

An Address
ON
THE MEDICAL CLINIC:
A RETROSPECT AND A FORECAST.

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UNREST and change are the order of the day, and it may be taken as a good sign that the medical profession is bestirring itself about many problems, one of the most important of which relates to the future of our medical schools. Those who have followed the discussions of the past few years will have noticed that two diametrically opposite opinions have been expressed. On the one hand, there is a group thoroughly satisfied with existing conditions—and with themselves—the teaching was never better, the students never more contented, and any change could not but be for the worse. On the other hand, there are those who say that the existing conditions in our large hospitals are inadequate to meet the modern needs of student and of staff, that the teaching is defective, that the rejections at the examinations are shockingly high, that there is inadequate provision for research, and that an entire change is needed in the organization of the clinical departments of our medical schools.

Upon one point all are agreed—that in these islands during the past century an admirable system of teaching medicine and surgery has been evolved. I wish there were time to trace its historical growth; but the practical outcome is that the medical student, in his last years, lives and moves and has his being in the hospital. But with this there has been no internal development of the hospital at all commensurate with the growth of the science of medicine. The century-old custom prevails of a group of physicians and surgeons whose individual "services" are organized neither for teaching nor for research. On the Continent there has grown up a different system. In the medical schools there has gradually been organized separate clinics, each with a head, a graded staff, laboratories, and an organization resembling in every respect that of any other scientific department of the university. The burning question to-day is whether these systems cannot be combined, whether the Continental cannot be safely grafted on the English system. Practically in the large clinics of Paris the two have been combined for more than a century. The medical student is as much at home in the Paris hospital as he is in the English, but there is not everywhere the complete organization of the German clinics. My address this evening is a small contribution to this problem, as perhaps I am the only English speaking teacher who has combined successfully both systems, and I am going to give you my personal experience. I would not bother any audience with it did I not feel that, at the present moment, it may have a certain value. Montaigne somewhere remarks that to talk about oneself cannot possibly be done without detriment to the person talked about, but you will overlook, I am sure, the necessary personal element in the story.

When I began clinical work in 1870, the Montreal General Hospital was an old coccus- and rat-ridden building, but with two valuable assets for the student—much acute disease and a group of keen teachers. Pneumonia, phthisis, sepsis and dysentery were rife. The "services" were not separated, and a man for three months looked after medical and surgical patients, jumbled together in the same wards. The physic of the men who were really surgeons was better than the surgery of the men who were really physicians, which is the best that can be said of a very bad arrangement. The talk of the teachers was of the Royal Infirmary of Edinburgh, or of Glasgow, of the Meath Hospital, of the Rotunda, and of Bart's, of Guy's, of St. Thomas's; and in a town four-fifths French the lights of Paris medicine burned brightly. Scottish and English methods prevailed, and we had to serve our time as dressers and clerks, and, indeed, in

serious cases we very often at night took our share in the nursing. There were four first-rate teachers of medicine on the staff—Howard, Wright, MacCallum and Drake—three of whom had learned at first hand the great language of Graves and of Stokes. The bedside instruction was excellent and the clerking a serious business. I spent the greater part of the summer of 1871 at the hospital, and we had admirable out-patient clinics from Dr. Howard, and a small group worked in the wards under Dr. MacCallum. An excellent plan, copied from an old custom of the *Lancet*, was for the clinical clerk to report the cases of special interest under *Hospital Practice* in the local medical monthly. My first appearance in print is in the *Canadian Medical and Surgical Journal*, reporting cases from Dr. MacCallum's wards. Our teachers were men in whose busy lives in large general practice the hospital work was a pleasant and a profitable incident. A man like Palmer Howard got all that was possible out of the position, working hard at the hospital, studying the literature, writing excellent papers, and teaching with extraordinary care and accuracy; naturally such a man exercised a wide influence, lay and medical. I left the old General Hospital with a good deal of practical experience in my credit and with warm friends among the members of the staff.

In the summer of 1872 after a short *Rundreise*, Dublin, Glasgow, and Edinburgh, I settled at the Physiology Laboratory, University College, with Professor Burdon-Sanderson, where I spent about fifteen months working at histology and physiology. At the hospital across the way I saw in full swing the admirable English system, with the ward work done by the student himself the essential feature. I was not a regular student of the hospital, but through the kind introduction of Dr. Burdon-Sanderson and of Dr. Charlton Bastian, an old family friend, I had many opportunities of seeing Jenner and Wilson Fox, and my notebooks contain many precepts of these model clinicians. From Ringer, Bastian, and Tilbury Fox, I learned, too, how attractive out-patient teaching could be made. Ringer I always felt missed his generation, and suffered from living in advance of it.

The autumn semester of the next year was spent in Berlin, where I had my first introduction to the medical clinic on a large scale. Professor Burdon-Sanderson had given me a letter to Frerichs, who very kindly assigned places in the arena of his clinic to Dr. (afterwards Sir) Stephen Mackenzie, and to Dr. (afterwards Sir) Charles Hutchinson, and myself. To Hoffmann, Riess and Ewald, his assistants, we were under obligation for many attentions. The other clinic of the Charité was in charge of Traube. The experience of the semester was invaluable. Systematically, day by day, the more important cases of the wards were shown, the symptoms, pathology, and treatment discussed at length. To each case a student was called, who was supposed to take charge of the examination and to answer questions. Sometimes this was serious for the student, though very often quite formal. He was supposed to keep himself informed of the progress of his patient day by day. I remember one morning Professor Frerichs called down a student who had had a case the day before, and he asked, "How is your patient this morning, Mr. Schmidt?" To which the reply, "Very well indeed, very well; he is much better than yesterday." To which the professor replied in his slow, quiet way, "Very well indeed; he died this morning; you will see what was the matter shortly."

