be capable of explanation on chemical principles by experiment with the iron group of metals and with the arsenic group of bodies. I may perhaps be allowed to say, incidentally, that if the medical men and pharmaceutists, who devoted so much time and pains a while ago to devising methods for administering that intractable body, permanganate of potash, had been familiar with my paper and with observations long antecedent to mine, they might have been spared much trouble by the information that it is the manganese itself, and not the latent oxygen they vainly thought they were getting into the system, which acts as an emmenagogue, and that the chloride and sulphate of the metal can be administered as easily and as freely as the corresponding salts of iron.

But I must recall myself and you from the contemplation of future powers to the consideration of our present duties. What we have to do is to observe and record; to watch to-day with a mind instructed and guided, but not biassed, by the results of yesterday; to bring the experience we gather, without reserve, before the Society for the information of others, submitting our views and conclusions to the judgment of our colleagues, and bringing an open mind to the appreciation or criticism of cases which they contribute in their turn. As iron sharpeneth iron, we shall put a finer edge on each others' faculties, and render our individual and collective diagnosis more certain, clear, and deep.

Diagnosis will not lose in importance as knowledge increases or becomes more easy. If we knew all that is to be known of the action of remedies, it would only render diagnosis more important than ever, just as every improvement in the accuracy and power of artillery makes the aim of the gunner of greater consequence. A bad gun—to continue a simile employed before—badly directed, may hit the mark; a good one could not by any possibility; so precision in the employment of remedies would only make failure more certain and disastrous if the diagnosis were wrong.

I have been brought irresistibly back to diagnosis, since from it all treatment must flow; and now I conclude, as I began, by thanking you for the honour you have done me in entrusting to me the duties of President of this Society, assuring you that to them will be devoted my best energies.

LETTSOMIAN LECTURES

ON

SOME OF THE MENTAL AFFECTIONS OF CHILDHOOD AND YOUTH.

Delivered before the Medical Society of London, January, 1887.

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Lecture III.

Infantile Mania.—Melancholia and Delusions.—Moral Insanity.—"Idiots Savants."—Variations in the Mental Condition.—Epilepsy and Catalepsy.—Physical Deformities.—Associated Diseases.—Rate of Growth.—Diagnosis of Idiocy.—"Backward Children."—Deferred or Absent Speech.—Morbid Anatomy.—Treatment of Feeble-mindedness.

Infantile Mania.—Infantile mania occasionally occurred in quite young children—acute maniacal attacks, in which the patient destroyed everything within reach, or crept under tables and sofas to hide, screaming and biting and scratching anyone who approached. When the attack subsided the conduct was good, but in a few days the violent mania recurred.

Melancholia and Delusions.—Cases in which there were well marked delusions of suspicion, the ordinary trust and unsuspiciousness of childhood being replaced by painful mistrust, were occasionally met with. In some cases the delusions were associated with melancholia. He related the case of a girl, herself ill-favoured in appearance, who in a maniacal attack attempted to burn her brother, of whose beauty she was jealous. About three years subsequently she became epileptic, and became later on the subject of epileptic dementia. It was highly probable that the maniacal paroxysm which manifested itself in homicidal mania was really masked epilepsy. As puberty approached, attacks of mental aberration assumed a special character; there was frequently unnatural introspection, and a critical hyper-conscientiousness became prominent. Five cases, three boys and two girls, were quoted in illustration; they were all very good and studious children, but between 11 and 13 years of age they became moody, had conscientious scruples as to their motives, being anxious not only as to whether they had told the truth, but whether they had done so in such a way as to convey to others the precise idea in their minds. These cases caused great anxiety at the time, and occasionally led to a permanent break-down, but if the climacteric period of puberty was tided over, might do well. It was important to guard against suicidal impulse. Care should be taken to be quite sure that there was no sexual deviation, and to treat it, if present, not as moral wrong, which would inevitably lead to further mental disquietude and peril, but as a physical evil. These deviations were to be recognised by the following group of symptoms: supra-orbital headache, dilated pupils, a brown-umber areola surrounding the eyes, an averted look and a statuesque bearing which even alone was often conclusive; occasionally the statuesqueness resembled a minor cataleptic state.

