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THE HUNTERIAN ERA: ITS INFLUENCE ON THE ART AND SCIENCE OF SURGERY*

BY

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In 1813 Dr. Matthew Baillie, a nephew of John Hunter, a distinguished physician and pioneer in the study of morbid anatomy, and Sir Everard Home (Hunter's brother-in-law), comparative anatomist and surgeon, executors, being desirous of showing a lasting mark of respect to the memory of the late John Hunter, inaugurated an oration to be called the Hunterian Oration, to be delivered in the theatre of the College on February 14, the birthday of John Hunter, or as near that date as possible, by the Master or one of the Governors for the time being, or a member of the Court of Assistants; such oration to be expressive of the merits in comparative anatomy, physiology, and surgery, not only of John Hunter but also of all such persons as should be from time to time deceased, whose labours have contributed to the improvement or extension of surgical science.

It will be agreed that the terms of reference, as enunciated by the founders of the Hunterian Oration, are wide, and the scope available to the orator considerable. Yet a study of John Hunter's writings and those of his contemporaries makes one realize the universality of this great man and his teaching—how much has been left unsaid and what inferences still remain to be drawn from his scientific researches. This is especially brought home to one after a study of various Hunterian Orations from the time of their inception in 1814, when the oration was delivered by Sir Everard Home, up to the present. The orator is thus enabled to glean inspiration from the researches of those who have previously held this post of honour. One is, however, left with a sense of frustration as to what unexplored fields of activity remain, and what further influence on the science and art of surgery can be brought to light, having its roots in the life and work of the great master, John Hunter.

John Hunter's Early Training and Character

It is a debatable point whether John Hunter was born on February 13 or 14, 1728. We in this College commemorate his birthday on the 14th.

Stephen Paget records that as a boy John Hunter was deficient in self-control—idle and ignorant; but he showed great neatness of hands and quickness of perception in anything mechanical, though he remained obstinately impenetrable to book-learning. The cultivation of the powers of observation was a great asset to Hunter. The seed was undoubtedly implanted in his mind during early childhood when he lived in the

family house of Long Calderwood, in Lanarkshire, with its farm and beautiful countryside. Instead of attending school he would play truant and spend time in the country imbibing the knowledge that Nature had to teach. To quote from an article on "Long Calderwood," written by Sir Arthur Porritt and published in the *Annals of the College*: "The interest of Long Calderwood to us of the Royal College of Surgeons of England lies in the fact that it provided the background for the first sixteen or seventeen years of John Hunter's life, and must have had a great formative effect on the future development of the genius of our patron saint." It is indeed good news to hear that, under the auspices of a Scottish Corporation, the property of Long Calderwood has been acquired for the purpose of its protection and maintenance as a "National Memorial."

Hunter the Man

As a man, John Hunter has been described as short, red-haired, pugnacious, but very kind; a natural philosopher seeking a clue to human ills by studying the comparative anatomy of animals, birds, and fishes. He was easily provoked and hated deceit. He was a craftsman of no mean order, having in his early days worked in a carpenter's shop under the direction of his sister's husband, Mr. Buchanan.

His work came first, much to the detriment of his wife and family, both socially and financially. Dr. Joseph Adams, in his *Life of John Hunter*, published in 1817, says: "John Hunter's countenance was open, and, though strongly impressed with thought, was by no means habitually severe, but softened into tenderness or sparkled with brilliancy, according to the impression on his mind."

Rudolf, in his address on "Hunteriana" delivered before the Hunterian Society in April, 1951, when referring to the character of John Hunter, said: "At home he was a model husband adored by his pupils and intimates, but to the outside world, a changed being, quarrelsome and disputatious."

His home in Leicester Square, where he spent his last days, was, it is supposed, the *mise en scène* for Robert Louis Stevenson's story *Dr. Jekyll and Mr. Hyde*. A suggestion of this dual personality is discernible in Hunter's character. Paget states that John Hunter was "emotional and impetuous—quickly moved to tears of sympathy, quickly ablaze with anger and fierce word."

One may compare the temporary anger of Hunter on occasions with his friend and pupil Edward Jenner,

*Shortened version of the Hunterian Oration delivered at the Royal College of Surgeons of England on February 13, 1953.

which was soon followed by a letter of apology and a reconciliation, or, again, "Hunter's violent anger just before he died at St. George's Hospital."

In spite of his temperamental nature, Hunter retained an abundant sense of humour, as instanced by some of the letters to his brother William. The following are abstracts of a few of these. One, written before 1780 :

Dear brother,

The bearer is very desirous of having your opinion. I do not know his case. He has no money, and you don't want any, so that you are well met.

Ever yours,

John Hunter.

