of neurons and the same character of vibration in them with the revival of the image in consciousness.

Thus, then, we may entertain the thought that memorial representations of all kinds, on their physical side, are vibratory in their nature, and that the vibrations occur in definite associated groups of neurons. We may further suppose that with the changes in the countless images that pass before the mind, there is a corresponding kaleidoscopic change in the mutual relations of the neurons concerned in their production.

(1) *Journal of Mental Science*, p. 281, April, 1901.

Degeneration of the Optic Thalami (Preliminary Note).

By J. B. BLACHFORD, M.D., Assistant Medical Officer, City and County Asylum, Bristol.

T. W—, shorthand writer, admitted January 16th, 1899, suffering from mania.

Family history.— Father alive; mother died of heart disease. Brother: one, alive and well. Sisters: two, both died of scarlet fever. Children: one girl æt. 7 years, alive and well. One child died; death certified as being due to syphilis. Wife has had three or four miscarriages. Mother's sister very neurotic.

All mother's brothers had something wrong in their head. Some had "water on the brain."

Personal history.—Patient has been a heavy drinker, has no history of cough or fits; has been engaged as a clerk, but sight has been failing for three and a half months. Vision began to fail at periphery of field; he has been under Dr. Critchett and Mr. Cross for optic atrophy.

On admission, patient's thoracic and abdominal organs were apparently normal. There was an old ulcer and pigmentation scar on left shin, four inches by three. Knee-jerks absent; gait not ataxic; no plantar reflexes; no Romberg's symptom; pupils did not react to light; there was right external strabismus; patient was quite blind.

He was ordered Hyd. Perch. and Pot. Brom. For a time he was restless and excited, striking at imaginary persons, and had to have a sleeping draught at night. He took his food well, and on January 28th is noted as being quieter but very lost. He gradually got weaker and died on February 2nd, 1899, just twenty-nine days after his admission.

At the post-mortem examination the following appearances presented themselves. Skull-cap, average thickness; dura mater, average thickness; pia mater very congested, slightly thickened, stripped in patches; no adhesion to cortex. Brain weighed 1341 grammes, vessels healthy. Circle of Willis complete and symmetrical.

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Grey matter very congested and soft; white matter congested, soft and œdematous. Ventricles full of fluid; ependyma granular, very congested. Choroid congested; fornix soft; velum interpositum congested; ependyma of fourth ventricle very granular.

The basal ganglia and capsules were soft and congested. After these had been hardened in picro-formalin the whole of both optic thalami, and to a certain extent the anterior corpora quadrigemina, presented on section a marbled appearance, having various-sized lighter patches scattered throughout them, and on being treated by Lord's modification of Nissl's method a number of the cells appeared to have degenerated, but owing to other work pressing at the time only a few sections were examined, and careful investigation was not made with a view to locating the more extensively diseased parts.

A. H—, æt. 39, married, gas stoker, admitted September 16th, 1897, suffering from dementia.

Family history.—A niece on his father's side is subject to fits. Patient has six healthy children alive, and four died of convulsions at various ages.

Personal history.—Patient has been a heavy drinker. Five years ago was seized with a strong fit, after which he kept well for a year, when he had a second; then for a time he had them frequently. For the past twelve months has been going gradually blind and has been deluded for six months.

On admission his thoracic and abdominal organs were apparently healthy, knee-jerks brisk, pupils reacted to light but slowly, and he was blind.

Present condition very demented, laughs foolishly on being spoken to. Disc atrophied, pearly white; can stand, but cannot walk without assistance, and then drags his right leg somewhat. Right hand partially paralysed. Some anæsthesia of right forearm and outer side of right thigh. Knee-jerks equal, brisk, no clonus. Pupils equal, average size, fixed.

G. B—, 33, single, labourer, admitted August 14th, 1901, suffering from dementia.

Family history.—Father and mother both dead; brothers (four) all alive and well; sisters (five) all alive and well. No history of insanity, paralysis, epilepsy, or drink in the family. One of mother's sisters died of phthisis.

