

to the dazzling effects of bright light should be avoided, and tonic measures of treatment at once applied. Among the remedies that stand preëminently forth in the management of toxic amblyopia from whatever cause, we yield the palm to strychnia, hypodermatically given, either at the nape of the neck, or in the temporal region. To Nagel belongs the credit of having first used strychnia in cases of optic nerve change, and Hippel has determined that it exercises a mildly stimulating effect upon even the normal nerve, increasing visual acuity in a transitory manner and widening the field of vision. In addition to strychnia hypodermatically and internally, iodid of potassium, in goodly sized doses, seems to exercise benefit by its eliminative tendencies, and at the same time probably separates nicotin into less poisonous compounds. Another efficient remedy is pilocarpin, both internally and hypodermatically administered, exercising its effects through elimination, diuresis and diaphoresis. Numerous other therapeutic agents are said to excite a retro-bulbar neuritis with consequent amblyopia, among the most conspicuous of which are stramonium, carbon bisulphide, lead, chloral, opium, quinin, osmic acid, etc. I have met with toxic amblyopia arising from huge doses of quinin, but here there were, as a rule, no diagnostic optic nerve changes, aside from retinal ischemia or hyperemia and slight swelling of the disc, and the amblyopic manifestations were fugacious in character, so that the diagnosis was necessarily based upon the immediate restoration of vision following withdrawal of the medicament, which was exercising a toxic effect exhibited by the amblyopic manifestations.

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THE MARINE BIOLOGICAL LABORATORY AT WOOD'S HOLL, AND ITS POSSIBLE RELATION TO MEDICAL EDUCATION.

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Medicine, which lays under contribution all the natural sciences, chemistry, physiology, botany, zoology, etc., is interested in the development of each of its subordinate or fundamental parts, and hence can not be indifferent to any means which promises to aid the growth of any one of these foundation sciences. Such an agent in developing biology is the Marine Biological Laboratory of Wood's Holl, Mass. The questions that have been asked convince me that there is much interest among medical men concerning this station for science research and teaching, combined with as much ignorance of its practical workings. To satisfy this interest I will give the readers of the *JOURNAL* some idea of the aims and methods of this institution and then suggest how it can be of use to the medical profession.

Although marine laboratories have been in existence only for about twenty years, their objects or functions are well known to all who have to do with morphologic and physiologic functions. Prof. C. O. Whitman, Director of the Laboratory at Wood's Holl, in the opening sentence of an article in the *Atlantic Monthly* of June, 1893, makes the following suggestive statement: "The ocean is now regarded as the original home of life on this planet and its present inhabitants furnish records of life histories

and evolution phases which are absolutely indispensable to a deeper insight into the phenomena and laws of life." It may be added that for purposes of instruction marine forms can be studied in their natural habitat more easily and economically than land animals and especially is this true of the study of their embryologic and larval stages of development.

The laboratory at Wood's Holl differs in one important respect from other seaside laboratories, such as the well-known station at Naples. Our American laboratory combines the function of a station for research with one for instruction, while that at Naples is exclusively for original investigation. Any one who intends to enter upon any line of research but is unprepared in the details of technique may acquire in the school such preparation at a great saving of time and energy. The school is also made use of by teachers in colleges, normal and high schools who wish to keep up to date their knowledge of biology and the methods of study. For their benefit there have been organized classes in vertebrate and invertebrate anatomy, embryology, morphology, comparative physiology and botany. A more vivid idea of the way these courses are presented may be obtained by a short detailed description of the course with which I am most familiar, that in embryology. This class studies the fertilization, segmentation and early stages of development of various pelagic fish eggs, and the variations produced by securing abnormal conditions of pressure, rupture of cell membrane, etc.; learns the method of killing, staining, sectioning in parafine and celloidin and reconstruction. Some time is also given to the study of the holoblastic eggs of sea urchins and amphibians. This statement of the work at the tables, however, gives but a very incomplete idea of the value of the course. One of its most important features is the series of lectures and seminars with discussions of the vital questions of biology, such as the structure and nature of the cell, the questions of heredity and homology, etc. Here the broad-minded tolerance of the director and his wise, suggestive and stimulating influence are best seen and felt. The contact with the resident investigators and visitors who give the lectures is also as profitable and stimulating.

I shall not attempt any particular account of the research department further than to say that each investigator has his own room and is given every facility for collecting material that can be furnished by free use of the laboratory boats and a steam launch. A list of the workers who are here, or have been here, would include the names of a considerable proportion of those who are making original contributions to science. A list of the publications that have been prepared here would, no doubt, surprise many who have not realized the importance of a marine observatory.

It should be noted that this institution is not under the control of any school or sect, but is national in its scope and organization. Its trustees and instructors are from the faculties of Harvard, Brown, Yale, Columbia, Universities of Pennsylvania, Chicago, Michigan and other widely separated schools. Twenty institutions have subscribed for rooms or tables while the 133 students present this year represent 70 colleges, universities and schools.