In a letter written to William dated September 28, 1761, when on active service, he says : "My fellow creatures of the hospital are a damn'd disagreeable set." In

FIG. 1.—Sir Everard Home.

another, dated May 28, 1762, when on active service, he says : "I am obliged to be physician and everything else, and I think I do as well as the best of them." Another letter to Jenner dated January 29, 1789, in reply to one from Jenner asking Hunter to be a godfather to his child : "I wish you joy—it never rains but it pours. Sooner than the

brat should not be a Christian, I will stand as godfather, for I should be unhappy if the poor little thing should go to the devil because I would not stand as godfather. I hope that Mrs. Jenner is well and that you begin to look grave now you are a father."

The Royal College of Surgeons is fortunate in possessing many of John Hunter's original letters. They are written in a clear and legible hand, so different from the handwriting of the majority of medical men of the present era.

In studying the character of John Hunter, one is struck with the comprehensiveness of the man. With him, medicine was the same as all science connected with life. One discovers an earnestness, and a grasp of understanding of natural objects which is phenomenal. He had no time for any study of men's devices. With all his roughness of manner, John Hunter carried an honest independence. He never truckled for advancement nor sought favours, but was at all times more ready to give than to receive.

He had to wait a long time before practice came to him, but in due course his income reached a figure of six thousand guineas a year. A goodly income, but one which in his case went to the advancement of science—to the development of medicine and to the foundation of the incomparable treasures which now are in the possession of the College.

It is recorded that when Hunter's portrait was placed before Lavater, the physiognomist, after deep study he exclaimed : "That man thinks for himself."

Cline, in a Hunterian Oration, says : "Much as Hunter *did*, he thought still more. He often told Mrs. Cline that his delight was to think."

Abernethy, in his Hunterian Oration of 1819, says that Hunter was "profoundly contemplative, his mind had not been taught to act in imitation of others ; he disliked to read as much as he liked to think."

Travers wrote : "He was capable of large and comprehensive views of natural phenomena, and endowed with a microscopical faculty of seizing and analysing constituent parts and bearings."

We cannot be reminded too often that the really great men are not the great experimenters, nor the great observers, nor the great readers, nor the great scholars, but the great thinkers. Thought is the creator of all human affairs. Actions, facts, and external manifestations of every kind may triumph for a while, but it is the progress of ideas which ultimately determines the progress of the world.

The Influence of Mrs. Hunter on Her Husband's Work and Social Status

It is axiomatic that a wife may either make or mar her husband's career. Many of our most eminent medical men owe advancement in the science and art of their profession to a co-operative and understanding wife. In 1771 John Hunter married Anne Home, the daughter of an Army surgeon. She was 29 and he was 43 years old. She was a very accomplished and charming lady intellectually, and a great social asset. The marriage was not quite in accord with his bachelor brother William's views. For William, a wife who had no dowry was to his mind a pure mistake for a poor man, however great might be her beauty and her ability to lead and shine in society. But John Hunter had good taste. He was by nature an artist and loved pictures above everything ; how then could he fail to desire that the choicest picture in his house should be the most lovely ?

She was a good wife—devoted to her husband and fond of gay society, a taste which occasionally interfered with her husband's more philosophical pursuits. He was so wrapped up in his work that she must have had a lonely time, and must have been thrown much on her own resources. They lived first in Jermyn Street, in a house which his brother William had recently vacated. Later on they moved to a house at the north-east side of Leicester Square, where the Odeon Theatre now stands. Here Mrs. Hunter held her parties, which included many celebrities of the day.

Hogarth was a neighbour ; Sir Joshua Reynolds lived in the precincts, as also Haydn during his first visit to London in 1782. Mrs. Hunter had many friends, among whom were Mrs. Thrale ; Elizabeth Montagu, who was one of the original "blue-stockings" ; and Fanny Burney, the novelist and authoress. Fanny Burney's first and best novel was *Evelina*, published in 1778. Samuel Johnson was her friend and admirer. It is said that Burke sat up all night to read *Evelina*, and that Reynolds would not touch his food until he had reached the end.

The management of the house in Jermyn Street must have often taxed the patience of Mrs. Hunter. Her husband invaded the rooms with his specimens, and the place became a veritable natural history museum. On one occasion Hunter was given a giraffe, and as he could find no room to contain it he cut off its legs and fixed it in the passage. Anne Hunter must have had an anxious time with a young family and husband who would not take care of himself—with patients coming and going, rooms filled with specimens and artists drawing them ; also resident pupils. Holidays were spent in the country at Earl's Court. Hunter's "country" box, as he called it, at Earl's Court was a pleasant hour's drive from his home in Leicester Fields. The house stood in its own grounds with a meadow behind it.

Mrs. Hunter made the house beautiful, decorating it partly in the Egyptian style, then a prevailing fashion. The ceiling of the drawing-room was richly ornamented with strange birds, which her husband must have laughed at but never dared to classify. For Hunter the gardens were "zoological gardens" containing both wild and tame beasts: gardens in which he rambled at night studying the ways and manners of the varied forms of life in every detail. In spite of the temperamental nature of her husband, the marriage was a happy one, largely due to the patience and good temper of Anne. Dr. Joseph Adams, in his *Life of John Hunter* published in 1817, says: "Hunter had the highest of all human gratifications in the wife of his choice, suited to be his companion, and admirably fitted for, because always accustomed to the elevated rank which her husband had attained."

