explain this, we must admit a periodical movement in the pulp, by which the nascent tubes are at one time carried towards the end of the crown, and at another towards the extremity of the root of the tooth. The finest and most numerous undulations depend on periodical movements of short duration; the more extensive ones are produced by changes in the situation of the pulp, which occur at much longer intervals. The mode of formation of the ivory is analogous to that of bone, and the similarity is greater than might at first sight be imagined; there is, however, this difference, that in the ivory of a tooth it is the external layer (*couche extreme*) which is first formed, while in bone the same layer is formed last around each medullary filament.

The organisation of the enamel is much more simple; it contains neither blood-vessels nor osseous tubes, but somewhat resembles in structure the crystalline lens. The enamel is probably nourished by imbibition of an organic fluid carried by the ivory tubes, and transmitted through a thin membrane, which probably surrounds the different cells. In some animals the formation of enamel is not confined to the dental follicle, but continues during the whole period of life, through the medium of a small annular apparatus, which envelops the root of the tooth.

The cortical substance exists in the teeth of most mammiferous animals, and even of amphibious animals and fishes. It is peculiarly rich in cells and osseous tubes, which are generally very irregular. In some animals (the elephant, horse, ox) it is formed principally inside the dental follicle, but in others it is formed, during the whole period of life, by the membrane which envelops that portion of the tooth enclosed in the alveolar process. The ivory, as has been said, is deposited in layers from within outwards, the most external being the first formed; the cortical substance, on the contrary, is formed in an opposite direction, the external layer being the one last deposited.

The memoir of M. Retzius was referred to the committee appointed to examine a memoir by Mr. Nasmyth on the same subject, which was read on the 3rd of October. Mr. Nasmyth's paper contained the results of his investigations on the structure of teeth, which are too well known in this country to require any notice here.

INTRODUCTORY LECTURE

AT THE

MANCHESTER ROYAL SCHOOL OF MEDICINE AND SURGERY,

By MR. RANSOME,

Saturday, October 1st, 1842.

GENTLEMEN,—In the year 1824 was first tried, in the provinces, the novel and in the opinion of some, the doubtful experiment of providing for the numerous students of medicine resident in this town, the advantages of regular and systematic courses of lectures on the essential and auxiliary sciences connected with medicine and surgery. The objects contemplated were, to diminish the expense of a lengthened residence at the distant metropolitan schools—the advantage of professional education being conducted and completed during the residence of the pupil under the roof of his

master or parents—to lessen the risk of exposure to the temptations of a city, while still under the eye of the latter—and, lastly, the vast saving of time, in being allowed to complete the requisite *curriculum* of lectures during the period of his apprenticeship. As these latter objects depended upon the regular recognition of the corporate bodies, in whom is vested the right of examination, some time necessarily elapsed before it could be accomplished; but it gives me great pleasure to be able to announce, that the requisite consent has now been given, in consequence of the highly creditable examinations passed by the pupils of the Manchester schools, as proved by the testimony of the secretary of one of these bodies before a committee of the House of Commons. The time saved by a pupil being enabled to attend the courses delivered in this school during a four or five years' apprenticeship, is not less than three years; which, with the consequent saving of separate expenditure at a distance from home for that time, forms an argument in favor of provincial schools capable of being appreciated by any one, particularly by the parents and friends of those destined for the medical profession residing in the provinces. The experiment has now been tried during eighteen years, and its success was attested by the increasing numbers who avail themselves of its advantages; and by the number of well-educated, skilful, and highly-respectable practitioners now settled in this town and neighbourhood, who received the first rudiments of their professional education in this school, who are now engaged in dispensing the benefits of medical science to the sufferers in these densely-populated districts, and who are still connected with their former teachers by bonds of mutual esteem. Let it not, however, be supposed, that its success was uninterrupted by anxious difficulties and fears; the powerful opposition of interested schools which had long enjoyed the monopoly of medical education, the withholding of privileges likely to interfere with them, and the consequent diminished advantage to the pupils in not materially shortening the time of residence elsewhere, operated to its detriment. But the merit of its pupils, creditable alike to their own industry and talents and to the zeal of its teachers, has at length received from the metropolitan colleges its due reward; and the readiness with which the necessary recognition was granted when the school had been subjected to the ordeal, and been found worthy, demands our warmest acknowledgments of their discretion and liberality. Among the discouragements must not be omitted the expenses of such an establishment, which, in the outset, considerably exceeded the receipts; but this circumstance proved no impediment to the continued exertions of the founders, who have persevered in their noble course unsupported by the grants of money from public and private sources, which have in other provincial towns testified the interest with which their efforts have been regarded by the public. What, then, must be the feeling of those gentlemen who first projected, and with unwearied energy have continued, their course, through good report and evil report, and who still survive to witness the success of their exertions? Most sincerely do I believe that, to them, their success in thus providing sound and scientific information for their pupils, and the subsequent beneficial application of it to the relief of suffer-

ing humanity, constitute their true reward. But as one of the first who experienced the advantages of provincial education in this very school, eighteen years ago, I should ill discharge my duty, were I to neglect this opportunity of testifying my gratitude, more particularly to the founders of this school, and, I may say, of provincial education generally.

