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THE HUNTERIAN MUSEUM: YESTERDAY AND TO-MORROW*

BY

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Hunter will stand out for all time not only as a famous surgeon-pathologist but as one of the first of the great exponents of the experimental method in medicine. The circumstances of the times imperatively dictate that attention should be paid to the story of the other great record which he left to posterity in his collections. This task coincides with my own inclinations, for I have been attracted to museums from my earliest days, and indeed it seems as if the desire to collect had come so naturally as to be almost inborn. There are some who question the value of medical museums or consider that they have become superseded now that the art of book illustration has been carried to such a high state of perfection. Before we go on to consider the huge task of restoring our museum this point of view requires some consideration, for to those of us who so much appreciate museum collections it seems unnatural. When contrasted with even the most precise and beautiful picture the actual specimens seem so much more real: their size, contour, and perspective are so different from anything shown on a flat surface. But the great advantage is that they can be handled, looked at from all aspects and from new angles. Further, it is possible to re-examine them by dissection, to cut them up if necessary, and to review their minute structure by histological methods.

How Hunter was Inspired to Collect

John Hunter's teachers doubtless had their own preparations, and although I can find no account of Cheselden's collection there seems no reason to think that he would be behindhand. Bart's, always to the fore among the medical schools, is fortunate in that its history has been so carefully compiled by Norman Moore, and in his great work appears the following record by the Governors of St. Bartholomew's Hospital under date of June 23, 1726: "Two convenient rooms were prepared under the cutting ward—one for the more decent laying of the dead patients before their burial, the other as a repository for anatomical or chirurgical preparations." This repository would later contain the treasures of Percivall Pott, and a specimen of a congenital hernial sac with the original roll of paper which Pott placed through the neck not only survives but is still used for teaching nearly 200 years after it was prepared. But undoubtedly the chief stimulus was William Hunter's collection, which was well started before John made that notable journey from Scotland to join his brother as assistant in the dissecting-room. William Hunter in his lecture syllabus always set great store on his preparations, and in it referred to the making of these and undertook to teach the processes in his anatomy course.

Before we go further into the circumstances which inspired John Hunter to build his museum we ought to know something of his fascinating life story. It is with his boyhood that I want especially to deal, for his early years were said to have been wasted in idleness, and it was constantly held against him that at 17 he could neither read nor write and that part of his youth was spent in a carpenter's shop. In after-life John spoke of those early years spent in the country around his home as of special value in cultivating his powers of observation. In retrospect I think we must recognize that the time

spent in close touch with nature was probably among the most valuable in the whole of his life. Like most small boys, Hunter was inquisitive and was always wanting to know the reason for the things he saw about him. Doubtless he had much time to wander about and make observations and to think, but I cannot believe that he was entirely idle. In Scotland in those days there were few who could be, for it was essential that everyone should work for his daily bread. The family was in straitened circumstances, and we may be sure that John not only helped his mother but was employed about the business of their holding. The life of the farmyard must have been thought-provoking, from the traditional query, Why does water run off the duck's back? to Why do fowls sometimes eat their feathers and sows devour their young? Pigeon-lofts infected with contagious tumours, crop-bound fowls, lambs with grass-ill, and "sturdy" sheep, all provide fascinating problems. The accidents to which stock are liable would arouse keen interest in the surgery of injuries and repair, and would certainly teach a reverence for the healing powers of nature. The vagaries of swallowed foreign bodies, like the fate of a needle and thread swallowed by a kitten and discharged from an abscess in the neck when death seemed inevitable, would also be an arresting experience. What lad could ever forget seeing a young horse trailing its intestine on the grass after castration, and what inquiries might it stimulate in after-years in connexion with the anatomy of congenital hernia? Quite possibly the more thoughtful men about the place cut up dead animals in the hope of finding the answers to some of these questions, and thus Hunter would learn the wonders of the disclosures of post-mortem examinations. Life about small farms runs close to nature, and household gossip would often be intimate. The phenomena of reproduction and abortion and obstetric emergencies of all sorts obtrude themselves wherever stock-breeding is part of a hard-won livelihood, and it is interesting to recall that in later life Hunter envisaged artificial insemination. Family illness and episodes of the crises of human fate would often be discussed, and in the Hunter household death was all too familiar. At about 18 it was felt that something should be done to help him to make a career, and he went to Glasgow to assist in the workshop of his brother-in-law, a cabinet-maker. There is no record of how John's time was actually employed, but he probably learnt many lessons not only in using his hands but in conduct, and it would probably be obvious to him that application and industry are the only roads to success. After two years his brother-in-law failed in business and John returned to the old home. Some who have commented on Hunter's later career have rather looked askance at this period in the cabinet-maker's shop and have suggested that he might have been better employed. With this I would join issue, for I believe that a period working with tools, and especially the clean precise tools that wood-workers employ, is an excellent education for anyone destined to use his hands for his life's work.

