The Hunterian Oration, 1875 / by F. Le Gros Clark.

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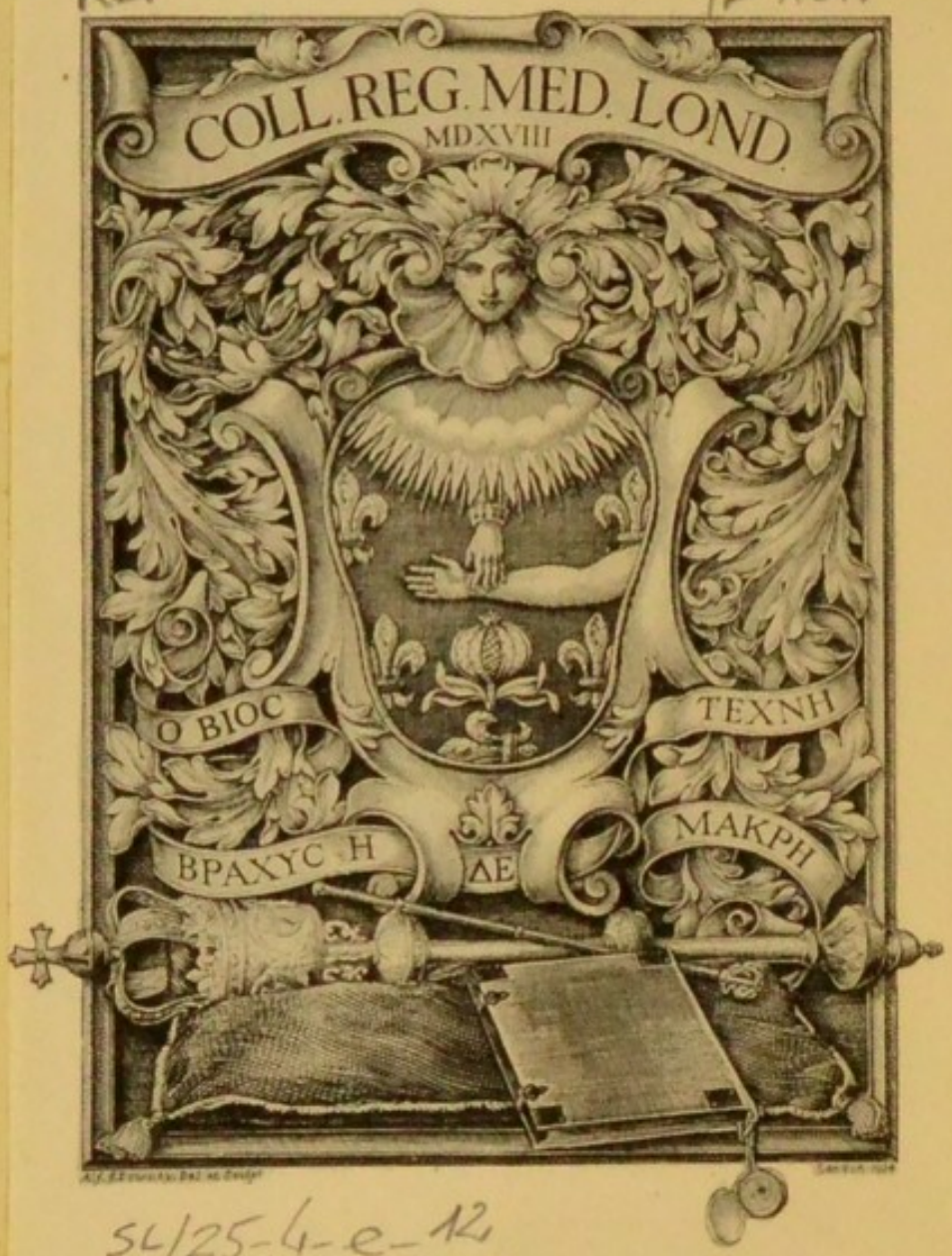

Arthur Farre Esq. M.D. F.R.S.
with Kind regards.

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HUNTERIAN ORATION

1875.

BY

FREDERICK LE GROS CLARK, F.R.S.,

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1875.

Mr. Vice-President and Gentlemen,—

It has been my lot, in common with many whom I have now the privilege of addressing, to be present on several occasions when this Oration has been delivered in honour of the great founder of our Museum. Yet, even on this the forty-seventh commemoration, I feel it would be unbecoming to deprecate criticism by pleading lack of novelty, or exhaustion of materials for the task; for the achievements of such men as John Hunter have no defined limit. His master-mind has communicated in various ways a new direction and impulse to investigation, thus influencing, immediately or imperceptibly, the development of the sciences he cultivated; and that influence is still felt and acknowledged, and it will yet endure long after the direct association between the originator of the work and its ever-expanding results shall have been obscured or forgotten in the lapse of time.

Many of these addresses possess a peculiar interest of their own, apart from the subject of them, which I cannot hope to impart to mine; for they have been composed and spoken by men on whom the mantle of Hunter has fallen not unworthily; and in them we recognise the reflection of many of his special characteristics in refined and accomplished minds, and an epitome, as it were, of the views and purposes of their authors in the cultivation of our profession.

More than one generation has passed away since Hunter

lived, and there are but few, I suppose, who are my juniors, who can recall the aged face, beaming with intelligence and kindness, of our first Conservator. It is difficult to dissociate Mr. Clift from this theatre, and especially from this occasion, which was one of peculiar interest to him, who was, at the time to which I refer, the only remaining representative of the master whom he had served in his youth with single-hearted devotion—a veritable link with the great man, whose memory and everything pertaining to him he regarded with the fondest reverence. And in his track follows a succession of illustrious names, identified with the progressive moulding and fashioning of the rude chirurgery of former times into the present relative perfection of modern scientific surgery.

This contemplation of the past, which seems so naturally to present itself on this occasion, is one which evokes very mingled feelings; for so many are already gone, passing away, one by one, from this busy scene. The familiar face is no longer present save to the eye of memory; the voice which gave utterance to words of fervent eloquence is hushed; the tutored intellect and skilled hand are both at rest; but their example, their teaching, remain as an heir-loom to future generations.

