Lecture

ON

THE DISEASES OF CHILDREN AS A SUBJECT OF SPECIAL STUDY.

Being the Introductory to a Course on the Subject in Edinburgh.

By WM. STEPHENSON, M.D.,

FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH,
PHYSICIAN TO THE ROYAL HOSPITAL FOR SICK CHILDREN, EDINBURGH.

THE importance to medical men of a knowledge of the diseases of children is so self-evident and universally admitted, that it is quite unnecessary for me to say one word on the subject. The necessity, however, of the diseases of children being made the subject of special study on the part of students, whatever may be the opinions held thereon, is practically disavowed by all our licensing boards. Whilst an intimate knowledge of the origin and distribution of all the nerves of the body is demanded of you in your examinations, you may, if you choose, be perfectly ignorant of the physiological peculiarities of the nervous system in a child. Whilst it is required of you to know how and when to put forth your hand, if possible, to save the life of the child before it is born, it is quite unnecessary that you should have been told how to sustain and foster that life amid the far more numerous dangers that surround it in the early period of its self-existence. Before you obtain your diploma, you must now give proof at the bedside of your familiarity with the sounds of health and disease in the adult chest, and your power of eliciting by interrogation the ailments of your patient; but it is unnecessary that you should have acquired the like power over the very different means to be employed in obtaining the same information regarding the child. The consequence is that medical men pass from our colleges into the practice of their profession, to find themselves, in the majority of instances, specially deficient in that very branch which not only forms the larger proportion of their practice, but in which also the greatest mortality exists.

Anomalous as is this state of affairs, this is not the occasion upon which I would enlarge on the topic in a legislative point of view. We have here an important blank in your curriculum of study,* which is left for you to fill up how and when you can; and I cannot better preface this course of lectures than by showing wherein lie the necessity and advantage of making the Diseases of Children a subject of special study, and that, too, while yet you are students, before your leisure is curtailed by the unremitting calls of your profession.

The experience of those who have not so prepared themselves may be thus briefly stated. The system of interrogation which they have hitherto employed proves quite insufficient for the end in view. Physical signs are found to vary both as to actual presence and diagnostic value. Prognostic indications are equally at fault. In fine, the whole language of disease in early life is found to be a dialect, with many idiomatic expressions, with which they are unfamiliar.

The study of medicine may be compared to that of a language. Your knowledge of the latter may extend no further than to make your wants known, and enable you to make your way through the country where it is spoken; or you may have advanced a little further, and be able to read without difficulty any of its ordinary literature; or, still further, your acquaintance may have become so intimate that you are familiar with all its idiomatic expressions, and

* Although attendance is required on a course of lectures on "Midwifery and the Diseases of Women and Children," the last part of the subject never, in Edinburgh at all events, embraces such a review of the subject as is contemplated in the lecture. Sometimes it is never touched upon, and rarely extends further than the management of the child during the first week of life.

can analyse the writings, and enter into the true spirit of the best authors. So in medicine: your knowledge may be but sufficient to pass muster, and enable you to get along in the world; or, by dint of experience, you may acquire a readiness and tact, but be ignorant of the laws upon which it is based. But, better still, by making your own every new ray of light which the advancement of our science is throwing around, you may daily lessen the groping in the dark and routine in practice of which we still have so much to mourn.

Now the differences between the diseases of children and those of adults are pretty much those which lie between two dialects of the same language; and a practitioner trying to treat children, without some previous study, is like an Englishman attempting to read the works of Burns without a knowledge of Scotch. With the aid of a glossary the one may make out the sense, but he cannot fully enter into the feeling, and must miss much of the beauties; so the other, by means of a handbook, may treat the disease, but there is much which he, too, misses and cannot see. What, moreover, he is most likely to miss is that which affects, not only the present, but the future of his patient, and what in one member of a family may throw light on the affections of the others.

The great advance which the science of Medicine has made does not merely lie in the discrimination and accurate description of the various affections which are met with; although in this much has been done. It has been much in fashion of late to exhume from ancient writings the descriptions of diseases, for the purpose of showing the acuteness of observation and intimate knowledge of the fathers of our art. But to me these descriptions are but as dry bones when compared with the science of the day which has brought them together, bone to its bone, and not only clothed them with flesh, but imparted to them a living principle,—which has recognised among the disassociated diseases of our nosological classification the actions of one and the same morbid agency; or, regarding it from another point of view, which has enabled us to discriminate in local manifestations of the same character the effects of very different causes.