One of my earliest teachers and colleagues, the late W. G. Richardson of Newcastle-upon-Tyne, was an amateur cabinet-maker who could turn out wonderful work. But with his big clever hands Richardson was also an expert dissector after the true Hunterian style, and some of his preparations were very beautiful. He had the further gift of being able to convey what he saw to paper, and many of the drawings which illustrate his essay on the prostate

* Some extracts from the Hunterian Oration, delivered at the Royal College of Surgeons on Feb. 14, 1945.

could scarcely be bettered. Withal he was an expert surgeon, and I have never seen anyone who could carry out a better radical breast operation.

When John returned home from Glasgow wanting an outlet for his activities he was armed with the attributes of a training in observation, disciplined hands, and an inquiring mind. At that time William, in London, was sending letters home describing the fascination of his work in the great city and extolling the opportunities it provided. We may depend upon it those letters would often be read and discussed in the family circle. Most probably it was John's mother who wrote to her elder son asking him if he would do something for his young brother. Doubtless John felt a secret pride in William's success, and probably needed very little persuasion to undertake that journey to London in search of fame and fortune. Once in London, William's influence and example must have had a very powerful effect on his younger brother. William was not only a very successful teacher of anatomy but was a fashionable practitioner in midwifery, courted by the best people and popular among them. Withal he had a passion for collecting. He knew the art of the *préparateur*, which he first learnt from Douglas, to whom he had been apprenticed, and which was later furnished on his Paris visit. His preparations were among the best in London, and the museum he founded was generally regarded as one of the finest then in existence, being very readily accepted by the University of Glasgow after his death.

Inception and Growth of his Collection

It is often wondered where John Hunter secured his specimens in his early days, for it has been stated that while working as demonstrator for his brother any preparations he put up were placed in William's museum, and we know that several prepared by John are in the Hunterian collection in Glasgow. It is highly probable that, like other keen young men working in dissecting-rooms, he might remove some portions that were of special interest and take them to his lodgings to dissect in private; or he might hoard up some treasure, surreptitiously hidden away until such time as he felt he could use it. In these days, when the operating theatres so constantly supply the needs of our museums, it is perhaps forgotten what a wealth of pathological conditions is unearthed in the dissecting-rooms. It is recorded that Hunter collected when with the Army in Belle Isle, and when he came home in 1763 he was supposed to have something like 200 specimens of normal and diseased structures. In the Golden Square days he was mostly concerned with studies in comparative anatomy, and his great sources of supply were the animals that died in the menagerie then kept in the Tower. He never lost an opportunity of acquiring anything that would make a suitable preparation. Some were presents from friends. "If you will step in at Banks' in Soho Square, you will find the corpse of the fine Sierra Leone cat, the inside of which is at your service. The skin is to be stuffed for the British Museum." So wrote his friend Sir Joseph Banks, who was later President of the Royal Society and always his firm supporter. Other friends were roped in to help, and his old pupil Jenner was an unending source of supply. Further specimens were secured by purchase, and we know, in connexion with the skeleton of the Irish giant, to what length of monetary impropriety he was prepared to go rather than lose some specimen on which he had set his heart.

