tions." An important factor in this, he asserts, is the fixed idea, often depending on shock, &c. The memory, too, is essentially affected.

The author quotes at length cases illustrative of these views, and concludes his instructive and suggestive paper by the statement that, while considering hysteria as a psychosis, he accepts Janet's (2) views as a working hypothesis.

(1) *Glasgow Medical Journal*, December, 1897. (2) État mental des hystériques; les stigmates mentaux.

Part III.—Psychological Retrospect.

FRENCH RETROSPECT.

By Dr. MACEVOY.

The Self-immured (*voluntary entombment*).—Under this heading in *Revue Scientifique* (1898, No. 10) M. Michel Delines resumes a study of social psycho-pathology which Prof. Sikorski, of Kieff, has published in *Questions de médecine névro-psychique* concerning an epidemic of suicide which took place at Ternovo, in Southern Russia. Most of the details were obtained from the sole survivor of this tragedy, one Feodor Kovalev, who helped his co-religionists to bury themselves alive.

The Kovalev family, belonging to the old Russian faith, owned some property at Ternovo, where they extended hospitality to their fellow-sectarians, so that in time a kind of convent (*skit*) was established, where men and women led an ascetic life. Two individuals were predominant in the establishment, Mme. Kovalev, Feodor's mother, and a certain woman called Vitalie,—the former a good, industrious, sweet woman; the latter a spinster of thirty-five years, full of energy and decision. Vitalie very soon became the leading spirit of the convent; she administered the place and superintended everything (said mass, preached, laid down laws, &c.), although she made show of consulting Mother Kovalev. To a certain Pauline the younger, another inmate, Sikorski believes, however, must be assigned an important share in the elaboration of plans, and the psychological preparation for the terrible events which occurred at Ternovo, for Vitalie never decided upon anything before consulting her. Vitalie fasted, prayed, and read out from the old church works, but she knew very little concerning every-day occurrences as related in newspapers and modern works. Pauline, on the contrary, was more up-to-date, commented upon the events of the day, and stimulated the zeal of her companion.

In the autumn of 1896 Vitalie and Pauline began to talk of persecutions which they foresaw against their sect; they told their companions that they were to be sent to Siberia or imprisoned. The habitual feelings of the inmates of the convent—exasperation, suspicion, and cause-

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less apprehensions—became more and more manifest in Vitalie, and she succeeded in deeply impressing the women and children of the Kovalev family. September and October appear to have been spent in a state of anxiety and fear by the members of the *skit;* all were expecting deportation or reclusion. They abandoned their ordinary occupations; some provided themselves with a supply of warm clothing in case of exile; others sold their worldly goods, preparing for death; nights were spent in prayer, &c.; in short, life became intolerable to them, and when one of the young inmates exclaimed one day, "Let us bury ourselves alive," the suggestion was eagerly adopted as an alternative to the torture and mutilation which they anticipated in prison.

The announcement of a general census throughout the Russian Empire precipitated matters, and may be called the exciting cause of this collective suicide, which Prof. Sikorski looks upon as an explosion of atavism; for the events which took place at Ternovo recall vividly the collective suicides by fire, water, and burial which were common in Russia at the end of the seventeenth century and during the eighteenth. The document which was handed over to the census-takers when they knocked at the door of the *skit* is identical with those which we find were written by the Sectarians of 1723 and 1736 prior to immuring themselves.

Death by starvation was first entertained; but the fear that their children might survive them and be baptised in the orthodox faith led to the decision of burial. Vitalie was the prime mover in the preparations for the entombment; she quoted scriptures in favour of this resolution, told the community that Antichrist had descended, that the end of the world was due in two or three days, &c.; she even sent for her own sister and persuaded her to give a good example by taking the lead and burying herself first.

Four groups were successively buried. The first group consisted of nine persons, and included Kovalev's wife and two children, Vitalie's sister, and Pauline's father. The grave—four metres long, four metres in breadth, and equal in depth to the height of a man—was dug in a cave near the house of Fomine, at which the victims spent the night of December 23rd in prayer and singing hymns, &c. They proceeded to the tomb enshrouded, holding lighted tapers, and singing a funereal mass; the condition of religious ecstasy into which the victims had worked themselves seems to have taken away from the minds of Kovalev, Vitalie, and others who accompanied them all idea of the torture which they were about to undergo. Kovalev by command of Vitalie closed the grave after the last victim had descended.

Among many of the details which were observed a few months later (April, 1897), when the grave was opened, it is interesting to note that no scratches or bruises were found on the bodies of the victims, such as are usually described in the case of persons buried alive; but an agonising death undoubtedly took place from asphyxia, probably in from one and a half to eight hours.

Four days later a second group, consisting of six victims, were entombed; among them was a hardened drunkard, Mateï Soukhov, who seems to have been induced to join them while in a state of apathy

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following upon a drinking bout. Kovalev, who again sealed the tomb, only at the last moment informed them of the fate of the first group.

On the 5th of February, 1897, Vitalie and six other persons were arrested by the police authorities for refusing to answer to the questions of the census officials; but owing to their refusal to take food, they were allowed to return to the convent after five days—the convent being guarded.

