

Original Communications.

MEDICAL STUDENTS.

THE SUBSTANCE OF AN ADDRESS DELIVERED AT ST. MARY'S HOSPITAL ON THE OCCASION OF DISTRIBUTING THE PRIZES IN 1862.

By H. W. ACLAND, M.D., F.R.S., Regius Professor of Medicine at Oxford.

THE distribution of prizes in a School of Medicine may hardly seem to be a matter of general concern. To compare a small assemblage like ours with one in which attainments in general education receive their reward publicly from some eminent statesman, would in truth be at once rash and illogical. Some kind of general education is immediately important to every member of a community, and is so esteemed by all educated men. Medical education, though sooner or later of consequence to every human being, is yet to the healthy, like some higher duties, of only remote significance. Nevertheless there must be to every thinking person something of special interest in the sight of young students collected in a hospital which has been built by private persons for the sake of the poor, at which these youths are earnestly taught by voluntary teachers, and where they learn how to devote their lives faithfully and efficiently to the relief of sickness and of suffering.

This impression is not diminished when the medical staff has been pleased to confer the honour of acting as chairman, not as is usual at such times on some public person of weight and consideration, but on one who has but this claim to your favour and to your sympathy, that he has been, and is, and hopes to the end to be, a *Student of Medicine*.

When members of a profession are willing to stand alone and unsupported on public occasions, it argues a strong faith in the intrinsic nobleness of their calling.

These circumstances almost prescribe as the subject on which you must be addressed to-day the aims of a student of medicine. Mixed as this gathering doubtless is in its character, and in respect of the occupations of those who compose it, it must consist either of teachers, practitioners, or students of medicine; of the friends of these; or of those beneficent friends of humanity to whom hospitals and hospital work are a source of attraction and interest.

To this subject, then, let us apply ourselves. We need not discuss directly what the student is nor what he ought to be; we may rather measure ourselves with some of those that have been, who have gone, and have left their work and their names to follow them; who have told to this age, which prides itself, and properly prides itself, on its progressive, and, in many things, its actual greatness, what they were when there were fewer helps and less sympathy with scientific and philanthropic work.

I am not unaware of the claims of living men, nor unmindful that in some departments we do unquestionably outrival all that has gone before. I can scarce refrain, indeed, from endeavouring to pourtray the character of that person who, revered in our profession in England, and highly esteemed through all Europe, stands almost alone among us, a monument of the fruits of honourable exertion: for whom we unavailingly grieve that one great inlet of knowledge, which guided an unerring hand so well for so long, is half closed. Yet we still admiringly receive fresh fruits from that calm large mind which in most mature years bends inwards a steady gaze on problems of the higher nature of

man. (Sir B. Brodie's *Psychological Inquiries*.) But neither of him, nor, from motives which you will surely allow, of any other living person may I attempt to speak. I propose, then, to state, first, What is the general vocation of a student of medicine; and next, very briefly, how certain notable students in each of the last three half centuries, Haller, John Hunter, Boerhaave, and one, but just removed, William Alison, acquitted themselves therein.

The student of medicine is first of all essentially a *student*—one of the race of workers, as opposed to the dilettanti—a lover of truth and of knowledge—a seeker of them both for their own sakes—honest, unprejudiced, receptive, patient.

He is a student of Man, whose nature it is his special vocation to learn. He must study man before birth; man at birth, in growth, in perfection, in decay; man at his death, soothed though not saved; man followed after death for the sake of the knowledge which he yields even in his mode of decay.

What labour, what sympathy, what grave delight is here for the student. Yet how feeble a statement of the truth. Man cannot be understood if studied alone; he is but one of unnumbered beings which submit to some of the same conditions as himself. He is placed at the apex, as has been said, of a vast cone of organisation. To all points of this cone beneath him, he has mysterious relations. The import of these relations, the days of Darwin, Owen, and Lyell have not yet been able to determine. Nor is this all; he is indeed at the summit of this vast mass of organised life; but above that material height there burns a flame, the flame of his responsible *soul*, which, tending upwards, is drawn by a congenial if not by a common nature, into incomprehensible union with a brighter light, "that which lighteth every man that cometh into the world."

