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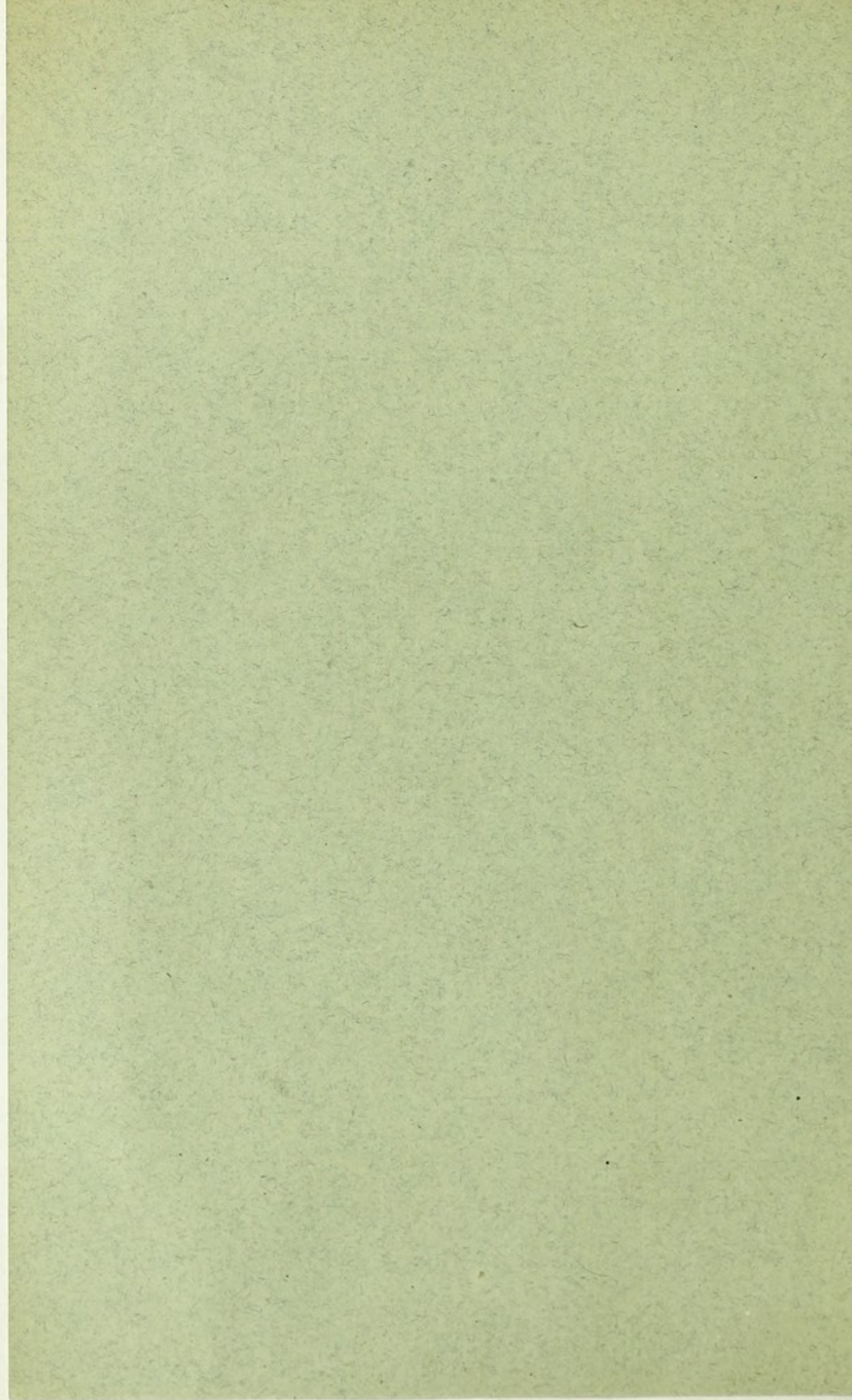
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ON / THE HISTORY OF PATHOLOGY IN THE GLASGOW
ROYAL INFIRMARY / AND THE FUNCTIONS OF
THE PATHOLOGICAL DEPARTMENT.

By JOHN H. TEACHER, M.A., M.D.,

St. Mungo (Notman) Professor of Pathology in the University of Glasgow,
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ON THE HISTORY OF PATHOLOGY IN THE GLASGOW ROYAL INFIRMARY AND THE FUNCTIONS OF THE PATHOLOGICAL DEPARTMENT.¹

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It is an old rule that a new professor should deliver a public address inaugurating his course of instruction, but in recent years the scene of this for medical professors has been transferred from the Bute Hall to their own classrooms.

