The science of human anatomy : its history and development : (an introductory lecture to the course of anatomy, delivered at Surgeons' Hall on 29th October 1884) / by J. Macdonald Brown.

With Compliments

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Science of Human Anatomy

by

J. Macdonald Brown

Edinburgh Med. Jour. 1886

THE

SCIENCE OF HUMAN ANATOMY:

ITS HISTORY AND DEVELOPMENT.

(An Introductory Lecture to the Course of Anatomy, delivered at Surgeons' Hall on 29th October 1884.)

BY

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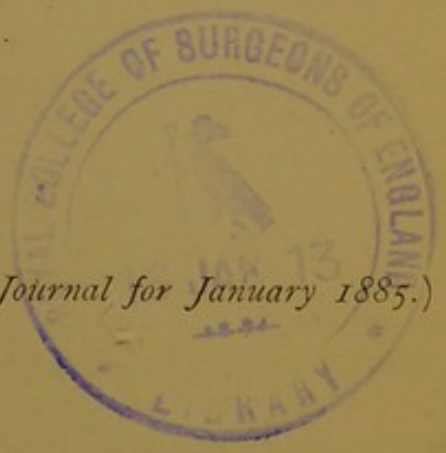

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THE SCIENCE OF HUMAN ANATOMY:

ITS HISTORY AND DEVELOPMENT.

GENTLEMEN,—In the pursuance of the study of any science, nothing appears to me to contribute more towards a thorough understanding of the subject, or to be of greater advantage to the student in his acquirement of it, than a brief review of its antecedents. I have therefore deemed it expedient to select as the most fitting subject for my introductory lecture, "The Science of Human Anatomy: its History and Development," and I shall endeavour to make my remarks to you to-day of a more general and interesting character than can be embraced in the practical and systematic teaching of a class. The value of such a subject is enhanced by the consideration, that it will bring within its compass a retrospect of the noble and useful services which in the past have been rendered to the science of anatomy by the teachers of the Anatomical School in Edinburgh.

It would be impossible in the time at my disposal to enter, with the necessary sequence and minuteness, into an examination of scientific discovery in its successive stages, and I shall therefore treat the subject more from its teaching than from its scientific point of view. The story of anatomy, like that of many other sciences, is a very old one. Its birth is wrapped in the mists of antiquity. The history of the world in the infancy of civilisation has furnished no exact record of the dawn of anatomical investigation. Scientists who have been led to consider this science in its antiquarian aspect have found that their endeavours to penetrate the haze have been a comparatively fruitless task, and the result of their researches has been the conclusion, based almost purely on inductive evidence, that the probable birthplaces of anatomy were in India and Egypt,—countries which in ancient times possessed a very advanced civilisation. As regards India, nothing having a definite relation to the science is known. The knowledge which the Egyptians acquired of the structure of the human body was entirely traceable to the custom of embalming practised in their country. Such knowledge was, from the nature of the process,

necessarily of the most rudimentary description. Up till within a period of five centuries before the Christian era, all information regarding the science of anatomy is of a traditional or mythological character. What may more properly be called the history of the science begins with the advent of Hippocrates, who has been designated the father of medicine, and who flourished about 450 years B.C. His general knowledge of anatomy was confined chiefly to the osseous system, and in that and other branches it was very elementary and often erroneous. Somewhat less than a century later the writings of the famous Aristotle appeared. This celebrated man was more of a philosopher than a scientist, and his works on the subject partake more of a speculative than of a practical character. He, however, deserves a prominent place as a pioneer in the march of anatomical science, as he may justly be considered to have laid the foundation of comparative anatomy, which in the natural progress of things must have preceded a knowledge of the human body.

To Herophilus, who comes forty years later, is due the credit of having founded Human Anatomy. He is stated to have dissected human bodies extensively; but his works having been lost, all that is known of his anatomical researches is gathered from the writings of others. To the parts which still retain them, he gave the names of calamus, scriptorius, and duodenum, and his memory is perpetuated in the mind of every medical student in the *Torcular Herophili.* A contemporary of his named Erasistratus made some valuable discoveries in the poietic and nervous systems.