Thus man is bound by his higher nature to Infinite Goodness, and by his material organisation to all the material organised structures which culminate as it were in him. The broad base of this cone of life rests on the common ground of the inorganic world. Though not wholly obedient to the physical laws which regulate inanimate matter, it so far shares them, that, in the progress of knowledge, the severance between the organised and unorganised has become less sharp than once it seemed to be. It becomes every year more certain that the laws of living structure are, to an extent once little suspected, intimately connected with the laws which regulate matter before it has entered at any point the great current of life, which in perpetual movement and change streams through our world. All this he must try to grasp, though he cannot wholly master.

That this seemingly large, some may be inclined to say exaggerated, account of our human nature, and of the subject matter on which we are engaged as students of medicine, is the only one which we can safely accept as the basis of our studies, I propose to show to you in the sequel.

I shall have to ask the forbearance of my professional colleagues if many of my remarks are addressed to those who may be supposed not to know the history of medicine. To such it cannot but be interesting to learn how far physicians have endeavoured in all seriousness to improve the art which they profess. But sketches only, not complete pictures, can now be given.

At the close of his preface to the *Methodus Studii Medici*, Albert Haller gives us the apparently obvious advice that, whoever wishes to learn the science of medicine, should follow a good plan, read good authors, do nothing but what bears on medical science, and omit nothing that is necessary for its acquisition.* How this

* "Qui enim animo omni doctrina vacuo se adpiciens medicine, pessima calamitate incideret in auctores, qui et minus necessaria, et futilia proposuerunt, is id dummodo lucrabitur, ut cum tempore

is to be done he proceeds to show. But remarkable as is his book, his own preparation for the work is more remarkable still. He tells us that he had himself read, and made notes upon certainly more than six thousand volumes, besides journals, and other works not included in the calculation. Haller was not a book-worm. That at least was not his vocation.

His character was essentially that of a student of nature. He used books because he respected other men as he did himself. Reading books, he says, has the same advantage as foreign travel. By seeing and hearing divers opinions of human affairs, we are drawn from the narrow sphere in which our education had restrained us. We cannot indeed, he argues truly enough, dispense with the written labours of other men. "Quæ solertia suffecerit exæquandis difficillimarum regionum animati corporis historis, quales felicibus naturæ cultoribus debemus, quorum nomina continuo exprimentur. Velisne carere SWAMMERDAMIANIS, supra humanam patientiam subtilibus, experimentis, sperasne te eundem, et insecta incisurum, ut SWAMMERDAMIUS, et nervos ut MEKELIUS. et musculos ut ALBINUS?" (Haller, *Elementa Physiologiae*, tom. i, p. 8.)

This extraordinary man so prepared himself, dissecting in human and comparative anatomy, making and re-making experiments, verifying the statements of authors to test their accuracy, and writing (I have not seen them all), in fifty years, two hundred treatises, of which one is of nine volumes in quarto, and another, that for which he had read his six thousand volumes, was condensed into two not large quartos. I will not even mention his most varied general attainments, or hint here at his ordinary literary labour, on subjects remotely connected with medicine.

It is well to contrast at once with this work the different yet parallel labour of a name so known in London, that the mention of it may seem to some of my colleagues superfluous. For the sake of the less instructed, they will let me explain the nature of John Hunter's work—his objects—and the way he set about to accomplish his purpose: Haller showed what literary work could do in medicine. "What did John Hunter effect?"

