

## WORK OF THE PATHOLOGICAL LABORATORY OF THE CENTRAL INDIANA HOSPITAL FOR INSANE, INDIANAPOLIS.

BY DR. GEO. F. EDENHARTER, SUPERINTENDENT.

The time allotted to review the work of our Pathological Department barely permits even a brief presentation of its policies, methods and results.

It should not be inferred from the name that the work therein is purely of a pathological character, because in addition thereto all methods of clinical investigation—psychical, physiological, chemical, bacteriological, etc.—are employed.

This department had its inception in a desire to establish the work of this hospital upon a scientific basis—to provide our medical staff with facilities for the accurate determination of the character of the diseases met with in institutional life.

It was also our ambition to create a scientific department—a medical center—for the use of the physicians and medical students of the State, wherein the diseases of the mind and nervous system could be clinically studied and, if possible, to determine their cause and formulate methods for their prevention and cure.

We recognized that ultimate success in preventing and controlling these diseases could only be achieved by providing every community with practitioners who had been thoroughly taught the most approved methods of care and treatment of the incipient stages in these cases, and this in connection with a close clinical study of the various forms of insanity.

We knew that the greatest opportunity for successful results presented itself in the early stages of these maladies and therefore determined to exert our energies in an endeavor to provide facilities for the education of the individual who expected at some future time to assume the role of a family physician.

Students who interest themselves in this specialty are urged to visit this department, where every effort will be made to assist them in obtaining a knowledge of the laboratory and clinical methods in vogue.

When requested, our pathologist properly directs their efforts in research in any desired direction.

Our expectations for this department are gradually being realized, and it is with a feeling of personal pride that I am able to make the statement that this hospital is today presenting to the students of the medical colleges of Indiana a course of lectures—didactic and clinical—concerning the diseases of the mind and nervous system, their cause, pathology and treatment, unsurpassed by any educational institution in this country.

We believe that you who are at all conversant with the facts, recognize the many serious obstacles to be overcome in inaugurating and prosecuting work of a scientific character in public institutions.

In the very nature of things there must be many plans, and many defeats, and in the end, when the decisive battle is waged, you may achieve one victory.

It is the hope that this may be the final outcome of our effort wherein we find the sustaining strength to carry the burden.

It is fortunate indeed that we cannot peer into the future and expose to view all the keen anxieties and bitter disappointments which are to be our portion in connection with prospective work.

The building was erected in 1895, and the equipment was installed in 1896.

The dedicatory exercises were held under the auspices of the Marion County Medical Society on December 18, 1896. At this meeting a paper on "The Evolution of the Physiology and Pathology of the Brain and Spinal Cord" was read by Prof. Ludwig Hektoen, M. D., of the Rush Medical College.

Prior to the appointment of a resident pathologist the hospital staff utilized the facilities of this department in making such examinations as occasions demanded. They also performed autopsies.

The first attempt to systematize and direct the work was outlined in the following notice:

"The laboratory work for the staff of the hospital will begin April 1, 1898.

"The department is now ready for making examinations of material for diagnostic purposes.

"Each member of the staff should possess a copy of Stirling's Histology, several dozen glass slides and covers.

"The study will be from ten to twelve in the forenoon, each member to be in the laboratory every other day.

"Attendance upon this course is obligatory.

"When autopsies are made, the assistant physician who had charge of the patient shall assist the pathologist in making it."

Under the above arrangement the hospital staff was given a thorough review of histology, bacteriology, microscopy, chemistry and pathology.

The sphere of work was gradually broadened.

I quote from the report of 1900-1901 :

"Two objects have been constantly in mind in developing the work of the laboratory during the past year :

"First. That of enabling the members of the resident medical staff to conduct their study and treatment of the cases committed to the care of the hospital with a knowledge of the pathological basis of disease and a more intimate knowledge of the structure and functions of the nervous system as revealed by recent scientific researches in this field.

"Second. That of placing upon a thorough systematic and working basis the study of the nervous system and organs of those cases upon which an autopsy is allowed.

"In carrying out the former the following methods have been adopted :

"Each morning for two hours, from ten to twelve, three members of the medical staff are engaged in the study of the normal and diseased organs. In these morning classes the work is individual and inductive. In studying an organ, stained, injected and digested sections are first drawn with different magnifications and then descriptions of the same written without the aid of books or teaching. The gross anatomy and anatomical relations of the organs are then reviewed. When this has been accomplished, a pathological section of the same organ is given without the student knowing its designation. From this drawings and written descriptions are made of those parts differing from the normal sections before studied. This having been done, the pathologist goes over the section with him, correcting the work where necessary and pointing out those parts of more importance, and together they arrive at a diagnosis of the diseased condition. From the changes found, the student then constructs the gross appearance of the organ thus diseased and describes the clinical symptoms which would be most likely present during life in a patient so afflicted. The process of reasoning in this work, it will be seen, is practically the same as that which the physician pursues in diagnosing his case upon the wards; here, however, he starts with the diseased organ and builds up his clinical symptoms; there he arrives at the changes in his organ from the clinical evidence. Incorporated with this

work there is constantly a review of the anatomical and physiological relations of the organ studied.

