ABSTRACT OF
The Morison Lectures

ON

THE NEUROSES OF DEVELOPMENT.

Delivered at the Royal College of Physicians, Edinburgh,

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THE lecturer proposed to treat the subject rather in a suggestive than exhaustive manner. He drew attention at the outset to the fact that the brain is found to have attained its maximum weight at about seventeen or eighteen years of age, although it has attained its full growth to within a few ounces at the age of seven years. From birth to seventeen is the period of combined growth and development of the brain; from seventeen to twenty-five is the period of brain development without growth. Physiological and pathological facts prove that the cells of an organic tissue have different qualities and are subject to different diseases during the two periods of increase of bulk and development of function. While cells are multiplying in number or size they do not energise in precisely the same way as they do after growth is completed. In the former there is of course more formative energy, and they consume more oxygen and excrete more carbonic acid and urea, and are more prone to proliferative diseases, and therefore diseases of altered function and degeneration. During the two periods mentioned the brain cells have different qualities, and still other qualities at maturity. After the brain has attained its full weight it takes at least seven or eight years to develop fully its special powers and qualities. The differences between what the brain of the child and that of the man can do is quite indescribable; the organ at these two periods might belong to two different species of animals. So far as microscopic appearances are concerned the tissues are often much the same whether an organ is fully developed in function or not. This is owing to our present imperfect methods of histological research. No histological or chemical difference can be, by present methods, demonstrated between the brain of the early adolescent of fifteen and the man of twenty-five, and yet the functional differences are indescribable. It must be assumed that where difference of function exists there must also exist difference of structure. Life was divided into two physiological eras of non-reproductive and reproductive capacity; he considered the distinction the most important one that could be made, and had not yet attracted sufficient attention. He then indicated the relation of pathological disturbances to the onset and perfecting of certain physiological functions; the most serious of all the pathological defects of the brain function are neuroses incidental to the period of development; the reproductive function is then arousing the keenest emotions, the most vivid imaginations, and the most earnest volitional efforts at the same time that the brain is discharging motor, sensory, and trophic functions. He suggested that there might be a physiological coherence of the neuroses of development which would connect anatomical and other defects in a physiological relation to more purely neurosical defects. He stated as a physiological fact that an individual organ can come to full perfection, and yet other organs in the same body be still imperfect and undeveloped. The child's skin is softer than that of the adult, and yet it is certain it is not so resisting against the germs of ringworm and many skin diseases. Any organ or tissue that is not resisting to disease may be said not to be mature. Scarletina and ringworm and similar diseases can be looked upon as due to developmental or trophic defect just as rickets undoubtedly is. Pathological considerations hang so directly on physiological facts that they cannot be dissociated. There is an important, as yet unwritten, physiological chapter on the direct order of development and coming to perfection of the various organs. Whatever tissues come soonest to perfection, it is certain that nervous tissues come latest, and take longest time to do so. While a red blood-

corpuscle probably comes to perfection in the second month in utero, a cell of the cortex does not attain maturity until twenty-five. In fact, the extreme slowness of development of brain, after growth has taken place, is a cardinal fact, and it is during this period of development that hereditary influences for good or evil come out in an exceptional way. Those tissues which develop slowly are those in which hereditary evil influences are shown. The brain from four to seven is increasing in bulk more than at any other time of life, and it takes eighteen or nineteen years to attain functional perfection. All that was worth doing or feeling in life was done after twenty-five years. He showed that the three great factors during development were age, onset of function, and heredity. In the evolution of the great brain functions, the trophic were first, then common and special sensation, then coördinated motion, then the various mental faculties, then the coördination of motion and emotion, then reproduction. That normally the reproductive function takes several years to develop after its first appearance is not fully understood. The period during which reproduction gradually comes to perfection is beyond question one of the most important. Reproduction was to be regarded as but one incident in a continuous protoplasmic life, which made a man continuous with his ancestry and posterity, and not a different being at all in a philosophical sense. Hereditary defects are brought out at certain stages: (1) in utero—the formative and embryonic stage,—in which the lesions were extremely coarse defects; (2) the period of most rapid brain growth (from birth up to seven), where the diseases were convulsions, epilepsy, meningitis, &c.; (3) the period of coördination of motion or emotion—that is, the period of pre-reproductive growth (between seven and thirteen), wonderfully free of neurotic defects; (4) the period of puberty and adolescence (from thirteen to twenty-five), which was characterised by the development of neuroses, especially as regards mind. He then discussed the relationship of the development of one function to that of another, and showed that disease resulted sometimes from an abnormal order of development, one function or faculty remaining undeveloped, while others are normal or over-developed. Child musicians and child poets are more or less pathological, and what we should promote in them was general development. Development of any faculty or power in a girl or boy, in a lad or maiden under twenty-five, that was premature in time or that was clearly out of proportion to other faculties and powers, should be carefully watched and looked on with much medical suspicion. It was often unfortunate when such qualities as courage, obstinacy, and self-confidence arose before there was judgment enough developed to regulate them: they were indications of error in order of development, and were the premature development of something that would have been most useful and necessary at a later period. Development of faculties mental and bodily must be in proper series. He in conclusion pointed out the lack of accurate knowledge in regard to the normal and abnormal in development and heredity, and the need for extended facts on these points.