John Hunter was essentially a surgeon; to the improvement as well as exercise of the art which he practised till his death, he devoted himself. While young, he had numerous opportunities of seeing gunshot wounds. He then considered attentively the processes by which injuries are repaired; he concluded that for the right understanding of the smallest actions in a living body, the nature of that body, and the laws, as far as they can be learned, of life itself must be unravelled. To know the mechanism by which the simplest boil is formed and cured, the principles of action in living things must be learnt to the uttermost. It is quite unnecessary to consider whether all John Hunter's conclusions concerning life and vital actions are absolutely correct; this is not now to the point; we have to ask how this eminent student applied himself to learn his art. To understand disease he must understand that from which it is a departure, health. To understand the balance of organs, in the perfection of which health consists, the organs must be studied. If the organs are too complicated for investigation, as one might expect to find, and is in fact the case, they must be looked for in some simple shape. Where there is life in a simpler form, there may be seen, perhaps, the clue to some law unintelligible in the more complex structure. All life, vegetable and animal, is to be questioned.

videat, se nihil didicisse, nisi ea dogmata, ex quibus nihil ad suum finem obtinendum haurire queat.

"Huic in medicina nihil utilius video, quam scire, quonam ordine incipiendum, unde incipiendum, quomodo pergendum, quibus auctoribus utendum sit, ad medicam scientiam acquirendam.

"Qui vero eam vult discere scientiam, debet bonam sequi methodum, bonos legere auctores, nihil admittere, quod non faciat ad medicam scientiam, et nihil omittere, quod necessarium sit ut ea acquiratur."

Every structure and every operation of every mechanism has to be first separately examined, and then they must be compared with each other. And further the same structure may by different relations to other parts, have new significance. All these inter-dependencies are to be studied. Hunter did all this, and more—he instituted experiments on living beings of very various kinds to determine the laws of growth and of repair—and examined with the most particular care the mode of formation of the young in every accessible class. Nor was this done cursorily. The dissections were so carefully made as to be fit for permanent preservation, and remain a precious national treasure to this day.

I can scarcely venture now to go through even an enumeration of his work, though I must add that not content with this survey of the existing tribes of living things, he compared with them the relics of the past, amassing from all quarters the remains of the ancient world.

It is sufficient, perhaps, to the present purpose to say that, though Hunter was convinced that life is something essential in itself, he ransacked every living thing to detect the material laws by which it operates; and though he was most minutely observant as a clinical student, he sought the ground of his pathological conclusions not in disease alone, but in the whole history of the human organism, in all its relations, and from its first formation to its maturity and decay.

It is doubtful whether Hunter paid much attention to the common physical properties of substances out of which organised bodies are made. Indeed it was probably then unnecessary. Already another person had drawn the attention of the learned world to the importance of physics as the foundation of physiological research. Boerhaave, the teacher of Haller, though eminently a practical physician, had perceived that as organic bodies are formed of inorganic substances, (*ex necessitate rei*) therefore that, whatever may be the properties of the organised substances, the mere physical properties of their inorganised constituents should be known and appreciated as thoroughly as is possible. This instance of laborious honesty in the practical physician, is the third lesson which I venture to suggest to the student. Boerhaave was, I said, essentially a physician, and a practical physician of the most consummate order, skilled in all the learning of a learned age. Altogether eclectic, a metaphysician, and physiologist, he conceived, and properly, that in the care of beings to whose life and to whose mind a material body is essential, the physical laws of all the original components of the body should, if possible, be known. It is interesting, therefore, to see that the beginning of his treatise on the study of medicine (written in Latin, as was and is the custom at Leyden) is on geometry, and the importance of precise ideas and definitions in physic. How much our views are tending again in the same direction I need not now stop to say; but the result was that he was reproached for being too mechanical in his views of life, and for neglecting to attribute a proper share to the actions properly called *vital*. The charge was unjust and unfounded, and, as though to leave behind him the strongest refutation, he breaks out in the midst of a noble academic oration, calling on all "physici, mechanici, hydrostatici, hydraulici, anatomici, chemici, to make a single drop of that dew, by which moisture is given to the eye."

"En panem, en vinum," he goes on to say, "let them all come and make a single drop of blood. In vain they will meet. While the very food, without chance of failure, shall in every part of the meanest frame make its proper texture."