It is a matter for just pride to be able to say, with regard to the progress of medicine, that we have consigned to the grave the "entity of disease," and that the occurrence of so-called "idiopathic" affections is every day becoming more and more rare. But while I would thus express the advance of medicine, there is much in our teaching and in our textbooks that tends to foster in our minds the idea of "entity," and, from lack of knowledge, to increase the supposed idiopathic nature of local affections. Now, judging from my own experience, there is no field of medicine better adapted for studying disease in the light of which I now speak than the diseases of children. The frequency of the diathetic states, and the readiness with which they can be detected, from their well-marked characters in childhood, render the study of our subject one of the best means of extending our views as to disease, and of throwing much light upon the pathological phenomena which are met with in after-life.

An appreciation of the part which the constitutional state plays in disease is daily gaining ground in reference to children, and marks the most important advance made regarding their diseases. This is in a great measure due to the stimulus given to their study, and opportunity for observation afforded by the establishment of special hospitals for their treatment. As the time at our disposal is so limited, it will be impossible for me to enter into minute detail regarding all the affections incident to childhood. But I believe it will be more to your benefit if I endeavour to review them in the light of that advancement of which I have spoken, and put you in possession of the means whereby you can look beyond the mere local affection, and detect the character of that constitutional state which is the primary source of the disease, and through which alone you can expect successfully to treat it. This, together with an acquaintance with the special physiological and pathological peculiarities, make up an amount of foreknowledge which everyone should possess before entering on practice, and which only can be attained by making a special study of the subject.

Before entering upon our course I would have you clearly to understand what it is we are about to study. I once heard the remark made that "there is not much to be

learned about children: there are a few diseases not met with in the adult; and there is the modification of doses according to age." I trust such narrow ideas are not common. Some of the diseases which occur in childhood are peculiar to that period of life, but by far the larger number are common to all ages. The term "diseases of children" does not define our study: it is, *disease as it is in children*, whatever its nature may be, the modifications derived from peculiarities in the physiological state, the difference in the symptoms, and the significance of the physical signs.

No better illustration of the necessity for a special study of our subject can I give than that of phthisis—a disease common to all periods of life, yet which may exist to the most advanced stage in the child without one of the pathognomonic signs which are found in the adult, and on which so much importance is laid. No question is in reality more difficult to give a positive answer to, none where a nicer appreciation of all the manifold elements is required, than to say whether tubercle does or does not exist in children. All the general indications, even to extreme emaciation, may occur from other causes; while the results of the physical examinations are often uncertain or *nil*.

Again, what more common at all periods of life than pneumonia? yet the physiological peculiarities of childhood are at every step stamped upon the affection at that age. From the rapid diffusion of morbid acts in infancy, what to-day seems a trifling catarrh may to-morrow be pneumonia. The reaction in the system takes place rapidly, and is out of all proportion to the material lesion. Symptoms which in the adult would indicate a lesion of serious character may be induced from a trifling cause, such as the presence of worms in the bowel. From the intimate sympathetic relations of all the parts, symptoms of serious derangement of other organs may draw the attention entirely away from the chest, and you may thus be at a loss to say what is the nature of the disease. Again, the progress of symptoms is rapid, the physical signs are evanescent; and soon you may be gratified to find remission of the symptoms. The rapidity of breathing has gone, the fever is less, and you may be induced to give a favourable prognosis. Next day the child is dead, and by sad experience you learn the fact that in children reaction may suddenly become lowered without a favourable change having taken place in the disease.

These two illustrations I have given will suffice to show that a knowledge of disease, as it is in adults, will in no way prepare you to combat affections in childhood, although designated by the same name. Also, that a mere knowledge of symptoms, as detailed in systematic works, is insufficient when brought face to face with the disease under varying physiological and pathological states of the constitution.

Let us briefly glance at the principal peculiarities which mark the period of childhood.

The first and chief—from which, in fact, all the others spring—is, that childhood is the *period of rapid growth and development*. This growth and development takes place in a constant and regular manner; and there is a normal standard whereby we judge of a child's constitutional state. There are certain deviations from this standard, quite consistent with health, but of great importance as indications of the constitutional type and diathetic state which the child has inherited; while there are others which at once manifest a morbid action already present. Here, then, at the first step, we have a point of great practical importance—one which you will have almost daily to bring into practice, and which supplies one of the most important keys to the elucidation of many affections in the early years of life.

As the various parts of the body are undergoing development and growth they are structurally incomplete, and therefore functionally imperfect. Each system, then, demands special study as to its relative condition.

In the process of digestion, what more important than the knowledge of the proper diet as suited to the age? Yet nowhere is the student instructed in this most essential point, while he is soon to become the authority to whom many an anxious mother is to look for guidance. Many are the little details relating to food which medical men are left to acquire in the course of experience, at a cost to the patients they are in the meantime called upon to treat; and many errors thus receive the support and authority of the profession. Many of the affections of infancy are due to improper feeding, and may be satisfactorily treated by judicious regulation of diet alone.