During the 200 years which followed, the study of this science seems to have fallen into neglect; but it is probable that throughout this period many anatomists lived and worked of whom nothing is known. Anatomy and its teaching were revivified under the celebrated Roman physician Galen, about the middle of the second century. Probably no anatomist ever laboured more assiduously or wrote more voluminously in the interest of his subject than did Galen. Although his osteology is fairly accurate, and his knowledge of the other systems good, yet he, more than any other member of the older school, gave currency to errors which were not eradicated for centuries afterwards. A careful observer, his anatomy was chiefly comparative; and from that standpoint he described the human subject analogically rather than practically. What is known in history as the Dark Ages succeeded the period of Galen, and for 500 years the science of anatomy suffered in the almost total annihilation of civilisation caused by the incursion of barbarians into the civilized world. Indeed, with the exception of the prosecution of the science to some extent by the Arabs, especially in Spain, its progress was, until the beginning of the 13th century, practically at a deadlock.

About 1213, Martianus, in Italy, restored anatomy to its place as a practical study. Mundinus, at Bologna, a century later, flourished as a celebrated anatomist, and wrote a text-book on the subject. By him was devised our present method of differentiating the intestinal tube into duodenum, jejunum, ilium, colon, and rectum. Early in the 16th century Vesalius gave a new impetus to anatomical study. Differing in that respect from Galen, Vesalius was eminently a practical scientist, and the result of his labours was the production of one of the most elaborate works ever published on the subject. He exposed and corrected most of the errors taught by Galen, and the creation of the firm basis on which anatomy at present rests was owing in a very great measure to his labours. While many anatomists of much less distinction have their monuments in the nomenclature of anatomical science, only an insignificant foramen in the basis cranii is named after this celebrated scientist, viz., the "Foramen Vesalii," a foramen not infrequently absent altogether. Eustachius, his contemporary, and Fallopius, his pupil, though less distinguished, were eminent teachers.

About the middle of the century Varolius made careful investigations with reference to the brain and nervous system. Sylvius and Servetus, anatomists of some eminence, also flourished about the same time.

In summarizing the history of anatomical science up to this point, its development and progress can be traced with considerable accuracy. The main feature of its advance is the fact that it has gone hand in hand with civilisation. With the tide of civilisation it migrated from eastern to western countries. From India and Egypt it went to the Greek and Roman Empires. After their decadence it accompanied the Arabs to Spain. Still later we find it among the Italians, and finally it obtained a permanent home in Western Europe,—in France, Germany, and Britain.

Under the fostering influence of western civilisation, the advancement of the science made rapid progress.

In Edinburgh, as early as 1505, dissection of the human body was practised by the surgeons of the day, under certain restrictions imposed by the Town Council. Unfortunately no record has been preserved of the results of such dissections during the period of nearly 200 years subsequently.

The year 1628 marked an important discovery in anatomical science. In this year William Harvey, a London physician, first definitely established the theory of the circulation of the blood, which theory had been regarded by former anatomists only as a probable conjecture. The awarding of the palm of the discovery to Harvey was the cause of great and animated discussion, both in his own time and at subsequent periods. Indeed, only recently Professor Scalzi of Rome warmly disputed Harvey's claim to the discovery,

but his objections were effectually disposed of by Professor Johnson, of King's College, London.

Later in the 17th century, Bartholin, Steno, Malpighi, Meibomius, Santorini, and others on the Continent, and Glisson, Wharton, and Cowper in England, rendered important services in the furtherance of the science.

In Gairdner's *Historical Sketch of the Royal College of Surgeons of Edinburgh*, we are informed that in 1694 Alexander Monteath obtained from the Town Council a gift of those bodies "that dye in the correction-house, and of the bodies of foundlings that dye upon the breast." The gift also included a room for dissections, and the use of the College churchyard for the burials. The grant was made under various conditions, one of which Gairdner tells us was that he (Monteath) was "to attend the poor gratis, but to be paid for his drugs at prime cost." Other curious conditions were attached to the grant, which are worth a passing notice. The dissection was only to be performed in winter. All the "gross intestines" were to be buried within forty-eight hours, and the rest of the body within ten days. The same privilege was latterly extended to other members of the profession, and the bodies of the unclaimed dead were included in the grant. An anatomical theatre was built soon after the date of the grant to Monteath.