Hunter's Method of Work

The making of his preparations, the actual labour of creating his museum, must have been a colossal task, and there can be no doubt that the major part of this work fell on Hunter himself. Just think of the dissections, the macerations, the injections, and the display of the pathological material! Then there were the jars to choose and the specimens to be suspended or otherwise displayed, and the tops to be fixed. There were no ground lids to be cemented, but each jar had to be covered with pig's bladder or parchment, which had to be securely tied on; and after drying there was the outer cover of thin sheet-lead to be fitted, secured, painted, and probably varnished. Hunter certainly knew all about these processes, as we may gather from his remark concerning his brother-in-law, young Home, who was told that his damned clumsy fingers were all thumbs and that he would never have sense enough to tie

down a bottle. Doubtless he would get help from those about him and from his pupils, but his was the master hand, and indeed he was probably the only one who knew anything about the art of preparation. Hunter himself was taught to make preparations during his apprenticeship to his brother, and there can be no doubt he made it a hobby and soon learned to excel. But, even if he did enjoy the work, the time involved must have been enormous. Anyone familiar with the dissection of animals, and especially large ones, will know what a long time it takes: Clift speaks of Hunter standing at his work for hours. The same applies to pathological specimens, for they must be prepared, displayed, and set up when fresh to get the best results. Then there is always the recording to be done, descriptions to be written, labels to be fixed, and other duties of the kind. There is evidence that Hunter was concerned with all these tasks.

Most of his experiments were done at Earl's Court, but the arrangements of his establishment there showed that rooms for dissection were not forgotten and that the work of making preparations was provided for. It was there that he had the large copper for boiling bones, and we have the story of how the body of O'Brien, the Irish giant, was taken there in the dead of night and hastily dismembered, and the parts boiled so that the skeleton could be quickly prepared rather than risk detection if the slower process of maceration was employed. Just think what it meant to be engaged in the active work of preparation almost every day for a period of 30 years. Hunter's routine was to rise at 5 a.m. or earlier in summer and 6 a.m. in winter, and to go at once to his workroom, where he remained until breakfast-time. Certain it is that these morning hours were spent in association with those about him, for it is recorded that on the very morning that he met his end he was particularly happy among his pupils. In one branch of his museum work he was not particularly careful, and that was the labelling of jars and the recording of dates. But Hunter was deeply conscious of the need for a careful record, and it was only the difficulty of applying some method in the stress in which he lived that allowed this delinquency to occur. No one, however, can say that Hunter was not systematic. He was constantly making notes on odd bits of paper, and these were all carefully sorted and entered up into his record books; but he was not careful about dates. He was also a great letter-writer and kept his correspondence carefully.

The Workroom

Hunter's dissections and museum work were done in his own house, for there were no laboratories or workrooms kept for him at the hospital, and he had to provide all that he required and to supervise everything that went on. At each of his homes arrangements were made so that he could fulfil these self-imposed tasks. There was undoubtedly good accommodation at Earl's Court, but the question of transport had to be considered. This was by coach, and it is interesting to ponder on the loads that Hunter's coach must have carried to and fro in those busy days when it had to be a sort of covered wagon taking all kinds of human and animal remains from London out to the country and back. The methods of specimen-preparing that were used at that period are worth considering. There were the ordinary dissections, some of them very delicate and some of great size. Many of these were mounted in spirit. Because of the difficulty of securing jars large enough and a sufficiency of spirit, some were prepared by the dry method. His original collection contained over 500 of this type. It was a tedious method, for the specimens had to be very carefully cleaned, and packed or distended with air; they were then painted with an arsenical preparation and hung up until dry. Finally they were carefully varnished and re-varnished, and as a rule mounted in jars to protect them. Specimens made in this way will often last for many years, and there are still some Hunterian preparations of this kind in good condition. Then there were the injected specimens—a method in which Hunter excelled and for which he left directions—but they do not appear to have conveyed the secret of the art to those who have tried to follow in his footsteps. Corrosion specimens were also used. A great many of the pathological preparations were in spirit, which meant a lot of work for their proper display and the fixing of the jar covers.

The dry bone specimens had all to be macerated or boiled—both slow processes—to get the best results. There were also the calculi, the plants, foreign bodies, and the fossils, of which Hunter left so large a collection.