To my former respected teacher and talented colleague, Mr. Turner, is to be attributed the design of a completely organised school of medicine. Previous to the year 1824, I believe in 1822, he delivered his first course, unassisted, on anatomy and physiology. Such was his success in this one important department, that he conceived the idea of associating together other gentlemen well qualified to teach the other branches of medicine and surgery. His first associate was that illustrious philosopher Dr. Dalton, whose invaluable discoveries are not even yet sufficiently appreciated, but whose zeal for the diffusion of the true principles of his favorite science induced him to take the chair of chemistry in this school. Though no longer associated with us in the active duties of teaching, the venerable philosopher earned and still retains the most heartfelt esteem of his former colleagues; and I know that you will respond to the earnest wish, that he may long be favored with health to enjoy the honors and rewards of an eminently useful life; and that his example may ever animate our endeavours to imitate his patient and unwearied industry, and disinterested search after truth. Subsequently, courses on the practice of physic and materia medica were given by Dr. J. L. Bardsley; on midwifery by the late Mr. Kinder Wood; and on surgery by my late respected father. The two latter, alas! are "gathered to their rest;" but their example is still valuable, as displayed in the zeal with which they embarked in the cause of education, undeterred by the fatigues of extensive and laborious practice, and by the indications of declining health, which ultimately terminated their useful labors. Since the last session, this school has sustained the loss of another of the founders by the retirement of Dr. James L. Bardsley, who has so long and so ably filled the chair of practice of physic. A few years ago he resigned the course on materia medica, in consequence of the increasing demands upon his time as a private practitioner. The same cause has interfered with his duties as teacher of medicine; and, while his colleagues rejoice at success so deservedly earned by his talents and industry, they feel sorrow at the retirement of one who has so eminently contributed to the success of the school. During the current year we have also to regret the loss, by death, of another colleague—Dr. Newbold; who, with a keen sense of honorable duty to his class, struggled with the disease which finally closed his career, soon after the termination of the last course on materia medica. Educated at this school, Mr. Newbold early evinced uncommon talent and zeal in the pursuit of professional knowledge. Though young in years when elected to the chair of materia medica, his former teachers with full confidence foresaw the success with which his abilities were rewarded, and have now only to regret that the unsparing hand of death has interrupted a career so promising. The increase of public and private duties has also caused the retirement of Mr.

Stott, for some years demonstrator of anatomy in this school, and formerly in Mr. Jordan's school in Mount-street. To both our retiring colleagues we give our best wishes, and hope that the mutual esteem which existed will remain unchanged and uninterrupted. To their successors—Dr. Chaytor, in the chair of practice of physic, Dr. R. F. Ainsworth, in that of materia medica, and Mr. W. Smith, as demonstrator of anatomy—we give a hearty welcome, and feel every confidence that the utility and dignity of their respective chairs will be maintained by their zeal and talents. Thus, of the original founders of this school, but one now remains; but in that one we still possess a host. The master mind which conceived the plan, the indefatigable spirit which persevered in the execution of it, yet remains to us, and will still continue to impart to his younger associates, and to the pupils, a portion of that enthusiasm which has supported him in his laudable career. To my early and steadfast friend, to my first public instructor, and to my present highly-respected colleague, Mr. Turner, I should be deficient in gratitude, were I to omit to pay this testimony to his merits, and to express a wish,—in which I am sure you will unite,—that he may long enjoy health and ability to continue his valuable services in the cause of medical education.

The lecturer then announced the order of study during the winter session, and enumerated the times of the introductory lectures to the courses of the respective lecturers. Addressing the students as to this *curriculum* of study, he urged on them ever to bear in mind that every faculty must be exerted and every study made subservient to the investigation, detection, and distinction of disease, and the application of the proper remedies; and that, therefore, their course of studies must be conducted and their faculties exercised with a systematic reference to these great objects. He divided the whole range of lectures into practical and subsidiary or auxiliary courses; including in the former the practice of physic, that of surgery, midwifery, diseases of the eye, and forensic medicine; in the latter, anatomy (with demonstrations) and physiology, materia medica and therapeutics, chemistry, general pathology and botany. He cautioned his hearers against the too prevalent impression of students, that all the information requisite for future practice could be derived from lectures, and dwelt on the importance of studying disease, where alone it could be properly studied, at the bedside of the patient. No doubt further improvement might be introduced, if, in addition to lectures, a well-regulated system of tutorship were adopted, as the daily regulation and examination of a student's progress would ensure more regular perseverance, and, from the facilities of correcting erroneous impressions, of which conversation admits, would constitute an important improvement in medical education. Of course, however, he reprobated the abuse of such an aid as exemplified by what are termed "the grinders" in the metropolis. He thought that the system of apprenticeship might be purged from its admitted gross abuses, and then its retention would be found to possess invaluable advantages to the student.