The limited time at my disposal precludes me from tracing in detail the history of the science in the countries of the Continent, and even in our sister country of England, and two or three words at a subsequent stage of my remarks must suffice to dispose of this wide range of the subject. With that exception I shall confine myself to that branch of the history which relates to the progress of anatomical teaching in Edinburgh.

In the earliest period of the history of our Anatomical School there was no distinction between extramural and intramural schools. Indeed, of these two schools, the intramural was founded considerably later than the extramural, and its teachers were supplied from the College of Surgeons.

Between the time of Monteath and that of the first Munro, various anatomists flourished as teachers in Edinburgh. Some of these are only remembered by their names, while we are in possession of but very imperfect biographical sketches of others. As this period is therefore barren in anything of historical importance, I shall bridge it over with this passing reference, and shall bring you to the more certain and important historical vantage-ground which is ushered in by the advent of the great Munro in 1720.

The life and teaching of Munro *primus* have been the subject of many expositions. He taught for five years in Surgeons' Hall, and in 1725 was appointed to a chair in the University. This appointment was the result of an application by him for premises in the University, which was rendered necessary on account of the

threatened demolition of his rooms in Surgeons' Square by a city mob incited by the supposed violation of churchyards.

The principal characteristic of his teaching was, that it was not confined to human anatomy. The range of his lectures was very comprehensive, and included Comparative Anatomy, Surgery, and Physiology.

His contribution to the literature of the science in the shape of his famous work on Osteology is too well known to require more than a mention. In view of the difficulties with which he had to contend in popular prejudice and superstition, and realizing the fact that, despite these obstacles, he most firmly established the teaching of anatomy as a science in our city, it must be ungrudgingly conceded that the title so often accorded him of "father of the Edinburgh Medical School" is most justly bestowed. He taught for a period of thirty-eight years, and was succeeded by his son, generally known as Munro *secundus*. Though less famous than his father, this anatomist, by his careful and systematic teaching, did much to add lustre to the reputation of the Edinburgh Medical School. His professoriate extended over twenty-five years, and his published works are numerous.

During this century, Cheselden and the two Hunters (William and John) rendered effective service to the cause of anatomy in England; while on the Continent the researches and teaching of Morgagni, Valsalva, Winslow, Albinus, Haller, Meckel, Wrisberg, Sœmerring, Reil, Bichat, and others, greatly advanced the science.

During the latter period of the second Munro's teaching, John Bell founded an Anatomical School near old Surgeons' Hall (1790). Bell's fame rests more on his eminence as a surgeon than as an anatomist, but it cannot be doubted that as a teacher of anatomy he was eminently successful. His published works form a valuable contribution to anatomical science. His period of teaching lasted only for a few years. He was succeeded by his brother Charles (afterwards Sir Charles Bell), who taught anatomy for about four years. Neither of the Bells attracted large anatomical classes, but this was not matter for surprise in view of the great popularity of their intramural rival, Professor Munro *secundus*.

Munro *tertius* succeeded his father in 1808 as Professor of Anatomy. During his term of office the reputation of the Edinburgh University as an anatomical centre considerably declined. The third Munro seems to have lacked the teaching power which his two predecessors possessed in such an eminent degree. He occupied the chair for thirty-eight years, and has left behind him numerous published works.

The famous John Barclay was a contemporary of Munro *tertius*. This celebrated anatomist taught from 1797 to 1825. At this period, therefore, there existed three Anatomical Schools in Edinburgh. These were that of the University taught by Munro,

the school of the Bells, and that of Barclay. For a considerable period the lectures of Barclay did not receive the recognition of the Colleges of Physicians and Surgeons. Subsequently, however, he became a most popular teacher, and his class almost rivalled in numbers that of the University. He was the first specialist in anatomy in Edinburgh. The distinguishing characteristics of his teaching were its carefulness and impressiveness. The absorption of his mind in his subject appears to have been so complete, that it has been recorded as not an uncommon occurrence for him to proceed with his lecture after the dispersion of his class. He was the author of several anatomical treatises.