The present occasion is interesting in several respects. It is a minor point that never before has the University received an addition of four professors at once. Of greater importance is the fact that these four professors are the successors of the lecturers to the women students in Queen Margaret College, but now their classes are open to all students without distinction of sex, who care to take their medical curriculum at the Royal Infirmary. Most important of all, these appointments signalise the recovery by the Glasgow Royal Infirmary School of Medicine of her prestige as a part of the University of Glasgow, which was lost when the University was removed to Gilmorehill. Up to the year 1874 the Glasgow Royal Infirmary was the University Clinical School (not a monopoly,

¹ Introductory lecture to the first course of pathology delivered in the Theatre of the new Pathological Institute of Glasgow Royal Infirmary, 17th October, 1911.

for the Faculty of Physicians and Surgeons and Anderson's College were strongly represented there also), and as such, the inheritor of the fame of the great men from whom the University of Glasgow draws her inspiration and her standing as one of the great universities of the world. On the medical side I may name Cullen, the true founder of the Glasgow school of medicine; William Hunter, the organiser of anatomical teaching and research in Britain; his younger brother, John Hunter, the great physiologist and surgeon; and their nephew, Matthew Baillie, a son of a professor in Glasgow University, who wrote the first British text-book of pathology.

It is interesting to note how recent is the present systematic teaching of medicine. A great gulf divides the anatomical lectures of William Hunter about 1750 from anything of the kind which had been given before in this country. Cheselden and others had taught in the hospitals, but Percival Pott and John Hunter, as teachers of surgery, were about as far in advance of their predecessors as William Hunter of his in anatomy.

Clinical teaching in Glasgow was of still later origin, a product of the nineteenth century. Clinical teaching of a kind there was in the old town's hospital, but it really began in the wards of the Royal Infirmary.

Now, you may ask what I have to do with clinical medicine and surgery. I hope to show you.

Pathology is the science which treats of the nature of disease, and of the "seats and causes of disease," to quote Morgagni, the author of the first treatise on pathology, published in 1761.

But pathology as a separate subject is of very recent development. The pioneers in it were the most enlightened physicians and surgeons. Whosoever accurately observed and described a disease or speculated as to its cause was doing pathological research. Harvey, Sydenham, Jenner, and the Hunters—John Hunter's work "*On the Blood, Inflammation and Gunshot Wounds*" is one of the greatest pathological monographs in our language. William Hunter's lectures on anatomy (of which there are many copies in existence) teem with references to pathology, and when he speaks of anatomy it is not only normal but morbid anatomy to which he refers. A hundred and fifty years ago he wrote "Anatomy is the only solid foundation of medicine. It is to the physician and surgeon what geometry is to the astronomer. It discovers and ascertains truth; overturns superstition and

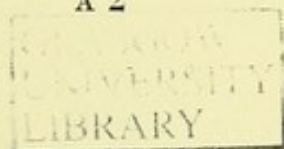
vulgar error, and checks the enthusiasm of theorists and of sects in medicine, to whom perhaps more of the human species have fallen a sacrifice than to the sword itself or pestilence." Or again, "were I to guess at the most probable future improvements in physic I should say that they would arise from a more general and more accurate examination of diseases after death. And were I to place a man of proper talents in the most direct road for becoming truly great in his profession, I would choose a good practical anatomist, and put him into a large hospital to attend the sick and dissect the dead." We have travelled far since William Hunter's day. Morbid anatomy is still the foundation of pathology. But we must not forget that when we examine a body in the *post-mortem* room we interpret what we see in the light of knowledge which has been gathered by many investigators in years of histological, bacteriological, and experimental research.

The *post-mortem* examinations at the Royal Infirmary were at first made by the physician or surgeon, and valuable results were obtained. For example, typhus and typhoid fever were first clearly distinguished from one another by Dr. Perry (father of the present Dr. Robert Perry) who was a physician to the Royal Infirmary.