Personal history.—Patient was in the army for seven years; left about ten years ago; he used to drink a fair amount of beer. (Says he has had syphilis.) Four or five months ago he complained of pain in the back of his head; this got better in a few weeks' time, and he went to work again for the next few weeks; he then became worse and went to bed, where he has been for the past fifteen weeks. During the whole of this time his eyesight has been gradually failing.

On admission, lies quietly in bed, taking no interest whatever in his surroundings. It is difficult to attract his attention, and he shows no sign of understanding what is said to him, except by protruding his tongue when requested. When any movement is required he has to be

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assisted; put out of bed he would fall if unsupported. His gait could not be tested as he would make no attempt to walk. He moves his arms about aimlessly, coarse tremors accompanying these movements. No tremors of the head, face, or tongue. Pupils widely dilated, equal; do not react to light. Sudden approach of an object to the eyes causes no reflex contraction of lids. Knee-jerks exaggerated; no clonus; vision very defective. He has a puckered scar over top of the manubrium sterni, and another behind the right shoulder, and has, since his admission, stated that he had syphilis some years ago.

On August 16th he was put on Pot. Iod. and Hyd. Perch.

August 26th.—Has distinctly improved under treatment. Vision somewhat better.

September 3rd.—Answers questions quite smartly, and has a bright and cheerful manner. Vision improving, but still defective. Gait fairly good; stands and turns without difficulty; stands alone with eyes shut, touching tip of nose with index finger easily with eyes shut; pupils equal, regular, react to light, accommodation, and consensual reflex. Plantar reflexes equal, normal. Knee-jerks equal and brisk. No clonus. Sensation unimpaired.

G. M—, 48, single, labourer, admitted July 11th, 1901, suffering from dementia.

Family history.—Father died of apoplexy, otherwise there does not appear to be any history of insanity or neurosis in the family.

Personal history.—Patient was in the army for fifteen years; he left it six years ago, since then he has been doing labourer's work. He has been a fairly heavy drinker, and had syphilis twenty years ago.

On admission, thoracic and abdominal organs apparently normal. He is unable to stand; vision very defective; mentally, very demented; memory almost gone; pupils equal, regular, react to light readily; knee-jerks equal and brisk. On attempting to stand sways in every direction, but chiefly backwards and forwards. Sensation apparently normal. Shortly after admission was put on Pot. Iod. and Hyd. Perch.

September 8th.—Gait improved; mentally much clearer; vision improved.

Present condition (October 2nd).—Answers questions smartly and intelligently; works usefully about the ward; vision much improved, that of the left eye still rather defective.

These four cases may be summarised thus:

Mental condition.	Vision.	Pupil reflexes.	Gait.	Sensation.	Knee-jerks.	Syphilis.
1. Mania	Blind	Absent	No ataxia	—	Absent	1
2. Dementia(1)	Blind	Sluggish; absent	—	—	Brisk	1
3. Dementia	Defective; improved	Absent; normal	—	Normal	Brisk	1
4. Dementia	Defective; improved	Normal	Ataxic	Normal	Brisk	1

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The first is the only case in which the diagnosis could be verified by post-mortem examination, and in it, as above stated, there was ample evidence of degeneration of the optic thalami, and, to a less extent, of the anterior corpora quadrigemina.

The symptoms, however, in the three following cases are so like those in the first that I think we shall be justified in attributing them to a similar cause; and, from the facts that in three of the cases there is a distinct history of syphilis, and in the last two marked improvement occurred under anti-specific treatment, the primary cause would appear to be degeneration of the neuron brought about by that disease. If, after more extended experience, we find this to be so it will be interesting as marking off a distinct form of nervous affection which in the past has no doubt at times been attributed to general paralysis, at others to cerebral tumour, and, perhaps, even to that amaurosis which is a frequent accompaniment of Bright's disease, and less so of chronic nicotine poisoning. Evidence, which has been accumulating for some years, now tends more and more to compel us to believe that syphilis is the great cause of degeneration of the neuron in locomotor ataxy, and perhaps also in general paralysis; and other facts which strike one as being significant in this connection are that all these diseases appear to be more common in men than in women, and that they affect similar periods of life, namely, the middle adult, and also that in the case of T. W—, in which a post-mortem examination was made, the ependyma of the ventricles was very granular, especially that of the fourth, a condition which has always struck me as being more frequent in general paralysis than in any other disease.