The wealth of material in each department, the systematic arrangement of the clinic, the graded assistants, all men of experience working at the problems of disease, was a striking contrast to the small hospital service of the London clinician, with his single house-physician and absence of all laboratory accommodation. Traube made a great impression upon me as an ideal physiological clinician, and to the three volumes of his *Gesammelte Beiträge* I still turn for clinical information.

The first five months of 1874 I spent in Vienna attending the clinics of Hebra, Bamberger and Widerhoffer. In Bamberger I found another ideal clinician—accurate, painstaking, devoting the whole morning to his teaching and "rounds."

When I returned to Montreal in September, 1874, the Professor of the Institutes of Medicine had had to retire on account of heart disease, and instead of getting, as I

had hoped, a position as his demonstrator, the faculty appointed me lecturer with the ghastly task of delivering four systematic lectures a week for the winter session, from which period dates my ingrained hostility to this type of teaching. Four years in the *post-mortem* room of the general hospital, with clinical work during the small-pox epidemic, seemed to warrant the governors of the general hospital in appointing me, in 1878, full physician, over the heads—it seems scandalous to me now—of the assistant physicians. The day of the election I left (with my friend George Ross) for London to take my Membership of the College of Physicians and to work at clinical medicine. For three months we had a delightful experience. Murchison, whom I had seen before in 1873, was most kind, and I do not think we missed one of his hospital visits. He was a model bedside teacher—so clear in his expositions, so thorough and painstaking with the student. My old friend Luther Holden introduced us to Gee, in whom were combined the spirit of Hippocrates and the method of Sydenham. Fred. Roberts, at University College Hospital, showed us how physical diagnosis could be taught. We rarely missed a visit with Bastian and Ringer, and at Queen Square I began a long friendship with that brilliant ornament of British medicine, Gowers. With my old comrade Stephen Mackenzie we went to Sutton's Sunday morning class at the London—his "Sunday School" as it was called—and we learned to have deep respect for his clinical and pathological skill. I mention these trivial details to indicate that before beginning work as clinic teacher I had at least seen some of the best men of the day.

In the summer session of 1879 I had my first clinical class. We worked together through Gee's *Auscultation and Percussion*, and in the ward visit, physical diagnosis exercises, and in a clinical microscopy class the greater part of the morning was spent. I came across the other day the clinical notebook I had prepared for the students with a motto from Froude, "The knowledge which a man can use is the only real knowledge, the only knowledge which has life and growth in it, and converts itself into practical power. The rest hangs like dust about the brain, or dries like raindrops off the stones." The next five years passed in teaching physiology and pathology in the winter session and clinical medicine in the summer. In 1884 I spent four months in Germany, chiefly at Leipzig, working at pathology with Weigert, and clinical medicine with Wagner, a model teacher who devoted the whole morning to hospital work, and whose clinic was splendidly arranged for post-graduate study. After a preliminary visit to the ward he would enter the amphitheatre with clock-like regularity, and day by day demonstrate the more important cases, always finishing the morning's work with a visit to the *post-mortem* room.

This year I accepted the chair of clinical medicine in the University of Pennsylvania, Philadelphia, the premier medical school of the United States, founded in 1789 by Morgan, Shippen, and Wistar, a group of men who had come strongly under the influence of John Hunter. The teaching of medicine was by lectures and the theatre clinic, which, with the large classes and short period of study, had become an important educational feature. In the hands of a man like William Pepper it resembled rather the larger French clinic, but all through it was an affair of the professor, who demonstrated three or four cases, and dwelt specially upon the diagnosis and treatment. Ward classes for physical diagnosis were in vogue, but clinical clerks were unknown and theoretical lectures occupied a large share of the student's time. The University Hospital and Blockley, the large city hospital, contained an abundance of clinical material which could be utilized for physical diagnosis and for general clinical instruction. I started a small clinical laboratory, which was in charge of Dr. George Dock, now Professor of Medicine in St. Louis. At the Infirmary for Nervous Diseases I became associated with that remarkable man, Dr. S. Weir Mitchell whose career illustrates how a great clinician may develop apart from academic influences or work. The pleasantest memories of five years' sojourn in the "Quaker city" are associated with my friendship with this modern Francesco Redi.

The opening of the Johns Hopkins Hospital in 1889 marked a new departure in medical education in the United States. It was not the hospital itself, as there

were many larger and just as good; it was not the men appointed, as there were others quite as well qualified; it was the organization. For the first time in an English-speaking country a hospital was organized in units, each one in charge of a head or chief. The day after my appointment I had a telegram from Dr. Gilman, president of the university, who had been asked to open the hospital, to meet him at the Fifth Avenue Hotel, New York. He said to Dr. Welch and me: "I have asked you to come here as the manager is an old friend of mine, and we will spend a couple of days; there is no difference really between a hospital and a hotel." We saw everything arranged in departments, with responsible heads, and over all a director. "This," he said, "is really the hospital, and we shall model ours upon it. The clinical unit of a hospital is the exact counterpart of one of the subdivisions of any great hotel or department store."

