LETTSONIAN LECTURES

ON

SOME OF THE MENTAL AFFECTIONS OF
CHILDHOOD AND YOUTH.*Delivered before the Medical Society of London, January, 1887.*By J. LANGDON DOWN, M.D. LOND., F.R.C.P.,
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LECTURE II.

CAUSES OF IDIOCY. — ACCIDENTAL ORIGIN. — DEVELOPMENTAL ORIGIN. — CONGENITAL ORIGIN. INFLUENCE OF MATERNAL HEALTH; OF ALCOHOLISM; OF MALIGNANT DISEASE AND SYPHILIS; OF NEUROTIC OR PHTHISICAL INHERITANCE; OF TRADES AND PROFESSIONS; OF MARRIAGES OF CONSANGUINITY; OF ILLEGITIMACY; IDIOCY FROM DEPRIVATION OF SENSES; CRITINISM; INFLUENCE OF "OVER-EDUCATION" OF WOMEN.

THE second lecture discussed the causes of idiocy or feeble-mindedness.

Accidental Idiocy.—The history, as a rule, in these cases made the cause plain. Injury received at birth by necessary instrumental interference, was an infrequent cause. The late Dr. Ramsbotham, who had large opportunities of forming an opinion, had stated that the cases were very few in which he could trace any cerebral lesion as resulting from the employment of the forceps; and the lecturer, from statistics he had himself collected, found that it was probable that in 9 per cent. of purely "accidental" cases, instrumental interference might have been the principal factor. Far more important, however, in the production of accidental cases, was the prolonged transmission of the child in the maternal passages. In so large a proportion as 20 per cent. of all idiots whose history he had investigated, there was an undoubted account of suspended animation at birth, requiring active efforts to bring about resuscitation; the transit of the child was obviously more likely to be delayed to a perilous extent in primiparæ. Ergot had been thought to be a cause of "accidental" idiocy, but the condition for which it was used, namely, delayed transit of the child, was more probably the cause of the evil; independently of what concerned the safety of the mother, mental and physical evil to the child was more likely to be induced by prolonged pressure and a delayed use of instruments than by their early and adroit employment. Insolation in infancy was certainly a cause of accidental idiocy. Dr. Down had seen a notable number of feeble-minded children who owed their disaster to sunstroke while making the passage of the Red Sea and Suez Canal *en route* from India, or from exposure in that country. The administration of opium by nurses to keep their charges quiet, and traumatic injury to the cranium from falls, were not so common as causes of idiocy as a cursory consideration might suggest. In a large number of cases referred by the mothers to falls or suspected falls, or to opium-drugging, the objective evidence placed the congenital nature of the affection beyond dispute. But though opium-drugging was but rarely a factor in the production of feeble-mindedness, morbid sexual erethism, too often produced by nurses to procure the quietness of their charges, was a more tangible cause of mental hebetude. Meningitis very frequently led to this variety of idiocy. In a large number of cases of "accidental" idiocy there was a history of scarlatina, measles, or small-pox, followed by inflammation of the ear with extension to the membranes of the brain, or of otitis set up by catarrh. Evidence of a long past inflammatory process might be found after death, and in such cases it appeared probable that the anæmic condition of the cerebral convolutions had for a cause the constricting effect on the vessels of organised lymph at the base of the brain. Epileptiform convulsions, whether eclamptic or not, frequently caused accidental idiocy, but it was in the "developmental" class that the results of epileptiform convulsions were the most manifest. Hydrocephalus was also an occasional cause of accidental idiocy, but more frequently of the congenital variety. Paralysis arising from cerebral hæmorrhage was a cause of accidental as well as of congenital idiocy; the amount of intellectual defect varying very greatly.

Developmental Idiocy.—The maternal health during pregnancy was a very potent factor in the production of "developmental" idiocy, especially if the deviation took place during the sixth or seventh month. Causes which, occurring early in the embryonic life of the child produced congenital, operating later produced developmental idiocy. The health deviations which led up to this kind of idiocy

were sickness, whether produced by the sea or other causes, uterine hæmorrhage, great emotional disturbance or grave febrile disease. The members of this class were very prone to eclampsia at first dentition, to epilepsy or chorea at second dentition, and to epilepsy or chorea, and moral deviations at the period of puberty. At any of these epochs there might be intellectual lesion varying in gravity with the nature of the malady.