Moral Insanity.—Moral insanity was met with in childhood and youth—cases of purposeless theft, purposeless lying, and purposeless mischief. The subjects of this condition were sometimes intellectually bright, and had an amount of address which made them extremely troublesome to their friends. More frequently moral insanity was associated in children and youths with some (it might be a very slight) amount of mental backwardness. The manifestations of moral insanity in such cases, said Dr. Down, are multiform. I have seen a boy who had brought from school sixteen watches without being discovered by the sufferers, or the principal of the school, and this was so cleverly done as for a long time to elude detection. Another was dismissed from school because he persisted in getting on the roof, and putting pillows and other articles of bedding down the chimneys of neighbouring houses in the terrace, or in filling the pillar-boxes with stones. Another would beg sufficient money during the morning in the streets to enable him to travel backward and forward by the Underground Railway the whole of the remainder of the day. A still more dangerous form is a tendency sometimes met with of setting fire to articles of furniture, often where it would be perilous to themselves as well as others. Many forms of low cunning are developed in backward boys, by associating them with others with more wit, who are also bullies, the feebler one calling to his aid lying, theft, and deceit, to compensate for his lessened intellectual vigour. Again and again I have seen the moral sense developed in boys of this class when they have been removed from the bullying to which they had been subjected, and submitted to appropriate training. In all the cases I have met with of moral insanity, there has been marked antecedent neurotic history.

"*Idiots Savants.*"—This name has been applied to children who, while feeble-minded, exhibit special faculties which are capable of being cultivated to a very great extent. One youth was under my care who could build exquisite model ships from drawings, and carve with a great deal of skill, who yet could not understand a sentence, who had to have his food dissected for him, and who, when writing to his mother, copied *verbatim* a letter from *The Life or Captain Hedley Vicars*, by Miss Marsh, although it had not the slightest appropriateness in word or sentiment. Another has been under my care who can draw in crayons with marvellous skill and feeling, in whom, nevertheless, there was a comparative blank in all the higher faculties of mind. Extraordinary memory is often met with, associated with very great defect of reasoning power. A boy came under my observation who, having once read a book, could evermore remember it. He would recite all the answers in *Magnall's Questions* without an error, giving in detail the numbers in the astronomical division with the greatest accuracy. I discovered, however, that it was simply a process of verbal adhesion. I once gave him Gibbon's *Rise and Fall of the Roman Empire* to read. This he did; and, on reading the third page, he skipped a line, found out his mistake, and retraced his steps. Ever after, when reciting from memory the stately periods of Gibbon, he would, on coming to the third page, skip the line and go back and correct the error with as much regularity as if it had been part of the regular text. Later on, his memory for recent reading became less tenacious, but his recollection of his earlier readings never failed him. Another boy can tell the tune, words, and number of nearly every hymn in *Hymns Ancient and Modern*. Often memory takes the form of remembering dates and past events. Several children under my observation have had this faculty in an extraordinary degree. One boy never fails to be able to tell the name and address of every confectioner's shop that he has visited in London—and they have been numerous—and can as readily tell the date of every visit. Another can tell the time of

arrival of all the children at an institution, and could supply accurate records in relation to it if needed. Another knows the home-address of every resident who comes under his observation, and they are by no means few. The faculty of number is usually slightly developed with feeble-minded children, while memory is fairly well developed; and yet I have had under my observation cases where the power of mental arithmetic existed to an astonishing extent. One boy, about twelve years of age, could multiply any three figures by three figures with perfect accuracy, and as quickly as I could write the six figures on paper; and yet, so low mentally was he that, although having been for two and a half years in the almost daily habit of seeing me and talking to me, he could not tell my name. Another boy, who has recently been under my observation, can multiply two figures by two figures; while another can multiply rapidly two figures by two, and a short time since could multiply three figures by three figures, but since an epileptiform attack has lost this faculty to some extent. None of them can explain how they do it; I mean by what mental process. It has appeared to me, however, when by rare chance they have made a mistake, and some hesitation has arisen, the plan has been to clear off the multiplication of the higher figures first. Improvisation is an occasional faculty. I had a boy under my care who could take up a book, pretending to read—an art he had not acquired—and improvise stories of all kinds with a great deal of skill, and in any variety, to suit the supposed tastes of his auditors. Memory of tune is a very common faculty among the feeble-minded; they readily acquire simple airs, and rarely forget them. I have had one boy under my observation who, if he went to an opera, would carry away a recollection of all the airs, and would hum or sing them correctly. In none of the cases of "idiots savants" have I been able to trace any history of a like faculty in the parents or in the brothers and sisters, nor have I had any opportunity of making a necropsy, except in one instance. This was in the case of a boy who had a very unusual faculty, of which I have never since met another example, namely, the perfect appreciation of past or passing time. He was 17 years of age, and although not understanding, so far as I could gather, the use of a clock-face, could tell the time to a minute at any part of the day, and in any situation. I tried him on numberless occasions, and he always answered with an amount of precision truly remarkable. Gradually his response became less ready.....his health became enfeebled, and the faculty departed. At a necropsy I found that there was no difference in his cerebrum from an ordinary brain, except that he had two well-marked and distinct soft commissures..... All these cases of "idiots savants" were males; I have never met with a female.