Shortly after this a third group, consisting of four women, one of whom was Kovalev's sister, were buried. Kovalev buried them in a grave which he dug one kilometre away from his house; the victims were placed side by side, and he gradually covered them with earth, beginning with the legs, and finally flattening the earth over the bodies by treading upon it by command of Vitalie, who was the only other spectator of this gruesome tragedy. Death no doubt took place rapidly in this case; for when the bodies were unearthed later on, their eyes were found wide open, their tongues protruding, and the faces agonised.

The last group, consisting of six persons, included Vitalie herself, Kovalev's mother, Pauline the younger, and Dmitri, an idiot brother of Kovalev. Kovalev's mother, who was strongly averse to suicide, was finally prompted to take the fatal step on hearing her idiot son Dmitri exclaim one day as if inspired, "Mother, why do you hesitate? Spit upon what you leave here below; but there, above, you will be happy." Vitalie was also impressed by these words, but she seems to have joined the last group more from a feeling of fear that justice would later on fasten the responsibility of the previous suicides upon her, than from a conviction that her death was necessary to expiate her faults and qualify her for an eternal reward.

Feodor Kovalev and his brother Dmitri dug the grave, and the former as on the other occasions sealed it, his last promise to Vitalie being that he would not long survive them.

The last part of the article is taken up with an analysis of the character of Feodor Kovalev, who, whatever may have been his share in instigating these collective suicides, was the principal agent in carrying them out. Sikorski argues in detail, if unconvincingly, that he was a mere tool in the hands of Vitalie, but that his moral deliverance took place after her death. A careful examination of certain characteristics in the expression and facial stigmata of Kovalev leads him to conclude that there was a marked difference in their appearance just before his arrest (*i. e.* at the time of the crime) and two months after.

Under the influence of Vitalie, Kovalev would seem to have suffered from abolition of will, paralysis of energy and even feeling, although he was of fair development on the affective side. With time a feeling of remorse seems to penetrate into this callous nature, and he bemoans the absence of any one sensible person in the skit: "Why was there no one there to enlighten us?" "It is impossible," says Sikorski, "not to feel immense pity for this man, who now without ceasing questions those around him to clear up the mist which obscures his mind."

Such collective suicides as those of Ternovo are not rare in the history of the Russian people, and Sapojnikov, in an interesting work,

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mentions numerous examples which have occurred in the seventeenth, eighteenth, and nineteenth centuries. In most of them the instigators have taken no part in the suicides, but have been prime movers in the preparations. A process of psychological selection paves the way, so that communities of this kind in time come to consist (by gradual elimination of those who offer any resistance to morbid ideas) of degenerates, pessimists, psychically morbid individuals, &c., whom some enthusiast easily fires into the belief that suicide is a short road to eternal happiness. That collective suicide is almost confined to Russia is explained by the absence of treatment of the insane; one twentieth of them only, it appears, are under care in asylums, so it is easy to see how the remainder give a stamp of madness to the collective acts which occur during social crises.

Unquestionably, among the sectarians of Ternovo there were confirmed lunatics; and besides the fear of the census, which was considered to be the work of Antichrist, the inmates of the skit were told, among other things, by Vitalie that in dying they would found a place of pilgrimage rich in relics, where thousands would come, as at Tchernigov (where the miraculous relics of St. Theodosius had just been discovered), to worship. Kovalev, says Professor Sikorski, was so imbued with this idea, that when the remains of the immured were unearthed in his presence he manifested much exultation, and expected that miracles would follow.

A study of this epidemic of suicides is in many respects of great interest, and is a further contribution to a subject which has received a good deal of attention of late years—the psychology of crowds.

Criminal Lunatics.—Dr. Henri Colin, of Gaillon Asylum, urged at the meeting of the Société Générale des Prisons the construction of a special State asylum for the treatment of criminal lunatics (see *Revue de Psychiatrie*, 1898, No. 3). The generally received opinion at the present day is that criminal lunatics are a special class of individuals, differing from ordinary criminals and from the ordinary insane of our asylums, and therefore requiring special care. With regard to the difference which has been suggested between criminal lunatics and insane criminals, there appears to be no reason to apply different treatment to them. Prison treatment Colin does not consider a factor in the ætiology of insanity; insane criminals are either lunatics unrecognised, or individuals strongly predisposed to insanity by a morbid heredity. Three cases, among a number of others observed by the author, are given of insane criminals who were really unrecognised lunatics when sentenced. Motet has laid great stress on this.

At present in France the treatment of criminal lunatics is unsatisfactory. Two cases may occur; either the individual is declared irresponsible during the trial, or the insanity manifests itself (or is recognised) after he is sentenced. In the first case the individual is discharged, or is sent to an ordinary asylum, whence he is soon discharged to begin over again. In the second case he cannot be kept in prison, and is sent to an ordinary asylum, or to the special quarter at Gaillon for insane criminals. The inmates here complete their term of imprisonment, at the end of which time, if still ill, they are sent to an

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asylum; if well, they are discharged, although, as Colin observes, there may be ten chances to one that there will be a recurrence. A few cases out of a number in his experience are quoted to show this. It is obvious that society is not well protected under this system. What is wanted is a special asylum, placed under the immediate control of the State, especially independent of the local influence of county councils, &c.; for the author mentions instances of ordinary lunatics who are left at large so as not to swell the rates of the district, and he pertinently asks what will happen in the case of criminal ones. The construction of special quarters for these cases in the different asylums presents many obvious disadvantages. A central asylum, like our own Broadmoor, is therefore what Dr. Colin urges; and to prevent overcrowding he advises the adoption of the practice followed there,—dements, general paralytics, and incurable lunatics who have become harmless can be drafted on to ordinary asylums. Moreover conditional discharge, he believes, is a useful procedure.