In 1808 Dr John Gordon began his unfortunately brief career of ten years as a teacher of anatomy in Edinburgh. He carried on a rival school next door to Barclay. A careful and able anatomist, he managed to secure a good class, in spite of the strong teaching opposition with which he had to compete.

The names of Innes, Fyfe, Walker, Craigie, and Cullen, who about this time did good service to the cause of anatomical teaching in Edinburgh, only call for mention.

This brings us to the time of one of the most celebrated anatomists which Edinburgh ever possessed, viz., Dr Robert Knox, who began to lecture before the retirement of the third Munro in 1796. Knox was essentially a morphologist, and treated human anatomy not so much *per se* as in its relation to comparative anatomy. Under him the reputation of the Edinburgh Anatomical School more than recovered the ground which it had previously lost. In that adaptability of teaching which combined the qualities of orator and teacher, Knox's position was unique in its character. The diversity of his genius places him in a niche much higher than that of a mere instructor and expounder of a science. His fluent and impressive manner of delivery, his perfect inflexions of voice, his masterly rhetoric, his fine descriptive power, and his keen and ready wit infused new life into the dry bones of anatomical detail. His lectures attained an unprecedented pitch of popularity, and in the session of 1829–30 the number of students attending his class was 504. The greatness of Knox was, however, marred by prominent weak points of character, which rendered his popularity transitory. Its decline, taken in conjunction with the odium caused by his supposed connexion with the Burke and Hare murders, induced him to relinquish anatomical teaching in Edinburgh. He went to London in 1845, did not, however, succeed there, and died in obscurity eighteen years afterwards.

We have seen that up till this time there existed in Edinburgh various contemporary schools of anatomy, conducted by teachers of more or less eminence. Some of the most famous names which adorn the pages of anatomical literature are to be found among Knox's contemporaries and successors. Some of these carried their fame and teaching to other centres of learning, such as Lizars, Allen Thomson,

Sharpey, and Struthers. Others, like Syme and Spence, left the field of anatomy for the still wider one of surgery.

Syme and Allen Thomson—the former in 1824, the latter in 1841—only taught anatomy for the period of one year respectively. Lizars, an anatomist of the highest eminence, whose work and writings have not in the past received the recognition which they deserved, taught anatomy in Edinburgh for something like twelve years, beginning about 1828. That he was a teacher of marked ability and earnestness is acknowledged by the ready testimony of many of his pupils who still survive. In connexion with his work as an author and scientist, his valuable collection of anatomical plates, and his admirable compendium of Human Anatomy, and many other lesser treatises, bear the impress of great originality and merit.

Passing over several teachers of less note, we come to Handyside, an able and conscientious teacher of anatomy, who commenced his lectures in 1833, and continued to lecture for nine years, when he relinquished the position in favour of Struthers, now the distinguished Professor of Anatomy in Aberdeen. In 1846, on the resignation of Munro *tertius*, Handyside and John Goodsir were candidates for the University chair, with the result that the latter was successful.

After Struthers' removal to Aberdeen, Handyside again became Lecturer on Anatomy at Surgeons' Hall, and continued as such up till the period of his death in 1881, when my immediate predecessor, Mr Charles W. Cathcart, succeeded him.

Amid the host of anatomists of recent times, the name of John Goodsir stands out pre-eminent. His life and labours are, however, so well known, and have been so carefully and lovingly recorded by his biographer in his published anatomical memoirs, that I need not do more than furnish a cursory sketch of his work and teaching. A pupil of the great Knox, he from his earliest student days was an earnest devotee of anatomy, human and comparative. He possessed that wonderful power of clothing the dry bones with muscle and nerve, which invested the subject with a living interest to every student. For twenty years he adorned the chair of Anatomy in the University of Edinburgh, and died in 1867, when the present professor was elected to the office.