Blending, perhaps unbidden, with this retrospect comes the consciousness that our turn must soon arrive, to quit the stage on which we now move and perform our allotted task, and be numbered with those whose memory is cherished and revered by few or many, as the responsibilities of that task, and the sacred trust of influencing others for good, have been appreciated and realised.

In harmony with these reflections, I proceed to comply with a condition—I may designate it a painful privilege, associated with the present occasion—that some mention should be made of the loss sustained by this College, in the death of such of its members since the last Oration was delivered as shall, in the words of its founders, "have contributed by their labours to the improvement or extension of chirurgical science." In this

review I will observe a chronological order in briefly commenting on each eventful life.

Richard Partridge, who was long and intimately associated with our College, was born in 1805, and died on March 25th, 1873. He commenced his education at Birmingham, and completed his studies at St. Bartholomew's Hospital, receiving his surgical diploma in 1827. The first public appointment he held was that of Surgeon to the Charing Cross Hospital. When King's College was founded, Mr. Partridge was elected Demonstrator of Anatomy; and his ability as a teacher subsequently procured for him the Professorship of Anatomy, vacated by Mr. Mayo. When King's College Hospital was opened, he became one of the surgeons attached to it, in virtue of his office in the College. In 1852 he was elected a member of the Council of this College, and afterwards a member of the Court of Examiners; and in succeeding years he held office as Vice-President and President, delivering the Hunterian Oration in 1865. He also held for many years the Professorship of Anatomy at the Royal Academy, in succession to Joseph Henry Green.

Richard Partridge's reputation was especially associated with his ability as a teacher of anatomy. In his prime he had few equals as a lively and engaging lecturer, and enjoyed much popularity with his pupils. Beyond this he has left scarcely any record of his professional work to posterity. In social intercourse he was always cheerful; and all who enjoyed that intercourse are familiar with the dry humour with which he delighted to tell a racy story or to retail a *bon mot;* indeed he seemed to have an inexhaustible store of these good things, which, in his hands, rarely degenerated into anything which savoured of vulgarity or personal unkindness. He had a cultivated taste, and was endowed with a large share of tact and many sterling qualities. When we missed him from our meetings we all felt we had lost a genial companion, a staunch supporter of the College, and a valued friend.

The name of Joseph Jordan is associated with that of his contemporary and fellow-townsman, Mr. Turner, as an energetic surgeon who introduced professional teaching in the provinces, when the oldest amongst us were learning the rudiments of general education, before we reached the dignity of our teens; and he was long associated with the Manchester School of Medicine. Mr. Jordan was surgeon in the Infirmary of that town for thirty-three years, and died at the advanced age of eighty-six in March, 1873.

John Bishop did not enter the medical profession until he had attained his twenty-fifth year. He was a pupil of St. George's Hospital, and obtained his diploma in 1824. He was elected as a member of Council in 1849, and Hunterian Orator in 1859. Mr. Bishop's name is especially associated with his work on the 'Human and Comparative Anatomy and Physiology of Voice,' on which he wrote several valuable papers, which obtained for him the Fellowship of the Royal Society, and two prizes awarded by the Royal Academy of Sciences of Paris; and he acquired considerable practice in the special department of treating impediments of speech. He possessed much energy of will and soundness of judgment, as well as literary and scientific tastes; and was remarkable for the accuracy of his observations and his power of applying his mathematical attainments in all investigations in which he was engaged, and which admitted of precise demonstration. He died in September, 1873, in his seventy-sixth year.

The many physical obstacles which impede the progress of medical science in our Eastern Empire, where, nevertheless, its diffusion by teaching is so much needed, enhance the merit of self-sacrificing toil in its behoof. All honour, then, to such as Henry Charles Cutcliffe, whose martyrdom to science in India evokes our sympathy and claims our admiration. The late acting Professor of Anatomy at the Medical School of Calcutta died, after four days' illness, in October, 1873, at the early age of forty-one. His friend and colleague, Dr. Fayrer, who was, of course, well acquainted with his merits, thus speaks of him :

—"He was an officer well qualified to uphold the dignity of his service and profession, and to those who had the privilege of knowing him well a true and loyal friend. His place will not be easily filled, nor will his memory readily fade in the college where he taught so well."

Thomas Turner was, in one sense, the father of our Council; for he was the senior of all his colleagues in years, though not in service. He became a member of this College in 1816, and as early as 1824 he took an active part in founding the Manchester School of Medicine, which is the first provincial school that had a recognised curriculum. For twenty-five years he acted as Surgeon to the Manchester Infirmary, and was associated with almost every good work in any way allied with his profession in that great city. Mr. Turner is the author of several works of professional value and interest.

Although for many years a provincial member of our Council, Mr. Turner did not take a very active part in the management of its affairs; but he was sincerely esteemed by us for his personal qualities, as well as for the traditional interest associated with his name. He was a good man in the highest acceptation of that word. His strong religious convictions and benevolent impulses were not dissipated in sentiment, but were manifested in his daily life. Gentle, courteous, and truthful, he was yet firm in the reproof of vice, as he was thoughtful and anxious in promoting what his conscience approved; and his energy seemed equal to his duties, until at last, for a brief period, physical infirmity compelled him to relax; and he expired, at the close of 1873, at the ripe age of eighty. No wonder that such a man was respected and beloved in his life, and that his loss has left a blank in the hearts of the many in whose service the vigour of that long and active life had been unselfishly expended.

Thomas Wormald commenced his profession in 1818, as an articled pupil of Mr. Abernethy, at St. Bartholomew's Hospital, and with that institution he retained his connection until his retirement from office as surgeon at the age of sixty-five.

He first became a member of Council in this College in 1849, and subsequently filled the offices of Vice-President, President, and Hunterian Orator; he was also for many years a member of the Court of Examiners. Shortly after his retirement from his hospital duties, Mr. Wormald withdrew from London, and spent the remainder of his life in rural retirement. He died on December 28th, 1873, of cerebral apoplexy, in his seventy-second year, whilst on a visit to a sick brother in Yorkshire.

