

mountainous districts the inhabitants have, so to speak, no relations with the outer world; in certain places they even remain attached to their native place and never leave it. Under these conditions the marriage field is very restricted, and the evil results of consanguinity are very numerous."

M. Chippault is so impressed with this view of the subject that he urges that consanguine marriages should be prohibited by law.

M. Jules Falret, on the other hand, who has given a most able *résumé* of the recent views on this question, thinks that fresh researches are needed before the question can be considered as settled in a scientific point of view, and adds—

"To form a legitimate conclusion, by exclusion, on the real influence of consanguinity as a cause of particular infirmities or diseases in descendants, we must first have eliminated all other physical or moral causes which, either in parents or children, may account for the production of these diseases or anomalies of organisation."

Such is the present state of the question, and it seems to us the balance of evidence is certainly in favour of the popular notion, but the strict proof is far from being as complete as it is generally considered to be.

G. MACKENZIE BACON.

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### PART III.—QUARTERLY REPORT ON THE PROGRESS OF PSYCHOLOGICAL MEDICINE.

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#### *English Psychological Literature.*

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*On the Morbid Anatomy of the Nervous Centres in General Paralysis  
of the Insane.* By J. LOCKHART CLARKE, F.R.S., &c.

(*'Lancet,'* September 1st, 1866.)

WE give this essay of Mr. Lockhart Clarke's on the Morbid Anatomy of the Brain in Paralytic Insanity in full. It does not admit of abbreviation.

"The principal morbid appearance (he writes) that has been

described by pathologists as constant in general paralysis, is to be found in the blood-vessels of the brain. It was first pointed out by Wedl and Rokitansky, and has since been more fully described by Drs. Salomon and Sankey. These observers have shown that many of the capillaries and smaller arteries become wavy, more or less tortuous, or convoluted into knots. 'There appears,' says Dr. Sankey, 'to be some amount of tortuosity in the capillaries of every case of general paresis. This tortuosity in places amounts to a simple sharp curve or twist; in places to a kinking of the vessel; in others, to a more complete twisting, until it forms, in fact, little knots of varicose vessels of very complicated kind.'\* These appearances are well seen in preparations which Dr. Sankey was kind enough to show me, as well as in my own, and I have found them, to a certain extent, in the brain of every case of general paresis that I have examined; but they are much more striking in some cases than in others, and I agree with Dr. Sankey so far, that the amount of alteration is not always in proportion to the length of date, degree of imbecility, or of impaired motility. In an old woman who had been for a great many years an inmate of Hanwell Asylum, and whom I saw only two or three weeks before her death, I found the vessels of the cerebral hemispheres less altered in shape than in most other cases of much shorter duration.

"But the capillaries and small arteries which are thus thrown out of their usual course are also surrounded by a fibrous and cellular covering, or kind of sheath, which invests them somewhat loosely, and frequently contains grouped or isolated nuclei, fatty particles, and granules or grains of hæmatoidin, of a brown or yellowish tint. This secondary sheath is described by Rokitansky, Wedl, Sankey, and others, as an abnormal deposit of hypertrophied connective tissue, 'fitting, as it were, more or less closely to the vessel, in greater or less degree of transparency and extent, in some cases approaching a brownish hue, and marked by transverse lines like commencing contractions . . . . Whether this excess (of connective tissue fibres) is from what Rokitansky calls overgrowth of the original connective medium, or is thrown out by the capillaries, or is formed conjointly by both, is, and must probably remain, hypothetical.' †

"Rokitansky and Wedl believe that this investing substance is formed from a material thrown out by the capillaries, and that in the first stage the material is hyaline; that it afterwards contracts; that in contracting it throws the capillaries into bends or kinks; that as it goes on contracting it becomes less hyaline, more fibrous, and at length like a sheath. ‡ They do not, however, consider it as

\* 'Journal of Mental Science,' No. 48, 1864; and 'Lectures on Mental Diseases.'

† Sankey, loc. cit.

‡ Ibid.

peculiar to general paralysis, having observed it in other forms of cerebral disease; but still they describe it as an abnormal product, and as assuming the appearance of a sheath in morbid cases only.

“Now it is very important to be aware that in every healthy brain, or at least in every brain that on examination is usually considered healthy, a great number of the capillaries and small arteries are surrounded by secondary sheaths, precisely similar in all *essential* particulars to those which have been considered as morbid products in general paralysis and other cerebral affections. This anatomical fact was, I believe, first pointed out, about eleven years ago, by M. Robin of Paris, and was afterwards made the subject of a paper, with engravings, in the second volume of the ‘*Journal de Physiologie*,’ from which I extract the following passage:—

“On trouve normalement autour d’un certain nombre des capillaires du cerveau, de la moëlle, de l’épendyme, et de la pie-mère, une enveloppe épaisse de 1 à 2 millièmes de millimètre, composée d’une substance homogène ou à peine striée. Elle s’étend sous forme d’une tunique adventice, ou extérieure à bords nets, mais onduleux depuis les capillaires, qui ont 1 à 2 centièmes de millimètre, en dehors même de la tunique de tissu lamineux de ces derniers. Elle est distante de 1 à 3 centièmes de millimètre des parois propres du capillaire qu’elle enveloppe. Or, cet espace est tantôt rempli d’un liquide incolore mêlé de granulations moléculaires, tantôt de petits noyaux libres, sphériques, larges de 5 millièmes de millimètre. Ces noyaux sont tantôt rares, écartés, de manière à laisser voir les parois propres du capillaire, tantôt ils sont contigus, ou au moins assez rapprochés pour masquer les noyaux ovoïdes allongés de ces parois. Dans tous les cas, . . . . on trouve toujours, chez les sujets qui ont dépassé quarante à quarante-cinq ans, des amas de granulations graisseuses, ou des granulations graisseuses isolées, atteignant jusqu’à 2 centièmes de millimètre, qui sont dans cet espace entre les parois propres du capillaire et cette tunique transparente extérieure. Mais surtout on y trouve aussi, entre les petits noyaux ronds ci-dessus, une grande quantité de granulations et de grains très-gros d’hématosine amorphe. Ces grains d’hématosine peuvent atteindre jusqu’à 2 centièmes de millimètre, et sont isolés ou réunis plusieurs les uns à côté des autres. Ils ne sont jamais accompagnés de globules sanguins, et semblent provenir d’hématosine qui aurait exsudé des parois propres des capillaires, et se serait déposée entre ces parois et la tunique transparente à bords souvent onduleux, décrite ci-dessus.”\*