In conclusion, he also hopes to see Dr. Motet's suggestion carried out—that there should be in all large prisons a special observation quarter for the reception of doubtful insane criminals. Only under these circumstances can proper expert reports be made; the prisoners simulating insanity can then be carefully examined, being submitted to skilled continuous observation.

Atrophy of the Optic Nerve in relation to General Paralysis and Tabes.—Dr. M. Klippel (*Revue de Psychiatrie*, 1898, No. 4) endeavours to show that a consideration of the different reaction of the optic nerve in the two diseases tabes and general paralysis throws light on their different pathogeny.

Grey degeneration or grey atrophy of the optic nerve leading to blindness is fairly frequent in tabes, but absent in general paralysis. Why this difference? The explanation is that in tabes the more peripheral neurons are affected, in general paralysis the more central ones.

If occasionally the central neurons are affected in tabes (*e.g.* tabetic dementia) it is only secondarily, late in the disease, and with difficulty; and in the same way it is infrequent to find general paralysis reacting upon the peripheral neurons.

If we take the retina, we find that it contains certain nerve-cells, with prolongations constituting the optic teleneuron. On the one hand these protoplasmic prolongations are related to cells which transmit to them the luminous impressions. The impression reaches the centre of the cell, hence it travels in the cylindrical prolongation, where fresh neurons intervene. The luminous impression is carried by them to the ganglia at the base of the brain, where it is again taken up by a third kind of neuron in contact with those of the periphery.

In tabes the two optic teleneurons are affected. What do these peripheral neurons of vision represent in the domain of general sensation? Certain cells of the retina are the homologues of the cells of the spinal ganglia; the retina is in part an intervertebral ganglion projected to the periphery. So that grey degeneration of the retina is nothing else but grey degeneration of the peripheral teleneurons. This is not

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merely an enticing hypothesis; for let us recall in this connection that in some animals the spinal ganglia, placed at the level of the external tegument, are in the same position as the retina in man: moreover in man, too, the centre of the gustatory teleneuron is already far apart from the bulbar origin of the glosso-pharyngeal nerve; and that, still more important, the olfactory teleneuron is none other than the olfactory cell seated in the pituitary membrane, the olfactory nerve itself representing nothing more than a posterior spinal nerve-root. Well, tabes is precisely a disease which affects all or part of the system of the sensory teleneurons, both those of general sensation and those of special sensation. The localisation of tabes is, therefore, in the peripheral neurons.

Now if we consider general paralysis, we find that it is the central neurons which are affected; these occupy in the nerve-centres and in the spinal cord different sites from those of the teleneurons which are prolonged into them. It is for this reason that the posterior roots, and especially that which the retinal system represents (an integral part of the neurons in which tabes is localised), are not affected or only very slightly by general paralysis; in any case that they can only be affected by reason of what Klippel calls "the degeneration of transmission," and not through a primary and intense localisation in them.

To resume, the presence of grey degeneration of the optic nerve leading to blindness in tabes, and its absence in general paralysis, seem to enable us to establish the respective distribution of the lesions in these two diseases, if we take care to deduce the general considerations which are related thereto. Probably no neuron of sensation is more strikingly affected in the one disease (tabes); none more clearly spared in the other.

A Case of Juvenile General Paralysis beginning in the Spinal Cord.—Professor Joffroy *à propos* of a case of juvenile general paralysis, makes some important remarks on this affection (*s. Revue de Psychiatrie*, 1898, No. 6). Female, æt. 23, was shown to his class at St. Anne Asylum, after having been ill two years, in a helpless condition, unable to walk or stand up, with violent tremors, marked affection of speech, inequality of pupils and Argyll Robertson phenomenon, demented, and having lost control over bladder and rectum. In addition there was marked general anæsthesia and slow reflexes, suggesting the idea of a medullary lesion.

In this connection he recalls a case of a youth æt. 19 years, who, after being ill on and off for four years, went under Charcot at the Salpêtrière with paraplegia, leading to a diagnosis of "organic lesion of the spinal cord." Under a treatment with ergot and the actual cautery the paraplegia disappeared. Later on there appeared anæsthesia of the face and arms, and siftiophobia, which suggested hysteria. Whereupon there rapidly appeared weakness of legs, emaciation, affection of speech, tremors of lips, unequal and inactive pupils, wet and dirty habits, &c., and early death, with post-mortem evidences of general paralysis. "These famous cases of tabes ending in general paralysis," says Joffroy, "are really cases of general paralysis beginning with lesions of the spinal cord," *i. e.* pathologically and often clinically distinct from true tabes.

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Looking over the records of twenty-two cases of juvenile general paralysis (Clousten, Turnbull, Régis, Wiglesworth, Ballet, Charcot and Dutil, Legrain, &c.), after reviewing some of the important clinical aspects of these cases, predominance of physical signs and of emaciation, rarity of megalomania, disorders of sensation, &c., the ætiology, especially to Joffroy, is a question of great interest. Puberty appears to be the common period of invasion (average age of onset fifteen and a half years for males, fourteen and a half for females) in these juvenile cases, but the most potent factor is *heredity*. In seventeen out of the twenty-two cases referred to above, one finds marked nervous disorder in the family (insanity, nervous diseases, or neuroses). Joffroy examines the much debated *rôle* which alcohol and syphilis in the generators are said to play in the causation of this disease; he much doubts whether the child of a syphilitic parent is necessarily tainted, and shows how important it is to discriminate in talking of congenital or inherited syphilis. Alcohol, on the other hand, he believes to be a powerful ætiological factor in this disease.