Congenital Idiocy.—The majority of idiots fell properly under the head of the congenital class, and questions as to the cause of congenital idiocy really became an inquiry into the pre-efficients, or all that had gone to the making, of idiocy. One of the great causes was heredity; there was overwhelming proof of the transmissible nature of neurotic disease, and there were also to be found in many of the progenitors of idiots indications of decadence. In the investigation into the antecedent history of 2,000 cases, in 36 per cent. of the fathers I failed, the lecturer said, to get any history which could throw light upon the affliction, and the same failure occurred in 38 per cent. of the mothers, but in only 16 per cent. did I fail in obtaining a grave history of physical or psychological decadence from one or other of the progenitors. But even where there was no evidence of gross departure from a normal standard, one could not fail to notice, frequently, cranial and other signs of racial degeneration, such as narrow palates, rabbit-mouths, bad foreheads, and facial exaggerations. The causes of idiocy are not always operative in a single generation, and it is only by having the opportunity of examining into the physical conformation of parents and grandparents that one can see that idiocy in many cases is the culmination in the individual of a gradual degenerative process. It had been a matter of speculation with me whether great disparity of age in the parents was not likely to be a cause, and strength was given to this supposition by a few remarkable cases which came under my observation—cases where the disparity was very great, and where there was feeble-mindedness in the offspring. On making inquiries, however, over a large field, I was led to results which, though interesting, did not tend to confirm the speculative opinions I at first entertained. I found that the average age of the fathers of feeble-minded children at their birth was 35½, and that of the mothers 31½; a disparity of only 4½ years. On looking about for some standard of comparison, I met with Mr. Galton's statistics on the ages of the parents of men of scientific attainments at the period of their children's birth. Mr. Galton states that their fathers average 36, and their mothers 30 years. With reference to the ages of the fathers in whose case we should naturally look for the potential cause, there is a remarkable similarity, the advantage being on the side of the procreator of feeble-minded children to the extent of ½ of a year, while there is less disparity of age among the parents of the feeble-minded than among the parents of men of prominent ability; the difference being six years in the case of Mr. Galton's selected men's parents as against 4½ in the case of the parents of afflicted ones. It is clear, therefore, that disparity of age in the parents, although doubtless having an important influence on the well-being of the offspring, does not rank as an important factor in the production of idiocy. It is worthy of remark that only 20 per cent. of the mothers give birth to idiots at the age which Aristotle regarded as the most suitable one for a vigorous progeny, namely, between 30 and 34. Whereas, according to Mr. Galton, no less than 34 per cent. of men of eminence are given birth to by their mothers at that age. There was a greater liability to idiocy among primiparous children, 24 per cent. of the 2,000 idiots examined by Dr. Down being first-born children. Prolific child-bearing appeared to be the characteristic of people begetting feeble-minded children. The preponderance of idiocy in first-born children might be due to the exalted emotional life of the father and mother as well as to the increased difficulties of parturition, and to the attendant greater risk of suspended animation; while 24 per cent. of idiots generally were first born, no less than 40 per cent. of resuscitated idiots came under this category. The production of twins was not a very appreciable cause of idiocy; 2 per cent. only of Dr. Down's collection were twins, while, on the other hand, in 2 per cent. the mothers had given birth to twins who were not afflicted in any way. The statistics collected by Dr. Arthur Mitchell, C.B., in Scotland, were rather different, for he found that one in forty idiots was one of twins. Having regard to the greater tendency to abnormal presentations, to the increased necessity for instrumental interference, and the greater liability to premature birth, Dr. Down was prepared to expect a much larger number of idiots to have been twin children.