During his visit to London Haydn composed "The Six Canzonettas for the Voice," for which Mrs. Hunter wrote the libretto, and dedicated them to her. Among her verses is the charming song, "My Mother Bids me Bind my Hair," which lives for ever in the setting Haydn gave it. She also wrote the words of Haydn's *Creation*.

FIG. 2.—Mrs. Hunter.

In a letter to James Baillie, his brother-in-law, dated November 25, 1775, Hunter says: "As to myself, with respect to my family, I can only say that I am happy in a Wife, but my children are too young

to form any judgment of them. I am not anxious about my children, but in their doing well in the world. I would rather make them feel one moral virtue than read Libraries of all the dead and living languages. You know I am no scholar, therefore do not feel the beauty of language."

John Hunter died in 1793, in poverty, having spent all his income in the development of his museum. His wife lived in penury until the museum was purchased by the Government in 1799, six years after his death. Mrs. Hunter was a widow for 29 years and died in 1821 at the age of 79. She kept her wit and beauty to the end of her days.

The Hunterian Orator of 1821 paid this compliment to her memory: "She had sustained an honourable widowhood, estimable for talents of her own and venerable as the relic of an illustrious husband."

The Hunterian Era

John Hunter lived and practised his art at a remarkable period in the history of England. He came to London in 1748. William Pitt was guiding the destinies of England. Burke came to London soon after Hunter, to study law, but subsequently turned his attention to politics and literature.

This was also the age of the Arts: Gainsborough, Reynolds, and the portrait painters; of Garrick and the stage. It was also an age which included Chippendale and the Adam brothers. It laid the foundations of modern science and modern medicine, in which John Hunter played a notable part.

The eighteenth century marked an era of religious and social reform, due in part to the influence of such men as John Wesley, William Wilberforce, renowned for his great

work in the abolition of slavery, and the philanthropist John Howard, especially famous for his labours to secure prison reform.

John Hunter must have been acquainted with all sections of the population of London, both fashionable and otherwise. The body-snatchers sold him bodies for dissection, and the poor thronged the newly founded hospitals. Consumption and fevers of all kinds were rife, especially gaol fever. The Hunterian era marked a period of much-needed improvement in London's sanitation.

At the beginning of the eighteenth century there were only four important hospitals in London: St. Bartholomew's, St. Thomas's, Bethlem, and the Chelsea Hospital for invalid soldiers. By the time Hunter arrived in London five more general hospitals had been founded: Westminster, Guy's, St. George's, the London, and the Middlesex—all within a few years of each other.

The eighteenth century was an age of indifference to infant life. Children often died abandoned in garrets and in the street. Those left to the care of the Poor Law and parish did not long survive the exigencies of treatment. Thanks to the prolonged agitation of a certain Captain Coram for an institution for the care of these unfortunate children, a Charter was obtained from George II. With the help of Handel, Hogarth, and others, Coram witnessed the fruition of his labours, and in 1745 the Foundling Hospital came into being.

The Influence of John Hunter's Associates and Friends

Sampson Handley in his Oration of 1939 showed how "Hunter's mind, in spite of a very superficial education, was developed by his association with great men of his period, such as his brother William, Cheselden, etc." But other factors were at work in addition to those especially related to the science of medicine. I refer to his contemporary associates in other fields, such as art, music, literature, and drama, all of which must have acted as a stimulus to general knowledge and mental alertness. Time will only permit reference to a few of those whose names are household words:

David Garrick, a famous actor and playwright—friend and pupil of Samuel Johnson. Garrick came to London with Dr. Johnson about 1737. He studied at Lincoln's Inn and also set up in the "wine trade" with his brother for a time, but soon gave up both these activities for the stage. It is worthy of note that in 1769 the Town Hall at Stratford-on-Avon was dedicated by Garrick to the memory of Shakespeare.

Samuel Johnson, author, who acquired a position in literary and artistic circles that has rewarded the efforts of no other man. He was the acknowledged dictator of the Literary Club, founded in 1763 by himself and Sir Joshua Reynolds, and numbering among its limited membership Burke, Boswell, Garrick, Gibbon, Fox, Sheridan, Goldsmith, and others. Boswell's *Life of Johnson*, long accepted as the greatest portrait ever written, was published in 1791.

Richard Brinsley Sheridan, dramatist and politician. He was considered a dunce by his mother at the age of 7. He had an indifferent record at Harrow and cared nothing for scholastic honours. In this respect the background is similar to that of John Hunter in his early days.

Handel, who numbered Pope, Fielding, and Hogarth among his closest friends. The year 1742 witnessed the production in Dublin of that great oratorio the *Messiah*.