A MEDICAL HOLIDAY:

*Being the Opening Lecture to the Class of Therapeutics,
Session 1890-91.*

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A CHARMING book has lately been written by Jerome, entitled "The Idle Thoughts of an Idle Fellow." It is amusing, full of anecdote and witty sayings, and I advise you to read it after the reaction, say, which follows the ordeal of an examining board. After a winter and summer session a man becomes somewhat fagged, and to such a one idleness or a holiday is as pleasant as it is to a schoolboy; and this idleness, at least the recollection of it, is more enjoyable when his hours of leisure combined pleasure and relaxation with advantage to himself and to others who may become interested by what he has seen. I wish, therefore, to tell you how I spent my holiday during the autumn months of this year. I went to Norway, and subsequently visited various health resorts in the south of England. Norway is replete with interest. Nature can

there be seen in its grandest aspects at a very reasonable outlay. The rock-bound coast, the lofty mountains, some covered with eternal snow, the beautiful sweep of the fjords, the immense lakes, the short, swift-flowing rivers, form pictures which no language can fully depict. They cannot be described, one must see them to realise them. The people are simple in their habits, honest, frugal, and hardy, and present the best types of the Scandinavian race, uncorrupted by too much civilisation, true children of nature. If any one of you should elect to go to Norway, do not attempt to rush, as many foolishly try to do, by hurrying from place to place, but rather linger on some favoured spot, and thence make excursions by steamer, by rail, by carriage, or on foot. Then, but not till then, will a holiday there be pleasant; then, but not till then, will an adequate conception be formed of its country and its people. One of my chief objects in choosing Norway for part of my holiday was to make myself acquainted with leprosy, and for this purpose I visited Bergen and its noted Leper Hospital. I was courteously received by Dr. Carl Looft, who speaks English well, and who was able to show and explain to me in all its stages this ancient and remarkable disease. It is unnecessary to enter into the history of leprosy. It is sufficient to explain to you the two forms in which it is seen—viz., the anæsthetic and the tubercular, the symptoms and course of which are different.

The *anæsthetic* is ushered in by a tired feeling, followed by neuralgic pains in different parts of the body. Subsequently spots, rather difficult at first to detect, appear on the arms and face. As the disease advances they are seen to be symmetrical, brownish red in the periphery, and in the centre white. They assume in time the size of a filbert or walnut. Anæsthesia is detected over the spots, and also on some fresh parts of the skin, and there may be also swelling of the glands. Contraction then sets in, which as a rule is permanent, and is associated with the distribution of the facial, the ulnar, and the nerves of the extremities. Paralysis follows, and ultimately topical necrosis of the bone. The course of this form of leprosy is slow, and may extend over a number of years. Thus I saw in the hospital a man who had been an inmate for thirty years.