The Influence of Maternal Health.—The lecturer, continuing, said: I attach immense importance to the emotional life of the mother during the period of pregnancy, and I feel convinced it is one of the most potent of all the pre-efficients of idiocy. In 32 per cent. of my cases there was a well-ascertained history of great mental disturbance

on the part of the mother at that time. My ever-to-be-revered teacher, the late Dr. W. B. Carpenter, relates how, at the siege of Landau in the year 1793, in addition to a violent cannonading, which kept the women in a constant state of alarm, the arsenal blew up with a terrific explosion, which few could bear with unshaken nerves. Out of ninety-two children born in that district within a few months afterwards, sixteen died at the time of birth, thirty-three languished from eight to ten months, and then died, eight became idiots and died before the age of five years, and two came into the world with numerous fractures of the bones of the limbs, probably caused by irregular uterine contractions. I can from my own experience refer to the number of cases of feeble-mindedness which were the outcome of the siege of Lucknow, and to many others the result of sudden shocks from the receipt of distressing tidings of death or other calamities. Another element in the etiology of idiocy is the physical health of the mother during the period of pregnancy. In 20 per cent. of my cases there was marked physical disturbance. In 4 per cent. of these there was a history of serious falls, falls from which uterine hæmorrhage followed; the other cases were those in which there was prolonged ill-health, and in which vomiting was a prominent symptom. They were all such events or ailments as would be likely to interfere with the nutritive life of the embryo. If, after a perusal of Mr. Galton's statistics of the antecedents of men of science, we compare the antecedents of my 2,000 cases, the contrast is so great that all wonder at the production of mental feebleness vanishes. With fathers phthisical and irascible, with mothers feeble in judgment and so emotional that everything is a cause of fright, one is astonished that they should have procreated any sane child at all, and, indeed, in some cases the whole progeny of these parents is puny and feeble, failing to perform social duties. I find that in 16 per cent. of the cases there was insanity or marked feeble-mindedness on the father's side of the family, and in 15 per cent. there was the same condition on the mother's side. Severe emotional disturbance, bordering on insanity, occurred in 4 per cent. of the fathers, while a like affection in the mothers occurred in 13 per cent.

Influence of Alcoholism.—The lecturer first referred to the difficulty of obtaining reliable statements with regard to the influence of alcoholic intemperance. He found avowed and notorious intemperance in 12 per cent. of the fathers and 2 per cent. of the mothers, but the proportion varied extremely with the stratum of society. In the upper ranks it was an insignificant factor, while in the lower social class it was of great importance. Some of the cases were the result of deterioration of the fathers' mental and physical powers, others of procreation having taken place during a debauch. In Norway, when the spirit duty was removed, insanity increased 50 per cent., and congenital idiocy 150 per cent. Dr. Down's opinion that acute alcoholism produced a distinct form of idiocy had been questioned, but M. Morel, of Rouen, had noticed similar facts, and Dr. Buez had observed that idiocy was very common among the miners of Westphalia, who, living apart from their wives, only came home, and generally got drunk on their holidays. M. Demeaux had also recorded parallel cases. Dr. Delasiauve said that in the village of Carême, whose riches were its vineyards, ten years' comparative sobriety enforced by vine disease had a sensible effect in diminishing the cases of idiocy.

Influence of Malignant Disease and Syphilis.—Without seeking to attach too much importance to the fact, it was interesting to notice that 3 per cent. of the fathers and 5 per cent. of the mothers—in all, 8 per cent. of the progenitors—died from cancer. G. fire occurred in 2 per cent. of the mothers, but not once in a father. Syphilis was not an important factor in the production of idiocy; in not more than 2 per cent. were there signs of inherited syphilis.

Influence of a Neurotic or Phthisical Inheritance.—There was a history of epilepsy in three per cent. of the fathers and in six per cent. of the mothers. Phthisis exercised a very important influence among the progenitors. There was a marked history in 25 per cent. of the fathers or their immediate relatives, and in 20 per cent. of the mothers. The Mongolian type was the outcome of a predominance of phthisis, and it included about 10 per cent. of all idiots. In 23 per cent. of the cases there was a history of idiocy, mental feebleness, insanity, or other grave neurosis in one or several of the brothers and sisters. Many facts tended to indicate that the mental condition of the embryo took its impression from the mental condition of the father at conception; just as intemperance at the time of procreation might eventuate in degenerate offspring, so various kinds of mental perturbation of the father at that time might so result. He had, for example, several instances of the father begetting healthy children, except when he was the subject of recurrent mania, when idiocy resulted to the children conceived at

that time. In like manner he had examples of healthy children being produced except when the merchant's business speculations had been hazardous, when the clergyman's parish had been disturbed, or the dissenting minister's church meetings stormy.