The clinical symptoms appear to be few, being practically limited to rapidly increasing dementia and loss of vision, with a slight amount of ataxia, indicated more by swaying to and fro than by inco-ordinate movements of the legs. The knee-jerks were noted as being absent in the first, and exaggerated in the remaining three, but except in spinal diseases, they are at the best very dubious guides to diagnosis. The absence of other symptoms is no doubt to be accounted for by the localised position of the part affected, and by that affection not being of such a nature as to cause pressure on surrounding parts. There is, however, one particularly interesting anatomical point which is difficult to understand. Why is sensation apparently so little

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affected? The fillet, which carries up all sensory impulses except the visual and olfactory, is divided into three parts: the lateral, carrying impulses from the auditory apparatus, terminates in the posterior corpora quadrigemina, sending a few fibres to the anterior; the crustal fillet, receiving the impulses from the sensory nuclei of the cranial nerves, terminates in the globus pallidus of the lenticular nucleus of the striate body; while the central or spinal fillet, receiving all sensory impulses from the trunk, terminates in the optic thalamus. Under these circumstances one would expect that any general degeneration of the thalamus, such as, at any rate, occurred in the first case, and which went so far as to cause absolute blindness, would have for one of its early symptoms general trunk anæsthesia, but this does not appear to be so. The condition of the pupils is also interesting, but is probably more easily explained. In the first case the patient was blind on admission and his pupillary reflexes were absent. In the second the patient was blind but could distinguish light from dark, and was not so far advanced as the first; the reflexes are noted as sluggish, and later on absent. In the third vision was defective and reflexes apparently absent, but as vision improved the reflexes returned and became normal, although vision did not do so; and in the last, vision on admission was defective, but pupillary reflexes normal, and this was the least advanced case. I think that the explanation of these phenomena consists in the difference in function of the optic thalami and anterior corpora quadrigemina. If we consider the latter to be chiefly reflex ganglia, while the former are intercalary ganglia, between the optic tracts and the visual centre in the cuneus, we can understand that the predominance of visual over reflex symptoms and *vice versâ* will depend upon which centre is first affected.

From a clinical view one point is of special interest, namely, the rapid improvement in early cases under antisyphilitic treatment, although the last two cases, which are those to which I am now referring, have not yet recovered mentally, and probably never will quite recover their vision. They both have so far improved that they will probably shortly be able to be discharged as recovered, and the loss of vision has certainly not only been checked, but a certain amount of recuperation has been effected.

I can find very little written, at any rate in English papers,

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with regard to the function of the optic thalami. Experiments of M. J. Sellier and N. H. Veryer apparently go to prove that their *rôle* is sensory, but according to these two observers this does not include sensibility to pain (October number of *Archives de Physiologie*, 1898). Dr. Henri Engel, in the *Philadelphia Medical News*, describes a case of gliomatous tumour growing from the fornix, and spreading back over both thalami, in which the symptoms were pain in the head, staggering gait, anæsthesia of right side of body, loss of sense of taste on right side. Nine days later complete loss of taste and smell on both sides and deafness in both ears were observed, and two days subsequently there occurred sudden blindness in both eyes and convulsions followed by death. It is difficult to say which of these symptoms were due to pressure on the thalami and which to pressure on surrounding parts; and the same may be said of the following case recorded by Dr. A. J. Edwards in the *Lancet* for August 3rd, 1895. This was a case of tubercle of the left optic thalamus; there was trembling of the right hand with dragging of the right leg, headache, and vomiting. No nystagmus or syllabic speech; no facial paralysis. There was ankle-clonus on the right side but not on the left; gait was ataxic, but sensation was universally normal; there was defective vision and optic neuritis.