The Toxicity of Sweat in Epileptics and Melancholiacs.—Mavrojannis has made observations on the character of the sweat in epileptics and melancholiacs, among patients under the care of Dr. Toulouse, which do not at all agree with the conclusions of Cabitto of Geneva (*Revue de Psychiatrie*, 1898, No. 7).

In the case of epileptics the patients were females, and the urine first passed after each attack was carefully examined as well as the sweat. Like other observers, he finds that the toxicity of the urine is nearly always below the normal.

Experiment 1.—L—, 32 years. 20 c.c. of sweat collected half an hour after a strong attack. Injected into the veins of a rabbit: slight depression and some aching of the back; no symptoms one hour later.

Experiment 2.—J—, 27 years. 45 c.c. of sweat collected in forty-five minutes after an attack. Injection into a rabbit causes temporary depression and a few movements of forced extension of the spine, &c.

The conclusions from six similar experiments are that the sweat of epileptics immediately after fits is not highly toxic; Cabitto says it is; but injected in rabbits it produces, as a characteristic symptom, movements of forced extension of the spine not observed in the case of normal sweat.

With regard to melancholiacs, while one is prepared *a priori* to find that all the excretions are more toxic than normally, as has been often proved in the case of the urine, Mavrojannis concludes from his observations that such is not the case with the sweat.

The Endeavour to Live and the Theory of Final Causes.—Professor Charles Richet, in *Revue Scientifique*, 1898, No. 1, returns again to the question of final causes, and in an interesting article endeavours to prove that in the case of living beings, in addition to the existence of the law of the struggle for life, we must admit also that of the endeavour to live as a final cause.

It is easy, he says, to turn the theory of final causes into ridicule. The nose, said Voltaire, is made to carry spectacles, and unquestionably many of the dicta of "finalists" have justly been the

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source of much amusement. Galen was never at a loss to find a cause for all that he observed in anatomy; "If the air were denser, we should be unable to walk," said Fénelon, &c.; small wonder, then, that even great minds have considered it a superstition unworthy of being considered in any scientific philosophy. But while it must be admitted that our ignorance of the world is profound, and our intellect singularly imperfect, so that we can never grasp the *why* of the natural laws which govern matter, or the cause of the world in its immensity, yet it may be possible for us to draw conclusions concerning certain of its parts.

We cannot, for example, resist saying that the eye is constructed to see, the heart to drive the blood, &c. Physiology and anatomy show us an extraordinary complexity in the play of parts of our frame. The physiologist must conclude that the reflex cough excited by the inhalation of a foreign body into the larynx has a final cause—the expulsion of the foreign body. And so impressed are we with the truth that the various parts of the animal mechanism have their use, that we obstinately try to discover the function of each organ: because we ignore the true function of the spleen, we never think of concluding that the spleen is useless; but we go on seeking, convinced from our general experience in other directions that sooner or later we shall discover it. Nature has not made useless organs; everything has a goal.

Zoologists are also finalists; books upon books have been published upon the various means of defence among animals; but what is the dominant idea that arises in the mind when we discover that the octopus emits an ink-like fluid when surprised by an enemy; or that the crab parts with a section of its claw when held by it? Simply that the various functions of defence have for their end the safeguard of the organism attacked.

But in the search for final causes detail alone is not sufficient. Have living beings as a whole great general functions adapted to an end? Take that of reproduction. If we do not accept the hypothesis that Nature intends the perpetuity of the species, and that she has taken a host of ways of insuring it, we understand nothing; but all is clear to us if we admit that Nature has an aim, which is to insure life to the species.

Fear, vertigo, pain, &c., Prof. Richet shows are useful and necessary to the life of the individual (see in this connection "Biological Study of Pain," *Revue Scientifique*, August 22nd, 1896, abstracted in *Journal of Mental Science*, vol. xliii, p. 408), so that the feelings and sensations of living beings are, like the structure and functions of their organs, related to the conservation of the individual and the conservation of the species.

A general conclusion forces itself upon the mind that living beings are organised to live, a conclusion which is admirably in accordance with the hypothesis of natural selection.

To establish the truth that beings tend to live, that the endeavour to live is a final cause, is possible, but we cannot go beyond and say why there is life. To eliminate everything hypothetical Richet suggests

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that the law should be thus stated: "Everything occurs as if Nature desired life;" and this proposition he considers unassailable.

Treatment of Insanity by Rest in Bed.—Dr. Keraval (*Le Progrès Médical*, 1898, No. 25) gives an interesting review of the progress which the question of the treatment of the insane by rest in bed has made during the last few years in various countries.

It is interesting to note the variability in the views held by different physicians as to the kind of cases which seem to be benefited by this treatment, and the length of time during which recent cases should be kept in bed.

The evolution of this mode of treatment extends practically over the last fifteen years, and it is quite evident that for a due appreciation of its potency for good, account must be taken of the circumstances under which it is carried out and has been carried out in various asylums. The construction of the asylum and the means at its disposal (number of attendants, mode of supervision, &c.) are most important factors in this connection. It is obvious that one cannot compare the results of treatment of recent cases of melancholia kept in a common dormitory within close access of other wards with the results of treatment of similar cases kept in bed in well-isolated separate rooms.