The following half century—prepared, perhaps, by Haller and Hunter and their followers—swung the pendulum the other way; in our day again, to return to the same physical explanation of the still insoluble problem of the "vortex" of life. The chemists, indeed,

claim already to have manufactured some seven hundred substances, which would, in Boerhaave's time, have been recorded as belonging to the organic kingdom.

The labours and researches of those remarkable men whom I have specially named, Haller, Boerhaave, and Hunter, give, it need hardly be said, but a small insight into what has been done for mankind by true students of medicine. Besides, the work of two of these men might be called inquiry into causes, rather than the wielding of remedies. The statement would be partly true; yet it would be no demerit. Medicine cannot be wholly empirical. For the perfection of the art, progress in the science was, and is, imperatively demanded. Blessed are they to whom the progress is due. By investigation into the conditions by which life and health are modified in nature, or can be modified by artificial circumstances, on a large scale or on a small, the true medical students, the Sydenhams, the Harveys, Laennec, Prouts, and hosts of living men, have been, and are, gathering a vast treasure of fact and principle into the well ordered storehouse of medicine.

In order, therefore, to give one example of the labour which physicians have undertaken in a purely remedial sense, let us take the conduct of William Alison in respect of the poor-law of Scotland. His name is less known than those of the three eminent men of whom I have already spoken; but they who knew him well would not shrink from a comparison of Alison, the whole man being weighed, with either of the three. The work was different; the soul the same.

The points which I further wish to illustrate to-day are the pains that have been taken to provide the proper remedy for disease—which, after all, is the physician's first business—and the temper in which it has been done.

To understand the lesson of Alison's work, a brief sketch of his life is necessary.

William Alison, son of the well known Episcopalian clergyman of his name in Edinburgh, elder brother of the historian, took his degree in medicine at that university in 1811. He became physician to a great dispensary founded shortly after; and in the closes and wynds of the dense city, visited the sick with an assiduous humanity and scientific observation, which obtained at once the affection and respect of the people. How many thousands of destitute poor he, the ardent metaphysical student, the inmate of one of the most refined houses and cultivated societies of the north, visited, while attached to the dispensary, would surprise you, could their number now be ascertained. In a few years, he became Professor of Medical Jurisprudence; shortly after, Professor of Physiology and Clinical Professor in the Infirmary.

As Professor of Physiology for twenty years, he taught great classes. Owen, Watson, and Carpenter, were, I believe, among his followers; he not only taught, but he inspired a love of his great subject into the hearts of his pupils. His comprehensive grasp seized every principle which minds such as those of Haller, Cuvier, Bischat, Hunter, had, in their respective ways, imparted and elaborated. Nothing escaped his physiological genius; and the abstract metaphysical subtleties, which he had discussed with Dugald Stewart in the palmiest days of the Scotch school of mental philosophy, were interwoven by him into the psychological history of the material organism of man.

In 1842, he quitted this interesting and arduous post for the Chair of Medicine; and now he, the metaphysician, physiologist, practitioner, professor, concentrated his whole powers on the one crowning work of his life,—the combat with the decimating fever, which had taxed his herculean frame, and melted his heart, as by day and by night he had wended his way among the wynds.

Nearly twenty-five years of medical observation had now convinced him that, among his people at least,

destitution was a cause of fever. He had seen I know not how many hundred cases so produced, as he thought. He considered it his mission to prevent the ravages which he could not cure. The day of fashion had not come for sanitary inquiries. There was no legal relief for the poor in Scotland. The voluntary principle of charity was insufficient. Destitution must be made impossible by law. This was the only remedy. At all hazards, the remedy must be had. A compulsory law was unacceptable; it was offensive to the lairds; it was opposed by the clergy. Chalmers was in his zenith. To the task Alison binds himself. Step by step, writing by writing, you may trace his weighty argument; and he lived to see his dear poor provided with certain, though it may be scanty, provision.

Mark! I do not say whether, in political economy, this or that was right. I speak of the labour undertaken in order to thoroughly remedy disease. I invite you to contemplate a man who as an active practitioner and professor, in either character was inferior to none within his university, addressing himself, from a sense of duty, to this new and arduous effort, and engaging in this seeming unequal contest.