"Besides these morning classes, two evening courses of lectures have been given, the first on 'Clinical Anatomy,' the second on 'The Finer Anatomy of the Nervous System.' In the former, which extended over a period of two months, the time was spent in the study of the normal relations and position of the abdominal and thoracic organs, the staff outlining these by clinical methods on living subjects after the position of each had been indicated by drawings and upon a skeleton.

"To the second series of lectures the physicians of the city were also invited. This course extended over a period of three months.

"The excellent library of the laboratory has been rearranged and two different catalogues made, to enable the staff to carry on their studies with more freedom and to open for them every opportunity to do original work. The medical journals have also been rearranged in regular series, with the same object in view.

"To aid in teaching and study, the gross specimens in the museum have been carefully mounted and arranged in groups. As this is added to from time to time it will form a very important feature in the advantages which the laboratory offers for study.

"Enlarged drawings have been made of Miss Florence Sabin's excellent model of the medulla, pons and mid-brain, to aid in the teaching of this important and very intricate portion of the central nervous system. Nothing could be of more service in enabling the student to grasp the structure of this region than the model which Miss Sabin has constructed."

In 1900 the medical colleges commenced their didactic and clinical lectures to their students. This course, with a variation of the program, has been continued each year. Indiana University also presents an annual course in psychology. The pathologist each lecture-day presents some pathological demonstration, the program for each session being:

Didactic lecture, one hour.

Clinical lecture, one hour.

Pathological lecture, one hour.

Members of the hospital staff alternate in arranging cases for the clinical lectures. This course is free to practitioners and students of medicine; others are admitted upon special permission of the superintendent or lecturer.

From the report of 1905 we take the following :

"Beginning October 1, 1903, and continuing until the last of December of the same year a series of lectures and demonstrations was given to the assistant physicians on the anatomical relations and the physiological functions of the various parts of the nervous system, on the different changes produced by the different pathological conditions that were liable to involve them, and upon the clinical symptoms manifested by such involvement.

"After the 1st of January, 1904, regular staff meetings were instituted and held three times weekly, namely, Monday, Wednesday and Friday mornings from 10:30 to 12. At these meetings the assistant physicians alternated in presenting one or more cases. A systematic examination was made of the mental condition and also of the physical condition, where this had not been done beforehand, by the physician in charge, followed by a discussion of the case by those in attendance. A synopsis of the more important clinical features of each case, together with a summary of the clinical manifestations, was recorded.

"The object of these meetings was to create a nucleus upon which more complete clinical records could be built, and for this purpose a short report was made and filed away of each case, pointing out the prominent and characteristic feature of the individual cases presented. An endeavor was also made to determine the underlying conditions that were the probable factors in bringing about the mental disturbance. This problem was found to be an extremely difficult one. Many important factors came into consideration when an attempt was made to bring about a solution of this problem which were most difficult to regulate and control, in many cases wholly impossible, and tended to make this part of the work a source of discouragement and in many respects very unsatisfactory. One of the first essentials in the study of all pathological conditions, whether mental or physical, is, of course, to have a correct conception of the normal, or what is regarded as normal, in the individual case. Without this one cannot arrive at a definite conclusion as regards the degree and extent of the abnormal conditions that developed or that may do so. In the majority of cases presented very little information was obtainable, apart from that of the commitment record, or from the patients themselves. The former reports, unfortunately, were very incomplete, and the latter almost invariably were more or less distorted or modified by the trend and coloring of the mental disturbance existing. Consequently, any conclusions arrived at

can only be of corresponding value. In addition to this, it is of the greatest importance to have a full report of the heredity, early education, training and environment of each case in order to understand and appreciate the character and nature of the disturbances that may be manifested. And, finally, there is requisite a full report of the results of a complete examination of the patient's condition at the time of admission, or as soon thereafter as possible, both mental and physical, together with a record of the case while in the institution. Without these data it is impossible to place the pathological work in its proper relationship to the clinical aspect, or to place the latter upon a definite pathological basis."

Since the above was written the work has been carried on practically along the same lines, with a constant endeavor to improve the methods and perfect the details.

This year we have undertaken the re-examination of every patient in the hospital in accordance with an approved schedule with regard to the mental and physical condition.