Variations in the Mental Condition.—The congenitally feeble-minded were liable to deviations from their normal mental state. They might become the subjects of acute and chronic mania, of acute and chronic melancholia, and of dementia. While maniacal, the taciturn might become loquacious, or traces of unaccustomed mental quickness might appear; occasionally while suffering from the delirium of fever, children who had never been heard to speak made use of well-formed sentences. The congenitally feeble-minded were remarkably free from chorea and hysteria; cases of chronic and persistent inco-ordinated movements occurred, but he had not met with the acute cases so common in a general hospital, or in a hospital for children. This was probably owing to their lessened emotional life. The rare occurrence of hysteria was due to the same reason.

Epilepsy and Catalepsy.—Epilepsy, the lecturer continued, is a very common complication of feeble-mindedness. Of the whole number that have come under my observation, 24 per cent. have been at some period of their lives epileptic. This appears to be a very large average, and indicates to what a great extent the treatment of idiocy is the treatment of epilepsy. Dr. Kerlin, of Pennsylvania, states that "from an examination of the history of 300 imbecile children between the ages of 5 and 16, I find that sixty-six, or 22 per cent., are now epileptics." The percentage is so near my own as to confirm very materially my observations. My cases, however, are not within equally narrow limits as to age, but range from 2 years to 40. Dr. Kerlin further confirms my observations as to the important neurotic antecedents of feeble-minded children, when he states that 52 per cent. have in their antecedents the history of the epileptoid family of diseases. A large number fall under the developmental class, and are often associated with a history of eclampsia at first dentition. I have frequently observed attacks come on during second dentition, followed by an interval of freedom until the evolution of puberty. Epilepsy often appears for the first time at puberty, and subsequently ceases. Occasionally the status epilepticus supervenes, with the worst possible results. Catalepsy is met with among the feeble-minded, but always in my experience associated with impure habits.

Physical Abnormalities.—Lessened common sensation, defective co-ordination, diminished sense of taste and smell, imperfections of sight and obtuseness of hearing had been mentioned as physical defects frequently present in the feeble-minded. They were very prone to eczematous eruptions in the flexures of the joints and behind the ears. Dr. Laycock many years ago had called attention to the prevalence of ear abnormalities in people of a degenerate type, and my own observations, said the lecturer, coincide with his. Lobules absent, lobules adherent, helices defective, and the entire pinnæ misshapen or shrunken, are very common among the congenitally feeble-minded. The implantation of the ear is often too far back, giving an exaggerated facial development. I have had under my observation very remarkable examples of webbing, both of toes and fingers, in all cases associated with adherent lobules of the ears. The development of the hair offers some anomalies; some are hirsute over their entire bodies, and 11 per cent. have the eyebrows continuous over the nose. I have before referred to the deformations of the mouth, and the importance I attach to these in diagnosis. The tongue as a muscular organ is very ill co-ordinated, and this is one factor in the absence or defect of speech which is so characteristic of the feebleminded. In a number of cases, taken without selection, of an age when speech would be expected, 36 per cent. may be regarded as being entirely dumb, and 30 per cent. with speech indistinct, while not more than 28 per cent. speak fluently; the remaining 6 per cent. speak a little and distinctly, but with a small vocabulary. With such retarded development, it is not astonishing to find that puberty is postponed on an average two years. Mastication is often defective, partly from carious teeth, and partly from a want of persistent voluntary effort. Deglutition is often hurried, and ill-masticated food is bolted. Rumination occasionally occurs. Three well-marked examples have come under my notice; in one of the cases I found the œsophagus distinctly pouched. They all eructated their food, and then placidly re-masticated the mass. Excepting when asleep, these were the quietest times of their lives, being ordinarily restless and impatient. The whole process of feeding very closely resembled that of the ruminants. Reference was next made to the tendency to swallow unusual things, such as pebbles and neckties, and to the occasional occurrence of death from intestinal obstruction produced by impacted masses of hair. Muscular power was distinctly deficient. The organs of reproduction were ill-developed; among females the ovaries were commonly small, and among the males, in 8 per cent. of those aged 14 the testes were either undeveloped or undescended. If the investigation had been confined to congenital cases, the percentage of defective generative organs would without doubt have been much greater. A marked characteristic of the nervous system was defective reflex functions; there was a proneness to constipation, and it was extremely difficult to produce emesis by any ordinary dose. The same thing applied to the absence of cough and expectoration when they were the subjects of phthisis, for it was not uncommon for a feeble-minded patient to pass through all the stages of this disease without the slightest cough. Their vaso-motor system, on the other hand, was very sensitive; they were prone to gastric intestinal trouble from sudden change of weather, from bolting their food, from taking too much food at a meal, from too great predominance of meat as an article of diet, or from the presence of electrical disturbance.