It is said that there was considerable sympathy between Mr. Wormald and his eccentric master; and those who can recall, as I just can, some of the peculiarities of Mr. Abernethy, may readily credit that such was the case. The honest bluntness of the pupil would commend itself to one who never cultivated amenity of manners; and as avowed eccentricities are usually apt to be exaggerated, it seems probable that such was the case in this instance with both master and pupil. Mr. Wormald was successful as a teacher of anatomy, an accurate observer, and a good surgeon; but, like Mr. Partridge, he has left but little record of his work or of his experience. His kindness of heart was evinced in his relation with the poor and suffering whom he tended; and many have borne witness to his liberality in dispensing a private income, which rendered him independent of his profession. A graphic and feeling sketch of his life will be found in the last volume of the 'St. Bartholomew's Hospital Reports,' by one of his former pupils, and now the Senior Surgeon to that Hospital.

Surgeon-Major John Wyatt died at Bournemouth in January of last year, after a protracted illness, the fatal issue of which may be attributed in part to the hardships he had voluntarily borne in the protracted siege of Paris. He entered the army in 1851, and served in the Crimea, remaining with the army until the fall of Sebastopol. His eminent services at this time recommended him to the Government, when a Medical Commissioner was appointed to join the head-quarters of the French army in the Franco-German war; and he finally

shared all the privations to which the population of Paris was subjected, devoting himself with unwearied energy to the relief of the wounded and suffering.

Surgeon-Major Wyatt was the deserving recipient of many honours, both foreign and domestic, including the Companionship of the Bath; and an impressive tribute to his merits is afforded by a feeling eulogium, contained in the regimental order of the Coldstream Guards, where he was so well known and sincerely lamented.

It is only a few months since Edward Cutler, one of the earliest members of our Council under the last charter, passed away from among us at the age of seventy-seven. He was born in 1796, and was destined at an early age for the sea; but his health not being sufficiently robust, he became a student at St. George's Hospital, and received his diploma here in 1820. For a few years he served as assistant-surgeon in the Life Guards, and subsequently was associated with Sir Benjamin Brodie as his private assistant. With St. George's Hospital he was connected as surgeon for eighteen years, after serving for several previous years as assistant-surgeon. He was also for some years Surgeon to the Lock Hospital. To his professional qualifications, aided by the alliances he formed in his early career in the army, and to his capacity for making friends, Mr. Cutler owed the popularity he acquired and the esteem in which he was held.

Joseph Swan was one of the last members of our Council who had the privilege of retaining his seat for life. He commenced practice in his native city (Lincoln) after completing his studies at the Borough Hospitals and obtaining his diploma here in 1813, and was for several years Surgeon to the County Hospital. During this period Mr. Swan wrote two treatises, which obtained for him the Jacksonian Prize of this College in 1817 and 1819, respectively for 'Diseases and Injuries of the Organ of Hearing,' and for the 'Treatment of the Morbid Local Affections of Nerves.' He now devoted his leisure time to dissection, and in 1822 he successfully competed for the first

Collegiate Triennial Prize, for a minute display of the spinal nerves from their origin to their terminations. Again, in 1825, he was the prize essayist when the subject was a similar dissection of the cerebral nerves, and the preparations which accompanied the dissertations still enrich our Museum. The honorary Gold Medal of the College was awarded to him, and shortly afterwards he removed to London, and was elected a member of our Council. Mr. Swan was essentially a studious man of retiring habits, who passed much of his time in his favourite pursuit, dissection. By his anatomical writings, as well as by his actual work, he has added to the reputation of this College. He died, unmarried, at Filey, in Yorkshire, in October, 1873, at the age of eighty-three.

Another octogenarian, Sir Ranald Martin, C.B., died on November 27th in last year. He was a native of the Isle of Skye, and obtained his education at St. George's Hospital and the Windmill Street School of Medicine. His diploma dates from 1816, and the year after he obtained it he sailed for Calcutta in the Company's service as assistant-surgeon. After much active service in the field, in which he evinced great personal bravery and readiness of resource, he finally settled at Calcutta in 1826, where he married and was appointed Presidency-Surgeon. Whilst engaged in work at the native hospital, he introduced the method, now universally adopted, of injecting hydrocele with iodine. He enjoyed a large practice in Calcutta, but his health compelled him to return to England in 1840, and he continued to follow his profession in London until within a short period of his death. Sir Ranald has entitled himself to the gratitude of the profession by his contributions to the literature relating to tropical diseases, and for his support of sanitary measures generally. His tall figure and military bearing were familiar to most of us. He was a genial man, a warm friend, and a faithful public servant.

The last loss to our College which I have to record occurred on the closing day of last year, when Francis Kiernan died in

his seventy-fifth year. He is claimed by St. Bartholomew's Hospital as one of her sons, and there he soon evinced his taste for anatomy. Shortly after receiving his diploma, he gave lectures, for a short period, on this subject in his private residence. His researches on the minute structure of the liver were commenced about this time; and their publication justly obtained for him a world-wide reputation; and for these discoveries the Copley Medal of the Royal Society was awarded to him. In 1850 Mr. Kiernan first became a member of our Council, and retained this office for many years; he was subsequently a member of the Court of Examiners. After serving the office of Vice-President of the College in 1864, he was seized with paralysis; and although he recovered in great measure from this attack, his official connection with us then ceased.

Mr. Kiernan must ever hold an eminent position among English anatomists; and his name will be especially associated with the discoveries to which I have alluded. The accuracy and care with which his observations were conducted are the more remarkable from the imperfection of the instruments which were available at the time that he was engaged in his researches; and we must not measure their value by their bare and direct results, for an impulse was thereby given to minute investigation, especially of the structure of glands, which has since been so fruitful in the hands of others. I am informed that Mr. Kiernan's attainments as a pathologist were of no mean order; and it is to be regretted that these will probably be lost to the profession, in consequence of the disability from deteriorated health which so long preceded his death.