In the present state of our knowledge, based on the observations of German, French, English, Russian, &c., alienists, one can only say that this mode of treatment is on its trial. It is difficult to conclude as yet that even one certain class of mental cases is likely to improve under it, and unfortunately there stands strikingly in the way of extensive trials of the method the question of expense.

The Present Increase of Nervous Disorders.—The *Revue Scientifique*, (1898, No. 14) contains an address given by Erb to the University of Heidelberg on the increasing prevalence of nervous disorders. After enumerating the numerous factors which especially during the present century have contributed to upset the nervous system of man (wars, revolutions, discoveries, &c., political and social events of all kinds), Erb tries to define that vague condition which we call *nervousness*, a kind of transition between health and disease, and very often the most propitious soil for the development of the latter. To the idea of nervousness we connect all that denotes an acute excitability of the nervous system; precipitation and a certain disturbance in movements and work, excessive sensitiveness, tendency to fright, irritability accompanied with depression, an enfeebled resistance to the small disappointments of life ("to the malignancy of the object" [Vischer]), a changeable disposition, disturbed sleep, depression after each laborious effort, excitability of the heart and the vascular system, &c. While he believes that there is now-a-days a progressive increase in organic diseases of the nervous system, general paralysis, tabes, apoplexy, myelitis, &c.; and an enfeebled capacity of resistance against the noxious elements which especially affect the nervous system (poisons such as alcohol, lead, arsenic; infections such as diphtheria, influenza, syphilis, &c., traumatism, &c. &c.), it is especially to the increase of functional neuroses that he draws attention,—an increase particularly convincing as regards hysteria, hypochondriasis, and neurasthenia.

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Neurasthenia is predominant to-day; it is the most frequent and the most important of the neuroses, and when one speaks of the great frequency of "nervousness" as a special disease, it is neurasthenia one has in one's mind. Reviewing the history of this disease in the past, with the probable extent of its incidence, Erb believes that the experience of medical men during the last ten years, say, is unanimous that it is on the increase, and greatly so.

What are the causes of this increase? This is the next point which Erb inquires into, and his formidable list arranged under eight headings is a severe indictment against the age in which we live. The conditions of life at the present day all predispose to this affection.

With regard to the future, he sees rays of hope. The hygiene of the nervous system is still in its infancy, but it will grow; in dealing with the prophylaxis of nervousness, some of the evil effects associated with the progress of civilisation we cannot hope to eliminate; but in the direction of the physical and intellectual care of children in their early age, and later when at school, much improvement will be made. (An "association for the hygienic education of youth" has just been started in Berlin.) With the growth of knowledge, professional hygiene will be more carefully studied. Society itself can do much, and it is especially gratifying to find that the fight against alcoholism, the adoption of Sunday as a day of rest, the limitation of hours of labour, &c., are becoming more wide-spread. That a good deal more can be easily done, a glance at some practical suggestions made by Erb in this address will show.

Embodying as it does the opinions and suggestions of an eminent authority on nervous diseases, this is an address which should be widely read.

Amœboidism of Nerve-cells; Histological Theory of Sleep; Nervi Nervorum.—In *Revue Scientifique*, 1898, No. 11, is a reprint of the lecture delivered by Professor Mathias-Duval at the close of his course on histology at the Académie de Médecine. When, with the researches of Cajal, Kölliker, Retzius, &c., we were led to adopt the view of contiguity of the ramifications of the neurons, as against the view of continuity entertained by Gerlach, it was natural to inquire whether these protoplasmic ramifications are susceptible of approaching to, or receding from, one another in virtue of their contractile property. This is essentially the hypothesis of nervous amœboidism. Already in 1890 Rabl-Rückhardt suggested that these movements might account for differences in the functional states of nervous areæ, and in 1894 we find Lépine suggesting that possibly sleep might be due to the retraction of cellular prolongations leading to their isolation from one another. In 1895 Mathias Duval himself, in a communication to the Société de Biologie, insists on the phenomena presented by olfactory cells, which are now generally admitted to be nerve-cells, the peripheral prolongation of which (the homologue of the protoplasmic ramifications of the neuron) is capable of movement—"We may therefore conceive that the imagination, the memory, the association of ideas, become more active under the influence of certain agents (tea, coffee) whose function would be to excite amœboid movements in the contiguous extremities of

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nerve-cells, causing the ramifications to approach each other, and facilitating the passage of impulses." This communication stimulated research, so that to-day the anatomical proof of this hypothesis is forthcoming. The theses of two of Mathias-Duval's pupils, Messrs. Pupin and Deyber, are of much importance in this connection, and still more recently Professor Mathias Duval draws attention to the convincing observations of Manouélian carried on in his own laboratory.

A comparative study of sleep with the waking state leads to interesting speculations, to which may easily be adapted the theory of nervous amœboidism; in sleep some interruption to the passage of nervous stimuli occurs at the level of articulation of the peripheral sensory neuron with the central sensory neuron, and at the level of articulation of the latter with the psychic neuron (pyramidal cells). To less intimate contiguity of cells this interruption must be due. How does this arise? We can only suppose that the cellular ramifications become further apart by a slight retraction towards the body of the cell, or by undergoing some lateral displacement. Experimental data favour the first view; Manouélian's observations on tired animals show that the fatigue of nervous elements brings about the isolation, the retraction of cellular prolongations.