The following extract from the obituary of a London newspaper would most fittingly sum up this brief sketch:—"Since the days of John Hunter no greater master of anatomical science, no keener investigator of phenomena, no more comprehensive grasper of generalizations, no clearer or more effective expositor, ever dedicated himself to the great subject of anatomy, human and comparative, than John Goodsir. . . . . It is, indeed, impossible to estimate aright the loss which scientific knowledge and academic education sustain through such a death as his. Let us hope that the generous contagion of his teaching and the lustre of his example will arouse in some worthy disciple the masculine enthusiasm, the

noble candour, and the chivalrous self-devotion which are buried in the too early grave of John Goodsir." He has left behind him a number of works upon anatomy, human and comparative, all of which afford evidence of his conspicuous originality and genius.

Among the various extra-academic teachers of anatomy of recent times was the late Professor Spence, whose memory deserves more than a mere passing tribute. As a young man he grasped the great conception that anatomy is the handmaiden of surgery, and that to be a skilful surgeon a man must first be an anatomist. As an anatomist Professor Spence's work and teaching were of the highest order, and his dissections of the arterial system in various parts of the body—some of which adorn the present University Museum of Surgery—afford ample evidence that he was a practical anatomist of the greatest ability. His period of teaching as a pure anatomist lasted only for the brief period of three years. In his capacity of surgeon that of anatomist, however, was never lost, and his surgical teaching was always remarkable for its accuracy of detail, more particularly in its anatomical aspects.

I have thus attempted, gentlemen, to give you a brief sketch of the teaching of anatomy down to the present time. Permit me now to say a word regarding its probable future. *Anatomy is essentially a practical science!* Lectures, no matter how clear and illustrative—demonstrations, no matter how perfect, form only accessories to the acquirement of anatomical knowledge.

In order to learn anatomy thoroughly and well, a student must not only have ample opportunity for examining dissections of the various regions of the human body, but he must also, as far as possible, dissect each of the regions for himself. This great truth has been at all times acknowledged by anatomists. By the aid of diagrams and dissections a man may acquire a good knowledge of Scarpa's triangle; but he can never attain that practical familiarity with the anatomy of that region, so essential to the practical surgeon, unless he has patiently and carefully dissected out for himself its relations and the structures which it contains. There are two factors which are essential to the possession of sound anatomical knowledge,—in the first place, an efficient system of teaching, and in the second place, a sufficient supply of material. As regards the former, the long list of celebrities who have laboured in the cause of anatomy affords ample evidence that, in our school at least, the first factor has been hitherto represented in no mean degree.

In dealing with the second factor, or the material supplied for dissection, I cannot speak in such favourable terms. The meagre supply of subjects for dissection, in nearly every period of the history of anatomy, has been the main obstacle to the advancement of the science. In the earlier stages of anatomical history, the necessary supply was withheld by the ignorant superstition of the times. While in our own day anatomical schools elsewhere