It is, Sir, I believe, an admitted truth in ethics that the practical lessons afforded by an earnest man's daily life are worth far more than his doctrinal teaching, however orthodox that may be; they are, no doubt, more trustworthy, because more truthful and undisguised by sentiment. And I think we may

often observe the same fact obtaining in relation to intellectual teaching; probably the lessons likewise in this case are not less impressive because imparted unconsciously or without premeditation. I have been led to make this remark by reflecting how much we are indebted to Hunter for exemplifying, in all his pursuits, the true spirit of our greatest of modern philosophers. I do not suppose that he had studied Bacon, and yet there never was a more faithful exponent of the Inductive method of reasoning than Hunter. His perception of its value in the investigation of the works and laws of nature was intuitive; his foundations were broad and deep, and caution and vigour were conjointly exercised in raising his superstructure. I do not offer any special illustration of this assertion, because every line he wrote, every preparation he made, attest its truth; and it is unnecessary to insist on that which, I apprehend, no scientific surgeon, no physiologist, would hesitate to admit. But it is well, in attempting to estimate our debt of gratitude to Hunter, that we should not only appreciate the substantial work he did, but also fully realise the spirit in which that work was accomplished. And if that spirit had not been deeply graven on the glorious monument of which he laid the foundation within these walls, and read aright by his successors, the lessons inculcated by his thoughtful, truthful life would have been comparatively fruitless. Happily, we have no self-reflection on this score; and we have only now to enter the enlarged depository of our treasures, and to observe their ever-expanding richness, their beautiful arrangement, and the perfection of their keeping,—results attained by the exercise of a liberal policy on the part of the Council, but under the conservative rule of Professor Flower and his predecessors;—we have only to make this survey to feel assured that the spirit which influenced its first author still survives, and that he himself could have devised or desired no more appropriate recognition of the principles which prompted the conception and sustained the vigorous prosecution of the great work which he initiated.

In thus acknowledging the services of those who preceded us in this important trust, I venture to express a hope that, in the future, the interests of this College will continue to be guarded and its Museum cherished, with the same jealous care as heretofore. The present is a crisis in our existence. Through good report and evil report this College has advanced to eminence, and I trust to usefulness commensurate with its prosperity ; and it is now in contemplation that it shall surrender an independent agency it has exercised so long, to co-operate with other public bodies in constituting an examining board for a qualification to practise. I sincerely trust that this proposed arrangement may realise all that is expected of it ; for the past history of this College, and its early struggles for independence, its noble aspirations, its great achievements, are dear to me. But who shall forecast its future history when that independence is gone ? Whatever it may be, we shall still need the support of all who possess our diploma ; and we claim the chivalrous exercise of their franchise by the constituents of an institution which, in its traditions and as a home and nursery of scientific surgery, is second to none in the world.

To return from this digression. It would not be difficult to show that Hunter's writings have, in like measure, influenced the labours of his successors in the development of surgery, by raising it from an empirical handicraft to a scientific art ; for he exemplified, in a way and degree which had never before been attempted, the natural association, the necessary alliance, between physiology, pathology, and the treatment of disease, and may justly claim, by his logical demonstration of this relation, to have stimulated the cultivators of medical as well as of surgical practice to seek for a more just interpretation of the phenomena of disease, and thus to conduct its management on more enlightened principles. I do not hesitate, therefore, to express my conviction, that the truly *Philosophic example* of this great man is the highest and most lasting title he has established to our recognition of the widespread service he has rendered to our profession in all its branches.

Scarcely inferior in importance is the lesson of *Humility* which Hunter inculcated by his simple faith in Nature. He never troubled himself about the crude theories and sophistical learning of the schools, but put them aside as valueless, because not tested by an appeal to facts. But I refer now more particularly to the modern recognition of Nature's resources in the cure of disease, which his work and example did so much to establish. It is difficult to estimate the mischievous consequences of confounding the phenomena attending a disease with the disease itself, and it may be feared that this is a rife source of the injudicious and empirical practice which still too widely obtains in its management ; for the conviction is not yet extinct that, in disease, Nature is to be regarded as an enemy to be combated, rather than as a friend with whom we may take counsel, and whose efforts it is our duty to watch and assist, rather than to thwart and obstruct.

I have confidence in the means which Nature uses, and her mode of using them, though I know that her resources sometimes fail. It is the surgeon's duty to watch such opportunities of interposing, to supplement this inherent disability, by affording mechanical assistance where vital efforts are abortive, by directing misguided energy, and by sustaining failing power ; but rarely, very rarely, by counteracting her tendencies or rejecting her suggestions.

In speaking of the phenomena of disease, I mean the attendant signs and symptoms, which are usually but the expression of a natural effort to eliminate a poison or to effect a cure. The swollen joint in gout or rheumatism, the suppurating lung in tubercular phthisis, the special characteristics of the various types of fever, are alike indicative of the strife which is at work between the bane and its natural antidote. And so it is likewise with the diseases and injuries which fall to the surgeon's province to treat ; and the fact that these curative efforts are sometimes abortive, and sometimes destructive in their excess, in no degree invalidates the correctness of this view. The diffused light of day, the gently

distilling dew of night, the refreshing breeze and irrigating shower, are Nature's agents for sustaining and renewing life and health in the vegetable world ;—the hurricane and storm and flood are exceptional, and often destructive. And these lessons have their application in the management of disease, and their exemplification in the beneficial results which are witnessed in the more patiently expectant and less heroic treatment of the present day—a treatment based on that humility which ever accompanies increased knowledge of and confidence in Nature's resources.

But, it may be urged, this confidence has no justification in the frequent fatality of premature organic disease witnessed in our hospitals—indeed, in every class of life. I would rejoin by affirming that natural organic defect is not to be credited with these results. Investigate the history of such cases, and mark how loyally, how unremittingly, the heart and ancillary lungs, the brain, and especially the eliminating organs, have toiled and striven to keep pace with the thoughtless and vicious demands made on them by excess of all kinds, until at last some over-taxed and willing labourer in the common cause gives way, and the whole machinery is thrown out of gear and ruined. I say especially the organs of elimination ; for it behoves us not to misapprehend the efforts made by them, often vicariously and abnormally, in a prophylactic or curative direction ; and to beware lest we mistake such benign assistance for local functional derangement or disease, and treat it accordingly, to the serious detriment or more rapid destruction of our patient. Yet, I apprehend, such thwarting of Nature's kindly purpose does sometimes occur ; and that the abnormal activity or local flux is not recognised in its true character, because its bearings,—its relations both as to cause and effect,—are not appreciated or studied in their general or constitutional aspect.