In the respiratory system there exists a combination of circumstances which surrounds this most important function with risks and perils unknown in after years. In the young child the chest-walls are comparatively soft and yielding. The muscular system is feeble. There is frailty with marked excitability in the nervous supply or respiratory force, and the pulmonary vascular system partakes in the impressionable nature of the vascular system in general. There is consequently found great variety in the character of the respiration consistent with health; whilst a knowledge of the signs which indicate disease becomes more important. The clinical interest in auscultation increases as the child gains in age; while, as compared to more advanced years, the sounds heard in the chest are quite idiomatic in their expression of morbid states. No one, therefore, is able to interpret correctly their meaning without very considerable experience and practice. Before placing the ear to the chest, moreover, there is much important information to be obtained by an ocular examination of the chest as to its form and the character of the respiration—information often more important than that obtained by auscultation, and which is not limited merely to the respiratory system, but affords indications also as to the constitutional state of the child. In the adult such information is more obscure, and is often lost; while many indications so obtained are peculiar to, or, so to speak, idiomatic in, childhood.

The development of the nervous system is at birth complete only as regards those portions concerned in the vegetative process. All the purely animal functions are in abeyance; but the perfecting process takes place with extreme rapidity, and just in proportion to this rapidity is the liability to morbid action. The sympathetic and spinal portions predominate, and possess increased sensibility. The effect of a stimulus is therefore greater and more diffused than in the adult, giving rise to important physiological and pathological peculiarities. The condition known by the term "shock" is accordingly more frequent, and we see children succumb to a burn or scald as rapidly as do adults from the effects of lightning. All surgeons also are glad to get their child-patients safely off the operating-table, and the first few hours after the operation over. The presiding and controlling power of the encephalon is less marked, and produces the greater tendency to reflex actions, to convulsions, spasm, and some forms of paralysis. To the peculiarities of the nervous system are also to be traced many others which belong to a more general pathology.

The blood-forming function demands special study in infancy. But here our knowledge is very deficient. From the activity of the glandular system it may be readily understood that there should exist an increased tendency to alterations in the blood. As a process in itself, therefore, it demands special attention in all diseases, and the great liability to rapid deterioration is a point which must constantly be kept in view in treatment. In the course of a few hours, under an acute disease, its characters may become so altered as to demand the whole attention, while the local lesion must be placed in the background. In the study of therapeutics this peculiarity has not been sufficiently kept in view. No better illustration can I give you than in the employment of mercury. It is a general belief that children bear its administration better than adults; that they are not so liable to be constitutionally affected by it. No more ruinous error exists. Twelve grains of grey powder, or six of the green iodide, are sufficient to establish its constitutional effect in a child. But its action must not be tested upon the gums nor upon the bowels. In children one of the earliest dangerous manifestations is in producing an anæmic effect—one I have seen produced by the doses mentioned,—and for indications of which its administration must be carefully watched.

In addition to the systemic differences I have mentioned, there exists a chain of general peculiarities, which modifies and gives a special character to all morbid phenomena:—

1. There is greater activity of all the vital processes.
2. Through the extreme sensibility of the nervous system, the sympathetic relations of every part are more extensive and acute.
3. There exists with all a frailty of the vital powers, readily excited and soon exhausted.

This chain of physiological conditions produces a corresponding chain of pathological peculiarities:—

1. The exciting causes of disease act more readily.
2. Morbid action is more active and rapid, and is more liable to become diffused; the progress of symptoms also is accordingly rapid, and the physical signs evanescent.
3. Reaction takes place rapidly, and is often out of all proportion to the material lesion.
4. Reaction often suddenly becomes lowered without a favourable change having taken place with regard to the disease.
5. There may also be a want of accordance between the reaction and the lesion—such as pneumonia and pleurisy, with extensive effusion, without acute symptoms. This fact does not contradict the others I have mentioned, for when it occurs there is previous disturbance in the normal physiological relations of the various parts.
6. The frequency with which after death no structural lesion is found, or where lesion exists in one organ alone,—“death being less frequently the result of the material disorders than of the blow given to a weak organisation by a too considerable dynamic reaction.” As a corollary to this last remark, I would state that, in the course of many diseases, a period often arrives when the special characters of the disease, in relation to treatment, must be submerged before the more important general conditions of the patient.

I cannot enter further at present into this subject; but in the due appreciation of these facts in their application to special diseases, and in the modification of treatment demanded thereby, you have a vast field of study before you—one which you can alone overtake by giving special attention thereto.

(To be concluded.)

A CASE IN WHICH TWO LOOSE CARTILAGES WERE REMOVED BY SEPARATE OPERATIONS FROM THE LEFT KNEE-JOINT OF THE SAME INDIVIDUAL;

RECOVERY, WITHOUT AN UNFAVOURABLE SYMPTOM.