A great deal of Hunter's work must have been done in artificial light provided by candles. Heating must have been a difficulty, for there was nothing but open grates, which would probably burn coal. Judging by my boyhood experiences in the North, it is highly probable that in winter some of the fires would never be allowed to go out—not only for the purpose of heating the house but because it was the only method of securing a ready supply of hot water from a kettle on the hob and of obtaining a light. Clift mentions that Hunter made spills from the scraps of letters on which he had previously made notes. Matches as we know them were not introduced until 1834, and if there was no fire it would be necessary to use a flint and steel with tinder-box to strike a light. Cold water may have been conveyed through pipes to a basin or sink in his workroom, for it is interesting to observe that among Hunter's belongings sold by auction after his death were two leaden cisterns. The question of the disposal of waste must have been rather troublesome, for there was no water-carriage system, and dry closets and cesspools for the convenience of so large a household would require frequent emptying. Fortunately soap was plentiful and cheap, but after a heavy day and an evening spent in an atmosphere rendered grimy by a succession of smoky candles, there was no hot bath for Hunter before he retired to bed in the early hours of the morning. For his literary work there were only quill pens, as shown in Reynolds's portrait. His handwriting is good and legible but occupies a considerable amount of space, and we know that during those very full evening hours he filled an enormous number of notebooks. During the latter years of his life he dictated a good deal to an amanuensis, but there is no evidence that any sort of shorthand was employed. The manuscripts which were taken away from the Castle Street house to suffer so sad a fate at the hands of his brother-in-law, Everard Home, were said to fill a coach. Fortunately for us a considerable number were not destroyed. Hunter's dissecting and other instruments were of good quality.

With what we should consider to be such inconveniences there were bright features, for Hunter was saved the tyranny of the telephone and long out-of-town journeys. Had he done nothing more than care for his museum, his pupils, his lectures, his writings, and supervise his amanuenses and artist he would have been very fully employed and would have accomplished a great deal of which he might be proud. But these were really only side-lines, for he conducted a very large practice. His professional work began immediately after breakfast, when he saw patients at home. It is said that those waiting were so numerous that they often invaded his wife's drawing-room. At a fixed hour he left home in his coach to make outside visits and for hospital practice, and he never delayed his departure even if persons of importance were still waiting to be seen. He did not return home until four o'clock, which was then the usual dinner hour; after dinner he commonly slept for an hour on a couch in what was called the afternoon bedroom. Then began what must have been some of the most strenuous work of the day—letter-writing, case-recording, the description of his dissections, and the task of laboriously turning out those literary works which eventually made for him a fame which has been lasting. In addition, for years he lectured at his own house every alternate evening from April to October. Can we assume that he was so intensely occupied and so absorbed in the practice of his profession that he found no time for affairs around him? No one could have been more single-minded or more absorbed in his pursuits. Assuredly he scorned delights, and certainly no one has ever lived more laborious days.

The Disaster and After

On the night of May 10, 1941, the College Museum was struck by a heavy high-explosive bomb and showered by incendiaries. As a result the greater part of the Museum and some parts of the College were destroyed, and about two-thirds of our collections vanished in the conflagration. The story of the measures which had been taken from 1938 onwards to guard against such a tragedy, the details of the disaster, and

the steps taken to salvage and care for what remained of our treasures has been admirably told by Prof. A. J. E. Cave, the Assistant Conservator, in the Scientific Reports of the College for 1939-40 and 1940-1. It is a sad chapter in College affairs, and has caused much regret and unhappiness to lovers of the great museum we so much treasured. Clearly our duty is to look to the future and to consider plans with ways and means for complete restoration.

The Future

The disaster has not only imposed a greater responsibility than ever before but has provided an opportunity of which it is necessary to make use. After some months of hard work the Museum Committee was able to present to Council a suggested plan for the restoration of the Museum, together with many ideas on future developments. The Museum will be reborn in circumstances different from those which existed when it first came into being over 130 years ago. Then there were no museums devoted to anatomy and pathology in this country, and only one or two London hospitals had a few preparations for the use of their pupils. Now all medical schools up and down the country have museums, some of them excellent, so that from the purely vocational aspects of medical education the country is well provided. But there is a large floating body of students in London, mostly Empire students not owing allegiance to any school in the Metropolis, who naturally look to the College for museum facilities and who must be catered for. Other museums, and notably the natural history collections at South Kensington, are now in a position to carry out many of the activities previously shouldered by the College in the field of zoology and natural history, and others may be expected to develop—for instance, in anthropology.