The earliest anatomical researches upon the amœboid movements of cells were carried on upon cells very nearly related to nervous cells; retinal cells, olfactory cells, &c., and the discovery of the existence of movements in these affords what Mathias-Duval calls "proofs by analogy" of the existence of similar movements in true nerve-cells.

Pergen's recent experiments upon fishes (*Leuciscus rutilus*) confirm those of Kühne, Angelucci, &c. A comparison of sections of the retina from the eyes of one group of fishes kept in complete darkness for forty-eight hours, with those from another group exposed to light, is most conclusive. In the former we find retracted pigment-cells, with short, sparsely pigmented pseudopoda; in the latter the pseudopoda are long, project deeply between the cells of Jacob's membrane, and are charged with pigment.

A study of the olfactory cells, which are now looked upon as true neurons—bipolar cells, homologous and similar to the bipolar cells of spinal ganglia—also confirms the theory of nervous amœboidism; for Ranvier and others have well shown that there are characteristic movements, different to those of ordinary vibratory cilia, to be seen in the living olfactory cilia of frogs.

Direct observations on the pyramidal cells of animals are for the first time demonstrative of the "amœboidism" theory in the experiments of Demoor and of Stefanowska; Demoor observes a moniliform appearance in the prolongation of cells in animals morphinised, and their retraction towards the body of the cell. Stefanowska's observations extend especially to the morphology of the spines or spinous processes of the dendrites ("Swedish ladder" appearance, so-called happily by Demoor), for which she suggests the appellation of "pyriform appendices," owing to their characteristic form. It is, according to her, through the medium of these pyriform appendices that is effected the contact between the prolongations of cerebral neurons, and as they

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may according to circumstances project from, or retract into, the dendrites, we find an anatomical proof of the existence of pseudopoda foreseen in the ingenious theories of Mathias-Duval, Lépine, and Rabl-Rückhardt.

The more recent researches of Manouélian entirely confirm these observations. It might have been objected to the experiments of Demoor and others that the employment of morphia, of electricity, &c., introduced sources of error. Manouélian brings about fatigue in mice by persistent stimulation (teasing them, &c.), and compares their cerebral cells with those of ordinary mice. The rapid method of Golgi-Cajal is that which he generally uses for his preparations, and the pyramidal cells and the mitral cells of the olfactory bulb are especially studied. Among other conclusions he finds that "the spines of the ramifications of the dendrites (in pyramidal cells) disappear in the case of the fatigued mouse, while spherical thickenings occur here and there in their length, more especially towards their extremities,"—a confirmation of Stefanowska's observations.

The existence of amœboid movements in nerve-cells being demonstrated, a question which has puzzled even the most confirmed supporters of the theory is to explain why and how the arborisations can be incited to approach or separate from one another. Cajal suggests the existence of amœboidism in the neuroglia cells; Mathias-Duval and Manouélian suggest the theory of nervi nervorum, *i. e.* centrifugal nerve-fibres presiding over the protoplasmic movements of the ramifications of nerve-cells; a theory analogous to that of vaso-dilatation and vaso-constriction, &c. The anatomical proof of this theory is borne out by the observations of Ramon y Cajal in the case of the retina, and by those of Manouélian for the olfactory bulb. Manouélian's preparations, says our author, "afford an irrefutable demonstration of the existence of the centrifugal nervous fibres, and of their termination at the level of articulation of the cylindraxil prolongations of the peripheral olfactory neurons with the protoplasmic prolongations of the central olfactory neurons." For these nervous fibres presiding over the amœboid activity of the neurons, the name *nervi nervorum* is proposed. Sappey gave this name to the nervous ramifications which he discovered in the interfascicular connective tissue of nerve-trunks; but Sappey's nervi nervorum are in reality vaso-motor nerves to the vessels of these nerve-trunks. Mathias-Duval's nervi nervorum, on the contrary, are related to the nerve-cell in the same way as the motor plates are to the muscle-cells. In conclusion, Mathias-Duval says that whatever may be the ultimate fate of this theory, the communications of Cajal and Soukhanoff may perhaps be said to have first embodied it; "but of quite secondary importance it is for him to see his own name attached to the emission of a new idea; the essential is that the idea should spread and succeed."

Amœboidism of Nerve-cells.—The ingenious and suggestive views concerning the amœboid movements of nerve-cells to which we have referred in an abstract of Professor Mathias-Duval's lecture, have recently been confirmed in the case of the spinal cord by Robert Odier of Geneva (*vide Revue Scientifique*, 1898, No. 22). The researches are

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confined to a monograph published at Geneva (Georg et Cie.) "Mouvements de la cellule nerveuse de la moelle épinière." Sections of the spinal cord from active animals and from animals at rest when compared with each other exhibit certain important differences in the appearance of the cells; so that their extremities are extended at rest, and retracted during activity. This retraction of pseudopoda is well seen when the spinal cord is artificially stimulated. It would appear that with an electric stimulus, the retraction of dendrites takes place in the direction of the current, and only the prolongations parallel to it are affected. Odier finds, like other observers, that this retraction may affect the body of the cell and even the nucleus later on. With prolonged stimulation important alterations take place in the chromophile part of the cell; instead of the regular distribution observed while the cell is at rest, we find a disposition in asymmetrical masses; the behaviour to staining varies. With an exhausted spinal cord, one notices successively, retraction of cellular prolongations, reduction in the chromophile elements, retraction of the body of the cell, then of the nucleus, and finally of the nucleolus. In the nucleus itself the chromatic elements are the most sensitive, as has been generally held. These observations seem to show that anatomical and chemical alterations in the nerve-cells arise from fatigue, although it is not clear that some of these changes are not pathological.