Fortunately the university had not enough money at first to open the medical school, so that we had several years to wait, during which there was only post-graduate teaching, and we were able to complete our organization.

I am going to show you, illustrated by lantern slides, the method of work gradually adopted in the medical unit. But first let me say that we had the good sense to make a high standard for entrance to the school, either the B.A. or the B.Sc. Through the influence of Professor Newell Martin, to whom American biological science owes a deep debt, and Drs. Remsen and Welch, an admirable three years' preliminary course to medicine was offered by the university.

By the time the first class of medical students had reached the final stage the hospital was in very good working order. The medical unit consisted of about seventy beds (the number gradually increased to above one hundred), a large out-patient department, and a clinical laboratory close to the chief wards. In charge was the head, *ex officio* professor of medicine in the university, a resident staff of first, second, and third assistants (nominated by the professor), a fourth assistant in charge of the laboratory; and in addition four house physicians, appointed annually. The first assistant, a man of experience, remained for some years, and in the absence of the chief was in complete control of the department. He had rooms in the hospital and was paid £200 a year, half by the hospital, half by the university. All of the assistants were engaged in teaching and were paid. The appointments were for no fixed period, and during the sixteen years of my control there were only five first assistants, Dr. Lafleur, now Professor of Medicine at McGill, Dr. Thayer, Professor of Clinical Medicine at the Johns Hopkins Hospital, Dr. Fletcher, Associate Professor of Medicine at the Johns Hopkins Hospital, Dr. McCrae, Professor of Medicine at Jefferson College, Philadelphia, and Dr. Cole, at present Director of the hospital connected with the Rockefeller Institute. In each instance these men had lived as junior and senior assistants in the hospital for seven, eight, or more years. I had the good fortune to have in charge of the clinical laboratory for some years Dr. Emerson, now Professor of Medicine in the University of Indiana.

I have always felt that the success which followed this experiment—for such it was in hospital work in the United States, at any rate—was due to the type of men we had as senior assistants in the various departments. We chose the best that were to be had; the nomination was in the hands of the chief of the department; they were given responsibility, encouraged to teach, and to write, and their professional development was promoted in every way. An excellent plan, greatly favoured by the director of the hospital, Dr. Hurd, was to allow the senior assistants every couple of years a vacation of from four to six months to go abroad for study. The out-patient section of the medical unit was in charge of a separate staff, usually men who had been senior assistants and had gone into practice in the city. There were three; each took two days a week, and had his own staff of three or four assistants, and all were directly engaged in teaching. You may gather from this some idea of the size of a medical unit and of the number of men at work in it, at least twenty-three or twenty-four when I left the hospital. This may be said to be an impossible task for one man to control. Not at all; it is all a question of organization, of subdivision of labour, and of co-operation among workers,

and the introduction into a department of modern business methods.

To come now to the actual work. The first duty in the unit is the care of the patient. For the sake of hospital managers I would like to make a statement. If one wishes patients well taken care of, their diseases thoroughly studied, and their treatment in every detail up to date, have medical students in the wards and out-patient departments. They represent the suprarenal extract of the body medical, maintaining the tonus and furnishing the working stimulus. A man's attitude towards his fellow-creatures is largely temperamental. If naturally devoid of the milk of human kindness, to assume a kindly interest in the sick is impossible. This was the meaning of that striking remark of Hippocrates that to a proper love of the profession must be joined a love for humanity—or words to that effect. In any ward visit one can see immediately the spirit in a hospital—whether patients are regarded as just so much material, or as our brethren deserving under all circumstances of every possible consideration and kindness. I have always felt that in this respect we can all take a lesson from our French colleagues, whose gentle courtesy towards their patients has always made a deep impression upon me. In the wards of the Bicêtre, or of the Salpêtrière, where congregate the very dregs of humanity, the greetings of the old men and women show how they feel that in their physician one friend at any rate is left.

The second great function of the clinic is concerned with teaching—assistants, students, nurses. One of the special advantages of an organization of this kind is the progressive training of a group of young men who take part in the work and are taught progressively, often unconsciously, how to teach.

The first assistant is the understudy of the chief, the second of the first, the third of the second, and any one at a moment's notice is able to take the duties of the other. If Professor Halstead was absent at any time or during his summer vacation, the first assistant did the operative work and had charge of the clinic. If I was away, my first assistant took my place, and did my day's work in the hospital. In this way a group of men are educated who are fit to take teaching positions, and a source of the most legitimate pride in a teacher is to have his old associates scattered over the country in responsible positions. The organization of the university clinic exists primarily for the training of the student, who has a right to demand systematic, thorough, and punctual instruction, enough to give a working knowledge of his profession. With students in a hospital as part of its machinery, and if you do not try to teach them too much or lecture them too much, in two years, given a thorough preliminary training, they should get a very fair knowledge of medicine and surgery.

JUNIOR CLINICAL CLASS.