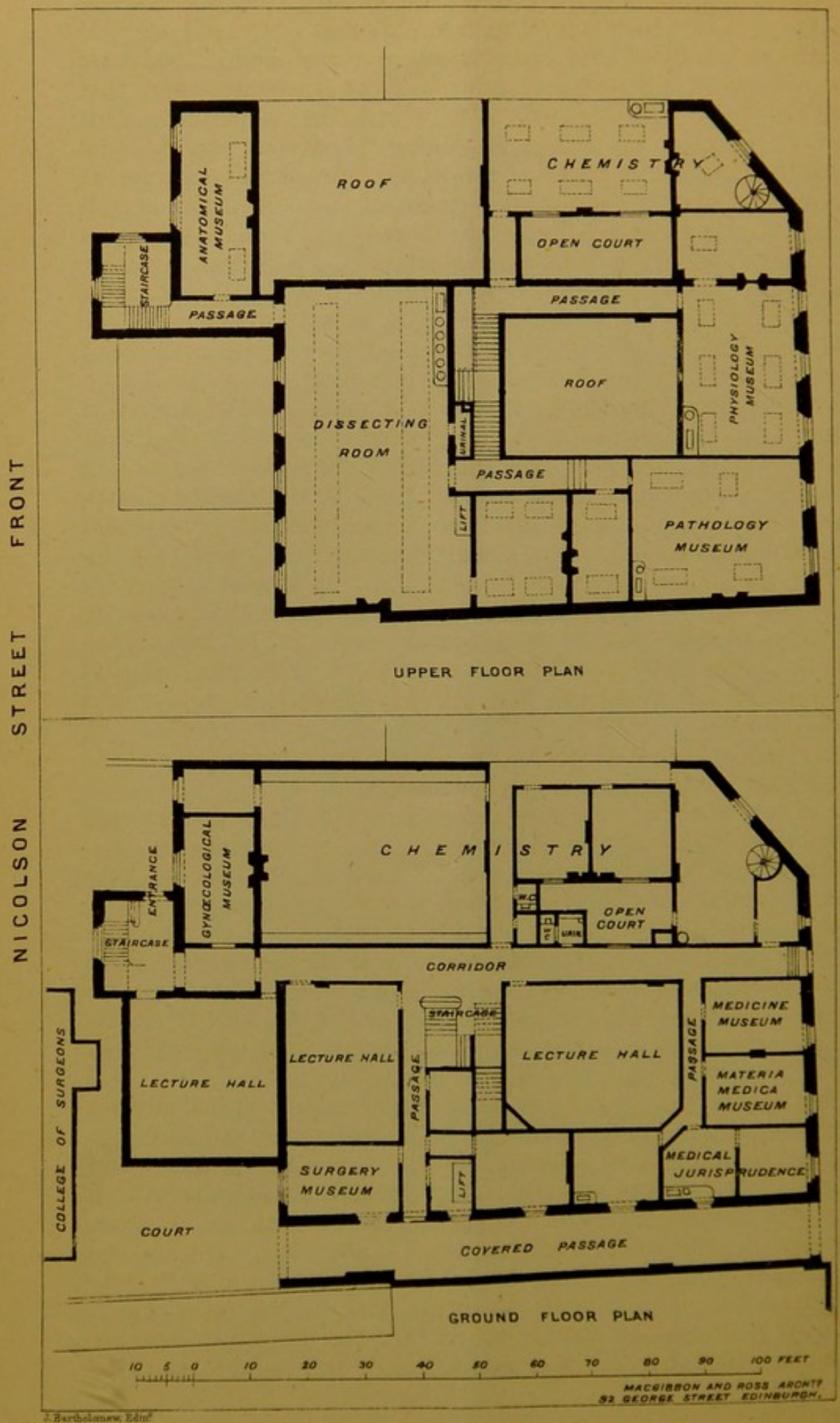
have been amply supplied with the necessary material, those in Edinburgh have suffered from its dearth. This insufficiency in the Edinburgh school has been the cause of no small hindrance to the cultivation of the science; and, taking into consideration the present immense and steady increase of students of anatomy, we cannot but regard with apprehension the problem of how the supply is to keep pace with the demand. We must hope that future legislation will so modify the existing laws and customs as to enable us to be at least on an equal footing with other anatomical schools.

Gentlemen, I have attempted to give you an outline sketch of the history and development of anatomy and its teaching, which has been of necessity brief; and I have dwelt more particularly upon the subject of our own school. I have also indicated the hindrances which have impeded, and do still impede, its progress. In addition to what has been already mentioned, nothing has hitherto interfered more with the successful study of anatomy than the want of efficient accommodation for practical work in this and in other schools. The dissecting-rooms of former Edinburgh schools were of the most unsuitable description,—they were badly ventilated, insufficiently lighted, and their accommodation was most inadequate. The immense strides which have been made within the past few years, as regards the provision for practical work in the various departments of medical science in Edinburgh, have nowhere shown themselves more strikingly than in the department of anatomy. In no anatomical school in this country is such accommodation provided for the study of practical anatomy as in this city. The palatial rooms of the New University, and the equally efficient though less pretentious ones of Surgeons' Hall and Minto House, afford to the student of practical anatomy unrivalled advantages for the successful prosecution of his studies.