In the preface to one of his writings, he gives his own reason for undertaking the work. "It cannot be thought," he writes, "beyond the province of one who is honoured with a situation of trust and responsibility in the greatest of these medical schools, to endeavour to investigate the causes of this mortality, and the means by which it may be diminished.

"Nor can it be thought presumptuous for one who has been for many years daily engaged as a dispensary and hospital physician, in applying remedies to diseases which have obviously been the result of privations and sufferings in the poorest of his fellow citizens, and too often found them ineffectual, or known that they could be only temporarily useful, simply because he had no remedy for the privations from which they originated; to extend his inquiries to the grand evil of poverty itself, and endeavour to apply to it the same principles of investigation by which physicians are guided in determining the immediate causes and remedies of disease." (*Observations on the Management of the Poor in Scotland*, 1840, p. 9.)

If you ask, were these all the secret springs that moved him?—I would answer that, in truth, all interests were his. On his journeys, as they who knew him well know, not a spot did he pass that Scott or some older bard had chronicled, but his gentle voice would murmur here and there the verse that told it; not a military road or an ancient work or way but that he knew it all; not a bird that warbled as he went but he knew its song, and he seemed as though he was its friend. Alison was a man. And anything else? He was reserved almost to a fault; and, as great men are, in all that concerned himself, reticent to a degree; but, happily, once, in his controversial writings, his inner soul bursts forth. He writes:—

"There are many persons who consider this question as merely one of pounds, shillings, and pence. But, at present, I do not address myself to such men. I address myself to those who have been accustomed to look upon the poor, not as objects of disgust or aversion, but as brothers and sisters in affliction, who are born to the same hopes as themselves, look up to the same Father in heaven, and trust to the Mediation of the same Redeemer; to those who remember that charity is the highest of Christian duties, and that 'our Saviour himself chose to be a beggar, that we, for his sake, might not despise the poor.'" (*Observations on the Management of the Poor in Scotland*, 1840, p. 36.)

This said, he returns to his controversy and his arguments; and in the end his arguments prevailed. It is beside my intention to carry, on this occasion, the instructive story further. From these short sketches in

truth, the character of the student of medicine may be inferred. Appreciation of the laws of nature as a whole; nothing too large for study nor too small for inquiry in the domain of physics or in any organisms; just perception of the relation of literature to observation; subordination of everything to the end of healing or preventing or mitigating disease; may be stated as the cardinal lessons to be learnt from these men.

Yet some student may say, what men were these? What have their examples to do with me? Not so. It is a question only of how we use the talents we have; the five, the two, or the one; we all have the spirit of these men, or we have it not. Either we are students at heart, or the aim of the student is unknown.

May I venture on but a few words of direct advice to the younger learner; they relate still to the student's character rather than to the work on which he is engaged. All these men were at once self-reliant and modest. It is for you to be the same. For this end, Have faith in your own souls; that you will do your best with such as you have, and in such a lot as you may be cast in: Have faith in other men, especially in your teachers, who know your difficulties, which themselves have surmounted, and, by teaching, give earnest of their desire to help you through: Have faith in the eternal order of things; that order by which we students can alone grope our way along the intricate path of which we hardly see but the edge; that order which is evidence of Him who made it.

It is by such faith that you will succeed. You will succeed, not by seeking directly the learning of Haller, the grasp of Hunter, the comprehensive research of Boerhaave, the practical goodness of Alison; but by doing in trust that which is set before you to be done, and by keeping the student heart whole and pure to the end.