Broadly, the conclusions of the Museum Committee, accepted by Council and by the Hunterian trustees, are that the museum should be restored and built up around the surviving collections to illustrate the development, structure, and functions of man, together with the accidents and diseases to which he may be a victim, with such reference to the animal kingdom as may help to elucidate the problems involved. The part of our museum that earned us an international reputation was the physiological and comparative anatomy series. In any event that would be the part most difficult to replace and, alas! it has suffered severely. The restoration of the pathological sections will be much less perplexing. One of the first questions that had to be settled by the committee was how to dispose of the surviving Hunterian preparations. The first inclination was that they should be kept together as a precious relic and a memorial to the work of our founder. The idea of having a room set aside, as a sort of shrine, in which they might be exhibited together with any other Hunterian relics, was most attractive and made a strong sentimental appeal. But more mature reflection convinced us that this would not be in keeping with the Hunterian tradition, and that it would be much better to have them allocated each in its proper section of the general collection, where they might act as a leaven and a stimulus. No one would wish to claim that all the Hunterian preparations are now of great value; some have served their purpose, their usefulness having been superseded by advances since Hunter's day, and some are so deteriorated as to be of little but sentimental value. Others were classical and some unique, and some possibly guarded secrets of nature which up to the time of their destruction had not been divulged. Those most interested and best able to judge agree that, so far as possible, destroyed Hunterian specimens with a lesson to teach or recognized as classical or potentially valuable should be replaced. An idea very much in my mind is the suggestion that when the specimens can be safely returned to the College an exhibition of the whole surviving Hunterian collection should be set up in one of the rooms together with all the existing relics of Hunter that can be got together. This should be attractively set out according to the original plan, and should be on view for several months, so that those who are interested may have the rare privilege of seeing assembled together what remains of the collection. Photographic and other records should be made, and these would serve in years to come to interest those who had not enjoyed the opportunity of seeing such a unique exhibition.

Among many who have talked about the restoration of the museum there are not a few who dread that the new museum will be cluttered with animal skeletons. There are some who have no use for the wonders presented by the bony framework of the elephant, the giraffe, or the whale, and no veneration for extinct monsters like the Irish elk or the megatherium. They may be astonished to hear that it was never the policy of the College to collect such taxonomic exhibits, but those that came to us in various ways were not rejected. But if a skeleton or part of a skeleton, irrespective of its size, is necessary to display some feature in comparative anatomy or physiology which leads to the better comprehension of the structure and function of man, then let us hope it will be preserved and exhibited. The same general principle should apply to the soft parts of animals, however large or however minute. Just fancy the interest of comparing the oesophagus of the giraffe with its insignificant counterpart in man! Perchance the secret of achalasia may be disclosed in the study of its neuro-muscular mechanism. Then how truly awe-inspiring to be able to re-create Hunter's wonder when contemplating the enormous aorta of the whale. And what bearing may the structures of that great creature yet have on the understanding of some of the problems of aeronautics? It is the intention to keep the museum up to date as a collection by replacing deteriorated specimens and by constantly adding better ones as these become available. Only the very best obtainable should be found on our shelves. But there is another point, and that is the question of the history and after-history of the cases from which specimens have been obtained. Many a poor-looking specimen is valuable because of its clinical history, and many another grows in value as the long after-history of the case adds to its interest and importance. The renewal and follow-up department must be much more active than ever before. Personally, I would like to see the day when it would be a distinction to have specimens accepted by the College because of their excellence and the complete histories with which they were accompanied. Specimens should be accepted and retained only because of their value, and the days are long past when the distinction of the donor could claim precedence over the distinction of the gift. Special collections should be accepted only with the proviso that the specimens may be dispersed among the general collection if this is considered best in the interests of the museum.