In 1852 the pathology department originated in the form of a pathological museum. The old minute-book of the Pathological Museum Committee reports:—"At a quarterly meeting of the directors of Glasgow Royal Infirmary, held within the secretary's office, on Monday, 4th May, 1852, at 2 o'clock P.M. Secretary—Robert Lamond. Convened—Mr. Cogan [hon. treasurer of the Royal Infirmary]; Mr. Hannan [Dean of Guild]; Messrs. M'Lean, Reid, and Craig [managers elected by the general court of contributors]; Dr. Macfarlane [Professor of Medicine in the University]; Dr. Allen Thomson [Professor of Anatomy in the University]; Dr. Watson [President of the Faculty of Physicians and Surgeons]; Mr. Lyon [surgeon, representative of the Faculty of Physicians and Surgeons]; Dr. J. Gibson Fleming [surgeon to the Royal Infirmary].

"In terms of a remit from the special committee of physicians and surgeons, Dr. Fleming produced and read the following report with regard to a pathology museum:—

"The committee having considered the proposal of instituting a pathological museum in connection with the infirmary, beg to report that such a museum seems to be really necessary in order that the institution may keep pace as a school of



medicine with the facilities and advantages of a like description which are afforded by most of the recognised hospitals in the kingdom; and certainly a collection of illustrative specimens would greatly enhance the value of the clinical instruction carried on in the infirmary. In recommending an annual grant from the funds of the infirmary for this purpose, your committee consider that in the course of two or three years, when a museum really useful to the student has been formed, such an addition should be made to the fee now paid by each student for the privilege of attending the infirmary and the clinical lectures as would raise a sum equivalent to the expense connected with the museum.

"In order, however, that a museum may be at once commenced, your committee recommend that a sum not exceeding one hundred and fifty pounds in any one year be allowed from the funds of the infirmary for the formation and preservation of a pathological museum.

"That all the medical directors and the physicians and surgeons of the infirmary for the time being shall constitute a committee for the management of the said museum.

"That this committee shall have full powers to render available for the purposes of clinical instruction, and the advancement of medical science, the many rare and valuable specimens of diseased structure which are constantly occurring in the wards of the infirmary; and to make such regulations and appoint such officials as they consider necessary to carry out this object. That the committee shall lay before the directors of the infirmary annually a report of the progress of the museum and a detailed statement of how the funds have been expended."

This report was approved, and remitted to the medical directors and the physicians and surgeons of the infirmary to be carried into effect. The museum, therefore, owes its existence to the recommendation of the physicians and surgeons, and their intention was to improve the clinical teaching.

Dr. Newman, to whom I am indebted for a great deal of information, tells me that he heard from the late Professor Coats that Allen Thomson was at the bottom of the movement. Professor Allen Thomson was the leader in most movements for the advantage of medical education in Glasgow, and especially of the University. He was an organiser and diplomatist of great ability. Dr. Newman also tells me that what Allen Thomson wanted was a pathology department and a pathologist, but the managers refused on the grounds that

they did not feel justified in spending the money of the contributors on the promotion of purely scientific research. This is a reason which has not lost its point, and it is, in my opinion, one of the best reasons for the managers having sought the support and co-operation of the University for their pathology department. In 1852 they gave funds to form a museum, but the curator was a volunteer using pathology, in the words of the late Sir George Macleod, as "the high road to surgery." Nevertheless he was really pathologist to the hospital.

None of the earlier minutes, quarterly or annual reports, is signed, and I have no idea who were the curators in those early years. I am sorry we do not know who was the first curator, for he was evidently a man of energy. By the end of the first year there were 149 preparations in the museum, including a collection of wax models presented by the Faculty of Physicians and Surgeons. The department occupied two rooms in the ground floor of the fever house, and there was provision for making the *post-mortem* examinations. In the second quarter 23 examinations were made, and in the third about 40 were made, partly by the curator and partly by the clerks. About this time there is a complaint that the clerks, apparently the residents, "were doing fever *post-mortems* at irregular periods and in private, so far as the students are concerned."

In the minute of 23rd December, 1852, there is a request for a set of instruments, and this request reappears, slightly cut down, in April, and yet again in July, 1853, and this time the perseverance of the curator seems to have been rewarded. Mr. Hilliard received £4, 10s. 6d., and the workman obtained his tools.

By September, 1853, the museum had overflowed into the physicians' room in the fever house. The first curator appears to have held office for two years, and his successors for shorter periods, but the museum continued to make steady progress. In December, 1857, however, the minutes come to an end, and there is no further record in the minute-book until April, 1871, when the entries begin again in a handwriting which seemed familiar to me, and at the end of the minute the signature appears, "Joseph Coats, M.D., curator and pathologist."

