A LECTURE ON THE INFLUENCE OF HEREDITARY PREDIS- POSITION IN THE PRODUCTION OF IMBECILITY.

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"HEREDITY," according to Ribot, "is that biological law by which all beings endowed with life tend to repeat themselves in their descendants; it is for the species what personal identity is for the individual." This law applies not only to the physical, but also to the mental life. Examples of heredity of the external structure and the internal conformation of the body have been known from ancient times, and the Romans had their *Nasones*, *Labeones*, *Buccones*, *Capitones*, and other names, derived from hereditary peculiarities. The heredity of disease has also been observed from the foundation of the art of medicine; and the transmission of a tendency or disposition to certain diseases, such as gout, tuberculosis, and cancer, is well known to all of us. The same biological law holds good as regards the mental life. Ribot gives several examples of the heredity of intellect in the lives of Bacon, Hallam, Macaulay, and others; and recently Mr. Sully has written an article, in the *Nineteenth Century*, on the "Precocity of Genius." The modes of mental life are also transmissible in their morbid form, and the study of mental diseases contributes many facts in favour of heredity. In former times, it was held that insanity may proceed from purely psychological causes, and, in accordance with the theological notion, was due to the presence of an evil spirit in the sufferer, or to the enslavement of the body by sin. This idea of mental disease has long since been exploded, and it is recognised on all sides that disease of the mind is due to disease of the brain; and, as every part of the organ is transmissible, the heredity of mental affections is not the exception, but the rule. In connection with this, we must take into account the metamorphosis or transformations of heredity. Dr. Moreau, of Tours, says: "It shows an incorrect conception of the law of heredity to look for a return of identical phenomena in each new generation. A family whose head dies insane or epileptic does not of necessity consist of lunatics or epileptics; but the children may be idiots, paralytic, or scrofulous. What the father transmits to the children is not insanity, but a vicious constitution, which will manifest itself under various forms in epilepsy, hysteria, scrofula, rickets. Thus it is that we are to understand hereditary transmission." The passion for drink is not always transmitted in that identical form, for it often degenerates into mania or idiocy. "A frequent effect of alcoholism," says Dr. Magnus Huss, "is partial or total atrophy of the brain; the organ is reduced in volume, so that it no longer fills the bony case. The consequence is a mental degeneration, which in the progeny results in lunatics and idiots." So with deaf-muteness in the parents there may be in the children some infirmity, as obtuseness of the mental faculties, or even idiocy.

Dr. Legrand du Saulle calls attention to the fact that, in houses of correction, are to be found "creatures who are whimsical, irritable, violent, with little intelligence, refractory, ungovernable, and incorrigible. These are the children," he says, "sometimes of drunkards, epileptics, or lunatics. Sometimes, and this is the most frequent case, their father is unknown, and their mother is scrofulous, rickety, hysterical, a prostitute, or a lunatic." Many of the patients in the Darenth Asylum are the children of parents of this kind.

Examining now into my own experience, I find that of 836 cases where I have been able to obtain information, there is a history of hereditary predisposition in 637, or 76 per cent. Of various authors who have examined into this cause, Moreau, of Tours, found a percentage of nine-tenths; Ludwig Dahl, of 50 per cent.; and Dr. Langdon Down, of 45 per cent. The reason for my percentage being higher than that of Ludwig Dahl and Langdon Down is probably that, agreeing with and adopting the foregoing statement of Moreau, I have included causes which those authors have not. I include the following: Intemperance, insanity, imbecility, epilepsy, phthisis, chronic neuralgia, paralysis, disease of the brain, excitability, extreme nervousness, cancer, deaf-dumbness, suicide, a masturbating father, and a mother

who is a prostitute. Many of these causes act together in the predisposition to imbecility.

The following table gives the numbers and percentages of these causes fully:—

	Male.	Female.	Total.	
Intemperance	36	39	75	or a percentage of 8.97
Intemperance and other causes	77	59	136	" " 16.26
Insanity	32	29	61	" " 7.29
Insanity and other causes	30	13	43	" " 5.14
Imbecility	8	5	13	" " 1.55
Imbecility and other causes	12	5	17	" " 2.03
Epilepsy	25	22	47	" " 5.62
Epilepsy and other causes	31	16	47	" " 5.62
Phthisis	83	59	142	" " 16.98
Chronic neuralgia	4	3	7	" " 0.83
Paralysis	20	3	23	" " 2.75
Disease of the brain	5	0	5	" " 0.59
Excitability	7	0	7	" " 0.83
Extreme nervousness	1	3	4	" " 0.47
Cancer	3	2	5	" " 0.59
Deaf-dumbness	2	0	2	" " 0.23
Suicide	0	1	1	" " 0.11
Masturbating father	1	0	1	" " 0.11
Mother a prostitute	0	1	1	" " 0.11
	377	260	637	76.08

It will be noticed from the above table that there is a history of hereditary predisposition in 377 males and 260 females, corresponding with the ratio of males to females in the asylum, where there are always half as many again of the former than the latter sex. The "other causes" mentioned above are intemperance, insanity, imbecility, epilepsy, and phthisis occurring in the parents or their relations. Phthisis and cancer have been included, because I am of opinion, with Dr. Ireland, that whatever weakens the organism of the parent may be a cause of idiocy in the offspring. Moreover, Dr. Clouston recognises a peculiar form of insanity due to phthisis in the parents, and I see no reason why imbecility should not also be the result. At any rate phthisis alone, or in combination with other causes, was present in nearly half the cases.