All these men and many others were friends and acquaintances of John Hunter and must have had a salutary influence on his line of thought and intellectual make-up, and indirectly in the development of the science and art of surgery.

Hogarth was a neighbour of John Hunter when he resided in Leicester Square. From 1749 to 1764 Hogarth lived at Chiswick, and a mulberry tree grew in his garden. It was his custom to gather local children around him under the tree and feed them with his fruit. The house and tree were badly damaged by enemy action in 1940. The tree had recently fruited for the first time after a number of years. At the reopening of the former house of this great painter at the

beginning of 1952, a small pie, made from the fruit of Hogarth's mulberry tree, now 300 to 400 years old, was given to each guest.

Hunter as Writer and Lecturer

Hunter has been portrayed as "extremely industrious but a poor lecturer, and never had many pupils." As a lecturer, he stressed the advantages derived by a man of putting his thoughts in writing. He resembles, he said, "a tradesman taking stock, without which he never knows either what he possesses or in what he is deficient." A consciousness of the difficulty in making himself understood might have been among the motives for writing his lectures. Convinced of this difficulty in making others understand what appeared simple to himself, he encouraged conversations with his hearers after each lecture, in order to ascertain that his remarks had been clearly expressed. Hunter always professed his lectures to be on "Practical Surgery, with so much physiology as was necessary to render them perspicuous."

Hunter was not a prolific writer. His first appearance as the author of a comprehensive work was comparatively late in life, in 1771, when he was 43 years of age. In this year he published a "Treatise on the Teeth"—a treatise, it has been said, that was forced out of him in order to defray from its sale the expense of his impending marriage. He wrote a number of medical essays. His "Treatise on the Blood, Inflammation, and Gun-shot Wounds," a work dedicated to the King, was his last, and considered by some the greatest of all the Hunterian works.

In a study of Hunter's writings it is often difficult to grasp his line of thought completely. He observed so many things, held such breadth of view, and tried to compress so much into so little, that even had he possessed the necessary skill in exposition he would have been hard to follow. It is, I think, honest to say that, easily as he acquired knowledge from nature, he was according to ordinary ideas an illiterate man. He read from nature and took no time to read from any other source. The principal monument of Hunter's life was his Museum, so aptly described by Professor Wood Jones as "John Hunter's Unwritten Book." He sought truth fearlessly and the search cost him his life. He taught it as he saw it—earnestly, simply, and directly. His influence on medicine and natural science was far-reaching. Ottley, in his *Life of Hunter*, says: "In his writings we occasionally find an obscurity in the expression of his thought, a want of logical accuracy in his reasonings, and an incorrectness in his language, resulting from a deficient education." John Hunter was a poor lecturer and a man of few words. His power of imparting knowledge was chiefly by means of dissections and specimens, but also by sketches. He maintained a resident artist, who was kept busy making drawings of specimens. William Bell was the artist for fourteen years, and William Clift followed him and remained with Hunter to the end.

Hunter as Observer

As an original investigator, Hunter was one of the most laborious and comprehensive of his period. With regard to experimental work, it must be admitted that many of his experiments were rough, and some inconclusive ones led to incorrect inferences, as, for example, in his argument that the "veins do not absorb." But when he came to anatomy, to the broad outlines of natural history, or to the comprehensive grasp of vital phenomena, he had few equals.

As an instance of John Hunter's powers of observation I would mention the Hunterian specimen, in the Museum, of the "head of a chick at the close of incubation," showing the "shell-breaking knob on the top of the upper mandible." To be accurate, the specimen is that of a gosling. After fulfilling its function of breaking the shell of the egg the knob disappears.

A most interesting account of this "Hunterian Specimen and its Problem" was written by Sir Arthur Keith and published in the *Annals* of the College. He drew attention

to the fact that John Hunter was the first English observer to take notice of the horny knob of the chick. Nowhere does John Hunter himself claim this priority.

Hunter was in the habit of enunciating "general principles" and then making his facts fit into the framework. Coming to England he passed 40 years in the heart of the most empirical nation in Europe; a nation abhorring all general principles and proclaiming the superiority of facts and ideas. During his long residence in England he was acted on by two conflicting forces: The country of his birth made him "deductive"; the country of his adoption made him "inductive."

As a Scot, he preferred reasoning from general principles to particular facts; as an inhabitant of England, he became inured to the opposite plan of reasoning from particular facts to general

principles. No doubt one of the reasons why Hunter in investigating a subject is often obscure is that on occasion his mind was divided between these two hostile methods. The conflict darkened his understanding.

FIG. 3.—Drawing of a specimen prepared by Hunter to show the shell-breaking horny knob on the beak of a newly hatched gosling. By Professor F. Wood Jones. (Hunter's specimen 3456, No. 5, "Young Gosling.")