Influence of Trades and Professions.—After referring to the danger of drawing conclusions for general application from the experience of a single observer whose experience, however large, was certain to be limited in some directions, the lecturer continued: I have collected from my notes 400 cases with fair social antecedents, and I find that 75 per cent. are the children of merchants, country gentlemen, officers in the army and navy, gentlemen of independent means and liberal education, and members of the titled aristocracy. No less a proportion than 25 per cent. are the children of members of one or other of the three learned professions, a proportion which I take to be extremely large. On analysing still further the cases supplied by these three professions, I find that 3 per cent. are the children of lawyers, while 4 per cent. are the children of members of my own profession. The remarkable circumstance, however, in the investigation is that no less than 18 per cent. are the children of members of the clerical profession. Mr. Galton has made some interesting investigations from an opposite standpoint. He takes the members of the councils of some of the prominent scientific societies of London, such as the Royal, the Linnean, the Geological, etc., and makes the very fair inference that the 100 members of the Councils of such Societies may be taken to be men of marked scientific attainments and of intellectual prowess. He inquires into the various professions of the men who have had such representative offshoots. He finds that the legal profession, which, according to my statistics, procreates fewest idiots, gives birth to 11 per cent. of the foremost men of eminence; that the medical profession, with its 4 per cent. of idiots, gives origin to only 9 per cent. of scientific men, while the clergy, who have the maximum amount of idiocy, give birth to only 6 per cent. of men of science. In other words, while lawyers give origin to nearly three times as many scientific men as do the clergy, the clergy, on the other hand, beget six times as many feeble-minded children as do lawyers. Now, I venture to suggest that there is more than a mere accident in this. I bring it forward because, interesting in itself, it is also interesting in the support it gives to the theory that a process of natural selection has been taking place.

The Influence of Marriages of Consanguinity.—The data on which accurate calculations as to the influence of consanguineous marriages could be made were unfortunately wanting, inasmuch as there was great uncertainty as to the number of people born who were the children of first cousins; it was to be hoped that at the next census this might be remedied. Among the out-patients at the London Hospital, .5 per cent. only were the children of cousins, and the people who claimed to be the product of consanguineous marriages were, as a whole, really above the average in physique and vigour. An investigation among the workpeople in an institution gave approximately the same result. M. Boudin, using the French official returns from 1853 to 1859 inclusive, found that of every one hundred mixed marriages, there were .9 consanguineous, while from another official return of marriages in France in the years 1863 to 1865, of every one hundred mixed marriages, 1.28 were consanguineous. M. Dalby deduced from the records of the Mairie at Paris that 1.4 per cent. was the proportion of consanguineous marriages in Paris, a larger percentage than that derived from the official returns of France generally. Mr. George Darwin, in a paper read before the Statistical Society, by a calculation based on the number of same-name marriages, came to the conclusion that the ratio of consanguineous marriages in London was 1.5 per cent., and in country districts 2.75 per cent. Having regard, therefore, to results arrived at by different observers, Dr. Down thought that 1 per cent. might be taken as the percentage of marriage of first cousins. Dr. Arthur Mitchell, C.B., estimated them, at a rough guess, on the basis of his inquiries in Scotland, at 1.5 per cent. Mr. Huth appealed to the early history of the world to show that consanguineous marriages were the rule. Close intermarriage was practised by the great founders of the Hebrew race. Among the ancient Egyptians and Persians, incestuous marriages were common in the kings and people of high rank without apparently any evil result, and numberless appeals to Athenian and Spartan history showed how frequent, and yet how harmless, was marriage of near-of-kin. Dr. Down had found that in 852 cases of known parentage 60 were children of consanguineous marriages, or at the rate of 7 per cent., while among these, 46, or 5.4 per cent., were first cousins. Dr. Shuttleworth, in analysing 900 cases, had found that 5.1 per cent. were consanguineous marriages, and of these 2.9 per cent. first cousin marriages. The average number of children to relatives who have intermarried was 5 according to Dr. Shuttleworth's statistics, and 6.9 in Dr.