It is not necessary to defend intemperance as a predisposing cause, for there is no doubt, as Huss has said, that the result is a morbid degeneration in the parent, and the product is imbecility in the children. I entered fully into this question in a paper read at Cambridge a few years ago, and subsequent experience has not only borne out but has amplified the results then arrived at. Chronic neuralgia, excitability, extreme nervousness, and suicide are included, because they are all forms of a neurotic diathesis, and, therefore, may predispose to mental derangement in the offspring. In this opinion I am supported by Dr. Maudsley, who recognises that not mental derangement only, but other forms of nervous disorder, may predispose to mental unsoundness in the children. He especially notes neuralgia and suicide, and though he does not mention the word "excitability," he refers to the fact that persons with "the insane temperament" are likely to suffer an entire overthrow of their mental equilibrium. Again and again were neuralgia, nervousness and occasionally excitability, noted in connection with other causes. No defence is needed for the inclusion of paralysis and disease of the brain as predisposing causes, while Menckel has given several instances of imbecility in children of deaf-mute parents. A prostitute mother is mentioned by Legrand du Saulle as a cause of children with little intelligence, and a masturbating father certainly must suffer from considerable enervation of nerve element. The children of parents suffering from the above causes may not always be born imbeciles, but there is no doubt that they inherit nervous instability, which is easily upset by a slight cause, and imbecility is the result. That this is so is proved by the fact that several brothers and sisters of the patients at the Darenth Asylum have either suffered from or died of convulsions.

On examining further into the histories, it was noted that in some cases several members of the family suffered from one of the predisposing causes, such as insanity or epilepsy. Also it was discovered that the grandfather on the paternal or maternal side often transmitted the hereditary predisposition through the father or mother to the patient, instances being thus given of atavism or reversional heredity. Marriage of first cousins was noted in fourteen cases. In most of these there was marked mental unsoundness on both the father's and the mother's side, the most notable case being one where the father was intemperate, the grandfather intemperate and insane, the uncle intemperate and imbecile, and the mother's father was paralysed. In two cases, second cousins had married, in two the father's parents were first cousins, and in one the father had married his niece. Some cases illustrating hereditary predisposition in imbeciles are appended.

† E. B., aged 7. Father had syphilis before marriage and communicated it to mother; mother very nervous; eldest sister of mother has suffered from epileptic fits; paternal grandfather of patient imbecile; maternal grandfather very nervous; maternal grand-aunt insane. This case is a good illustration of several causes acting together to produce the imbecility, for we have insanity, imbecility, epilepsy, and great nervousness in the parents' relations. The child is stated to have been quite right at birth, and to have gone to school, where she made good progress, until two years before admission. The immediate cause of the imbecility is said to have been a fright, but it was noticed that she was becoming nervous a year before. On admission she was bright-looking, with good features, but was very vicious and bad tempered. She would scream at the top of her voice and then stop suddenly and pull out her hair. Lately she has become quiet, very helpless, and more imbecile.

E. P., aged 6. Mother consumptive, excitable, nervous, and has fits occasionally; cousin of mother insane; uncle and brother of father epileptic. One brother of the patient was born with convulsions. The history of the case was that the child had always been bright, but for the last twelve months she had become "dangerous." She had paroxysms of rage without apparent cause, during which she would tear out her hair, and bite her own and her mother's fingers. On admission she was bright and intelligent looking, and good tempered in disposition. Her mental capacity was fair, her powers of observation, imitation, and attention being good. She improved very much during her residence in the asylum, was quiet, well-behaved, and answered questions intelligently. She was taken out by her friends, after being in the asylum five months. The immediate cause of the overthrow of the child's mental equilibrium is not apparent; the excitability from which she is said to have suffered had disappeared when she was admitted, and practically her mental condition was fairly sound when she was discharged, although she had been in the asylum a very short time.

D. A. P., aged 8. Father "touched in his mind;" paternal grandfather and grandmother died in an asylum; paternal great-grandmother committed suicide; maternal aunt subject to fits. The hereditary predisposition is here seen extending through three generations on the father's side, while epilepsy is present on the mother's side. The mother had a good deal of worry during pregnancy. The child did not speak till a short time before admission. There was evidently a good deal of excitability and destructiveness present, for she never could be left with babies; she would dress and undress them, and smack them, and if she had a doll, the mother says, she would "limb" it. The hereditary neurosis was evidently well-marked in this family, for the eldest child was excitable, and the second dull; this was the third child. On admission, she was a well-nourished, dark complexioned, good-tempered child, with a pleasing expression, subject to fits occasionally. She has made a little progress since her residence in the asylum.