We divided the classes into junior and senior, representing the third and fourth years. As our numbers were limited we rarely had more than sixty to seventy in each. They were arranged in three groups in each year—medical, surgical, obstetrical and gynaecological—each of which spent about three months and a half in medicine and surgery and the rest of the time in obstetrics and gynaecology. Let us take first the junior class. A strong believer in the out-patient department for teaching purposes we utilized this almost exclusively for the junior students. The arrangement was as follows:

(a) Physical Diagnosis.

The three men in charge of the out-patients were demonstrators or associates in medicine, and responsible for the routine instruction in physical diagnosis. To each one a small group of students was assigned who day by day helped in the work and were taught practically physical diagnosis. As the school grew this teaching fell into the hands of experienced men such as Dr. Thayer, Dr. Fitcher, and Dr. McCrae, and it was with special satisfaction that I saw the full development of this work. The out-patient department was arranged with suitable teaching rooms and a small laboratory. When the Phipps Tuberculosis Dispensary was opened as an annex, each member of the junior class passed through it in the routine of training. The out-patient room offers much

the best opportunities for the beginner. He sees the sick man or the sick child as he is, and he can be taught much more satisfactorily how to take the histories provided that he has plenty of time, numerous instructors, plenty of patients, and ample accommodation. In medicine the work of a junior student was to get a knowledge of disease and of its methods of recognition in the out-patient department. To supplement this, three times a week, at the close of the out-patient hours, was held—

(b) A Systematic Out-patient Clinic.

I used to call this an observation class, as its primary function was to train men in the use of their senses. My instruction to the assistants was "send in anything the men can see or handle." The picture (Fig. 1) shows the



Fig. 1.—Out-patient clinic.

out-patient clinic at work in a room large enough to hold thirty men comfortably seated. Students were taken in routine, and by this next picture (Table I) it is seen how

TABLE I.—Cases for the Month of January, 1901.

Date.	Clerk.	Case.
Jan. 3	Riggins	Periostitis, luetic.
.. 3	Oschner	Chlorosis.
.. 10	Wright	Haemachromatosis.
.. 10	Scholl	Enlarged liver, syphilitic.
.. 12	Simpson	Cancer of stomach.
.. 12	Steele	Lues, secondary.
.. 12	Talant (Miss)	Tachycardia.
.. 15	Silverberg	Aneurysm, carotid.
.. 15	Wight	Angiomata, nasal haemorrhage.
.. 15	Williams (Miss)	Dementia praecox.
.. 15	Williams	Lues, secondary.
.. 17	Arsdall	Phthisis.
.. 17	Browne	Aneurysm, thoracic.
.. 19	Auer	Haemog'obinuria.
.. 19	Briggs	Thickened pleura.
.. 22	Bruns	Epithelioma of lip.
.. 22	Bryan	Acute pleural effusion.
.. 24	Bush	Tuberculosis, pulmonary, pleural, and peritoneal.
.. 24	Churchman	Malignant disease of oesophagus.
.. 24	Clarke	Gout.
.. 29	Cook	Pleurisy, tuberculous.
.. 29	Coons	Tabes, mitral disease.
.. 29	Dolley	Poypnoea, neurasthenia.
.. 29	Duffy	Pulmonary tuberculosis.

the scheme worked. The clerk's name was put down, the name of the patient, and then the ward if he was admitted.

The clerk was expected "to keep track" of his case, and to report on it in a way that you will hear in a few minutes. Upon one strong conviction I have always tried to act—to make as far as possible the student participate in the teaching. The next picture (Table II) illustrates

TABLE II.—1900-1901.

Date.	Name.	Subject.	Read.
Oct. 6	Bryan	Pediculi and peliomata	x. 14
" 9	Dohme	Method of healing of aneurysm	x. 16
" 9	Bush	Fowler and Fowler's solution	v. 8
" 9	Coons	Virchow's original description of leukaemia	x. 30
" 11	Duffy	Huntingdon's paper on chronic chorea	x. 20
" 16	Ferry	Lung stones	x. 15
" 16	Frankenthal	Gastric ulcer at early age	x. 25
" 18	Haynes (Miss)	Diagnosis of varieties of tapeworm	x. 25
" 20	Hirshberg	Hippocrates's description of phthisical chest	xi. 12
" 25	Lehr	Bronchiectasis, pathology of	xi. 11
" 30	Reede	Round-up for October	xi. 8
Nov. 13	Briggs	Argyria, smallest amount of nitrate of silver to cause.	xi. 22
" 13	Williams (Miss)	First description of mitral stenosis	xi. 22
" 15	Wright	History of Peruvian bark	ii. 21
" 17	Bruns	Nerve changes in herpes zoster	xi. 22
" 17	Clarke	Visible peristalsis in pregnant uterus and in distended bladder	xii. 4
" 22	Cook	Analysis of lithia waters	xi. 13
" 24	Dolley	Re discovery of thyroid feeding	xii. 11
" 24	Duffy	St. Vitus	xii. 24
" 27	Ferry	Round-up for November	xii. 5
Dec. 4	Frankenthal	Subcutaneous fibroid nodules	xii. 6
" 6	Erving	Glycosuria in tuberculosis	xii. 11
" 6	Gleuny	Who first described the <i>bruit de diable</i>	xii. 13
" 6	Hardy	Weir Mitchell's paper on post-hemiplegic movements	xii. 20
" 11	Lootz (Miss)	Re prognosis of diabetes in the young	i. 3
" 13	Haviland	Acquired lues in congenital syphilis	i. 8
" 17	Karsted	Necrosis in chrome workers	iii. 7
" 20	Meisenhelder, J. E.	Round-up for December	i. 5