This procedure will be followed in all new cases admitted.

When this work is completed we will have a systematized record of each patient that will be of the greatest practical value.

The Marion County Medical Society has held a number of meetings in this department. These occasions were largely attended and marked by an awakening of professional spirit that was extremely gratifying. It has been the policy of the hospital to have each of these meetings addressed by an eminent medical man.

The first was addressed by Prof. L. Hektoen, of Chicago, upon "The Contributions of Anatomy and Pathology to the Nervous System."

The second by Jos. G. Rogers, M. D., of Logansport, upon "The First Aid to the Insane."

The third by C. B. Burr, M. D., of Flint, Mich., upon "The Care of the Recent Case."

The fourth by Lewellyn F. Barker, M. D., of Chicago, on "The Importance of Pathological and Bacteriological Laboratories in Connection with Hospitals for the Insane."

The fifth by Stewart Paton, M. D., of Baltimore, upon "The Recent Advances in Psychiatry and Their Relation to Internal Medicine."

The sixth was for the purpose of dedicating the new hospital. The attendance at this meeting was the largest of any, there being present upward of three hundred prominent persons.

The seventh, by F. W. Langdon, M. D., of Cincinnati, upon the "Cardio-Vascular and Blood States as Factors in Nervous and Mental Diseases."

A summary of the work done in this department shows:

1. That the laboratory facilities were in daily use for the examination of various tissues, specimens of blood, urine, sputum, etc.
2. That two-hundred and seventy-four autopsies were held and the findings demonstrated and recorded.

(Under the hospital rule no autopsies are held, except in coroner's cases, without the permission of the relatives.)

3. That many sections of tissues and organs were preserved for chemical, bacteriological and microscopical examination.
4. That one hundred and thirty-six gross specimens were placed in the museum.
5. That twenty papers covering important cases were written.
6. That over four hundred staff meetings were held, at which over five hundred cases were presented for clinical examination.
7. That two hundred and four lectures were given by the colleges to their classes.
8. That one hundred lectures upon neuropathology were delivered to these classes by the pathologist.
9. That thirteen hundred and forty-one cases were taken before the college classes for clinical demonstration.

This record alone, if there were no other advantages to be derived, would fully justify the maintenance of this department.

But there are other reasons for its continuance:

First. Because it stimulates the individual members of the staff to greater professional effort.

Second. It creates a demand for accurate case and clinical histories. This requires more attention to the individual patient.

Third. It incites to study and systematic investigation by having at hand the requisite appliances, books, models, charts, etc.

Fourth. It enables the institution to offer something to the ambitious student seeking an opportunity for medical advancement.

Fifth. It provides instruction to the physicians and the students in the State; prepares them to render early skilled attention to the mentally afflicted in their community. This directly benefits the citizen.

Sixth. It increases the ability of the outside physician to deliver an

intelligent judgment in insanity inquests and dictate a description of the case of value to the hospital.

Seventh. It economizes for the counties and State ultimately by decreasing the number of persons annually committed to this or institutions of like character.

Eighth. It actuates some students to undertake a special study of mental and nervous diseases. With additional opportunities given these, for clinical observation and for practical work in the laboratory, will eventually develop material from which to select physicians for positions in the hospital.

Ninth. It establishes a valuable medium to create harmonious relations between the outside members of the profession and the institution.

Tenth. It affords the hospital staff the benefits of consultations with specialists in all lines of practice.

Eleventh. It collects pathological data for the records and specimens for the museum which will be of incalculable value for future reference and study.

Twelfth. It assists in educating the public to the needs of the hospital and arouses an interest in its behalf.

Thirteenth. It furnishes the medical colleges with clinical advantages unobtainable without the aid of an institution of this character.

Fourteenth. It extends its influence in time to the individual of every community; it teaches that "prevention is better than cure," and that, if the people really desire to impede the "onward march to the hospitals for the insane" in future generations, they must begin at once to heed the advice given, assist in locating and studying the causes, and by precept and example lend every influence toward their removal.

From the foregoing it is apparent that the main object of our work in this direction is to provide the best medical service possible for the mentally afflicted individual, within or without the hospital.

The State should establish at every institution a department fully equipped for scientific work. I say at every institution, because with me the basic principle of this movement is the creation of centers around which the members of the local profession may gather and study mental and nervous diseases, their causes and treatment.

Again, I believe in encouraging individuality, and know that a State can well afford, in view of the great benefits derived, to have a number of investigators pursuing original and independent work in this cause:

and last, but not least, I contend that each and every institution, with its medical staff, is entitled to equal advantages and equal opportunities.

In conclusion I extend to each and every member of the Academy a cordial invitation to visit this department and inspect the equipment and the methods pursued.