Hunter as Surgeon

In *Buckle's History of Civilization*, 1878, it is recorded that Hunter introduced what is probably the most capital improvement in surgery ever effected by a single man—namely, the practice in aneurysm of tying the artery at a distance from the seat of disease—thus saving numerous lives. Before the time of Hunter the operation was performed by cutting into the sac of the aneurysm and tying the vessel above and below. So formidable was this proceeding in its consequences that amputation of the limb was frequently performed as a less dangerous and fatal measure.

As a surgeon, Hunter was a careful if not a brilliant operator; a surgeon who looked upon an operation as the opprobrium of surgery but who did his work well when called upon by necessity. His diagnosis was good for its day, and his observation of phenomena of disease acute. His practical skill was extolled by his former pupil, Astley Cooper. In Brock's recent masterly publication *The Life and Work of Astley Cooper* one realizes the similarity of outlook of master and pupil.

Hunter and the Hunterian tradition were the great inspirations of Astley Cooper's life and work. Hunter, like Astley Cooper, realized the importance of a proper relation between medicine and surgery. Before Hunter's time surgery was held to have but little connexion with medicine.

John Hunter's influence on the development of the science and art of surgery was in the main the natural sequence of his study of the basic sciences of anatomy and physiology, both in health and in disease. His meticulous researches in the realm of morbid anatomy constituted the foundation stone on which he established his *Surgical Principles*. Although the name of John Hunter may not be immortalized as that of a great surgeon, nevertheless he was a great exponent of the art of acquiring knowledge by observation, experiment, and research, without which any advance in surgical procedure is stultified.

Sir Henry Souttar, in his fascinating review of the recently published German book, *Masters of Surgery*, by Professor H. Killian and G. Krämer, lays stress on the brilliant description given of John Hunter as "one whose genius lay in observation and in the elimination of the immature and unscientific; who never wandered in speculation, and whose

whole train of thought was built upon experience." If John Hunter was not a great surgeon he nevertheless was a talented exponent of those sciences which are essential to a sound knowledge of surgical principles and to the making of a surgeon.

Hunter as Pathologist and Museum Builder

Pathology was the science to which Hunter was most devoted. For him pathology was the basis of diagnosis and treatment. His experiments on the healing of wounds are well illustrated in the Hunterian Collection in the Museum of this College. He was a pioneer of the science and art of grafting and transplantation of tissues. His classical and successful experiment of grafting a cock's spur on to its comb is well known. This specimen is preserved in that Collection. He was also interested, and up to a point successful, in the transplantation of human teeth. He wished to study the comparative "growth powers" of different structures and of different situations, since he believed that this had a bearing on disease processes.

Professor Wood Jones, in an address delivered at St. George's Hospital with the title of "John Hunter's Unwritten Book," says: "The collection of specimens constituting the Hunterian Museum is one of the most remarkable monuments that any man has ever raised to perpetuate his memory. His Museum was the medium by which Hunter sought to express those great principles of life which he so profoundly understood, but which neither by speech nor by writing could he make clear to his contemporaries."

Wood Jones emphasizes the fact that John Hunter recognized that, in order to make satisfactory progress in the study of biology, function and structure must be integral parts of such study, and not divorced from each other. This was also in accord with the precepts enunciated and practised by Leonardo, who was designated by William Hunter as the first anatomist of his time.

The Museum

At the time of Hunter's death Cliff was custodian of his Museum. The Government offered the executors £15,000 for the whole collection. This was voted by the

House in 1799 and was accepted. At this time the collection was still housed at Hunter's residence in Castle Street. The lease of this house came to an end in 1806, when the collection was placed in the custody of the Incorporation of Surgeons—soon to become the Royal College of Surgeons of London and later of England—and was moved to a house in Lincoln's Inn Fields belonging to the College.

It was largely due to the good offices of William Eden,

FIG. 4.—Samuel George Shattock.

later to become the first Baron Auckland, a distinguished politician and friend of the Hunters, that after many disappointments the purchase of the Hunterian Collection for the nation was successfully negotiated. He also obtained a government grant for Mrs. Hunter during the first two years of her widowhood. Cliff was the first to be appointed Conservator of the Hunterian Collection. He was suc-

ceeded by his son-in-law, Richard Owen. Great advances were made under Owen's direction and subsequently. It remained for Sir Arthur Keith, anthropologist and comparative anatomist, to bring the augmented Hunterian Collection to its zenith as the most important of its kind in existence. Trustees were appointed to guard the Hunterian Collection. These have in succession carried on the good work and have co-operated with the Council of the College in the care of the specimens.