By HOLMES COOTE, F.R.C.S.,
SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

On the 20th of March I met by appointment Mr. Worship, of Riverhead, to operate on a patient of his, who was suffering from the presence of a loose cartilage in the left knee-joint. As we proceeded to the residence of the patient, Mr. Worship inquired of me whether I had ever met with a case in which two coexisting loose cartilages had been observed in the articulation of the knee. I replied in the negative; although I knew no reason against the possibility of such an occurrence. I had seen numerous loose bodies in the hip-joint of an aged female, who had died after many years' suffering from rheumatic arthritis; and I have since found out that which I did not at the time remember—namely, that Morgagni had related the particulars of a case in which, after death, twenty-five of these bodies were found in the knee-joint of a woman who died of apoplexy. I noticed, however, that some doubt still remained in Mr. Worship's mind whether there were one or more than one in the knee of the patient in question.

On arriving at the house, I found the patient to be a tall, well-made young man of seventeen years of age. The usual symptoms were present, so that he feared to take any active exercise. The patient, having been put on a couch, the loose cartilage was soon found near the inner condyle; but in a moment, owing to some slight movement of the limb, it disappeared. After a short manipulation, we found one on the outer side of the joint,—which we both, I believe, regarded as the same one first felt, having only shifted its position from one side to the other. I at once transfixed it with a long, sharp, and strong needle. The patient then, at his own desire, inhaled chloroform, and became insensible. I made a longitudinal incision down to the synovial

membrane over the cartilage, and, raising the latter on the end of the needle, pushed it outwards. A very limited incision through the synovial membrane allowed me to push the cartilage out of the joint. The needle was then removed, and the wound at once closed by three metallic sutures, by strips of plaster, and by a thick layer of collodion. Mr. Worship put the limb on a back-iron splint, and suspended it to a cradle—such as is in common use at St. Bartholomew's Hospital. The limb was not disturbed for a week; and Mr. Worship informed me that in the seven days the wound was closed.

Soon after rising from his bed this gentleman discovered, to his great disappointment, that there was a second loose cartilage in the same knee. Indeed, there was every reason to believe that the cartilage first felt on the inside of the joint was the same as that which now remained, and produced the usual feeling of pain and discomfort.

I met Mr. Worship at Riverhead on April 13th, but we failed to find the cartilage after the most protracted examination. The patient ascribed the failure to the fact of his having kept his bed for the last three days, when, as he said, the cartilage got into some space whence it could not be shaken. On the 17th I again went down by appointment, when the cartilage was found, transfixed by the needle, and removed in precisely the same manner as the former. The after-treatment differed in no respect; no unfavourable symptom supervened, and the gentleman is now well.

The cartilage first extracted was thin and oval, and equalled in circumference the last joint of a man's thumb. That removed by the second operation was smaller than the other, concave on one side and convex on the other.

The case here related is in many respects worthy of consideration. In the first place, it offers some evidence to prove that loose cartilages within the joints have more than one manner of formation. I will just allude to the wild idea that they may be formed of a “solidified precipitate from the synovia.” Such an hypothesis speaks for itself, and is its own condemnation. These bodies are for the most part formed in the synovial fringes, where they are nourished, and they grow until detached by accidental movements of the limb. They consist of fibro-cartilage and of earthy concretions, but not of true bone. Nor do they seem to me to increase in size after having been once fairly detached. On the contrary, I fancy I have observed that in the older cases they become shrunken, yellow, and opaque. The peduncle of attachment is soon obliterated. But the second fibro-cartilage seemed to me, from its shape and general appearance, to have been a portion of hypertrophied articular cartilage—as if it had been an outgrowth from the margin of the articular cartilage covering the extremity of the femur, and had by some accident been detached or chipped off.

Whatever may be the explanation, the case is worthy of notice in its practical bearing as to the possibility of there being two loose cartilages in the same joint—a fact impossible to determine, except upon the supposition that the patient or the surgeon may have had the luck to find them both within the grasp of his hand at the same moment.

Much has been written on the mode of removing these loose cartilages. The dangers attending a penetrating wound of a joint are well known; and of all joints, that of the knee, being the largest, gives us greatest cause of anxiety. Hence we hear of valvular incisions, of subcutaneous sections, &c., that the risk of admitting air into the joint may be avoided.

The removal of the loose cartilage by a long subcutaneous incision, as practised by Mr. Square, has the advantages attending all subcutaneous operations; but it is not quite so easy of accomplishment, nor can it be so promptly performed as the operation by direct incision. The only troublesome consequence which I have known to supervene has been a low form of inflammation in the subcutaneous areolar tissue, followed by repeated attacks of ulceration of the skin.

The mode of operating which I adopted in this case, and have repeated in other instances, effects the removal of the loose cartilage without any interference with the interior of the joint; while the immediate closure of the wound puts the divided parts into that condition most favourable for recovery. Seven days sufficed for perfect union.

Among many surgeons the free employment of antiseptics,