Case of Acromegaly with Dementia.—Professor Joffroy (*Le Progrès Médical*, 1898, No. 9) gives the notes of a case of acromegaly, upon which he bases an interesting clinical lecture, occurring in a woman who had been under his care for some years. The early manifestations of the disease were noticed at the age of fifty-three or fifty-four years, and when shown to his pupils on her admission at Sainte-Anne four years later, she was a typical case of the condition: characteristic physiognomy, with large nose, prominent superciliary ridges, maxillary prognathism, enlarged tongue and lower lip, and there was marked affection of the hands, feet, clavicles, &c. Her height was normal and stationary, as is usually observed in cases occurring after the menopause, in contra-distinction to the marked increase in height, amounting frequently to gigantism, which occurs in younger patients, *i. e.* during the reproductive period.

In addition to the classical symptoms of acromegaly, Joffroy's case was complicated with cardiac disease (aortic obstruction and incompetence, with hypertrophied left ventricle).

The psychical symptoms in the case were more marked than usual, which led to her admission to the asylum; her memory was considerably diminished; she could not remember the date of the month or the day of the week, and she forgot from one moment to the other what was said to her or what she was obliged to do in her work, so that she could do no shopping or prepare her food. She was indifferent, apathetic, and often helpless.

The author discusses the pathogeny of acromegaly, reviews the various theories brought forward, draws attention to its analogy with Graves's disease, and inclines to P. Marie's view that acromegaly is due to a lesion of the pituitary body. Gigantism he considers to be the same disease as acromegaly, only occurring before adult life, that is

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during the period of growth. Treatment of various kinds and with various drugs was of no avail in his case, and Joffroy believes that so far we are not in possession of any useful remedy for acromegaly.

Epilepsy consecutive to Typhoid Fever.—The relation of nervous diseases to the infectious diseases in general and to typhoid in particular is an important one, and the notes of this case reported by Bourneville and Dardel (*Le Progrès Médical*, 1898, No. 12) are of interest in this connection. A child of good family history was bright and intelligent up to the age of three years, when he was seized with a sharp attack of typhoid fever (which at the same time carried off his mother, one of his brothers, and one of his sisters), with nervous complications. Two months after this illness, which left him very weak, he was suddenly attacked with epileptic convulsions, and became henceforth a confirmed epileptic subject, at first to weekly attacks and then to more frequent ones. His intellectual faculties became more and more dimmed, especially between the age of nine and eleven years, when he was admitted as an idiot under the care of Dr. Bourneville. Progressive bodily and mental enfeeblement occurred, and he finally died a year later from a recurrent attack of enteritis not due to any macroscopic lesion of the bowel, possibly nervous in origin. At the post-mortem examination, details of which are fully given, the most marked features were an arrest of development of the frontal lobes, sclerosis of the occipital lobes, and a remarkable asymmetry of the cerebral convolutions on both the convex and internal aspects of the two cerebral hemispheres. (Figures of these are shown.)

Chronic Alcoholism.—In *Revue Scientifique* (1898, No. 3) Professor Joffroy's lecture delivered at the Sainte-Anne Asylum on the etiology of alcoholism, and the result of certain experimental researches on the action of alcohol, will be found. It is important to remember that chronic alcoholism in nearly all its symptoms differs considerably from acute alcoholism, and that what we call alcoholic intoxication is a complex condition arising from the introduction into the blood of a very variable toxic mixture in which ethyl alcohol holds the first place. Moreover, a most variable factor in the question is the individuality upon which the various alcoholic beverages act, modified, of course, by inherited or acquired tendencies; hence the differing preponderance in various cases of lesions of the stomach, liver, lungs, kidneys, &c. These preliminary considerations, among others, suffice to show the colossal nature of a truly scientific study of alcoholism.

Professor Joffroy here communicates the results of one method of throwing light on this question—the experimental; ethyl alcohol, methyl alcohol, aldehyde and furfurol were the four ingredients of certain alcoholic beverages first selected, and they were administered daily to dogs over certain periods of time—not, one might add, without difficulty, for several subjects of these experiments absolutely refused their alcoholised food after a short while. With certain variations dependent upon the individuality of the animal experimented upon, the results support, more or less, those of other observers; ethyl alcohol is toxic, it determines modifications of character, paralytic phenomena, lesions of the stomach and bowel, of the liver, and occasionally of the

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kidneys; finally, even with a small dose of alcohol, death may supervene fairly quickly. That the presence of salts of potash, as in wine, may aggravate the toxic effects of this beverage, as the experiments of Lancereaux seem to show, is not denied. Methyl alcohol, according to Joffroy's experiments, acts much in the same way as ethyl alcohol.

In the case of *aldehyde*, lesions of the digestive tract, and profound modifications of the urinary function, speedily fatal, were especially marked.

The difference between chronic and acute intoxication is well exemplified in the case of furfurol; while in the latter it is very active, it appears to produce very little effect in chronic intoxication. In a dog to whom it was given in fairly strong doses daily for twenty months, the only result was some appearance of senility; no other psychical or physical disturbance was noted.