“The author goes on to say that he has not found this special sheath around the capillaries anywhere else than in the white and gray substances of the cerebro-spinal nervous centres; that it does not belong to all the vessels, and that he is unable to say precisely to what its presence or absence is due; but that he has found it in every cerebrum and cerebellum in which he has looked for it.†

“My own observations confirm the general correctness of this description and of the remaining statements of the author. I have found such sheaths around a variable number of blood-vessels in the

\* Page 543.

† Page 544.

brains of persons who have died without any apparent cerebral disorder; and one of these brains belonged to a fine, powerful, and healthy-looking young man, who was killed by an accident in the street.\*

"Yet, on comparing vertical sections of the convolutions of a healthy brain with those of a brain from a person who has died of general paralysis, a striking difference between them is often observable even to the naked eye. In the latter case, a series of streaks or lines may frequently be seen radiating through the white and gray substances towards the surface; and in vertical sections of convolutions that have been hardened in chromic acid, it is very common to perceive, in the white substance especially, what seems at first sight to be a number of vertical fissures and oval slits, which, under the microscope, however, are found to contain blood-vessels surrounded by sheaths like those already described. But the sheaths in these cases are often less delicate; they are thicker, more conspicuous, and frequently darker than in the healthy brain; and sometimes, especially when the vessels are convoluted, they appear as fusiform dilations along their course. Moreover, while in the healthy brain the granules or grains of hæmatoisin are commonly scanty, and frequently absent altogether, in general paralysis they mostly abound, being scattered in some places, and collected into groups in others. So much for the state of the cerebral blood-vessels in general paresis. In the nerve-cells of the convolutions I have frequently discovered certain structural changes, which, as far as I am aware, have not been mentioned by other observers. These changes consist of an increase in the number of the contained pigment-granules, which in some instances completely fill the cell. In other instances the cell loses its sharp contour, and looks like an irregular heap of particles ready to fall asunder.†

"A French writer, M. Joire, has stated that, during an experience of three years, he has always found in cases of general paralysis a peculiar alteration of structure in the fourth ventricle of the brain. This alteration consists of the formation of a considerable number of granulations resembling the elevations produced on the skin under the influence of cold. At an early stage of the disease the granulations are numerous and small, and suggest the idea of a surface

\* It was this brain chiefly that I employed in my "Researches on the Minute Anatomy of the Cerebral Convolutions." ('Proceedings of the Royal Society,' vol. xii, No. 57.)

† These are not to be confounded with the "granule" or "exudation" cells of authors. The filling of the nerve-cells with pigment-granules, as an early stage of degeneration, I formerly pointed out in diseases of the spinal cord and of other parts. (Beale's 'Archives of Medicine,' No. xiii.) Dr. Hughes Bennett had also described fatty degeneration and consequent disintegration of nerve-cells of the nervous centres. This distinguished pathologist has represented the change in Fig. 405 of his great work on 'The Principles and Practice of Medicine,' fourth edition.

covered with grains of sand. In older cases the granules are larger, and afford a rough sensation to the touch. They are most remarkable at the point of the calamus scriptorius.\*

“The appearance described by M. Joire is quite familiar to me, but I have not always found it in general paralysis; and it is certainly not peculiar to this disease, for I found it in cases of an entirely different nature. In Beale’s ‘Archives of Medicine’ (No. ix, 1861) I recorded a remarkable case of muscular atrophy, in which, together with lesions of the cord, this granular appearance on the floor of the fourth ventricle was very strikingly manifested. I then showed that it was due to hypertrophy of the ordinary epithelium by which the ventricle is lined. It may be well to reproduce my description. ‘The whole floor of the fourth ventricle presented a very peculiar and unnatural aspect. Instead of being smooth and shiny, as in the healthy state, it was entirely paved with a multitude of granulations or small rounded eminences, which were very closely aggregated, but differed from each other considerably in size. I removed some of them for examination, first by scraping them off from the surface, to which they adhered with considerable tenacity; and then by shaving off a section, together with a thin layer of the subjacent tissue. When examined by a sufficiently high magnifying power, the granulations or eminences were seen to consist of globular aggregations of the ordinary epithelial cells, which, in a natural or healthy state, are arranged side by side, and form a smooth or level surface on the floor of the ventricle. The tissue immediately subjacent, and which consists of exceedingly fine fibres proceeding from the tapering ends of the epithelial cells, and running in various directions, was more abundant than usual; and—as might be expected from the homologous relation of this part to that which surrounds the spinal canal—it was interspersed with *corpora amylacea*, but certainly not to a corresponding extent.’†

“In protracted cases of general paralysis the spinal cord is mostly, if not always, more or less affected. In some instances I have found it softened in certain parts to the consistence of cream. In other instances, in which there was little or no external appearance of softening, I have found numerous areas of granular and fluid disintegration within and around the gray substance.”

\* ‘Gazette Médicale de Paris,’ Aug., 1864.

† Beale’s ‘Archives of Medicine,’ No. ix, Oct., 1861, p. 18.