In locating the station at Wood's Holl the directors profited by the earlier attempts to establish similar institutions at less accessible points, that of

Agassiz's summer school at Penikese and the school at Annisquam. Wood's Holl is at the southwest angle of that part of the Massachusetts coast that bounds Buzzard's Bay on the east and forms the northern boundary of Vineyard Sound, the eastern extension of Long Island Sound. It is easily reached from New York or Boston and is the starting point for boats to Martha's Vineyard and Nantucket. Buzzard's Bay, the sound, the ocean to the east with its numerous shoal banks, the long stretch of the coast line of the main land and the adjacent islands furnish excellent collecting grounds for both northern and southern marine forms. Brackish and fresh water ponds are near while the flora is rich and accessible. The United States Fish Commission is also located here and is of value to the laboratory in many ways. The climate is ideal for a summer resort. The invigorating sea breezes, the cool nights, the afternoon swim and the numerous excursions and collecting expeditions all tend to make one forget that there is a hot, bustling and uncomfortable city. If one does not care to do much laboratory work he can pass a most pleasant and profitable vacation of four to six weeks by renting a sail boat for the season at an expense of from \$10 to \$20, take in the lectures, come in contact with the workers, and thus imbibe the spiritual and climatic air. The laboratory furnishes a good "mess" at \$5 a week, while lodgings can be obtained at from \$2 to \$5.

The school is supported by donations from friends of scientific research and by fees from students. The courses in which instruction is given are \$50, while the investigators rooms are \$100 for the season. Many schools and colleges have subscribed for tables or rooms for the use of their most promising students. It has seemed to me a practical suggestion that medical colleges and societies subscribe for tables or rooms for the use of members of the faculty, or as prizes to students to be awarded for excellence in scholarship or of a thesis. The laboratory is now open only during the summer months as there is no provision for heating the building. An effort will soon be made to secure sufficient funds to erect permanent buildings and provide an endowment that will make the institution secure.

In considering the relation of schools in biology to medical education it is hardly necessary to discuss seriously at this day the proposition that the student of medicine should be well grounded in comparative anatomy and physiology, embryology and physiologic chemistry. These sciences are the foundation of human anatomy and physiology and hence the foundation of the science of medicine. Without them the physician would be like a watchmaker who should attempt to regulate the mainspring of a watch without a knowledge of its shafts and pinions, or a locomotive engineer who should attempt to manage his machine while ignorant of the properties of steam. In a few of the best medical schools this proposition is assumed, and such knowledge is made a condition of admittance. To supply it, a few schools have established short courses in embryology, bacteriology, etc. But teachers need teaching to keep their knowledge up to date. For many years it has been the custom for the teachers in our common schools, high schools and colleges to get together in their normal institutes and State and National conventions for the exchange of views, learning improved methods and securing the stimu-

lation necessary for success in their work. The State and National medical associations help physicians in the same way. These meetings, however, are hardly sufficient. They are too short, too much is crammed into a few days and there are too many social distractions. The recent growth of summer schools is very suggestive. The real meaning, purpose and uses of a vacation are becoming better known. A true vacation is not idleness; it is a change of work. Hence I believe that summer schools in biology furnish an ideal vacation for teachers in medicine or, indeed, for all physicians.

I will suggest, then, that teachers of anatomy in our medical colleges come to Wood's Holl and take the course in comparative vertebrate anatomy that is planned for the season of 1895. The course will be under the direction of a corps of instructors of national reputation and the animals dissected for the practical laboratory work will be of the most typical nature (amphioxus, shark, skate and an amphibian). The most modern and improved methods of microscopic and histologic research will receive special attention. After such a course I will warrant that they will no longer impose on their classes by reciting Gray and calling the performance lecturing on anatomy. The physiologist, pathologist and neurologist can also find here abundant material for work, while every physician who has a special interest in any line of work can certainly profit by learning the latest methods of original investigation.

FIBROID TUMORS OF THE UTERUS.

Read at the Meeting of the Illinois State Medical Society, May 15, 1894.

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The natural history of uterine fibroids must include their course and development, from the smallest pathologic deviation to the fully developed growth, histologic anatomy, symptomatology, and, as well, classification.

In looking over the literature of this subject, it seems as if each one has endeavored to create for himself a new term to describe the same condition. The classification of these tumors which seems to meet with most general adoption and which most nearly expresses the pathologic anatomy is fibro-myoma.

Mr. Lawson Tait is clearly of the opinion that these so-called tumors of the uterus are simply perverted muscular developments, as in all cases of uterine fibroids where careful examination has been made by him or his assistants, characteristic, unstriped, involuntary muscular fibers have been found. In his classification he makes but two divisions—multinodular and soft edematous myoma. Of the two he says that edematous myoma is always interstitial, while the multinodular may be, and in fact generally is, at once submucous, interstitial, and subperitoneal.

This classification of Mr. Tait's hardly meets with the approbation of most writers on the subject. His edematous myoma appears, according to other writers, simply as a degenerated process of the same tumor which he classifies as multinodular. Like nearly all, or all, of the malignant or benign tumors of the body, they have their origin in the natural tissues of the body and are but degenerated muscular cells from the uterine body itself.