Entertainments in the Treatment of the Insane.—Dr. Naecke, of Hubertusburg Asylum (*Revue de Psychiatrie*, 1897, No. 10), is sceptical of the curative power of music, theatrical performances, &c., in insanity, but speaks strongly in favour of entertainments and diversions of all kinds as aids to treatment in the majority of cases. It is important, however, to exercise discrimination; the medical superintendent should be a psychologist of the different classes of society and discover that form of diversion which is most suitable to each. The orchestra of the county asylum should be noisy, with a goodly proportion of brass instruments, clarinets, &c., and play dance music and melodies; overtures and symphonies are caviare to the general. On the stage, farces, childish pieces, harlequinades are the most acceptable. As regards dances more selection is perhaps necessary; the physician, however, should be as responsible for the dose of pleasure prescribed for each patient as for his medicine, and experience proves that a good deal of liberty may be given with advantage. Dr. Naecke carefully considers the question of the admission of strangers to asylum entertainments; curiosity merely should not be gratified, but it is an advantage that those who are interested in the insane should be invited; some of the prejudice against asylums which exists among the public may disappear as a result.

On the question of refreshments, unquestionably total abstinence from alcohol would benefit the community as a whole, but Dr. Naecke believes that the danger of alcohol is exaggerated; a pint of very light ale, which is the allowance to workers at Hubertusburg, is quite harmless, even to epileptics. The difficulty is to find a good substitute for alcohol as a beverage.

Excursions and walks outside the asylum should be enjoyed by a large percentage of patients, and in this connection it is perhaps fair to utter the paradox that "the greater the number of escapes, the better managed is the asylum."

A good deal of latitude may also be extended to patients in the choice of books, newspapers, &c.; they should not be treated as children. In acute cases (melancholia especially) some care must be exercised, but in Dr. Naecke's experience even the perusal of unfounded adverse criticisms of asylums in the daily press, by patients suffering from

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delusional insanity, was not followed by any bad result. The same applies to correspondence; the superintendent of an asylum should be as liberal as possible; to withhold all letters which comment unfavourably upon the asylum is a sign of weakness.

Throughout the author is imbued with the idea that in dealing with the insane, one should extend the principle of no restraint to their moral treatment, and therefore to their diversions. Patients should not be treated as children, but like adults, and as far as possible one should respect their manhood and mode of life as in the days of their liberty. "Let us not forget that what characterises a modern asylum is not so much its splendid external and internal appearance, not that it is well warmed and lit by electricity, but the spirit which presides there, the great principle of no restraint in its various shades which should pervade even the marrow of the physicians and the staff."

Part IV.—Notes and News.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

GENERAL MEETING.

A General Meeting was held at the rooms of the Association, 11, Chandos Street, London, on Thursday, 13th October, at 4 p.m., under the presidency of Dr. Urquhart. Meetings of the Educational Committee and of the Council had been held earlier in the day.

Members present at General Meeting:—A. R. Urquhart (President), T. W. McDowall, Ernest W. White, James Chambers, H. Rayner, T. Outterson Wood, Fletcher Beach, H. Corner, H. C. MacBryan, A. Helen Boyle, W. Ernest Jones, Chas. Mercier, W. Douglas, T. W. MacDonald, Margaret Orange, F. Parris Piper, L. Rutherford Macphail, T. Seymour Tuke, R. Brayn, R. Langdon Down, W. Rawes, H. Stilwell, D. Bower, R. Baker, Alonzo H. Stocker, W. Julius Mickle, W. Crochley Clapham, L. U. Weatherly, C. K. Hitchcock, James Stewart, G. E. Shuttleworth, J. Peeke Richards, A. H. Boys, J. C. Gayton, H. J. Macevoy, R. Percy Smith, Harry A. Benham, R. L. Rutherford, G. H. Savage, H. H. Newington (Treasurer), Frank A. Elkins, Herbert Smalley, Robert Jones (General Secretary).

Apologies for non-attendance were received from Drs. Spence (Registrar), Moody, and Soutar.

The following were elected ordinary members: — Daunt, Elliott, M.R.C.S., L.R.C.P., D.P.H., Rosendale, Sevenoaks, Kent; Eades, Albert J., L.R.C.P. and L.R.C.S.I., Assistant Medical Officer, Borough Asylum, Nottingham; Longworth, Stephen G., L.R.C.P. and L.R.C.S.I., Medical Officer, County Asylum, Melton, Suffolk; Mackeon, W. J., A.B., M.B., B.A.O.R.U.I., Assistant Medical Officer, Menston Asylum, Leeds; Redington, John, L.R.C.P. and L.R.C.S.I., Assistant Medical Officer, Richmond Asylum, Dublin; Rochfort-Brown, Herbert, M.A., M.B., B.Ch.Oxon., F.R.C.S.Eng., Medical Officer, Natal Government Asylum, Pietermaritzburg, Natal, S. Africa.

The replies from honorary members elected at last annual meeting were read.

The *Handbook*.—Dr. Hayes Newington, as chairman of the Handbook Committee, reported as follows:—"I have to report that the committee appointed a year ago has now finished its labours, after much consideration as to how far the book should be revised or rewritten. We think it now as good as can be expected, having regard to the great number of opinions that had to be satisfied. It has been

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