Associated Diseases.—Occasionally feeble-mindedness was associated with disseminated sclerosis; more frequently, however, with pseudo-hypertrophic paralysis, of which Dr. Down had seen few examples not characterised by some amount of intellectual lesion. Diseases of the kidneys and liver were extremely rare, on account of the discreet and temperate habits which such patients were accustomed to lead under medical guidance; rheumatism was very exceptional, because, probably, they were not exposed to bad weather. Putting aside the diseases of childhood, diseases of the brain and of the lungs were the chief causes of death. Epilepsy, which was a very frequent complication, caused considerable mortality among the feeble-minded. Dr. Fletcher Beach had found that about 2½ per cent. of the average daily number of inmates of the schools at Darenth died from epilepsy, or more than the mortality of London from all causes whatever. The prevalence of phthisis as a cause of death among the feeble-minded varied very much with the nature of the soil on which they resided. Dr. Langdon Down's earlier observations made on 1,000 feet of Wealden Clay yielded a mortality of 39.8 per cent. of the general mortality, while more recent experience on a gravel soil showed the deaths from phthisis to be only 12 per cent. of the general mortality; thus confirming the result of Dr. Buchanan's well-known researches. Nothing was more remarkable than the readiness with which feeble-minded children succumbed to acute disease of any form, or than the way in which they were injuriously affected by climatic changes. Before

the introduction of the clinical thermometer the principal indication of deviation from health was loss of appetite.

Rate of Growth.—Feeble-minded children were shorter and lighter than the normal standard. Dr. Shuttleworth had correctly stated "that the relative rate of growth of the two sexes of idiot children follows the same rule as that of normal children, and is subject to the same variations at the age of puberty;" this rule was that boys were the taller and heavier, except at about the twelfth, thirteenth, and fourteenth years.

Diagnosis of Idiocy.—The profound cases, the lecturer said, are not difficult to diagnose, especially if associated with microcephalism, or with marked asymmetry of cranium. The congenital class is that which has to be considered in early life. There is a marked want of muscular power, as indicated by the inability to support the head and to use the hands for prehension. The eyes look out as if on an objectless world, and the attention is not arrested by the usual expedients to excite recognition in infants. To the most loving endearments there is no responsive smile, and the infantile cooing is replaced by a wailing cry. The instinctive process of feeding is often acquired with difficulty, and indicates, what I have long observed, that there is no predominance of instinct in idiocy. On the contrary, so far as instinct itself is concerned, the young animal is on a higher platform than an idiot baby. The latter would not search out the source of the maternal supply nor make successful efforts to regain the nipple if once out of the mouth. Later on there is a marked indisposition to make muscular effort, there is no responsive leap when the feet are allowed to touch the ground, and when taken in the hands the scapular muscles offer no resistance, and the arms helplessly extend themselves over the head. There is no disposition to crawl, but rather to lie on the back in an irresolute way. Still later the power of standing is deferred, and walking is an accomplishment which may never be attained.