The post of pathologist was created in 1863, and the first holder of it was Samuel Johnson Moore. Moore had been assistant to Allen Thomson, and was persuaded by him to accept the post; and the £50 which was allowed as salary

helped him to hold on until he began to succeed in practice. Sam Moore made no record in the minute-book, and he left behind him nothing of permanent value in the shape of medical writings; but his career was one of the most remarkable in the medical history of Glasgow. Coats has described him as "a strong, clever, honest, warm-hearted man of the world, of clear insight and of rapid decision." The influence of his powerful personality and intellect penetrated to every department of professional life in Glasgow, and was felt over an area of human life "the full extent of which is difficult to gauge."

In 1870 he was succeeded by the late Professor Coats, whom we may describe as the first professional pathologist in Glasgow. Coats acted as Lister's house surgeon in 1868, the year of the inception of the antiseptic system, and in the following year went to Germany and worked under the great experimental pathologist, Ludwig. On his return to Glasgow he became pathologist to the Royal Infirmary, and at the same time practised in diseases of the throat and as a consulting physician. In my time as a student he still held wards in the Western Infirmary, giving them up only in 1892.

During the winter of 1870-71 Dr. Coats reorganised and catalogued the museum, now grown to 1,100 specimens, and prepared and delivered the first systematic course of lectures on pathology. In 1875 he was transferred to the Western Infirmary, where, first as pathologist to the infirmary, then from 1890 as University lecturer, and after 1894 as professor, he was the master in pathology in Glasgow. All the pathologists to the Royal Infirmary, with the exception of Dr. Workman, have been pupils of Coats. We are indebted to him for the arrangement by which the professors of pathology in the University are *ex officio* pathologists to the Western and Royal infirmaries respectively. Some one has said that "a surgeon without wards is like a gardener without a garden," and a pathologist without his hospital is in much the same position.

Coats's teaching, in the first place, consisted of lectures on systematic pathology and demonstrations of morbid anatomy. About 1877 Dr. Newman, then his assistant in the Western Infirmary, brought to him Rutherford's freezing microtome, which revolutionised the teaching of histology, both normal and morbid, by making it possible to supply a class, however numerous, with a series of good microscopic specimens.

Coats was succeeded by David Foulis, a bold and skilful

surgeon and an accomplished pathologist, whose death at the age of 35, in 1881, from diphtheria, contracted while performing tracheotomy, was a great loss to the profession. His memory is preserved by the Foulis Memorial Scholarship for research in pathology.

Dr. Newman was pathologist from 1882 until 1889, when surgery claimed his energies, and he was succeeded by the late Dr. Lindsay Steven, who retired in 1895 to devote himself to practice of medicine. Dr. Steven was also first professor of pathology in St. Mungo's College, just then established. He was an ardent pathologist who never lost his keenness for the subject. Dr. Workman, who succeeded, was at the same time lecturer in pathology to Queen Margaret College until 1908, when he retired, and was succeeded by Dr. Hugh Galt, who retired a year later on obtaining the post of Stephen Ralli Memorial pathologist in Brighton.

The old department, which has now been demolished to make way for the south part of the middle block of the new infirmary, was designed (I understand from Dr. Newman) by Allen Thomson. It had many good points, some of which we have copied; but it was cramped and deficient in accommodation for the practical classes which afterwards developed. It is true that there is no need for big buildings for the performance of much good work and the making of discoveries; but now the *duties* of a pathology department require machinery and space. It is given to very few to make discoveries. Most of us must be content, if not satisfied, if we do our routine work well, and some research, sufficiently sound and honest, as Huxley says, to be absorbed into the rubble which forms the foundations of science and then forgotten.

What, then, do we propose to do in this large building? In the first place, it is still the mortuary; also it is the *post-mortem* room; and the rest of it, from the museum to the library, is, to my mind, a clinical laboratory. This definition of a clinical laboratory is not more vague than others that are current. Here we examine tumours with a view to diagnosis and prognosis, and recognise tubercle and other granulomata which may be confounded with them. Here, too, bacteriology, protozoology, and the Wassermann reaction are performed for the information or the guidance of the clinician, and vaccines are prepared for the treatment of the patient. Pathological chemistry at present is chiefly done in the test-rooms, and a laboratory for cardio-physics would be out of place here.