Amongst the events which have shaped the design and destiny of the Museum of the College, one of the most important was the engagement of James Paget, in the beginning of 1842, to prepare a catalogue of its pathological collection. An event of equal if not greater moment was the appointment of Samuel George Shattock to the office of Pathological Curator in 1897. The office was then comparatively new. In 1881, while Sir James Paget, assisted by Sir James Goodhart and Mr. Alban Doran, was preparing a second edition of the Pathological Catalogue, the Council decided to appoint a special officer to take charge of the pathological collection. The first occupant of the post was Sir Frederick Eve, then a young surgeon with a special knowledge of tumours. He was succeeded in 1890 by Mr. James Targett, a young gynaecological surgeon with a knowledge of pathological processes. To this office Mr. Shattock was appointed in 1897 as a successor to Targett. He was then 45 years of age, and in the plenitude of his powers.

Hunterian Pictures in the Museum Collection of the College

Certain pictures in the Museum of the College were part of the original Hunterian Collection and illustrate subjects in which Hunter was especially interested. William Bell and John André were accomplished artists, and most of the original drawings in the Hunterian Collection are by them. Several were painted for John Hunter by Zoffany, William Hodges, Stubbs, Robert Home (Hunter's brother-in-law), and William Cheselden. Amongst the collection is a drawing of William Hunter's dissecting-room by Rowlandson.

A number of the pictures have been reconditioned, thanks to the good offices of Geoffrey Keynes, who is "Curator of Portraits and Works of Art" of the College. The beneficial effect of such restorative processes is well shown in some of the famous paintings by Stubbs in the possession of the College, and which were exhibited in the Stubbs Collection at Liverpool in 1951.

The contemporary science of art in Hunter's time, of which he was no mean exponent, must have influenced his surgery and surgical technique. John Hunter showed his artistic temperament by making beautiful dissections.

Medical Societies

John Hunter was a source of inspiration in connexion with metropolitan medical societies. In 1783, together with Dr. George Fordyce, he founded the Society for the Improvement of Medical and Chirurgical Knowledge. The membership was originally nine, with provision for expansion to twelve. It soon became a dining-club, and was dissolved in 1818.

In 1785 the Lyceum Medicum Londinense was started under the patronage of John Hunter and George Fordyce. It met in Hunter's lecture-room in Castle Street, Leicester Square. There were 350 members. In 1809 its members were transferred to the Westminster Medical Society.

Fordyce wrote a *Treatise on the Digestion of Food*, and was remarkable for his practice of having one meal only in the day, at 4 p.m., but this was gargantuan, and went on for an hour and a half. It included a pound and a half of rump steak, a *bonne-bouche* such as half a boiled chicken or a plate of fish, a tankard of strong ale, a quarter of a pint of brandy, and a bottle of port. It is hardly surprising that he suffered from gout. Fond of society, he would dispense with sleep, and sometimes lectured for three consecutive hours without having undressed on the previous night.

In the latter part of the eighteenth century it was customary for medical consultants to visit coffee houses, such as the famous "Saracen's Head," in order to write prescriptions, at half a guinea or a guinea a time, for apothecaries who described the symptoms of their patients—a somewhat dubious and risky business, but a common and profitable practice among the more noted consultants of the faculty.

Activities of the College

Many of the activities of this College have their roots in the soil prepared by John Hunter and are products of the Hunterian era. First the Museum, the history and functions of which were so clearly enunciated by Professor Grey Turner in his Hunterian Oration of 1945, in which he showed the steps by which the Hunterian Collection grew into the Museum of the College. The name of George Grey Turner is held in esteem and affection by our College. Surely the mantle of Hunter fell on the shoulders of Grey Turner, who was a true disciple of that great man and a worthy exponent of the Hunterian tradition and all that it stands for.

With the growth and rehabilitation of our Museum after its war injuries, it is hoped that the underlying principles of Hunter's teaching will be fostered and the Hunterian tradition of experiment and research maintained.

This is an age of "ideology," but the practical application is not always easy to attain. The "Graphic Museum" in Khartoum is a modern concept of John Hunter's principles of imparting knowledge by a study of all aspects of disease—anatomical, physiological, and pathological. This is achieved by an orderly series of photographs, drawings, and specimens grouped together. It is possible, by spending an hour or so in a small division or alcove of the Graphic Museum, to obtain a shrewd insight into the aetiology, clinical manifestations, complications, morbid anatomy, and treatment of the particular disease in question. After a visit to that Museum one is struck with the possibilities, in any Museum, of such a comprehensive method of instruction.

Research

In 1931 Sir Buckston Browne, one of the greatest benefactors in the history of the College, presented the College with an "Institution of Surgical Biological Research" in a building adjoining the grounds of Downe House, Kent. In a letter to the Council of the College Sir Buckston said: "We all know that John Hunter had a farm at Earl's Court, where, from close observation of living animals, he was able to make his most important additions to surgical knowledge. It is such a farm that I wish the Royal College of Surgeons to accept." The farm is under the able directorship of Sir Arthur Keith, who has been Master of the Research Farm since its inception. The Hunterian tradition of experiment and research has thus been rendered a practical proposition, with notable advances in physiology, technique, and elaboration of surgical principles. It is of historical interest to recall that in 1928 Sir Buckston (then Mr. Buckston Browne) purchased Darwin's home at Downe, and conveyed the entire property to the British Association for the Advancement of Science, to be maintained for all time as a memorial to Darwin.