how this was carried out. At the top of the list you see the words "pediculi" and "peliomata." A case had come in with this association. It is an interesting point, and Mr. Bryan, the student who happened to be called up, was asked to report on the subject the next week. If you go down the list you will see what a motley group of subjects came under discussion. Take, for example, No. 3 on the list, Fowler. I would ask: "Who is Dr. Fowler who introduced Fowler's solution? Where was the article published?" Of course, Mr. Bush had not the faintest notion; but he was at once reassured when I told him that I also did not know. Nor could he give an affirmative to the next question: "Where will you look for it?" In such cases they were always referred to the *Index Catalogue* of the Surgeon-General's Library; sometimes to Neale's *Medical Digest*, and if the books were not in our own library they could be procured from the Surgeon-General's. Two things were required from the student who presented his report—brevity and lucidity—and, as far as possible, men were encouraged to speak, not to read from a MS. You see from the list how varied were the subjects presented during one semester. I got a great deal of instruction myself, we saw a great deal of valuable medical literature, it did not take very much time, and it was a great help in the education of the individual student.

On the table you will see at the end of each month the word "round-up," which we took from a practice of the Western cattle ranches. The last man called at the end of each month had to report the next week on the cases that had been before us during the month. In this way

we kept in touch with them, and at the end of the session a complete report was presented by the eight or nine men who had had the monthly round-ups. Table III shows the

TABLE III.

(Cases, 230; deaths, 15; mortality, 6.5 per cent.)

	Cases.	Deaths.
1. Specific infectious diseases ...	61	6
2. Diseases of digestive system ...	35	7
3. Diseases of respiratory system ...	21	0
4. Diseases of circulatory system ...	32	1
5. Constitutional diseases ...	17	0
6. Diseases of blood and ductless glands ...	20	0
7. Diseases of kidney ...	5	1
8. Diseases of nervous system ...	22	0
9. Diseases due to animal and vegetable parasites ...	4	0
10. Diseases due to intoxications ...	6	0
11. Pregnancy ...	1	0
12. Anatomical and pathological curiosities ...	6	0

analysis of the session's work. You see that 230 cases were presented in 1899-1900, and I pass round a typewritten copy of the report which each student could procure. It illustrates the wealth of material available for teaching in the out-patient department of any large general hospital. You will be impressed with that first item on the

TABLE IV.—Specific Infectious Diseases.

A. Malarial Infection (12 cases; 1 death).		
(a) Aestivo-autumnal ...	3	1
(b) Single and double tertian ...	9	0
October ...	5	
November ...	3	
December ...	2	
February ...	1	
(11 cases; history of chills and fever during summer.)		
April (tertian infection) ...	1	
(No history of chills and fever during previous summer.)		
Fatal case (aestivo-autumnal infection): Malarial nephritis.		
B. Typhoid Fever and its Sequelae (5 cases).		
(a) Abortive typhoid (October and November) ...	2	0
(b) Obliteration of femoral vein (ten years' duration) ...	1	
(c) Hemiplegia with athetosis (two years' duration, developed three weeks after attack) ...	1	
(d) Peripheral neuritis (seen October, 1899, developed ataxia, at present greatly improved) ...	1	
C. Sequelae of Diphtheria (4 cases).		
(a) Peripheral neuritis (all in children developing during or from two to four weeks after attack) ...	4	0
Pathological lesion—		
(1) Paralysis of palate in ...	4	
(2) Ptosis in ...	3	
(3) Paralysis of iris in ...	1	
(4) Paralysis of legs developing two weeks after paralysis of palate ...	1	
(All made complete but slow recoveries.)		
D. Pneumonia (1 case with extensive pleurisy) ...	2	0
E. Varicella ...	1	0
F. Parotitis ...	1	0
(The last two patients were both negro children.)		
G. Febricula ...	1	
H. Amoebic dysentery ...	1	
I. Gonorrhoeal Arthritis (five years' duration, girl 15) ...	1	
J. Syphilis (other than of the liver) ...	15	0
(a) Secondary (rash appearing five weeks to eight months after primary sore) ...	9	
(b) Tertiary ...	4	
(1) Perforation of palate ...	1	
(2) Periostitis ...	1	
(3) Arthritis ...	1	
(All in women 25 to 40 years.)		
(4) Gumma of scalp ...	1	
(c) Congenital ...	2	0
(1) Girl, 18		
(2) Negro child, 3 months.		
K. Tuberculosis ...	18	5
(a) Pulmonary ...	15	4
(12 men, 3 women, about equally divided between negroes and whites. 10 under 3 years, 5 over 30 years, greatest number between 20 and 30 years.)		
(b) Peritonitis ...	1	1
(c) Ulcer of lip ...	1	0
(d) Lupus (5 years' duration) ...	1	0

list—61 cases of specific infections. It is a great advantage to see these in the unwashed, unprepared condition in which they present themselves at the hospital; and an analysis such as you see in the next figures could only be arranged by a great deal of co-operative work among the students. Table IV (p. 13), a page of the report, shows the analysis of the cases of specific infectious diseases. Of course such a rich group of interesting cases could only be obtained through the keen co-operation of assistants always on the look-out after suitable cases to show at this third-year clinic. For the teacher himself this type of

laboratory such men as Lazier (who sacrificed his life in the yellow fever investigations), Camac, Emerson, and Cole.