In congenital idiots the physical deviations, such as the deformed cranium, the vaulted palate, and ill-developed ears, were of use in diagnosis, as were also the ethnic characteristics, especially the Mongolian type, which was so significant of congenital mental incapacity. In the developmental class the prow-shaped frontal bone was highly typical. The accidental class did not usually present grave deviations of conformation; except in the paralysed sub-class they were fleet and mobile, mischievous and irritated by constraint. Their mischievous pranks alternated with shrill and unmeaning cries. They were rarely able to speak, and filled up the intervals of their mobile mischievousness by blowing bubbles with saliva on their lips. The important diagnostic feature was that they lived entirely in a world of their own; their attention could not be arrested, except by diverting them into new channels by a more attractive trail; but they had usually great intensity of purpose, and succeeded in getting their own way. Slavering, which was a very common sign among the members of the three classes, arose sometimes from inattention, or from a hyperæmic condition of the salivary glands, from a prognathous jaw, from a small or weak lip, from inco-ordinate movements of the tongue, or from a combination of two or more of these conditions. Automatic movements—rotatory movements of the head on its axis, of the body from side to side, or from back to front, or rhythmical movements of the fingers before the eyes were very commonly present.

"*Backward Children.*"—It was very important that the condition of the large number of boys and girls who develop tardily (*enfants arriérés*) should be distinguished from that of idiots. Their state gave rise to much solicitude, and the prognosis depended very much on a right appreciation of their condition, as they responded very much to proper training. The most useful test, which was suggested in the first instance by Dr. Charles West, was—Can we in imagination put back the age two or more years and arrive thus at a time perfectly consistent with the mental condition of our patient? In the case of a backward child there was no difficulty in saying what period of life would be in harmony with his state. If, however, he be an idiot, no imaginary antedated age would correspond with the condition.

Deferred or Absent Speech.—Lesions of speech often constituted a basis of great interest and importance for a diagnosis. The absence of speech at five or six years of age was in itself a matter for grave anxiety. It was usually referable to one of three causes: (1) complete deafness or slight congenital defect of hearing; (2) defect of conformation in the tongue, palate, or lips; (3) defective mental power. Speech, when it existed, was often echo-like. Cases were mentioned; to the question, "How are you to-day?" came the immediate reply, "To-day;" while to "Are you a good girl?" the response was "Girl." Sometimes the whole question was repeated. The treatment of these cases was often successful. Often speech was a later development than the capacity for understanding spoken words; but gesture-language frequently took the place of spoken language in the feeble-minded.

Morbid Anatomy.—A fertile field for the investigation of the morbid anatomy of idiocy is opened up, the lecturer continued, by the inquiries of Hitzig, Jackson, and Ferrier into the localisation of function, and by improved microscopy aided by the use of staining agents. A very prominent characteristic is the diminished weight of the encephalon. Sometimes the diminution is very great, as in the microcephalic or Aztec variety. I have had the opportunity of examining several; but the most complete example was the brother of the boy described by Professor Marshall in the *Transactions* of the Royal Society. The brother in question was for some years under my care, and was an extremely good example of the susceptibility to education of even most unpromising cases. He acquired language, read books with simple words, amused himself with pictures, and much enjoyed life. He was very agile, but always rested himself by placing his hands upon his knees, and, when he ran, he did so with his head far in advance of his body, in a simian-like manner. He had a copious gesture-language, which he had adopted before he acquired speech; and when he spoke, he opened and shut his eyes and shook his head in a manner very suggestive of one of the quadrumana. He died at the age of eighteen. His mother had only given birth to two children, and they were both, as I have said, microcephalic. There was a history of extreme alcoholic intemperance on the part of the father, who died prematurely therefrom. The boy was 56 inches in height, and weighed only 39 lbs. He died from phthisis, with caseous deposit in his lungs, and with more recent disseminated tubercle. His head measured 15 inches in circumference. Its antero-posterior curve was 8 inches; its bilateral curve 8 inches; its antero-posterior diameter 5 inches, and its bilateral diameter 3.9 inches. The encephalon with its membranes weighed 15 ounces. The cerebrum was 4.2 inches long, 3.9 inches wide, and 1.8 inches high. It was attenuated in the occipital region in length, width, and depth. The departure from the ordinary course of development arose, in all probability, at an early period in the history of the germ. The convolutions which were best developed were those of the frontal, parietal, and temporal regions; while those less so were the orbital, but especially the occipital region. The central lobe, or island of Reil, was represented only by a slightly elevated prominence. Gratiolet laid great stress on the supra-marginal lobule as characteristic of man; in this brain, however, the whole was reduced to the smallest possible size, while the bent fold was disproportionately large. Certainly the conformation is not explicable by reference merely to retarded growth, and lends, therefore, no countenance to the arguments of those who regard microcephalic brains as due simply to synostosis. In this case the sutures of the cranium remained with remarkable distinctness. The defect was one of development, and not of growth merely. The evidence of this is derived from the modification of the cerebral convolutions and the simplicity of their form. While all the parts of the perfect human cerebrum were represented, they, in a large number of cases, rivalled in simplicity the quadrumanous type. Like the brain described by Professor Marshall, the simplicity of arrangement was not equal throughout the whole of the convolutions, and here again some additional proof was offered of the arrest in development not having taken place at a definite period of embryonic existence. On comparing this brain with that of his brother, it was noticed that while the parietal region remained the same, the frontal exceeded it in size. How far this was the result of the physical training to which he had been submitted one can only surmise..... Comparing his convolutions with those of the ourang and chimpanzee, they appeared to be less complex, the convolutions being smoother and less disturbed by secondary sulci. The absence of a well-defined supra-marginal lobule, the absence of the second connecting convolution, the simplicity of the bent convolution, the presence of the calcarine lobule, the absence of the accessory fold which unites the lobule of the second ascending fold to the superior marginal lobule, were all characters which approximated it to the quadrumanous brain. On the other hand, the want of symmetry, the presence of several of the external connecting folds, the absence of an operculum, the position from which the bent fold took its rise in reference to the fissure of Sylvius, the complete absence of the two internal connecting convolutions, and, lastly, the complete junction between the calloso-marginal and the middle temporal or uncinate convolutions were characters essentially human. Cases of extreme asymmetry of the brain were not infrequent, the most frequent site of want of development being the occipital lobe. Hypertrophy of the brain was not infrequently met with. A very remarkable case was related of a huge cranium with all the sutures so completely ossified that, had it oc-