(1) Since writing the above I have seen Dr. Flemming, by whose courtesy I have been enabled to publish these cases, which are at the present time under his care, and he informs me that A. H—, the second case, has had syphilis, but that the condition of his choroid is not suggestive of syphilitic choroiditis; this is, therefore, further evidence in favour of the syphilitic origin of the disease, and would also seem to imply that the loss of sight was not primarily due to disease in the eye itself, but was of more central origin.

Discussion

At the Autumn Meeting of the South-Western Division, Bath, October 22nd, 1901.

Dr. Bullen said he was afraid he could add very little to a paper so full of detail. He saw two of the cases at Fishponds this summer. From a practical point of view, one would certainly, many years ago, not have regarded one of the cases—the third one—as a general paralytic, but as one grew more acquainted with the type of general paralysis one was more inclined to accept the diagnosis. The marked difference in the patient's condition under syphilitic treatment was striking, and it was questionable whether, even when there was no trace of syphilis, the treatment should not be applied. He tried it systematically, but he could not say there were any good effects,—in fact, some patients seemed to get worse.

Dr. Goodall, in commenting on the paper, remarked that if any more cases should come to an autopsy, it would be interesting to see the connection between the optic thalami and the cortex. The connections were very obscure, and they would like to know whether the fibre could be held to have degenerated.

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Dr. MACDONALD said that the cases were most interesting; the great regret was that Dr. Blachford was not able to satisfy himself more often on the post-mortem table. He (the speaker) wondered if he could do anything to find out the condition of these not very important bodies, the optic thalami, and he had gone through the records of all the post-mortems made in his time at Dorchester Asylum, numbering over 600. While he was not prepared to state that every fact had been carefully gone into as regarded the optic thalami, it might be taken for granted they were not overlooked in the examination of the brain any more than any other part of the brain or organs of the body. Out of these 600, he found in nine cases only were they able to detect and satisfy themselves that there was actual degeneration of the optic thalami. In four cases the right optic thalamus was absolutely and entirely degenerated; in two cases the left, and in three both. The most common form was the hæmorrhagic condition. As to the mental condition of these patients, five were chronic maniacs, one was a general paralytic, one was a melancholiac, and two were dements.

Dr. BLACHFORD briefly replied.

Two Cases of Lipoma of the Brain. By ADÈLE DE STEIGER, M.B., Assistant Medical Officer, Essex County Asylum, Brentwood.(1)

CASE I.—L. M. W—, æt. 37, admitted June, 1901, died eighteen days after admission.

History.—Has had two previous attacks, 1897 and 1899, and was treated in Colney Hatch Asylum after birth of the eighth and ninth children. Present attack, duration six to seven months. Cause, puerperal state after birth of tenth child. The attack began five weeks afterwards.

Condition on admission.—Does not sleep, will take no food voluntarily, will not speak or do as she is told, strongly resists being examined. Reflexes: Knee-jerks exaggerated. Pupils equal, she is too obstinate for reaction to be tested. Fairly well nourished, sordes on lips, and saliva dribbling.

Progress.—After a day or two patient talked in a surly, disagreeable way, and would take liquid food. She then developed symptoms of pneumonia, and died.

Autopsy.—Skull-cap thick and tough. Dura mater firmly adherent to the skull-cap over the vertex. Meninges clear, not adherent. Tumour: Lying over the corpus callosum and curling round the knee posteriorly was a firm yellow mass. Size, quarter-inch thick, and as long as the corpus callosum; on section the mass was almost round in circumference. In the choroid plexus of the right ventricle was also a firm yellowish nodule about the size of a split pea.

Microscopic.—Both masses were found to consist entirely of adipose tissue, enclosed by a capsule of fibrous tissue, thicker in some parts than others. There were numerous blood-vessels in the mass and in the capsule. Between the tumour and the corpus callosum was some very gritty material, apparently calcareous deposit.

Other organs.—Liver, distinct fatty infiltration. Kidneys granular.

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