In a laboratory of this type the student feels at home, with his own apparatus and reagents; here he can do his private work, always in reach of skilled assistance, and in a scientific atmosphere, as researches were always in progress.

The junior clinical student had plenty to do, with physical diagnosis classes, the routine work of the out-patient department, the tri-weekly out-patient clinics, and



Fig. 2.—Clinical laboratory.



Fig. 3.—Clinical laboratory.

class is ideal, only it must be thoroughly practical, theoretical discussions must be tabooed, and the student must do as much work as possible. It is an ideal way in which to begin the study, as the young men are encouraged to look up the literature, and to visit their own cases whether in the homes or in the wards, and it gives good men an opportunity to show what they could do in the way of presenting the reports.

(c) *The Clinical Laboratory.*

The young medical student needs above all things method and technique, and to be trained early in the use of instruments of precision. In the physiological and pathological classes he becomes adept in the use of the microscope, etc., and when he comes to the hospital side

three afternoons weekly in the clinical laboratory. He had one other class—

(d) *The General Clinic.*

The general clinic, which both the juniors and the seniors attended, and of the organization of which I will speak in a few minutes. You notice that the work of the junior student was almost exclusively in the out-patient department. There are those, I know, who feel that instruction may be better given to him in the wards, and that, as a senior, he appreciates more the out-patient department, but if the out-patient work is suitably arranged, and if teaching is made a predominant feature, there are many advantages in confining the work of the juniors to this section of the hospital. Of course, there is

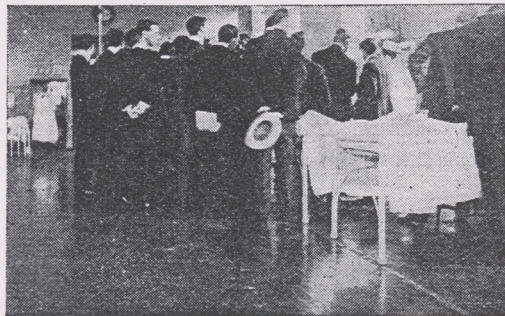


Fig. 4.—Ward visit.



Fig. 5.—Ward visit.

he should have opportunities to apply this knowledge in the study of disease. He may get this haphazard, doing work in the out-patient rooms and in the wards, but it is very much better to have well-organized instruction extending throughout the entire session. In the scheme which we followed each student had his place in the laboratory with a microscope, always a good one, rented to him by the school for £1 a year. Here three afternoons a week throughout the entire session the junior class had routine instruction in clinical laboratory methods. The next two pictures (Figs. 2 and 3) represent the class at work. How much really good work may be done in classes of this sort may be gathered from Emerson's *Manual for the Clinical Laboratory*, which is largely based on material collected by the students. I was fortunate to have in charge of the

no objection whatever to the teaching of physical diagnosis in the wards, but one has to consider the patients.

SENIOR CLINICAL CLASS.

In the three chief subjects the men were assigned for work in the wards as clinical clerks or surgical dressers in groups of 20 to 25.

(a) *Ward Work.*

Each morning until 12 o'clock was free for it; the ward visit was made at 9 o'clock sharp. The number of beds assigned to each clerk varied—five, six, or eight, or even more. Under the direction of the house-physician, the clerk took the history and worked up the case, doing himself the various analyses. For this purpose each

clinical clerk had to have his own microscope, rented from the school, and his own place with the reagents, etc., in the clinical laboratory. The ward visit was on the plan with which you are so familiar. I show you a couple of pictures (Figs. 4 and 5) which illustrate its disadvantage—namely, the crowding round the bed—and in the next figures (Figs. 6 and 7) you may see the professor dictating a note or listening to a student making a report. Of a new case the clerk was encouraged to give orally a summary, not to read a full elaborate history. In this way he was again made to help with the teaching, and, in fact, he was encouraged to do as much of the talking as possible. The Socratic dialogue is the ideal bedside method, in which long harangues are out of place, and, after all, the priceless value of the system is not in the tongue of the teacher, but in the daily routine of personal contact with the patient, who is really the teacher. The assistants shared the ward work with me, and on alternate days, when I had the out-patient clinic,



Fig. 6.—Ward visit.

they made the visit with the clinical clerks.

(b) *The General Clinic.*

There are several methods of conducting what may be called the theatre clinic of a hospital. In the German method a series of cases is usually presented, on which the professor gives a more or less elaborate lecture. In France, from the days of Corvisart, the ward visit has been the feature, after which the teacher lectures, usually without the cases before him, on special affections. Sometimes these lectures are extraordinarily complicated.