In contrasting the therapeutics of the past and present generation, much has been said and written respecting the

change in type of disease and the physical constitution of our race, to explain—without condemning our predecessors, or too ostentatiously parading our own enlightened views—the results obtained in such conflicting ways and by such different means. This may be so; but have we sufficiently taken into account the liberty which is now accorded to Nature to work in her own way, without being thwarted and coerced at every turn? Decisive interference is sometimes essential in surgery, but Nature will often resent hasty violence which anticipates her slow and gradual method of relief; and abiding success will in many cases wait on patient watchfulness, that is denied in the issue to officious meddling, which is more seductive, and therefore more mischievous, because of the temporary success which may attend it.

The modern practice of medicine, as well as of surgery, abounds with proofs of this salutary influence. I may instance the copious dilution of soluble medicines. We had long witnessed the beneficial effects of the natural medicinal waters of our own island and of many continental baths and springs, but we have been tardy in recognising the value of prescribing our medicines in the same diluted form. The adoption of this practice—so far as it is adopted—is no doubt more consonant with our present advanced physiological knowledge and acquaintance with the physical law which governs the absorption of fluids, and their transmission to the circulation; but it is chiefly due, I think, to a more careful observation of Nature's gentle methods, for we thence have learned that the required elements will be thus incorporated by assimilation, which would be passed on by the irritated bowel, or refused osmosis, if introduced in a more concentrated form. The combination of some of the less soluble medicines with food is to be commended for the same reasons, and in many instances with equal profit in their action.

In surgery I may venture to speak with more confidence, for its greatest conservative triumphs have been suggested and matured by the study of those indications which natural cura-

tive efforts afford. Pre-eminently may the principle of Rest, in the treatment of many surgical diseases and injuries, be cited in illustration of this remark. I mean absolute and continuous repose, such as Nature exhausts her resources to obtain, though often ineffectually, on account of the indocility of her patient, or the meddlesome interference of the nurse, and sometimes of the doctor. Abscess, joint-disease, aneurism, necrosis, hæmorrhage, ulcers, and injuries of all sorts, exemplify the value of rest. I remember, many years since, being impressed with a remark of Sir Benjamin Brodie, in a consultation on the treatment of a diseased joint. In reply to some suggestion or inquiry, he thrice repeated emphatically the monosyllable "rest;" and in truth it is only in exceptional cases that active measures, as they are termed, are justifiable in this class of diseases. Happily this subject, under the title of 'The Influence of Physiological and Mechanical Rest in the Treatment of Surgical Diseases,' has had an able advocate and exponent in a late President of our College, whose lectures, delivered in this theatre, exemplify not only the great value of this passive treatment, but also the careful observation and practical experience of their author.*

The modern treatment of aneurism, due especially to Hunter, is based on the observation of Nature's efforts to obliterate the diseased artery by the accumulation of fibrin within the sac; and for this, repose, by interruption of the circulating current, is essential. And it is especially interesting to notice how this observation has still guided the experimental surgery of Hunter's successors in perfecting his method of cure. Mr. Travers tried to arrest the blood-current by temporary ligature, but failed, and for many years no advance was made on the permanent ligature; but more recently the desired result has been obtained by tourniquet or digital pressure, or by forcible and sustained flexion of a joint where the position of the aneurism permitted it.

The most successful management of the accessible conse-

* Mr. Hilton.

quences of inflammation, such as come under the surgeon's care, is the most simple, that which may be termed the most natural—such as cleanliness, repose, moderation of temperature, and protection of a surface exposed by loss of texture. In the treatment of incised wounds, whether by accident or surgical handiwork, a careful study of Nature's ways, aided by the light of pathology, seems to me more trustworthy than the conclusions drawn from hypothetical propositions and the artificial systems based thereon, which have been credited with so large a share in the cure of wounds.

I apprehend there can be little doubt that the same essential condition is required for the healing of a wound, whether by adhesion or by granulation; and this condition is the presence of a layer of coagulated fibrin on the surface. A derivation from the extremities of the capillary vessels in either case, this temporary pellicle is the cradle of the new offshoots; and having fulfilled this office it disappears. If we watch a freshly cut surface, and cleanse it from accumulating coagulum, we observe that the exuding blood is gradually deprived of its red particles, until finally pure serum flows, from which the coagulable fibrin is deposited. Such is the pathological teaching; and how are we to apply it? In waiting patiently till the time has arrived for favouring this coagulation, by sponging the surface (say) with spirit or a solution of chloride of zinc. Subsequent adaptation of the cut edges, free exposure of the wound without dressing of any kind, and scrupulous cleanliness, combined with abstinence from all meddlesome interference, constitute, in my opinion, after a lengthened experience of this treatment, the best security for speedy healing and against any external source of contamination.

Guided by the same wholesome trust in Nature's ways, I have for many years relinquished the use of free incision in carbuncle; being satisfied that, with rare exceptions, this tempting practice is not simply useless, but that it mischievously checks an eliminative action, and is actually fraught with serious risk in many instances.

The excision of diseased joints—an innovation on the mutilating practice of amputation, in which this country has taken such a leading and active part under the guidance of two other ex-Presidents of our College*—may be regarded likewise as a triumph we owe to the same careful observation of Nature's ways. A joint is destroyed by inflammation, perhaps itself the consequence of some irremediable lesion; and all Nature's resources are engaged in the effort to be quit of its disorganized and now useless constituents. How simple and how natural does it now appear, to second these efforts by laying open the spoiled joint and removing the diseased textures, and thus to afford an opportunity for repair, by the utilisation of those very means which were previously wasted in fruitless and therefore exhausting activity. We owe skin-grafting to the same watchful attention to the way in which the smallest germinal islet, left by ulceration, will spread to meet and draw towards it, by some occult attraction, the nearest border of the surrounding integument. Even lithotrity is a more natural mode of removing a stone from the bladder than its extraction through an artificial opening; and the comparative success of this operation, with diminished risk, must act as a discouragement to future attempts to discover a solvent. Yet, in such experiments, instituted for the relief of suffering, and subject to an acquaintance with the laws which govern the animal economy in health and disease, empiricism has its justification. We now excise a cancer as we extract a stone, because it is a method which, though an avowal of our ignorance of its true pathology and of our helplessness in arresting it, offers the best known prospect of relief. But I feel persuaded that the antidote to this malignant disease must be sought in therapeutics and hygienic measures; and may we not even hope that the discovery of the source of this perverted nutrition, in the disturbed function of an unsuspected organ, may some day place the arrest of this malady within our reach? The knife is the most effectual *local* remedy; but its imperfection is demonstrated