Another idea I want to bring forward is the value of special but changing exhibits. The restored museum should possess a large demonstration room where special exhibits could be put up from time to time and kept on display for a month or more. A section on the anatomy of approach is somewhat of a new idea, and would be intended to display the anatomy of operative incisions. How often has the novice wondered exactly what are the structures encountered and to be divided or thrust aside in carrying out the exposure of the kidney, excision of the rectum, or the exposure of the Gasserian ganglion? For each operation a series of special dissections would have to be available and alternative routes of approach would have to be illustrated. I am convinced of the value of such a plan, and am most interested to find that it was employed by James Douglas, who died in 1742, and who is remembered by the peritoneal pouch to which his name is linked. The section of general pathology was of the greatest value, embodying as it did the very kernel of the Hunterian idea. This should be restored in its entirety, and there may be directions in which it could usefully be extended. The old museum contained the most remarkable collection of calculi—about 1,000 in number—of all sorts, which were classed mostly according to the parts of the body in which they were found. In the future museum, considerations of the formation of calculi—calculus disease—should provide a more thought-provoking section. Then there is the idea of group exhibits where the ravages of any one condition are shown together irrespective of the number of the regions of the body that may be involved. A medico-legal section is very badly needed, for there is none of any moment in a public museum, and it would seem a very proper activity for us to undertake. I was very much impressed with such a collection in Buenos Aires, in which most beautiful wax models were largely used to supplement the exhibits.

Gynaecology and obstetrics were always well represented in our museum, but the specimens might well be brought more in line with present-day knowledge. There is no branch of surgery which lends itself better to museum illustration, and there ought to be no difficulty in rebuilding our collections and in making them second to none. The odontological collection was fortunately spared. Under the devoted guidance of its honorary curator, Sir Frank Colyer, this branch of surgery, which originally owed so much to Hunter, was very worthily represented. Each of the special senses must have sections devoted to its exhibition, as in the past, but this must not prevent certain conditions being included in the section of general pathology or elsewhere if some principle can thereby be the better illustrated. In view of the well-directed activities of the Wellcome Foundation I think we might properly restrict our historical collection to relics of Hunter and his immediate associates. A large part of our surgical instrument collection has survived, and might well form the nucleus of an exhibit to illustrate their evolution and development. Sections for venereal disease, anaesthesia, blood transfusion, and wound treatment would appear to be necessary, and will certainly prove useful and interesting. A standard collection of the very best x-ray films should not be excluded from such a museum as we have in mind. The results of surgical intervention—i.e., the after-results of operations—should be fully illustrated, and might form an increasingly fascinating exhibit. Similarly the results of experimental surgery should be demonstrated by specimens. Of the thousands of experiments carried out, how little in the way of museum records is available. In other ways there should also be a closer association between the department of experimental surgery and our museum. Another good feature which must be continued and developed was the annual show of new specimens, always on exhibition in connexion with the Annual Meeting of Council in July.

In order that we may help serious workers to extend knowledge it will be necessary to have a large amount of store material, not merely tucked away, but easily accessible and properly catalogued or indexed. Facilities should be provided for its close examination, even if dissection is necessary. The use of such material could not be very open-handed, and only accredited workers who seriously wanted to obtain information which they could not get elsewhere should expect to be allowed such facilities. I also have in mind proper study rooms, where those engaged in a particular piece of work could keep their specimens and could work on them without necessarily having to reassemble their material each day. For some years there has been much talk of research in the profession, but this has usually been in terms of laboratory work and usually animal experiments. Many people forget how much research is waiting to be done in other directions, and there is certainly a great deal that might be carried out in any well-equipped museum. It is especially important that we should provide for the very many keen young surgeons who are working in and about London, and they should be encouraged to make use of the opportunities for study which our museum affords. We should aim at making our collections the most famous in the world, but we must not assume that other museums have stood still, and it is most important that we should have information as to what may be going on elsewhere, so that inquirers might be helped by direction to the proper quarter; for this and other purposes a museum bureau would be most useful.

Conclusion

Hunter's saying, "Why think; why not try the experiment?" has been handed down as a sort of tradition; but to look and see and to verify everything by observation is to carry out the same fundamental principle, which is so revealing that its recognition fully justifies the existence of our museum. Everything that we can learn about Hunter encourages the re-creation of the very best museum that can be assembled. We want it to be a Mecca for inquiring students from every part of the world. Its reconstruction will be slow; it must be patiently done, and it must be thorough. We must plod on and on till the task is well under way, knowing full well that it can never be completed. There is always the example of Hunter's driving force to encourage us, for "there were no drones in his hive."