T. J., aged 7. Father suffered from numbness in the left arm, and had a few fits before his death from heart-disease; paternal aunt died of fits; uncle and aunt of father died of paralysis, as also did mother's grandmother and aunt. Both sides of the family, but especially the father's side, were affected. The child was bright and cheerful until 2 years of age, when he was taken with a fit while teething. After this fit he used to have them every four months, and they continued up to the time of admission. He was then a bright-looking boy, of a restless disposition, and always in mischief; mental capacity fair. Under treatment he has considerably improved, and has made good progress in school and in the tailor's shop. In 1881, it was noted that he had had no fit for two years. In 1883 he had another fit, and he has had one since.

J. W. A., aged 13. Father intemperate and sulky; aunt epileptic, and has an imbecile child; grandfather and grandmother died of apoplexy. The mother had a fright when six months pregnant. The case is a congenital one, and is interesting, showing as it does the strong influence of neurosis in the family: first, from the fact that there are two other imbecile children besides this one; and, secondly, in that the aunt, who is epileptic, has also an imbecile child. The boy was of a cheerful disposition, with small mental capacity. He was nearly five years under training, and made next to no progress.

E. K., aged 11. Maternal great-grandmother insane; maternal grandmother and aunt epileptic; maternal great-uncle was epileptic, and died paralysed; paternal grandmother epileptic; paternal aunt has a daughter who is insane. The mother fell downstairs when four or five months pregnant, and became insensible. This is an exceedingly interesting case, not only as showing the action of several predisposing causes in producing the imbecility, but also because the predisposition is seen to extend in the direct line through three genera-

tions on the mother's side and two on the father's side, while the father and mother are mentally sound. This is as well-marked a case of atavism, or reversional heredity, as could be wished for. The side lines are also affected, for the maternal grand-uncle and maternal aunt are epileptic, and the paternal aunt has an insane daughter. With such a history, it is not surprising to find that the child was not only a born imbecile, but one of the very lowest type. On admission she was found to be paralysed on the right side, and to suffer from frequent fits. She could not utter a word. She gradually became helpless, and had to be fed.

C. L. M., aged 9. Father insane; mother imbecile; maternal uncle insane; phthisis on father's side of family; mother frightened when pregnant. The child was a well-marked microcephalic imbecile, her head measuring only 15½ inches in circumference. Naturally her mental capacity was very small. Her special senses were very defective; she was paralysed on the right side, and quite helpless. She died fifteen months after admission, and on examination the posterior half of the left lobe of the brain and the posterior third of the right contained serous fluid. The brain, after the fluid had drained away, weighed only 16 ounces.

M. E. W., aged 7. The grandmother, sister of grandmother, and aunt of child, all died in asylums; father and mother mentally sound. This is another case of atavism, the hereditary predisposition extending through two generations in the direct line, in the latter, however, affecting the mother's sister. The case was a congenital one of low type, with small mental capacity. She was the eldest child; one younger had died of brain-disease. She only lived two months after admission, and on examining the brain after death, the convolutions were found to be very simple in character.

M. D., aged 14. Father very irritable; some paternal uncles have died of "head" disease, and one paternal uncle is imbecile; paternal grandfather died "raving mad." There is not much doubt that the father's irritability, which was said to be increasing, was a sign of the insane temperament, more especially as one of his brothers was an imbecile, and some others had died probably insane, or at least of disease of the brain. Besides this child, there have been nine others, of whom seven had died of convulsions, and two, who were alive, had had fits. The case was a congenital one, of fairly high type. She made good progress in school, and was apt with her needle. She was discharged after seventeen months' residence, as the mother thought she could manage her, but was readmitted nine months afterwards, being very obstinate and not amenable to treatment. She again became well-behaved, and made considerable progress.

S. J. J., aged 6½. Father has "drinking bouts" every six weeks; paternal grandfather died in an epileptic fit; mother a martyr to neuralgia; maternal aunt imbecile; maternal grandfather paralysed. Here the intemperate habits of the father were no doubt an outcome of his father's neurotic temperament; while the severe neuralgia of the mother was probably due to her father's diseased brain, more especially as her sister was an imbecile. The mother fretted a good deal while pregnant, in consequence of her husband's intemperate habits, and the child was a born imbecile of what is known as the Mongol type. His mental capacity was small, and he made very little progress while in the asylum.

Many other cases might be quoted in illustration of the influence which hereditary predisposition has in the production of imbecility; but the above are fairly typical; some being congenital cases, and others being born with unstable brains easily upset by a comparatively slight cause. Other points than those noted might have been touched upon, but it would have been difficult to do so in the time allotted to this paper.

ILLUSTRATIONS OF EXCEPTIONAL SYMPTOMS AND EXAMPLES OF RARE FORMS OF DISEASE.

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XXII.—NOTE AS TO THE INHERITANCE OF TISSUE PROCLIVITIES.

THERE are some clinical facts which make it seem probable that diseases of special tissues and parts may be inherited as such, and quite independently of the inheritance of diathesis. The best illustrations that I could quote of this would be from diseases of the eye and diseases of the skin.

A young lady, who was apparently in good health, was the subject of relapsing ophthalmia, attended by phlyctenulae and ulcers. It had begun at the age of 4, and it still persisted when, at the age of