* Sir William Fergusson and Mr. Hancock.

by the reproduction of the disease and its exsention through the lymphatics. Yet this circumstance is not without its suggestive value ; for it indicates to us that, by a further insight into the physiology of nutrition, we may expect to become acquainted with the exact pathology of this mysterious malady, and that it is through the channel of the absorbents that we may hope to meet and combat the dread enemy, for which our art is not a match, and which still defies our science.

I venture, Sir, to claim for John Hunter a large share of merit in contributing to the adoption of these more enlightened principles in the treatment of disease, which I have attempted to illustrate, — principles springing from a more intimate study of, and a more loyal dependence on, the resources of Nature.

Comprehensiveness was another remarkable feature of this great man's work ; and one which, happily for scientific surgery, still distinguishes its most successful cultivators. He was not comprehensive in the sense in which his great prototype Aristotle was so ; for the Stagyrite's grasp of intellect and reach of thought extended beyond the domain of the natural sciences : but they were alike sagacious in observing, and assiduous in collecting, facts and in classifying them. It seems natural to associate these two names, though so widely separated in time, when speaking of careful and extended research in the structure and functions of animals ; and whilst we are equally impressed in each with the quality of which I am speaking, we may give Hunter the palm for independence of thought, and for freedom from those scholastic trammels, which the antecedent training and educational associations of Aristotle almost necessarily entailed. The capacity for deep reflection, in a truth-seeking, impartial spirit, conferred upon Hunter a singular power of combining his accumulated store of facts in a comprehensive and intelligible classification, which was of more value to him than metaphysical learning, and in great measure compensated for his lack of logical discipline.

There is yet one other characteristic exemplified in all that Hunter *did*, which merits special notice as essential to—I may say the very backbone of—all useful scientific research: I mean *Accuracy*. There is truth in a forcible expression of opinion which I met with in an Address to Science and Art Students by Sir Arthur Helps, who is reported to have remarked that he believed "all the intentional lying in the world—of which there was a good quantity, perhaps—did not do one quarter of the mischief that inaccuracy did." And certainly it has done more to fetter scientific progress than wilful misrepresentation, because usually more insidious and difficult of detection, and on account of the many absurd and mischievous fallacies which are thus generated and perpetuated.

In speaking of accuracy as characterising all that Hunter *did*, I mean that he was scrupulously accurate in his facts derived from actual observation; but we find, in his writings, examples of a form of inaccuracy that is probably due in a measure to defective training, but is also evidence of an amount of self-reliance which induced him to treat, sometimes with unmerited indifference, the opinions and researches of others. This is exemplified in his zealous support of his own opinions on vitality, where he confuses fermentation with decomposition, giving a very dogmatic, though even for his time incorrect, definition of the former word; and then adds, in a deprecating tone, that "the processes carried on by chemistry and fermentation, which can *only* take place when the parts are dead, have been introduced by physiologists into the living animal economy; and, not satisfied with this, they have brought in mechanics to account for many of the operations of vegetables and animals." It is with some little inconsistency, though not altogether irrelevantly, that we find him, in the course of this discussion, exclaiming with bitterness, mingled probably with perplexity—"Of all things on the face of the earth, definitions are the most cursed; for if you make a definition, you may bring together under it a thousand things that have not

the least connection with it." Now, this stricture on definitions is quite admissible where they are loose and inaccurate, but otherwise most inappropriate in its general application, and especially so in relation to scientific inquiries. It may be reasonably expected that the more general cultivation of accuracy in all pursuits will be one of the fruits—perhaps the most precious—of the at length awakened recognition, in our schools and universities, of the value of natural or physical science in the training of youth, and as an important element of general education.

In the foregoing remarks, exemplifying the influence exercised by Hunter's suggestive work on our branch of the profession, I have selected a few of the fruits gathered in by modern surgery; yet far more remains, which, with equal propriety, would illustrate my argument: and if we turn from the cure of disease to pathology, and its sister science physiology, how extensive is the field which opens before us! In Hunter's time but little was known with exactness, either as regards the functions, the minute structure, or the morbid changes in organs or tissues; but organic chemistry, the microscope, and carefully conducted experiments, have placed within our reach a vast amount of ascertained facts, to which, I fear we must admit, our therapeutic mastery over disease bears but a modest proportion. Indeed, it is since Hunter exemplified the close alliance between these sister sciences and their true relation to practical medicine, that some of our most distinguished surgeons have gained their legitimate laurels by their joint cultivation. And of such I cannot cite a more conspicuous illustration than is afforded by the teaching and published writings of our senior Vice-President.*

I have said that the practical fruits of these researches are not commensurate with the progress which these sciences have made since Hunter's time. But the impulse has been given, and the conviction is deeply rooted that to Physiology we must look, as the chief means of rescuing Medicine from the

* Sir James Paget.

charge of empiricism, and of transforming an experimental into an inductive science. It is the Physiology of Life—a patient study of the various phenomena which constitute and accompany vitality—which must accomplish this change; and already we have strongly marked indications that it is from the mutual and comprehensive relations of the nervous and vascular systems, and their influence on the various and complex stages of assimilation, that we may expect revelations which shall guide us in the prevention of disease and in its successful treatment. What more apt illustration of this belief can I adduce than the demonstrated agency of the vaso-motor nerves? Much of the vague sympathy with which the cyclo-ganglionic centres were formerly credited, and on which Hunter dwelt so much, is now shown to be due to their direct influence on the muscular coat of the arteries—an influence and supervision which is so constant and conservative, that it is by its occasional suspension in organs, which are intermittent in their activity, that a sufficient supply of blood is admitted for the due performance of their functions; and thus we have a reliable explanation afforded of a fact already recognised in Hunter's time—that the healthy vascular activity of an organ is dependent on its appropriate stimulus. The knowledge thus gained has already been prolific of good in many branches of pathology, and we look hopefully for the practical lessons in the treatment of disease to be acquired from so important a discovery. Yet, how recent was the first demonstration of the muscularity of arteries, although this property was assumed and loosely spoken of by Hunter,—so recent that when the generation to which I belong began their studies it was rejected by the ablest physiologist of his time.*