Gentlemen, this naturally leads us to consider the changes which have taken place in Surgeons' Hall since last an anatomical class met within its walls. Surgeons' Hall Medical School was erected by the Royal College of Surgeons of Edinburgh in 1849, and owes its foundation largely to the untiring energy and activity of Professor Struthers of Aberdeen, then an anatomist in Edinburgh. Viewed in the light of the condition of medical science at that time, its accommodation and appointments amply served their purpose. Causes, however, have been at work, which, since its foundation, have altered this state of matters. One of these is the steady advancement which has taken place in all branches of medical science since that time, more especially in the direction of their practical study,—an advancement which has called for larger accommodation in the various departments. Another cause has been the increased and increasing number of students who have been, and are still, attracted to this school from all parts of the world. An additional cause is to be found in the natural decay which the hand of time has produced on the buildings.

Matters continued in this unsatisfactory state until the present year, when, by the consideration and generosity of the College of Surgeons (under whose auspices I am privileged now to address you), active steps were taken for improving and remodelling the buildings to meet the requirements of the various lecturers. The result is that Surgeons' Hall ranks second to none among the schools of medicine in Edinburgh in its appointments, accommodation, and conveniences. Until the present year there was no accommodation for the study of the practical departments of physiology and pathology, and the condition of the dissecting-room was bad in the extreme. In our present building these defects have been most effectually remedied, and the remaining departments have been more amply provided for. The class-rooms are better lighted and more efficiently ventilated. Laboratories for practical physiology and practical pathology have been added. The chemical section has been extensively altered and enlarged, while the various museums in connexion with the classes of Materia Medica, Pathology, Medical Jurisprudence, etc., have been remodelled. It is, however, in the anatomical department that the greatest improvements have taken place. Many of you present will vividly remember the condition of the late dissecting-room in Surgeons' Hall. Having traversed a ricketty wooden stair, you found yourself in a small, low-roofed, badly-ventilated, and often strongly-odorous room. In it the student was in summer subjected to the most oppressive heat, and in winter to the most extreme cold. I believe in its last days that in rough wintry weather one could enjoy the full benefit of a small snow-storm in one corner, and of a gale of wind in another. The anatomical museum was small and incommodious.

The changes introduced by the improvements which have taken place can only be called a transformation. The fact that the work has been accomplished in the incredibly short period of $2\frac{1}{2}$ months affords the highest testimony to the energy of the contractors, and to the marked skill of the eminent firm of architects, Messrs M'Gibbon & Ross, who in their designing of the various alterations have most thoroughly succeeded in meeting the requirements of the individual lecturers. Instead of the wooden stair previously referred to, there is now a wide and easy stone stair in the centre of the building, well lighted from the roof, and leading by two branches to the departments of Anatomy and Pathology on the one hand, and to those of Chemistry and Physiology on the other. A substantial stone staircase has also been introduced, adjoining the entrance to the school, which affords a separate and convenient access to the anatomical museum and dissecting-room. The new anatomical museum has been built over the gynæcological one. Advantage has been taken of this addition to heighten and improve the general appearance of the building from the front. Having reached the landing, and having passed the museum upon the left hand, the dissecting-


NICOLSON STREET FRONT
ROXBURGH PLACE FRONT
ANATOMICAL MUSEUM
ROOF
CHEMISTRY
OPEN COURT
STAIRCASE
PASSAGE
PASSAGE
DISSECTING ROOM
URINAL
ROOF
PHYSIOLOGY MUSEUM
PASSAGE
LIFT
PATHOLOGY MUSEUM
UPPER FLOOR PLAN
ENTRANCE
GYNECOLOGICAL MUSEUM
CHEMISTRY
STAIRCASE
OPEN COURT
CORRIDOR
COLLEGE OF SURGEONS
LECTURE HALL
LECTURE HALL
STAIRCASE
PASSAGE
LECTURE HALL
PASSAGE
MEDICINE MUSEUM
MATERIA MEDICA MUSEUM
SURGERY MUSEUM
LIFT
MEDICAL JURISPRUDENCE
COURT
COVERED PASSAGE
GROUND FLOOR PLAN
10 5 0 10 20 30 40 50 60 70 80 90 100 FEET
MACGIBBON AND ROSS ARCHTS
52 GEORGE STREET EDINBURGH.
J. Bartholomew, Edin.

