwick for the first year, and before the end of 1883-4 the large room which is now occupied by the General Library, and which had up to that time been used as the Physical Laboratory, was now vacated by the Department of Physics and turned over to the new Department of Biology.

At the beginning of 1884 this large and excellent room was well fitted up with microscopes and simple physiological apparatus so that work began in real earnest in the autumn of that year. The first Assistant in Biology was Professor Sedgwick's friend, Dr. Edmund B. Wilson, afterwards Professor of Zoology in Columbia University and now one of the most eminent of living biologists. He was succeeded by Dr. Edward G. Gardiner, a graduate of the Institute from the Natural History Department in 1882; but for the first year or two whenever Professor Sedgwick left the laboratory he was obliged to lock the door and take the key with him, because he had no assistant, janitor, or other person to leave in charge.

The Department grew very slowly and for a number of years led a precarious existence. Owing to the unwillingness of the better medical schools in the vicinity to allow preference to men trained in Biology, the hoped-for developments along the line of preparation for medical studies was not realized, and it was not until the rise of Bacteriology, which began to make itself felt in the Department in 1886 and 1887, that any considerable progress was made.

In 1888 Professor Sedgwick was invited to become Biologist to the State Board of Health, and this appointment, together with the opportunities which it gave for research in the new Science of Bacteriology, obviously destined to be of immense importance in the world, gave the Department a recognition and importance which could not be overlooked.

The first graduate of the new Department to win distinction in Biology was Mr. Edwin O. Jordan, of the class of '88, now Professor of Bacteriology in the University of Chicago, author of one of the most scientific and important manuals of Bacteriology hitherto published in the English language. The class of 1890 included the present Medical Adviser of the Institute, Dr. White, and Mr. John L. Batchelder, Jr., now one of the prominent business men of Boston and devoted in every way to the welfare of the Institute. The class of 1892 included A. P. Mathews, now Professor of Physiological Chemistry in the University of Chicago; Severance Burrage, Professor of Sanitary Science in Purdue University, Indiana; and Dr. A. M. Worthington, an instructor in the Harvard Medical School; and from that time forward many others of promise have come out from the Department as graduates, together with a host of college men and others not bearing the formal Institute hallmark, who have nevertheless borne out into the world with them Institute traditions, Institute training, and Institute ideals.

CHEMICAL BIOLOGY

EARLE B. PHELPS.

Chemical Biology may be defined as that branch of biology which deals with the application of the laws of physico-chemistry to the phenomena of life. To what extent such application is justified and why it is attempted are questions that at once suggest themselves. Whole philosophies have been written upon the respective conceptions of "vitalism" and "mechanism." Neither school of thought can be adequately defined in a few words nor is the line of demarcation a distinct one. Briefly the mechanistic view holds

that the secret of life lies in the fundamental laws, known and unknown, of the interactions of matter and energy, and that a complete knowledge of these laws will furnish the full answer to the riddle of life. Vitalism on the other hand assumes, and oftentimes attempts to demonstrate, by a priori reasoning, the existence of some guiding force, external or internal, which may suspend or supercede or otherwise inactivate the known forces of nature. The first law of energetics has even been made to yield to this "lebenskraft" or "force hyper-mechanistic." Today the first law is admitted by even the most ardent vitalist, but the second law is not supposed to be inviolable.

The remarkable results which have followed the application of the laws of energetics to chemistry, have opened a new field to the biologist. The present course is an unprejudiced attempt to apply some of these results to the phenomena of life.

The velocity of reaction and its temperature co-efficient are illustrated in various vital reactions. Chemical equilibrium is seen to underlie many remarkable automatic mechanisms of the body, including the heart-beat, and to furnish a partial explanation of organic synthesis. Osmotic pressure and semi-permeable membranes help to elucidate many puzzling problems in secretion and the specific properties of certain colloids furnish a clue to the nature of the enzymes.

No attempt is made to "explain" life but the individual phenomena of life are correlated as far as possible with those of physical chemistry.

FROM DR. WHITE

BIOLOGY AS A FOUNDATION FOR MEDICAL TRAINING.

It is with the greatest pleasure that I write a few words about the value of the work in the Biological Department at the Institute.

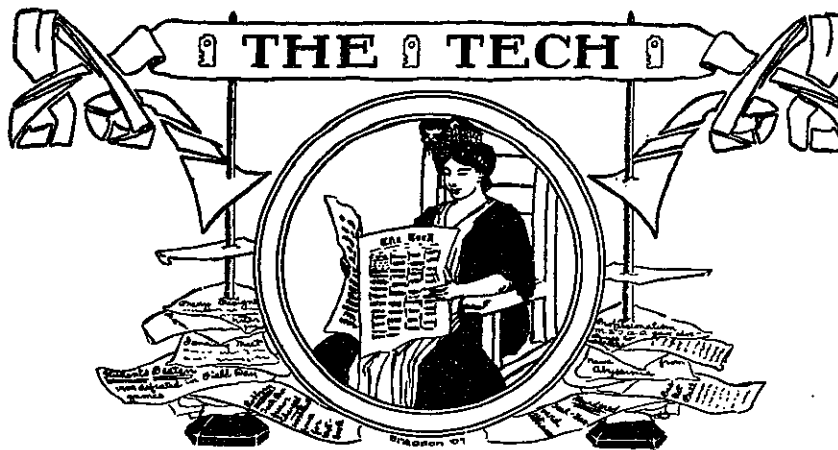
I believe that a course in general biology such as I enjoyed is the most valuable foundation possible for productive medical work. The thorough early training in scientific observation, deduction, and criticism as practised in the Biological Laboratory has been of the greatest possible value in my work in medicine in giving breadth of view, in avoiding empiricism, and helping me to attack the problems of health and disease in a scientific spirit. The earnest desire to contribute something each year to medical knowledge by experimental work or by the scientific observation of sick persons (in addition to carrying on the routine of medical practice) dates back to the early training and inspiration of the work in the Biological Laboratory.

The early laboratory training, since I learned there familiarity with foreign literature and practice in looking up and judging of foreign contributions to science, has proved very useful. And best of all these good things, and the source of all was the opportunity of personal contact with the genial and vigorous head of the department.

Most sincerely yours,
FRANKLIN W. WHITE.

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