If the physiology of the present day presents a striking contrast to that of Hunter's era, the progress which the physics and chemistry of life have made is no less remarkable. Little was then known of the true nature of, and various changes in, the living fluids; of secretion and absorption; of

* Professor Müller.

the elements which are essential or prejudicial to health; of the source of heat. Yet how momentous have the discoveries in these directions become to the physician; and how important must the study of the perverted or arrested chemistry of the living frame prove in the treatment of disease. The attention which has been bestowed upon the varying temperature of the body has already been found of incalculable value in diagnosis. May not similar observations in relation to its electric condition be no less significant in the same direction, and even applicable therapeutically in surgery as well as medicine, when we possess available means of testing and employing it?

Yet, with so much in our favour, the prejudices and the obstacles to the diffusion of practical knowledge which Hunter had to combat are not yet extinct; and I fear that our teaching is not entirely blameless in this matter. Perhaps I should rather say, the way in which our students learn their profession; for I freely and thankfully admit the beneficial change which has been wrought of late years in the character of our teaching generally, and in the moral tone and preliminary education of our students. Yet our system of instruction is not perfect—indeed, it may be questioned whether our efforts to make it so have not overreached their mark, in the invention of facilities for learning, and to the prejudice of the student's best interests in after life. It seems as if the hurried, the competitive life we are now leading were uncongenial to reflection. Be that as it may, it is impossible for those, whose duty it is to test the attainments of our students, to ignore the fact that knowledge is acquired too often without reflection; that even the more intelligent are sometimes satisfied to store their minds with facts, without reasoning or seeking for an explanation of them. I am jealous of the artistic illustrations which are scattered broadcast through our anatomical and surgical text-books, for I fear that their abuse too often lures the student into the fatal error of believing that he can thus acquire that which should be learned only

in the dissecting-room and by the bedside. What would John Hunter, whose life was spent in intercourse with Nature, have said to this? Our prepared College dissections are copied to facilitate their recognition,—our selected museum specimens are studied that they may be identified,—our written questions are stored for the instruction of future candidates for our diploma, as if this were the "Ultima Thule" of their aspirations or responsibilities. Suggestive writing, personal dissection, and even clinical teaching have not the popularity which is accorded to exhaustive or dictatorial instruction; because the latter saves the learner the trouble of reflecting on what he is taught, of seeking for a meaning in what he witnesses, of pondering on the relation between cause and effect.

Possibly, the time allowed for study is not commensurate with the extent and variety of the information now required of candidates for a medical degree,—possibly, the student prefers that method of learning which costs him the smallest expenditure of time and energy, and yields the readiest return in his success at his examinations. Whatever the explanation may be, the result too often is a quickened memory, but an otherwise undisciplined intellect; and, as a natural sequence, where such is the case, in the responsibilities of practice the frail reed of precedent is leaned upon, because the sustaining resource of sound principles has never been properly appreciated,—for the learner has not cultivated the habit of thinking for himself.

In making this observation let me pause for a moment, whilst I direct your attention to the well-known and truthful portrait before you,* and ask—Was meditation a trouble to him it represents?

Whilst we gaze on that face there is no difficulty in crediting the exclamation attributed to Hunter, "It is a pleasure to me to think!" I venture to commend this sentiment,

* Portrait of John Hunter by Sir Joshua Reynolds.

and its realised expression in feature, to my younger hearers. The habit of sustained, unwandering thought may be acquired; and the neglect or cultivation of this mental discipline goes far in explaining the contrast between the faulty *instruction* of the many, and the fruitful *education* of the few.

The most hopeful remedy for these hindrances to progress at which I have glanced, is to stimulate in our students a more general taste for converse with Nature; to foster the habit of thoughtful inquiry; and, I may add, to encourage a healthy recognition of the moral aspect of science, as devotion to truth for its own sake, as well as for its practical utility in its social and professional aspects,—desiderata which, I venture to affirm, have been studiously kept in view, in their endeavour to realise the aspirations of John Hunter, by the Council of this College.

Vitality and development engaged a large share of Hunter's attention, and were then regarded as strictly within the domain of physiology: but in these latter days force and matter have been credited, by physicists and biologists, with more varied powers than were ascribed to them in his time; and the revival of speculations, respecting the association of these powers with life and evolution, involves questions of more momentous interest than he contemplated, by again raising an alarm lest natural and revealed truth should be thereby placed in antagonism. But when we speak of endowments and natural laws, these expressions, if any definite meaning is to be attached to them, are but convertible terms for the gifts and will of God; and, if our knowledge of these were more comprehensive, and our capacity to understand all their relations were enlarged, we should probably see no incongruity in such deviations from what we *assume* to be their uniformity as are implied by special supervision; and we should be able to reconcile many apparent inconsistencies, in that which addresses itself to our senses or our reason, and that which appeals to our faith.

Yet, whilst we witness man's varying interpretation of

Nature's laws as the horizon of our knowledge widens, generalisation marches onward with equal tread, now rebuking the delusive timidity of some, and anon rewarding the patient research or bold forecast of others. It is true that, amid all this unceasing activity of mind and matter, this progressive movement onward and upward, change and decay are stamped on all we see around us. Yet these are but the precursor—nay, the necessary condition—of repair and renewal of life: a perpetuation based on dissolution, which is at once an emblem of instability and permanence; alike the foundation of the philosopher's confidence in the ever-recurring order of Nature, and a symbol of the Christian's hope, and of his faith in Nature's unchanging and unchangeable Author.