The *tubercular*.—In this form a symmetrical tubercular eruption appears on the face, arms, and legs, and afterwards on the trunk. After a time the tubercles soften, suppurate, and break, and the disintegrating process affects the bones. The course in the tubercular is more rapid than in the anæsthetic, and death occurs in from eight to ten years. In some cases healing of the sores occurs, and brown spots with white cicatrices mark their sites. At times, also, the lungs are affected with phthisis, and the bacillus of Koch, but not the bacillus of leprosy, is recognised. The bacillus of leprosy is seen in both forms, but naturally, as the course of the disease indicates, it can be detected at an earlier stage of the tubercular than in the anæsthetic. It differs essentially from the tubercle bacillus in the following points. It is never seen in the lungs, kidneys, brain, or spinal cord. There are with it no bloodvessels, no caseous degeneration, and no giant cells. It is distinctly formed in a cell, and not—as Unna, the celebrated dermatologist, states—in the lymphatics. Further, a minor distinction between the two bacilli is this—that the tubercular bacillus colours quickly with aniline; the bacillus of leprosy with difficulty.

The opinion at Bergen with regard to the disputed question of contagion is very decided. They say the disease is not, in the ordinary sense of the term, contagious. During a series of years the disease has not been transmitted to any attendant in the hospital, with the exception of one case, where a washerwoman attached to the hospital, neglecting the usual precautions, was attacked by the tubercular form. There was in this instance no hereditary taint, yet the disease went through its usual course, and the woman died. They believe that the disease is mainly hereditary, and does not depend on any particular kind of food or on any climatic influence. It is, however, conceded that it may be contracted by a healthy person through close personal intercourse with a leper, or that it may originate from the bacillus being swallowed, or by its coming into contact with the eye. It cannot occur from inhaling the breath of a leper. In connexion with this I noted that a young man who showed me round the wards expectorated previously to entering or leaving a ward. I may also state that I saw a woman twenty-two years of age on whom the anæsthetic form was commencing. Here

there was no hereditary history, no evidence of bad food; but she had been in constant attendance on a leprosy woman in the country, and, from the limited size of the hut, had been obliged to sleep with her. This case was very pitiful. The woman had an attractive appearance, yet she was consigned to a living tomb, for no leper is allowed to leave the hospital or to receive a visit from friends. From its nature leprosy is necessarily attended with suppuration, and in the wards where the worst cases were observed the odour was distinctly sickening and fetid, and, except in the early stages, it is also offensive to the sight. In these advanced cases it was very painful to see the blotched face, the sightless eyes, and to hear the oppressive and heavy breathing of those who were slowly but surely nearing their end.

Treatment.—In ancient times the leper was banned by the Church and boycotted by the people, and old writers tell how “a pair of clappers, a barrel, a stick, cowl, and dress, were given to him. He was interdicted from appearing without his leper’s garb. He was forbidden to walk in narrow paths, to answer those who spake to him, unless in a whisper, that they might not be annoyed by the pestilent breath, and by the infectious odour which exhaled from his body. The official of the Church terminated the ceremony of his separation from his fellow creatures by throwing upon the body of the poor outcast a shovelful of earth in imitation of the closure of the grave.” Alone and unattended, except by his fellow sufferers, he had to “dree his weird.” The march of civilisation has altered this condition of matters. Father Damien’s noble life and tragic death lent additional force to efforts that had been made in mitigating the sufferings of the lepers. The cause and prevention of the disease have been discussed in the press, and in professional and social circles, and royalty has thrown its ægis over the proposal of a national leprosy fund. There is little probability of the disease spreading in this country, but in India it appears to increase unchecked, and the executive committee propose an inquiry there on its social as well as its medical aspects. Such an inquiry, by enlisting native sympathy in its support, must pave the way for legislative action, thorough and complete, by which the leper will be removed from the haunts of men to well-selected hospitals. For this separation is the only treatment which according to our present knowledge is of any avail. When the disease begins there is no hope for the afflicted one. No medicine seems to arrest its progress. With reference to this I wrote to Dr. Looft, and asked information on two points—viz.: 1. Is separation in Norway compulsory? 2. Have perchloride of mercury injections been tried in the early stage of the disease? He replied: 1. “We have in Norway no law which compels the leper to enter the hospital. The law says about the lepers that if the hygienic police find that the leper cannot get the necessary nursing at home, and that there is danger of the family being infected, the hygienic police shall compel him to enter the hospital. 2. Dr. Danielssen, the old experienced leprosy surgeon at this hospital, said to-day to me that thirty years ago he had tried an injection of the perchloride of mercury in all stages of leprosy, but never with good results. The lepers became worse, and boils and eruptions ensued.” If the perchloride had been injected as an albuminate, I should think, whatever influence it might have exerted on the disease, that there would not have been the sequelæ mentioned.