Langdon Down's. Consanguineous marriages were not apparently much less prolific than others. The comparison, however, was not quite sound, for Dr. Shuttleworth's statistics did not include epileptic children, whereas the lecturer's did. Recent examination of the notes of 400 fresh cases showed 26 were children of consanguineous unions, or 6½ per cent. Nineteen of these were the children of first cousins, or 4.75 per cent.; 6 were children of second cousins, and 1 of third. On further analysis I was struck, said the lecturer, with the obvious causes of their feeble-mindedness, other than the marriage of near kin, which the notes of my cases brought to light. I took out of my portfolio twenty unselected cases, and, on examining the life-history of their progenitors, I found that in one only was the consanguinity of the parents the only discoverable factor. I am convinced that frequently the absence of investigation into the other possible factors has led to such contradictory opinions on this subject. My views are quite in harmony with those of Dr. Charles Withington, who regards morbid inheritance rather than specific degenerative tendencies as accounting for all infirmities met with in the offspring of cousins. Dr. Kerlin, of Pennsylvania, a remarkably accurate observer, arrives at precisely the same conclusion as I have, that 7 per cent. of feeble-minded people are the children of consanguineous marriages. Dr. Voisin made a careful examination of 1,077 of his patients at Bicêtre and Salpêtrière, and in no instance could healthy consanguinity be regarded as the cause of idiocy, epilepsy, or insanity. I have thus endeavoured to show that while the marriage of cousins insures a degenerate offspring where there is something morbid in the family history—where phthisis, scrofula, and especially the neuroses exist, I am by no means sure that by a judicious selection of cousins the race might not be improved.

The Influence of Illegitimacy.—Dr. Arthur Mitchell, from statistics taken in Scotland, came to the conclusion that illegitimacy was a very common cause of idiocy; and it was reasonable to expect that the mental agony endured by the mother should arrest the development of the embryo, and give rise either to congenital or developmental idiocy. Attempts to produce abortion might also have a similar effect.

Idiocy from Deprivation of Senses.—Idiocy was occasionally induced by deprivation of the senses. The case of Laura Bridgman was known wherever the English language was spoken, as a triumph of the perseverance of the late Dr. Howe over difficulties which seemed insurmountable. The lecturer mentioned the case of a boy, under his care, who could neither see, hear, nor speak; this deprivation was from birth. He had a very acute sense of touch, and that of smell was equally good. He knew by their odour all those who were brought into daily relation with him, and caressed lovingly those who ministered to his wants in the way of food and warmth. Attempts were made to teach him to associate actions with things, but failed, owing to a damaged cerebrum, and he became epileptic.

Cretinism.—A very important class of cases, owing its origin to malaria or other endemic causes, was cretinism. It was not unknown in England, and had been found in Derbyshire, in some parts of Yorkshire, and in part of Somersetshire. Cretinism was also met with in England sporadically. Mr. T. B. Curling was the first to call the attention of the profession to these cases in 1850, and Dr. Down brought a case before the Pathological Society in 1869. Altogether, he had had twelve sporadic cretins under his care; and, in the majority, there was reason to believe that they were procreated during the intemperance of the father; some of the later ones could not have been procreated under any other condition. Three of the cases were males, nine females. In three only was there much intellectual response to teaching. The relationship between goitre and cretinism was discussed, and the lecturer observed that it was very noticeable that many of the physical, as well as the mental and moral, characteristics of myxoedema resembled those of sporadic cretinism, and, like it, occurred mostly in women. The only exception he had seen was a cab-driver, brought by Dr. Fenn, of Richmond, before a meeting of the Thames Valley Branch of the British Medical Association.