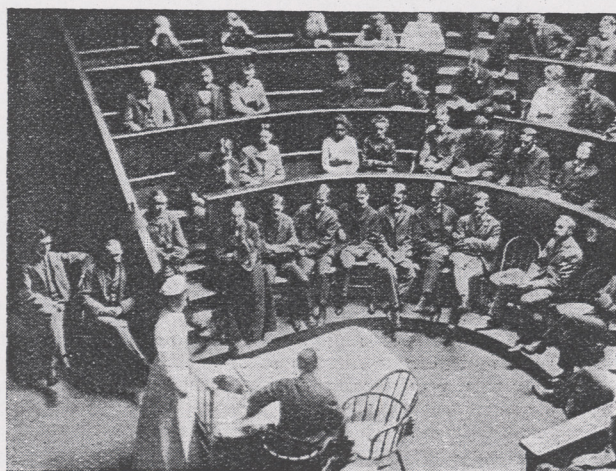


Fig. 8.—Theatre teaching.

I heard Dieulafoy lecture three successive Saturdays on the same case.

I utilized the theatre clinic largely to present to both the junior and senior students the general work of the wards. These next two pictures (Figs. 8 and 9) illustrate the theatre and the method of teaching. As far as possible we followed the seasons and their acute diseases; typhoid fever and malaria in the early autumn, then pneumonia as the winter progressed. Special emphasis was always laid on the more common affections. The clinical clerk described the main features of the case, if possible without his notes, talking, as I always insisted, to

the back benches. This, again, was for a definite purpose—to teach the young fellows to control their vasomotors and to stand and think and talk simultaneously. In response to a question a keen student would give an answer that contributed not a little to the lecture itself. You notice on the second figure of the clinic (Fig. 9) the large blackboards. The lists of cases that you see represent an important feature of the clinic. As I mentioned, its special object was to present, week by week, to the third and fourth year students—all of whom were required to attend—the work of the wards. On the important diseases committees of the students were appointed to report. The tabulated lists on the blackboard represent the cases of typhoid fever and pneumonia entered week by week. Only the typhoid cases with complications were put up, but the entire experience of the clinic with pneumonia was presented. One of the first questions asked was for the chairman of the typhoid and pneumonia committees to report. In the longer list on the blackboard you see for the session 1900-1901 some 60 cases of pneumonia, very many of which were shown at the clinic, and all of which we reported upon. At the end of the session typewritten copies of these lists were circulated among the students. By the end of his fourth year a man could have a knowledge of at least 70 or 80 cases of pneumonia and of the complications of several hundred cases of typhoid fever.



Fig. 7.—Ward visit.

Very special stress was laid upon this side of the work, and here again you see the important feature of making the student an active participant in the teaching. As far as possible groups of cases illustrating special features

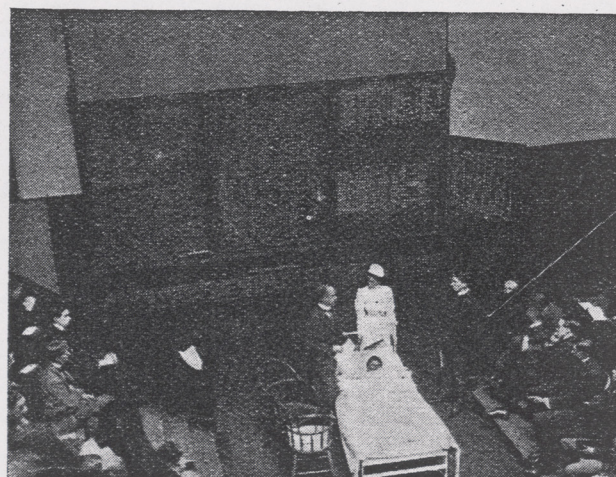


Fig. 9.—Theatre teaching.

of disease were presented; very often an assistant participated in and was asked to present a case which he worked up specially. Sometimes we had a symposium conducted by the students. I remember on one occasion, when we had in the wards a number of cases of diabetes, the students held the clinic, and six of them presented the various features of the disease. Of course, they could not let the occasion pass without a joke, and on my table and in their buttonholes were sweet-peas! One last feature remains to be noticed. The concluding remark always was: What deaths? what *post-mortems*? If a *post-mortem* examination had been held, the clerk whose patient had

died was responsible for the demonstration of the lesions. In making it as far as possible a student's affair the clinic may lack the dramatic unity of the French or the thoroughness of the German, but I claim for the method an educational feature of a high order; well arranged by the assistants and students, there is one thing it will not miss—the power to draw large and appreciative audiences.

(c) *Seminar Classes.*

In a very busy clinic there is neither the time nor is there the necessity for systematic lectures, but even in a rich hospital service it is impossible to show the student even types of all diseases, so that it is necessary to supplement in some way the teaching of the wards, the dispensary, and the theatre. We managed this in two ways. One of the assistants held each week what is called a "recitation" class, in which the students were examined upon set subjects given out previously. Sometimes textbook chapters were put down for study, sometimes journal articles, and, as far as possible, the important literature of the subject discussed was placed on the table. In this way one feels sure that the student gets at least some knowledge of the more obscure and less common maladies.

Then, a couple of years before I left, the assistants and the clinical clerks started a weekly *seminar*, in which, seated about a long table, the important recent contributions in the literature usually to the diseases under observation were reported upon and discussed.

(d) *Research.*

The third function of the clinic is organization for research, a side of the work which presents many difficulties. If a laboratory man, the professor may neglect patients and students, and if an old time bread-and-butter clinician he may neglect the laboratory side. He sets the pace, but one thing is certain, that in a university clinic the interest of the student should be paramount.