Hunter had wide vision as regards scientific problems. He could foresee a study of the basic sciences of anatomy, comparative anatomy, and physiology, and their practical application, taken in conjunction with that of morbid anatomy or pathology, culminating in a sound knowledge of the art and science of surgery.

This College has proved its adherence to the Hunterian precept of education in the basic sciences by the inauguration of an Institute of Basic Medical Sciences. By this means co-ordination with the University of London has been effected. Thus the Institute is at the same time both a Faculty of the College and an Institute of the British Postgraduate Medical Federation. The Institute of Basic

Medical Sciences is responsible for the teaching of anatomy, applied physiology, and pathology in the College under the able guidance of the Dean, Professor Geoffrey Hadfield. Arrangements are being made to form a department of pharmacology, which will also be administered by the Institute.

One of the more recent activities of the College is the institution of a Clinico-Pathological Research Unit in connexion with the Imperial Cancer Research Fund. The Fund, which is a worthy exponent of the Hunterian tradition of experiment and research, celebrated its jubilee last year.

In 1951 the Council of the College, in their wisdom, initiated a Clinico-Pathological Research Unit, with a view to correlating both the clinical and pathological aspects of research. The new department, established in the precincts of the College, is working in conjunction with experimental research carried out at the Fund's laboratories at Mill Hill. The institution of the Clinico-Pathological Unit is in accordance with Hunterian precepts, and marks a milestone in scientific procedure.

An Academy of Medicine

Sir Max Page, in his Hunterian Oration of 1951, envisaged the formation of an "Academy of Medicine." Previous Orators, notably Victor Bonney, have laid stress on the advantages which might accrue from the integration in one corporate body of the various specialties into which medicine of to-day is breaking up. Such an ideality is ever present in the minds of men of vision. There may be difficulties in bringing this Utopian project to fruition, but the formation of an Academy of Medicine or Mecca of Medical Science in London, by cohesion of the three Royal Colleges, together with their Associated Faculties, and under one roof, is an ideal worth striving for. To my mind such a scientific combination would be for the benefit of each and all concerned, as also of medicine in general. Some members of the profession may be sceptical and inquire, "How do you know that such a symbiosis of the Royal Colleges would advance the science and art of medicine?" I feel sure that if John Hunter were living at the present time he would have a ready answer to this query—namely, "Why not try the experiment?"

Hunter's Death and Commemoration Service

John Hunter at the time of his death was in his 65th year, the same age at which his brother William died. Such was the end of two brothers who, in their own Museums, erected their own monuments. Both arrived in London with no capital but genius, industry, and integrity. Each arrived nearly at the same age, finished his career in the same time, and each in the arena of his own labours: William struck with approaches of death in his own theatre, and in his expiring moments anxious to return that he might communicate a physiological fact he never could ascertain till then—namely, "How pleasant a thing it is to die"; John expiring on the spot. To set the time of John Hunter's death by the course of history Clift wrote this title on his account-book:

John Hunter, Esq., F.R.S.,
Surgeon-General to the Army and
Inspector-General of Hospitals.
Surgeon to St. George's Hospital.
Surgeon-Extraordinary to the King.
etc. etc. etc.
Died October 16th 1793.

On the same day, and perhaps hour, the unfortunate Marie Antoinette, Queen of France, was beheaded in Paris.

John Hunter was buried in St. Martin-in-the-Fields Church. In 1859, when the coffins in the vaults of St. Martin's were moved for reinterment, Frank Buckland, a Member of this College, undertook the task of finding Hunter's body. He began on January 26, and searched for 16 days, by which time he had viewed 3,060 coffins; then he found it, when only three still remained for him to examine.

On March 28, 1859—that is 66 years after Hunter's death—his remains were reinterred in the north aisle of Westminster Abbey. A brass tablet in the stone floor of the nave of the Abbey, placed there by the Royal College of Surgeons of England, records the admiration of the College for :

"His genius as a gifted interpreter of the Divine Power and Wisdom at work in the laws of Organic Life, and their grateful veneration for his services to mankind as the Founder of Scientific Surgery."

The statue of John Hunter in the Museum of the College was erected by subscription on the occasion when John Hunter's remains were transferred to Westminster Abbey, in 1859. The statue is the work of Weeks, and is a copy in marble of the celebrated picture of John Hunter by Sir Joshua Reynolds in the Council Room of the College.