I now pass on to speak of the second part of my holiday. I walked from Plymouth to Penzance, and visited Torquay, Exmouth, St. Ives, Falmouth, and Exeter. Subsequently I took the steamer to the Scilly Islands. The Scilly Islands occupy a unique position. Within an hour from Penzance, the rocky coast of Cornwall, embracing Land’s End and the Lizards, is lost sight of, and then looking seawards you observe faintly with the unaided eye a group of rocky prominences springing right out of the ocean. As the steamer draws nearer these, you perceive the individuality of each in its greater or less extent. In number they are about 300, five are inhabited and forty bear herbage. St. Mary’s is the largest inhabited island, and we landed on its pier, after passing through a beautiful natural harbour. The circumference of the island is about nine miles, and a forenoon walk easily enables one to make its circuit. Except on the coast line it is by no means barren, for the soil in the inland is dry and fertile. The temperature is very equable. There is no extreme cold in winter or excessive heat in summer. The official record shows a mean

summer temperature of 58° F., and 46° in winter. The rainfall is about the average of what is recorded in the south-west counties of England. The prevailing wind is a genial south-wester, but occasionally a piercing blast from the east continues for some days.

As regards fogs, my inquiries were very particular, and I satisfied myself, from looking over the books kept with great care at the Meteorological station, that in the months of April and May there might be two or three days of fog, partial or complete. In the other months of the year they are rarer and never continuous—a slight fog in the morning, clearing away as the day advances. Fogs, as you are aware, prove very detrimental in hastening or evoking pulmonary changes. But the fogs here should not act as deterrents for anyone desiring to make a climatic change in winter. Further, the peculiarity of the change to St. Mary's is this—that it would give all the advantages of a sea-voyage with a minimum of the drawbacks. The exposed position of the island guarantees an abundance of saline particles in the air—the great desideratum in a sea voyage. There is an equable atmosphere during the day to draw these into the system, and the patient can have, in hotel or lodging, all those comforts in which land must be ever superior to the sea. On a stormy day he need not leave the house. He can survey the scene from an armchair and before a comfortable fire, and not, as at sea, with the dread which even the bravest feel when a gale is blowing and the hatches are battened down. Further, meals can be obtained at regular hours, with no qualmy sensations, and rest can be secured at night, uncribbed, uncabined, and unconfined. These advantages are great; they cannot be minimised. Yet a residence at St. Mary's would have certain disadvantages as compared with other winter health resorts, or even from a life on a well-appointed steamer. The island is small, the position is cramped, its surroundings and its hidden treasures can be found out in a forenoon's walk; there is a lack of society, and there is the banishment from friends, periodicals, and newspapers. The steamer from Penzance, with mails, comes in winter once a week, but its days of sailing are not fixed. These depend on the exigencies of the weather, and some aver that on account of this there may be not exactly a famine in the land, but a deficient supply of fresh provisions, butter, milk, or eggs. With regard to these I may relate the following anecdote. I was sitting in the evening with a friend on the verandah of Hugh's Hotel, the view from which when the sun is setting being beautiful in the extreme. We were admiring the prospect when a lady and gentleman approached. The latter stepped into the hotel; the lady remained outside. The evening was warm and pleasant. We forgot the necessity of an introduction, and entered into conversation with her. She had travelled. She was voluble. She lived in London, but had come to St. Mary's with her husband for the purpose of fishing. She had a doleful account to give of the island. There was no butcher, and the meat which came to the island by the steamer was at once pounced upon by the hotel keepers. One day the dinner consisted of vegetable marrow and sardines. She looked cheerful and happy, but she stated she had lost 8lb. in fourteen days. Her story was plausible, but it was not true, for we learned that butcher meat could be purchased every day of the week with the exception of Sunday and Monday. The governor of the island lives at Fresco, near to St. Mary's. His garden there, under the care of a Scotsman, testifies in a striking manner to the geniality of the climate. We saw palm trees and exotic plants only cultivated in hothouses growing in the open air. There was also a collection of ferns of all kinds and cacti. At the entrance to the garden you observe figure-heads gathered together from wrecks at different times. Some of these date back 200 years, and have been picked up from time to time by the fishermen round the coast. We learned that from St. Mary's the steamer is sent away early in January laden with narcissi and lilies for Covent-garden and other markets. New potatoes are exported in the beginning of April. Where vegetation is good there also human life will thrive; and as bearing on this I shall conclude my remarks by reading a letter from Dr. Moyle, who has practised his calling for forty years at St. Mary's. After speaking of the winter and summer temperature, to which allusion has already been made, he says, "Frost and snow are very rare; I have only witnessed snow six times, and then it only lay on the ground for a very few days. With regard to chest diseases, pneumonia and acute