Influence of the "Over-Education" of Women.—Referring to the doctrine that the higher culture of the faculties of women makes them less capable of becoming "mothers of men," the lecturer said: If there is one thing more certain than another about the production of idiocy, it is the danger which arises from the culture of only one side of woman's nature; so long as only the emotional side of their nature is cultivated, and they are responsive to the least unexpected sound, unreasoning as to the world of nature about them, and thrown into emotional paroxysms by the sights and trials which will be sure to cross their path, they will, from my point of view, be liable to become the mothers of idiots. Without advocating over-pressure, which is as bad for the neurotic boy as for the neurotic girl, and which is to be avoided during the developmental life of the one as well as during

the developmental life of the other, there can be no reason why the faculties which they possess should not be cultivated, so as to make them, not only fit to be "mothers of men," but also companions and helpers of men. At all events, let the trial be made without prejudice; and let us welcome the advent of a time when women shall not be the mere frivolous toys of the hour, but have and enjoy the privileges and rights of which it is absurd to deprive them. My statistics show that we must look mainly to the health and mental life of the parents. They point to the importance of training our sons to be temperate, and our daughters to be self-possessed. They indicate that we should seek alliances for our daughters with men from a healthy stock, that our sons should avoid women whose emotions are developed at the sacrifice of their judgment and self-control. They show that idiocy is often the natural outcome of a gradual process, in which the strain becomes more and more degenerate, requiring only an insignificant factor to produce the direst results.

NOTE ON TINCTURE OF STROPHANTHUS.

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SINCE my communication, at the Cardiff meeting of the British Medical Association, on the Therapeutic Uses of Strophanthus (BRITISH MEDICAL JOURNAL, November 14th, 1885), I have been favoured with many letters from medical practitioners describing their experience of its effects. The general character of this experience has been confirmatory of the statements I had made. The therapeutic employment of strophanthus seems to be extending even more rapidly than was anticipated. Until now, this extension has been impeded by the difficulty in procuring the substance, but large supplies have recently been imported into the country by several drug merchants, and especially by two gentlemen associated with East Africa in their commercial pursuits—Mr. Buchanan, of Blantyre, and Mr. John W. Moir, of the African Lakes Company. The ample supply of strophanthus now available will no doubt lead to a further extension of its therapeutic employment in this country, and probably also in America and in the continental countries of Europe, where hitherto it has been tested to a very limited extent by a few physicians.

It has, therefore, become of importance to consider the pharmaceutical form of preparation that should be adopted, so as if possible to obtain a preparation of uniform strength and convenient dose. Were these conditions to be obtained, the preparation would generally be adopted for therapeutic purposes, and errors and risks from variations in strength and dosage would be avoided.

In the communication referred to, I described several cases of cardiac disease treated with strophanthus in the form of tincture, in which, however, several tinctures varying in strength and in other characters had been administered. These variations were to some extent due to the circumstance that, in the absence of knowledge regarding the therapeutic effects of strophanthus, trials of a tentative description were required with preparations of different strengths before one could be selected whose dose is a convenient one. More recently, I have nearly always employed a tincture corresponding to the official tincture of digitalis (1 in 8), as it was more easy with it to institute a comparison between strophanthus and digitalis. The dose of this tincture was ascertained to be from two to four minims, two minims being, in a large proportion of cases, a sufficient quantity. The preparation has in my hands proved altogether satisfactory, but no doubt for general use its dose may be an inconveniently small one.

Judging from expressions of opinion in various quarters, the requirements of general practice would in all probability be satisfactorily met by a tincture whose doses range from five to ten minims. These doses would be obtained by a tincture of 1 in 20, prepared by the following process; and I would accordingly propose the adoption of this tincture in the future applications of strophanthus in the treatment of disease.

Strophanthus seeds, deprived of their comose appendices, reduced to powder, and dried, 1 ounce or 1 part. Ether, freed from spirit, and from water, 10 fluid ounces, or 10 fluid parts. Rectified spirit, a sufficiency to obtain 1 pint, or 20 fluid parts.

Remove entirely the stalks and comose appendices from the seeds, reduce the seeds to a moderately fine powder, dry the powder by exposing for twelve hours to a temperature of 100° or 120° Fahr., and