On February 14, 1952, Hunter's birthday, a service was held at St. Martin-in-the-Fields to commemorate the fact that John Hunter was buried in the church until 1859, when his remains were removed to Westminster Abbey. The service was conducted by the Dean of Westminster; the lesson read by the President of the Royal College of Surgeons, Sir Cecil Wakeley; and an address given by Sir Gordon Gordon-Taylor. A plaque was set up in the crypt, and was unveiled by Sir Henry Dale, a Hunterian Trustee. The plaque, besides recording the facts of Hunter's interment and reinterment, commemorates the name of Frank Buckland, the discoverer of the Hunter coffin. As Sir Gordon Gordon-Taylor remarked in his address: "It was owing to the zeal and enthusiasm of the late George Grey Turner that the project to place the plaque in the church had come to fruition."

On the front page of a brochure which deals with the restoration and development of the Royal College of Surgeons of England, the following lines appear: "All through the ages a golden truth is blazoned; the path of Progress is by Experiment, Research, and Trial." Surely here is the essence of the Hunterian tradition, of which the Royal College of Surgeons of England is the custodian.

TREATMENT OF PATIENTS WITH MYELOSCLEROSIS

BY

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Unless new bone formation in the marrow spaces has occurred (osteosclerosis), which can be detected by x-ray examination, the presence of fibrosis of the bone marrow can be proved in life only by biopsy of a bone in which red marrow is normally present. Needle puncture of the sternum and other bones is not a reliable method of detecting the presence of fibrosis. Bone-marrow cells are usually present among the fibrous tissue or in spaces lined by endothelium in the fibrous tissue, and the fibrosis may be patchy, and an active portion of bone marrow may be encountered. When the fibrosis is very dense, however, few bone-marrow cells may be present.

The object of this paper is to draw attention to the good results which may be obtained by x-ray treatment in certain cases, results comparable to those obtained in treating typical cases of chronic myeloid leukaemia (chronic leukaemic myelosis). Some recent writers, assuming that the enlargement of the spleen is a compensatory process to replace the fibrous bone marrow, have stated that x-ray treatment is harmful (Levinson and Limarzi, 1947; Paolino, 1949; Wyatt and Sommers, 1950).

Rarely patients with myelosclerosis may have the changes in the circulating blood of polycythaemia (Hirsch, 1935; Vaughan and Harrison, 1939; Sussman, 1947; Marson and Meynell, 1949, 1952) or of myeloid leukaemia (Heuck, 1879; Rosenthal and Erf, 1943; Sussman, 1947), but more commonly the changes are those of anaemia. Rarely the patient may die, within a few months from the first symptoms, of severe anaemia, with haemorrhages into the skin and from mucous membranes, presenting a clinical picture like that of acute or subacute leukaemia (Assmann, 1907; Mozer, 1927; Wood and Andrews, 1949). But most patients with myelosclerosis have splenomegaly, slight or no anaemia, with an increase in circulating leucocytes of varying degree and varying proportions of immature leucocytes and nucleated red cells. The enlargement of the spleen is due to myeloid metaplasia, usually involving granulocytes, nucleated red cells, and megakaryocytes. The megakaryocytes are often the most prominent cells in the myeloid metaplasia, partly because of their size and the ease with which they are recognized ("megakaryocytic myelosis").

When severe anaemia is present blood transfusion is the best treatment, and some patients have been kept alive for many years by repeated transfusions (Collins, Sanger, Allen, and Race, 1950). Some patients, however, do not respond to blood transfusions, and these may die of severe anaemia after a short illness. The anaemia does not respond to iron by mouth, or to liver extract by mouth or by injection. But most patients with myelosclerosis live a long time, and in these spontaneous remissions from anaemia may occur, and even polycythaemia may develop (Windholz and Foster, 1947; Hutt and Richardson, 1950).

The patients with myelosclerosis who have either no anaemia or only slight anaemia usually seek advice because of symptoms due to the large spleen. They may, however, have severe gastro-intestinal haemorrhages and large haemorrhages into the tissues, usually have cramps in the legs at night, and may have attacks of gout. Many of these patients ultimately die of severe anaemia, after a long period, but some never develop anaemia throughout and die of weakness and wasting or heart failure.

It is those patients with a high leucocytosis and a high proportion of immature cells in the circulating blood who respond well to x-ray treatment, regardless of the degree of myelosclerosis.

In many of these patients the main trouble is abdominal discomfort due to the large spleen; the general health of the patient may be unaffected, and he may be able to lead an active life consistent with his age. In such cases no treatment should be given except for encouragement to bear with the abdominal symptoms, some relief from which may be given by an abdominal supporting belt. Later on symptoms of general ill-health may occur, such as tiredness, weakness, and, later still, wasting. The first course of x-ray treatment produces the best result, and should be postponed until either severe abdominal symptoms or general symptoms of ill-health occur. This may produce a very good result, the abdominal symptoms diminishing or disappearing as the spleen decreases in size—weakness, tiredness, and cramps in the legs disappearing, and the patient being enabled to lead an active life again. This result is accompanied by a decrease in the numbers of the circulating leucocytes and of the immature leucocytes and nucleated red cells, and a decrease in numbers