I have not consulted your committee whether it would be acceptable to them that you should separate to-day without any allusion on the part of the chairman to the loss which all students have, during this last session, sustained. But I know there is one feeling that thrills through the hearts of all earnest students that the chief and head of them in this empire is taken away. It was to us all no small thing that by the side of our Queen there lived a Scholar Nature, interested in all student work that was worth the name, and in a special manner in the work of the student of Nature. To us it was no small thing that every sign of progress in science, every advance in our struggle against disease, every improvement in the lot of mankind, was welcomed by him, was neither unobserved nor unappreciated. I say no more. The influence that high nature has brought has cheered you, will cheer you; do not think that though himself is gone, the light he kindled and the help he gave is to pass away. For many years to come, let us say it thankfully, he has made more precious in England the aim and character of the Student in every Science, and of the Worker in every Art.

GENERAL McLELLAN ON DRUNKENNESS IN THE ARMY. The General-in-Chief says, in returning the unsatisfactory finding of a court-martial in which drunkenness was made a palliation for breach of discipline:—"No one evil agent so much obstructs this army in its progress to that condition which will enable it to accomplish all that true soldiers can, as the degrading vice of drunkenness. It is the cause of by far the greater part of the disorders which are examined by courts-martial. It is impossible to estimate the benefits that would accrue to the service from the adoption of a resolution on the part of the officers to set their men an example of total abstinence from intoxicating drinks. It would be worth fifty-thousand men to the armies of the United States.

SOME OBSERVATIONS ON APNŒA NEONATORUM.*

By GEORGE GREAVES, Esq., Lecturer on Midwifery, Manchester Royal School of Medicine and Surgery.

THE condition of the vital functions of the fœtus during labour, and of the newly-born child in the interval which often occurs between birth and the full establishment of respiration, has not hitherto, in this country at least, received the attention which, both in a theoretical and practical point of view, it appears to merit.

In the following remarks, an attempt will be made to reduce into a consistent theory the facts, bearing on this interesting subject, of which we are already in possession; to point out the true significance of some phenomena hitherto scarcely understood; and to deduce rules of practice more in accordance with the present state of knowledge of the physiology of gestation, than the too often traditional, and, in some respects, unscientific instructions contained in the standard treatises on midwifery.

The consideration of the subject will be most advantageously commenced by a reference to the state of infants apparently still-born.

The phenomena observed in children who do not respire immediately on birth are not invariably the same. In one class of instances, the surface of the body is pale, and, if uncovered, speedily becomes cool, the child lies motionless in any position in which it may have been placed, and it is so nearly lifeless that the pulsation of the funis has entirely ceased, and the beating of the heart can scarcely, if at all, be felt.

In another class, there are the same external phenomena; but the pulsation of the cord, although weak and very much slower than before the commencement of labour, or after respiration, is still quite perceptible.

In a third class, the pulsation of the cord, although sometimes, but by no means always, slow, is, at first, tolerably strong, and the surface is rather blue than pale, the face and neck especially are livid and swollen, and the eyes, instead of being closed, as in the two other classes, are often widely open.

In other words, the infant may be in a state of asthenia or syncope, in one of simple apnœa, or in a partially apoplectic or comatose condition.

These various states have, of course, originated under different circumstances. That of syncope has been ascribed to anæmia arising from defective nutrition, or from a loss of a portion of the blood previously circulating in the child's body, in consequence of uterine hæmorrhage preceding or accompanying labour. It has also been referred to hæmorrhage from the infant into the placenta. The first of these alleged causes has, probably, sometimes been in operation; but, as for the second, it is manifestly impossible that, while the cord and the fetal portion of the placenta remain entire, any amount of uterine hæmorrhage which can occur during labour can affect the quantity of blood in the body of the child, although it may seriously influence its quality. Repeated observations have shown that, when the mother has had profuse and even fatal flooding, the heart and larger vessels of the infant are found gorged with blood. (*Vide* Dr. Evory Kennedy *On Obstetric Auscultation*, pp. 94-96.) The third supposition will be shown to be equally untenable.

The two first named states, therefore, of asthenia or syncope, and of apnœa or delayed respiration, differ in degree only, and are essentially more or less complete degrees of asphyxia, using that word in its true signifi-

* Read to the Medical Section of the Manchester Royal Institution, March 5th, 1862.