Every patient presents problems for research, and the clinical clerk should be able to carry out the necessary investigations. For this purpose there must be skilled assistants, directly attached to the clinic, who are able to advise and control his bacteriological, chemical and physiological studies. For example, in pneumonia and in typhoid fever the bacteriological work should be done under skilled supervision, and the clerk should be able to make his own blood cultures or to plate out a stool. In gout and diabetes he should carry out his own chemical studies with the help of a trained clinical chemist in a laboratory attached to the clinic; and in a case of heart-block he should have at hand all the graphic and electrical apparatus necessary for this study. The student should himself carry out researches, particularly if he comes into the ward with a good chemical training. With reference to the arrangement of the laboratories one of two plans may be followed. In very large hospitals they may be concentrated in one building and even combined with pathology, but in the university medical clinic there are great advantages in having small laboratories of bacteriology, chemistry and pathological physiology associated directly with the wards.

In every university department the chief research must be done by the young assistants and special students under the direction of the chief, who fertilizes them with ideas. Here again it is a matter largely of organization, only I feel strongly that however important research may be every man associated with the clinic should take his share in teaching, and should be made to feel that the student is the pivot round which the machine works. Research becomes very absorbing, and in some men fosters a seclusive selfishness that is most deplorable. I can testify in an interesting way to the large amount of good work that may be done by the students and young assistants. When I left the Johns Hopkins Hospital, the graduates of the first eight years of the medical school presented me with twelve handsomely bound volumes containing just five hundred contributions they had made.

As briefly as possible this is a summary of my life as a clinical teacher. At a farewell dinner given to me by the profession of the United States and Canada, I expressed the pious wish that my epitaph should be, "He introduced routine bedside teaching into the United States"; and I think I may claim for my colleagues that in all the

departments of the Johns Hopkins Hospital the English and Continental systems of teaching were combined with great advantage.

A FORECAST.

Now, in a few concluding words, let me give you a forecast. I designedly took this subject for my address because the future is with you young men, who are certain to see within the next few years radical changes in the medical schools of this country. There are two important problems. Is it possible to organize in the English hospitals university clinics such as exist on the Continent, and such as those which we had at the Johns Hopkins Hospital? There are difficulties, of course, but they are not insuperable, and, once started, clinics of this type will be instituted in every school in the kingdom. Only let them be complete; the chief in full control, responsible for the teaching, responsible for the work of his assistants, and let them be well equipped with all modern accessories for research. The other problem is more difficult. Shall the director of such a clinic devote his whole time to the work, or shall he be allowed to take consulting work? For the former many advantages may be claimed, though the plan has nowhere yet had a practical trial. The amount of work in a modern clinic is enormous—quite enough to take up the time and energies of any one man in conducting the teaching, treating the patients, and superintending the researches. Then it is attractive to think of a group of super-clinicians, not bothered with the cares of consulting practice, and whose whole interests are in scientific work. It is claimed that as much good will follow the adoption of the plan of whole-time clinicians as has followed the whole-time physiologists and anatomists. Against it may be urged the danger of handing over students who are to be general practitioners to a group of teachers completely out of touch with the conditions under which these young men will have to live. The clinician should always be in the fighting line, and in close touch with the rank and file, with the men behind the guns, who are doing the real work of the profession. The question, too, is whether the best men could be secured; whether academic and scientific distinctions would satisfy these men. Then for the hospital itself, would it be best to keep our best in clinical seclusion? Would there not be the danger of the evolution throughout the country of a set of clinical prigs, the boundary of whose horizon would be the laboratory, and whose only human interest would be research? I say frankly that I am not in favour of the whole-time clinical teacher. This is not surprising, as my life has been largely spent in association with my professional brethren, participating in the many interests we have had in common. At the same time let me freely confess that I mistrust my own judgement, as this is a problem for young men and for the future. I know how hard it is "to serve God and mammon," to try to do one's duty as a teacher and to live up to the responsibility of a large department, and at the same time to meet the outside demands of your brethren and of the public. And if added to this you have an active interest in medical societies, and in the multifarious local and general problems, the breaking point may be reached. I had had thirty-one years of uninterrupted hard work. William Pepper, my predecessor in Philadelphia, died of angina at 55; John Musser, my successor, of the same disease at 53! After listening to my story you may wonder how it was possible to leave a place so gratifying to the ambitions of any clinical teacher: I had had a good innings and was glad to get away without a serious breakdown.

THE German Central Medical Excursions Committee has arranged a tour for the study of winter health resorts and winter sports in Upper Bavaria and Tyrol. The tour will begin on January 22nd, starting from Munich and ending at Meran on January 31st. The places to be visited include Munich, Ebenhausen, Partenkirchen (Ettal, Oberammergau, Linderhof, Partnachklamm, Rissler, Baader, Eibsee, etc.), Innsbruck, Gossensass, Bozen, Gries, Meran. The cost of this ten-day trip, including railway, sleigh and carriage travel, board and lodging, but not liquors or "tips," will be 175 marks (about £8 15s.). Communications on the subject should be addressed to the Deutsche Zentralkomitee für aerztliche Studienreisen 9, Potsdamerstrasse, 134B, Berlin, W.

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