A few more words, Sir, touching personally the subject of this address, and I shall conclude.

John Hunter's character does not seem to me a difficult one to understand, for we have the record of his everyday life—the most trustworthy exponent of principle—to guide us in our estimate of the motives by which he was actuated and the means by which he achieved such great results. His intellect was essentially masculine and vigorous; and his untiring energy and unswerving devotion to his work, even in its minutest details, carried him forward where others would have been daunted or repelled, by the mere contemplation of the comprehensive plan he designed and the stupendous labour it entailed. Self-reliance is an essential attribute of such a character; and probably this was in some degree fostered, in Hunter, by the lack of those refinements which early education imparts; for he could not but be conscious of his own superiority—indeed he did not always refrain from asserting it—in his intercourse with others who were more favoured in this respect. Yet I cannot persuade myself that he did not really and deeply regret the wasted time and unemployed talents, which marked his career till manhood overtook him. We can scarcely wonder that, at this late period, he should have re-

jected the advice of his brother, to redeem his lost time and supplement this defect, by doing the work of boyhood at the age of twenty. But this decision simply shows his awakened consciousness of the value of time; and he well knew that his higher aspirations then would have unfitted him for the drudgery of general and elementary education. Moreover, in Hunter's time, and for his particular pursuits, preliminary gymnastics for such a natural athlete were less needed than at present. The sciences he cultivated were in their infancy; a literature of comparative anatomy and of comparative physiology scarcely had an existence; and foreign books were little read or heeded. He planned his own work, and resolutely carried out his own design.

Hunter owed no share of his professional success to that most profitable of social qualities—tact; and seemed not even to appreciate the advantage of refinement; for he did not care to control the natural impetuosity of his temper and the bluntness of his manners, which must have often given pain to more sensitive minds: but he did not affect rude and uncourteous behaviour, in the erroneous belief that such conduct is necessarily allied with originality and genius. Happily, these deficiencies were not considered serious obstacles to his qualifying himself as a surgeon, though they were regarded by his polished brother as a bar to his success in practice as a physician: yet Surgery had already asserted its independent dignity in this country, and was then represented by Cheselden at St. Thomas's, and by Pott at St. Bartholomew's—both educated gentlemen as well as accomplished surgeons.

Although not free from the foibles of a strong character, his warm affections, his keen sense of justice, and the promptings of a noble nature generally guided him aright, and saved him from unworthily resenting many provocations.

I have sometimes pondered over John Hunter's title to be called a man of genius; and this has led me to ponder further on what the word "genius" means. Ill defined and differently interpreted, this epithet is often employed to express some

vague idea of originality, involving the fallacious supposition that any mind, however gifted, can create without receiving. The richest soil is barren until the seed is scattered, and warmth and moisture are imbibed to fertilise it. The spring, which rises in bubbling freshness from the earth's surface, is fed by the rain which the clouds supply. So it is with man's intellect; so alike with the naturalist and poet; they must open their hearts wide to Nature, and patiently await her teaching, instead of restlessly forestalling her response. But if genius means this craving aptitude for conversing with Nature, conjoined with consciousness of power and self-reliance, a strong will with singleness of purpose, a healthy balance maintained between acute perceptive and profound reflective faculties, and perhaps beyond all "a transcendent capacity of taking trouble,"* then truly may the possession of this comprehensive talent be assigned to one, whose life so remarkably exemplified the exercise of such a rare combination of qualities.

"He was indefatigable with the indefatigability which has been called one of the truest signs of genius."† Such are the words which were spoken, with equal propriety, over the mortal remains of an eminent divine, whose sudden death was a shock that vibrated through the length and breadth of our land; and in this characteristic, evinced and exercised in such different spheres of labour, and with tendencies and acquired tastes in which there were so few other points of contact, there was a near resemblance between John Hunter and Samuel Wilberforce. And in the close of their long day of toil they were alike, for "when the night came upon them, it was as with the sun of the tropics—there was no twilight." The interest taken by our late trustee in our Museum, and his frequent presence on these commemorative occasions, will justify this passing tribute to the memory of one whose character endeared

* Carlyle's 'Frederick the Great.'

† Dean Stanley's Sermon on Bishop Wilberforce.

him to all who knew him, and of whom, as an accomplished Christian gentleman, we, as Englishmen, are justly proud.

John Hunter worked alone. He was sensible of his own resources, and treated with their merited contempt the neglect and jealousy of smaller men; but he escaped the penalty of disappointment, for he had no preconceived notions or hypothetical novelties to prove and support, by the perversion of facts to the particular bent of his inquiries. Much that he accomplished was exhaustive, still more suggestive, but all was trustworthy, and freely given, without a thought of self-exaltation, to posterity; and thence the ever-increasing appreciation, the stability of his fame. And should it not be so? The starry firmament, the aged hills, the perpetual streams, are emblems of constancy and permanence; and shall not honest fame endure as long as they?

> "Great deeds cannot die;
> They, with the sun and moon, renew their light
> For ever, blessing those that look on them." *

As distance alone imparts its true perspective to the loftiest Alpine summit, which towers in solitary grandeur far above ridge and glacier and icy peak, so as time advances and we recede from Hunter and his contemporaries, we see him standing forth in all his colossal proportions. Yet this greatness was due chiefly to the exercise of faculties and attributes which are not peculiar to him, except in their remarkable combination and unremitting employment. And herein, to my apprehension, Hunter differs from many who are, with equal justness, ranked amongst the brightest ornaments of our country; and herein, also, is his example fraught with so much of value and encouragement to all students and lovers of Nature. His simple life and unpretending tastes, his earnestness of purpose and single-hearted devotion to his work, are characteristics which all may imitate; and, though it be given to few to approach his excellence, none can follow in his track without in some

* Tennyson.

degree fulfilling the purpose of his existence in his temporal and social relations.

But pre-eminently was John Hunter's life imbued and characterised by a love of truth. It was the "mystic altar" before which he ever knelt, the energising impulse which determined and regulated his every aim and purpose, the guiding star of his existence; and it is also the most precious legacy he has left to us, who delight to honour him or desire to emulate his virtues, and to tread, however humbly, in the footprints of his fame.

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