In reference to clinical study, he observed, that "Much of the success of this school must be attributed to the facilities for practical information af-

fording by the local institutions for the relief of the suffering poor, so munificently supported by our liberal townsmen. In the Manchester Royal Infirmary, Dispensary, and Fever Hospital, Eye Institution, Lying-in Charities, Dispensaries, Lock Hospital, &c., the pupil has opportunities, unequalled elsewhere, for becoming practically acquainted with all the ordinary, and many of the extraordinary, forms of disease; while the acknowledged skill and talent of the medical officers to whom these charities are intrusted, are a sufficient guarantee for the value of the knowledge of medical and surgical treatment which may be acquired from their practice." He condemned that empirical knowledge which some might deem the royal road to the mastery of the necessary professional information, and said that the time allowed for medical education was sufficient for the acquirement of the requisite scientific knowledge, if ordinary talent and industry were brought to the task. Mr. Ransome then proceeded to take a general glance at the relation of the subjects of the lectures to each other, and to the grand object ever to be kept in view—the prevention, detection, distinction, and cure of disease. In the course of doing so, he expressed his apprehension that the utility of the study of the minute anatomy of the tissues was not sufficiently recognised by students generally, so as to induce them to enter upon it with zeal. He warned the students against hastily adopting physiological hypotheses, but urged them rather to collect and generalise facts. When treating of chemical knowledge, the lecturer observed, that "the rapid progress of that department of chemical science which peculiarly includes subjects most interesting to the medical man—I mean organic chemistry—has opened a page of the book of nature, difficult, indeed, to decipher, but replete with most important consequences to medical science. The knowledge of the facts and principles of inorganic are essential to a right understanding of organic chemistry; but the medical student will not be required to follow out to its fullest extent the chemical peculiarities of the inorganic kingdom; but I do earnestly beg that you will pay sufficient attention to the second part of the course, to enable you to estimate the progress which the application of chemistry to physiology promises to ensure. Already has the controversy commenced; the master minds of the world are girding themselves for the conflict; and from the collision may truth be elicited."—Reverting to clinical lectures,—the instruction derived from which, he said, was invaluable, and yet was generally the most neglected by pupils,—he observed, that, "if examinations for degrees were conducted on the system adopted in Germany for their Staats examinations—viz., superintending the practical treatment of a few patients under the eye of the clinical professor for a given time, there would be few who would dare to neglect such a privilege."

In conclusion the lecturer said—"No time remains to consider the degree of preparation, the result of previous education, though this alone might advantageously occupy an hour's lecture. I am willing to take for granted, that you have enjoyed the average education which is usual in this country among those of your station. But I now ask, do you bring to your arduous task of acquiring the varied and complicated knowledge requisite for medical practitioners, a deep

sense of your responsibility, a firm determination to apply yourselves to your duty, a will and a power to command your attention, and address yourselves to the subject before you? Are you liable to be bound in the leaden chains of indolence, or to listen to the fascinating whispers of the siren voice of pleasure or dissipation? Have you well weighed the awful responsibility of your future position, that to you, as an instrument under Providence, will be confided the life and health of a child by its parent, of a wife by a husband? and are you prepared to adopt the only course which can support you in the trying scenes of domestic sorrow which certainly await you—viz., the consciousness of having neglected no means or opportunity of acquiring knowledge, and of exercising your judgment? Whatever motive may have induced you to enter the medical profession, whether love of science, expectation of utility, ambition, or hope of pecuniary advantages, none can be realised without energy and diligence. Nor must you be disappointed, if, after the most praiseworthy exertions, after gaining honorable distinction among your contemporaries in the school, the deserved success should not arrive so soon as you expected."

MODE OF CLEARING THE CATHETER WHEN OBSTRUCTED BY COAGULA.

By S. B. DENTON, Esq., Hornsea.

In retention of urine from enlarged prostate gland, I have often found it extremely difficult to evacuate the bladder on account of the coagula which plug up the apertures of the catheter. Nothing can be more vexatious, after we have overcome the difficulty often experienced in passing the catheter over an enlarged prostate fairly into the bladder, than to find that no urine flows off, and this may recur during repeated trials. The catheter is withdrawn, the clots of blood removed, and the instrument returned, but the result is the same; we are unable to relieve the bladder of its contents.

The above difficulty may, I apprehend, be completely surmounted by the following contrivance:—

I requested Messrs. Weiss and Son to make me a catheter, between the size of Cooper's prostate catheter and the one in common use, to fit on the cross-pipe of the stomach-pump. I fix the metal stand on the bottom pipe, the cross-pipe being adapted to the end of the catheter which projects from the urethra.

The metal stand is then immersed in a basin of warm water held by an assistant; the syringe is filled with the water, and a stream made to pass along the catheter into the bladder. On injecting the water, it will be immediately seen how perfectly and instantly this method removes the obstacle to the urine finding its way along the tube. Any foreign body stopping up the openings of the catheter can by these means be now readily removed, and the patient speedily relieved.

I have no doubt but that Mr. Weiss could readily contrive a smaller syringe with cross-pipes, which would answer the same purpose as the stomach-pump, and might be fitted in a case with a catheter so as to be very convenient for the pocket.

Oct. 20, 1842.