room, which has thus two approaches, is entered. It is a spacious hall, the area of which is well-nigh double that of the old one. It is surmounted by a lofty ornamental iron roof, and its walls are lined with wood. As regards lighting, I can fearlessly assert that it has no compeer in this city. Its ventilation is perfect. This has been effected by the employment of Stevens' patent, and by the construction of many of the windows in such a manner as to admit of perfect ingress and egress of air. The room is well heated from the two large fireplaces; there is an abundant supply of water, hot and cold; and the arrangements of cloak-room, lavatory, urinals, etc., leave nothing to be desired. Cases for anatomical dissections and preparations are ranged round two sides of the room, and one of its corners is occupied by a series of rows of fixed seats arranged in class-room style. By means of the latter, a large number of students can receive a practical demonstration during dissecting hours without interfering with the ordinary routine work of the room. On the ground floor of the building improved accommodation has been afforded for the storage of subjects for dissection, while a lift from these premises gives them free communication with the dissecting-room. A perusal of the accompanying plate will more fully explain the present disposition of the building. I have introduced this description of our school, not only because you as its students ought to be acquainted with its details, but also because its present anatomical department marks an important step in the progress of anatomical science and its teaching.

Let me conclude with one or two observations for your practical guidance in the prosecution of your studies.

I am confident that the special facilities which you as students of this school now enjoy will have the most promising practical results. Facilities are afforded you for acquiring a thorough proficiency in the principles of anatomy, and opportunities are at your command for the further development of the science, which less favourable circumstances denied to your predecessors. With the introduction of every modern appliance and convenience for the purposes of investigation, combined with every possible comfort in other directions, the success of this school, which is entrusted to your keeping, ought to be assured.

For the reputation and success of our Anatomical School, two requirements are indispensable. The first of these is that the teaching should be characterized by the utmost carefulness and accuracy. The second essential is a corresponding industry and an intelligent observation on the part of the student. I, together with my demonstrators, will earnestly endeavour to fulfil the first of these conditions; and I can confidently appeal to you to enter upon your studies in the spirit necessary to the faithful performance of the second condition. It is of the utmost importance for you to remember that the true utility of this science is to be

found in its recognition as the only foundation upon which in the future you must build your knowledge of surgery and medicine. That your excellence in these departments may be worthy of your profession, it is indispensable that this foundation should be carefully laid by the cultivation of this science to its highest degree of accuracy and perfection. Your familiarity with its subject-matter ought to be of such a perfect kind that in your future career as physicians, you will regard the body of a patient as the case which encloses important viscera and organs, with the disposition and functions of which you are intimately acquainted; and in your practice as surgeons that you will view a patient's limb as a structure composed of bones, jointed together by ligaments, moved by muscles, and supplied with bloodvessels and nerves, with the various positions and relations of all of which you are thoroughly conversant. Philosophers have pointed out that one of the most useful lessons in life is to be found in the discipline which is implied in the careful attention to detail. A well-known writer has said that the "ignominious love of detail" has been the foundation of all greatness. Of all sciences anatomy is one which requires for its effective pursuit the careful mastery of detail. It is possible that the student may sometimes find the dry minutiæ a "weariness to the flesh;" but such a feeling cannot long co-exist with a true estimate of the value of this subject, and with the ever-present conception of the object which he has in view. You will reap advantage from your anatomical studies in a wider than a mere professional sense. When you arrive at the completion of the different links in the chain of anatomical information, you will find ample material for admiration in the wondrous geometrical and mechanical accuracy with which every part of the human body is constructed to carry on the animal economy and answer the various purposes of life.

Gentlemen, if you will earnestly investigate anatomical truth, not only for its own sake, but also on account of its important relation to medicine and surgery, I am confident you will be able to trace much of your professional success in the future to the carefulness with which you have conducted your anatomical studies in the past.

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