Chemistry in the Pathological department makes me think of the Cheshire cat, appearing and disappearing in the most disconcerting manner. Sometimes I think there can have been nothing left but the grin. Dr. Newman tells me he collected funds and started the first laboratory of pathological chemistry and bacteriology at the Western Infirmary in 1878. The chemical work was soon absorbed into the test-rooms. At the Western Infirmary there is a "Journal of the Laboratory of Pathological Chemistry," dated about 1887, with a few entries and then no more. In 1896 a small chemical laboratory was provided in the pathology department of the Western Infirmary, but little chemistry was done in it, and now a large part of the new clinical laboratory is for chemistry, and we have provided a laboratory and private room for it here. But I confess that I do not know what we are going to do with them. We do not want to take the work of the test-rooms.

Bio-chemistry is an enormous subject. A large department of it, the serum reactions, is in the hands of the bacteriologist. Problems of metabolism and perverted metabolism provide a wide field for the explorer. But the difficulties connected with them are very great, and the application of the methods of the chemical physiological laboratory to clinical medicine is not easy. The time seems hardly ripe for it. I should like to find a young pathologist who is also a chemist. Let him pay his way in the department by taking part in the routine work of the place, and for the rest of his time let him work at developing pathological chemistry, and do not let us expect much result for some years.

Now, about the place of pathology in the medical curriculum. It completes the foundations of medicine, which are anatomy and physiology. The more we know of pathology the better. To understand the cause of disease carries us far towards finding the cure, and still farther towards the prevention of disease. Sir William Osler advises you to cultivate the laboratory habit, and carry it away with you into practice. That is true; but it is well to know that in the technique of pathology much is complex, and can only be applied in a laboratory. We hope to teach you some methods of diagnosis which you can apply in your practice, and also what to do in preparing material and transmitting it in proper order to the pathologist. I advise you to work hard at pathology when you are at it, and follow your patient to the *post-mortem* room as often as he gives you the opportunity; but the wards and the dispensaries are

the places you should frequent. After graduation, if you desire further experience in the practical work of pathology or bacteriology, we will be happy to help you here.

As to our own research. The most productive pathologists of the Royal Infirmary have been members of the clinical staff. First, of course, the surgeon-pathologist, Lister. After him we may name Sir William Gairdner and Sir William Macewen together with Coats. This fact gives the keynote of our work, namely, that it is the application of pathology to the treatment of the patient.

There are many great researches which hardly come within our sphere. They are for places like the Pasteur Institute, of which this place would be a mere wing, and our staff only a group of its staff. Or they are for commissions like the American Yellow Fever Commission and the Indian Plague Commission. We are one of the links between the wards of the hospital and such places as the Pasteur Institute, the Institute for Experimental Therapy in Frankfort-on-Main (Ehrlich's), the Lister, the Rockefeller, and other institutes devoted to research. We must help to bring their results to the hospital, and the physicians and surgeons must test them. The results of experimental research must be brought to the test of clinical application, and if they stand it they take their place in the treatment or prevention of human diseases. There is no better example of this than the result of the application of the discoveries of Pasteur by Lister in the Glasgow Royal Infirmary.

In a department like this I think we have little use for the pure researcher. I prefer the man (or woman) who can take his (or her) share of the daily work of the laboratory or wards and find research in his routine work, or prove his capacity by developing research on other lines at the same time. Darwin may not have been troubled with routine, but Pasteur, Koch, and Ronald Ross made at least their earlier discoveries when apparently overburdened with routine.

Not that I think we should be afraid of big problems, or that I do not care for the Carnegie research scholar or fellow, or that I undervalue the year of liberty from routine on the Continent, or in other laboratories in our own country. I remember my own year of liberty, some ten years ago, too well for that!

But we must remember that we are here primarily for the service of the infirmary. Problems constantly arise in connection with single cases, or groups of cases, which require

more than mere routine investigation. This type of research may not be as high as experimental research, but some one must do it. We have splendid material here which we must not allow to be wasted. Often, too, the problem is stated in the hospital or its pathology department, which has to be worked out in the experimental laboratory; moreover, there are many instances of observations made in the hospital proving to be the clue which, followed up, led to great discoveries. Therefore, we must study our opportunities, and develop our own line of work, and there is a fair chance that we may turn out something worthy of the reputation of the Royal Infirmary and the splendid laboratory which the insight and public spirit of the managers of the Royal Infirmary have provided.