curred with a microcephalic cranium, it would have been a strong argument in favour of the causal influence of premature synostosis in microcephalism. In another case, that of a remarkably stolid imbecile, aged 15, the cranium was remarkably and uniformly thickened, and the brain weighed sixty-two ounces; the entire surface of the encephalon presented a blanc-mange appearance, in great measure obscuring the outline of the convolutions, which had great simplicity. The opacity appeared to be due to the presence of lymph in the subarachnoid space, in the meshes of which lymph limpid serum was contained. The substance of the brain was very tough, and the cinerituous portion pale. In looking back over the notes of necropsies, nothing was more striking than the frequency with which extreme pallor was mentioned. Absence, more or less complete, of the commissures was met with; in 2 per cent. of the cases examined the corpus callosum, and in 8 per cent. the soft commissure, had been almost absent.

Treatment of Feeble-mindedness.—The treatment of various phases of feeble-mindedness resolved itself into medical and physical, and training both moral and intellectual. Early training was of importance in preventing the growth of bad habits. The two great hindrances to the early and successful training of feeble-minded children were: first, the advice constantly given by medical men to wait till the age of seven or fourteen years, as the case might be. I know, said Dr. Down, nothing of cataclysmal improvements, such as are here indicated. The opinion and advice have no bases in experience. The septennial periods here referred to are periods of anxiety and peril; they are not periods of sudden leaps from mental feebleness to mental vigour; they are, on the contrary, developmental crises full of danger, periods when wreck of what mental power exists is liable to take place.....The other great mistake in the medical advice which is often given is the insistance to the mother that her child should not mix or be trained with children like himself, but with more intelligent children.....The most successful training is effected with the child's equals; in this way a healthy emulation is established. Intelligent children will not take part in the amusements and games of feeble-minded ones.....The outcome of an attempt to train the feeble-minded child with others more intelligent than himself is infallibly to make his life solitary, and to accentuate the condition which it is of the greatest importance to correct.....The first thing to be done is to rescue the feeble one from this solitary life, to give him the companionship of his peers, to place him in a condition where all the machinery shall move for his benefit, and where he shall be surrounded by influences of art and nature calculated to make his life joyous, to arouse his observation, and quicken his power of thought. The basis of all treatment should be medical. Success could only be secured by maintaining the patient in the highest possible health. This was very well indicated by the intellectual torpor which followed or accompanied declension of health, and the lessened intellectual vigour which was met with in cold weather. A very liberal dietary was of great importance to maintain cerebral nutrition, which, as was evidenced by the pallor of the grey matter, was probably always defective. It should contain a fair quantity of nitrogenous elements, and be rich also in phosphatic and oleaginous constituents. Green vegetables were very essential, as in their absence there was a great tendency to become scorbutic. Farinaceous food, as represented by the so-called corn flours, should give way to the more plastic elements of nutrition found in semolina, entire wheat flour, or macaroni. Bedrooms and sitting-rooms should be spacious and well ventilated, and especially well warmed. The skin should be kept in healthy function by frequent sponge and other baths, not only for the sake of the individual health, but for the health and comfort of their associates. The exhalation from the skin of feeble-minded children was *sui generis*. It was of great importance that their residence should be on gravel soil, and with well-made walks, that no opportunity might be lost for outdoor exercise. Warm clothing was essential, to prevent as much as possible the disastrous effects of climatic changes. Dr. Fitch, of Elwyn, Pennsylvania, found that over 50 per cent of the deaths were from disease of the lungs and air-passages. Dr. Down's experience was that on a clay soil 64 per cent., while on a gravel soil 44 per cent. of the