bronchitis are very rare. There is phthisis, not, however, due to the climate, but the result of heredity. I could certainly recommend the climatic conditions as favourable to sufferers from pulmonary diseases and as a beneficial health-resort from December to March. There are excellent and reasonably priced lodgings to be had. There is a good market and a plentiful supply of potatoes, eggs, and cream—the Cornish cream so valuable as a curative agent in phthisis. I can from my lengthened experience state that this island is in every way a desirable residence for invalids with weak chests."

These words, garnered from the experience of a man who in the evening of his days is retiring from active work, seem convincing and true. They are beyond criticism and above cavil.

Glasgow.

EXPECTANT TREATMENT *VERSUS* OPERATIVE INTERFERENCE IN CASES OF TUBERCULAR JOINT DISEASE.¹

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THERE is one question which presents itself at once to every practitioner when he comes across a case of tubercular disease of a joint—viz., "Shall I employ expectant treatment in this case, or must operative measures be at once adopted?" and even after the decision has been made in favour of expectant treatment a similar question is constantly forcing itself on his notice during the progress of the case—viz., "Shall I go on with expectant treatment, or has the time now come for operative interference?" These are the questions which I propose to discuss in this paper. Before going further, I may state that by expectant treatment I mean all those forms of treatment, such as rest, extension, counter-irritation, pressure, &c., in which the skin is left intact, and under operative treatment all methods in which the skin is divided, varying from simple incisions to amputation.

In order to arrive at a just conclusion on this question, it is, above all, necessary to be able to picture to ourselves the general state of matters in the joint, more especially as to the distribution of the tubercular disease; and therefore I propose, in the first instance, to recall the chief points in the pathology of these affections. Tubercular disease of a joint is, as its name implies, disease in which the essential element is the presence of tubercular tissue; and I shall therefore show, in the first instance, three specimens to illustrate the three most important characteristics of such tissue. The first quality of tubercular tissue to which I would draw attention is its infectiveness. We do not find a single tubercle in a part, but as soon as one tubercle is formed others rapidly appear around it, and thus the disease goes on steadily spreading. A second quality of tubercle is its irritating character. I have said that the essential element in a tubercular disease is the presence of tubercular tissue; but, in addition to this, we also find a varying amount of chronic inflammation, and probably the greater part of the destructive changes seen in a joint is due to this inflammation rather than to actual destruction by the tubercular deposit. And this chronic inflammation is of importance not only on account of its destructiveness, but also because it enables the tubercular tissue to spread more readily and rapidly than in a healthy part. And it is in acting on this chronic inflammation that, I think, the chief effect of expectant treatment depends. By placing a limb at rest, employing extension, and applying pressure and counter-irritation, we do not act at all directly on the tubercular tissue; but these means are of known efficacy in controlling chronic inflammation, and in this case, by so controlling and diminishing the chronic inflammation, we indirectly render it more difficult for the tubercular virus to spread, and place the tissues in a better position for overcoming it. The third quality of tubercular tissue to which I would allude is that it is shortlived, and has a marked tendency to undergo a peculiar degeneration termed "caseation," and as this caseous material goes on accumulating,

¹ A paper read at the Harveian Society on Oct. 16th, 1890.