mortality was from that cause. Physical training ought to form an important part of the education. The feeble muscles must be nourished by calling into exercise their functions, as well as by massage and by galvanism. Automatic movements must be replaced by voluntary, commencing with very simple movements; and want of co-ordination must be overcome by judicious physical training, carried out in great detail, so that every voluntary muscle and every system of muscles might be called eventually into action. Little progress was made in speech until co-ordinated movements in their limbs were attained. Finger lessons must precede tongue lessons. By these means the patient was brought into practical relation with the external world, and reasoning power was initiated. Since moral training was of great importance, the patient must simultaneously be taught to subordinate his will to that of another, and that right-doing brings pleasure, and that wrong-doing is followed by its deprivation. Corporal punishment should be strictly forbidden, and in no case should the punishment interfere with the hygienic treatment. Nothing was worse than the deprivation of food for an offence, which might even be due to want of food, and removable by its administration. The intellectual training must be based on a cultivation of the senses. Lessons of the simplest kind at first, and gradually cumulative, should be given in the estimation of the qualities of form and relation of objects by the sense of touch; of colour, size, shape, and relation by sight; of sound by the ear; and of other qualities of objects by their taste and smell. Nothing must be left to the imagination. The concrete must be taught, not the abstract. The physical powers must be cultivated synchronously; they must be taught to dress and undress, to acquire habits of order and neatness, to walk with precision and to handle with tact. The defective speech was best overcome by a well-arranged plan of tongue gymnastics, followed by a cultivation of the purely imitative powers, teaching at first monosyllabic sounds which had concrete representatives. The use and value of money where shops were not accessible, was best taught by instituting a shop furnished with the usual appliances of sale; one patient acting as the customer and another as the trader. It was desirable to supplement the house and school by gardening and farming operations; by the lathe, the fretwork machine, the carpenter's bench, and, for the more advanced in education, the printer's shop. For girls, Kindergarten occupations and the various elegancies of needlework must be the outcome of persevering endeavours, while music and dancing may for all alternate with dramatic entertainments, which are most useful in appealing both to the eye and the ear. Care should be taken that the physical should interchange with the intellectual training. It was of the greatest importance that the teacher should keep clearly in view that his primary object was to make the pupil self-helpful, and, as far as possible, a useful member of the community; in this way more was done than by any other means. Mere *memoriter* knowledge was of little value; everything which made the patient practically useful made him proportionately happy.

ABSTRACTS OF THE

ERASMUS WILSON LECTURES

ON

EVOLUTION IN PATHOLOGY.

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Lecture I.—Suppression of Parts.

Huxley's Laws.—In his lectures last year, Mr. Bland Sutton endeavoured to show that the three laws formulated by Professor Huxley, as expressions of the principles concerned in evolution, in so far as relates to anatomical details, were equally applicable to pathological anatomy. The first law—There has been an excess of development of some parts in relation to others—was illustrated under the term hypertrophy. In the present course, attention would be devoted to the second law: Certain parts have undergone complete or partial suppression.

"*Os Centrale.*"—Recent researches in morphology indicated that, in the human carpus, an ossicle had been suppressed. In the manus of a very large number of vertebrates, beginning with the tailed amphibians and passing upwards to primates, we find a bone known as the "os centrale" was wedged in between the proximal and distal row of the carpus. This bone excited a great deal of interest when Henke, Reyher, and Rosenberg drew attention to the occurrence of a temporary nodule of cartilage, representing the os centrale in the human fœtus. This has since been abundantly confirmed. The interest was also quickened when Gruber, Turner, and others reported