

Iodine spirit should be quickly increased in strength. After from 7 to 14 days the specimen should be placed, provided it does not give to the finger, in a five per cent. solution of Chromate of Potass.

The *great brain*, after being divided in half through the length of the corpus callosum, is laid in weak Iodine spirit. After some hours the separation of the membranes in the fissure of Sylvius, and at the tail of the corpus callosum should be commenced, so as to allow of the permeation of the spirit. The preparation must stand in a cool place (during summer in an ice cellar). After from 10 to 14 days it is removed to a four per cent. solution of Chromate of Potass. When sections are to be taken it must be washed carefully in water.

The Cutting of Sections.—Betz endeavours to avoid all rubbing of the knife on the surface of the preparation, and sticking of the section on the upper surface of the blade. To this end he has had constructed a knife whose upper surface is convex, the under one concave, the radius of the lower one being somewhat smaller than that of the upper. The blade is from one and a half to twice as long as it is broad, the thickness being one-third of the breadth. For large cross sections, as for instance through the whole hemisphere, Betz uses a knife whose blade is 21 centimetres (8½ in.) long by 10 centimetres (4 in.) broad. This form of knife (hatchet?) makes it possible to keep the surface of the preparation and the section constantly wet by means of dropping spirit, so that rubbing on the one and sticking of the other may be avoided.

Details are given of the form of section machine which, except of course in size, is constructed on the same principle as the one in use in this country.

2. *English Psychological Retrospect.*

In Numbers CII. and CIII. of the "British and Foreign Medico-Chirurgical Review," Dr. J. Batty Tuke publishes the results of investigations made in ninety-two Autopsies as bearing "On the Morbid Histology of the Brain and Spinal Cord as observed in the Insane."

The morbid appearances noted as having been found in or on the blood-vessels and the tissues intimately connected with them were—(1.) A dilated condition of the brain substance immediately surrounding the blood-vessels. This is best marked in epilepsy and general paresis, but also occurs in cases where there is a strong presumption that congestion has at one time or another existed. (2.) A thickened condition of the hyaline membrane, which Dr. Tuke believes to exist apart from changes in the Tunica Adventitia.

(3.) Deposits on the Tunica Adventitia. These are of two kinds, the one composed of molecules homogeneous in structure, sometimes of a pale yellow or yellowish-brown tint, but generally colourless. This deposit was found in every brain, sane or insane, that was

examined, but is most abundant in the oldest standing and most aged cases of insanity in small particles. The other kind of deposit consists of masses of hæmatoidine. It cannot be said to be peculiar to any form of insanity, for it has been found in every case where it was looked for. (4.) Hypertrophy of the muscular coat was observed in two cases, one of congenital idiocy complicated with epilepsy, and the other a case of rapid general paresis. (5.) Minute aneurisms were clearly demonstrated in three cases. In two of these they existed immediately below the floor of the lateral ventricles in the corpus striatum. In the other they were confined to the left frontal lobe in the neighbourhood of a large apoplectic cyst. (6.) Abnormalities of direction in the vessels were noted to consist of undue straightness, tortuosity and sinking, and were constantly observed. (7.) A pigmented condition of the arterioles supplying the convolutions and the cord was seen in six cases.

The microscopic appearances in or on the membranes which were noted in Dr. Tuke's examinations were—(1.) Deposits of crystals of phosphate of lime, which were seen in one case of acute idiopathic melancholia due to great brain exhaustion. (2.) Lymph deposited between the substance of the cord and the pia-mater. This was seen in two cases, one of severe and long standing epilepsy, and the other of chorea.

Granulations on the surface of the brain and floors of the ventricles were accompanied generally with considerable alterations, implicating the epithelium and subjacent tissue, and giving evidence of chronic inflammatory action.

The central canal was abnormally patent in one case of senile insanity in which great wasting of the spinal cord existed. In two cases of epileptic insanity it was occluded by growths of columnar epithelium, and in three other cases by deposits of colloid bodies.

The changes noted in the neuroglia were—(1.) General sclerosis or hypertrophy, which was demonstrated in a case of hypertrophy of the right cerebral hemisphere with co-existent atrophy of the left side of the body. The condition was best marked in the occipital lobe, less so in the parietal, and in a still minor degree in the frontal. In fact, it was co-existent with the degrees of hypertrophy of the different lobes.

(2.) Disseminated sclerosis. This term is used to discriminate between the scattered patches of grey degeneration and general sclerosis. Amongst the chronic insane it is most frequently met with in the white matter of the corpora striata and optic thalami. It is not uncommon in the pons varolii, medulla oblongata, and spinal cord of the general paralytic and epileptic.

(3.) Miliary sclerosis differs from the other forms in that it is not necessarily preceded, attended, or followed by any proliferation of the nuclei, that it is a circumscribed lesion not involving surrounding tissues, except so far as it displaces nerve fibres, that no morbid plasma

is diffused beyond its own area, and that it is in no way connected with blood vessels. It presented itself very frequently in Dr. Tuke's series of cases in all parts of the brain and spinal cord.

(4.) Atrophy of the senile brain, consequent on the impaired nutritive powers of atheromatous vessels, is a well known pathological condition. It is evidenced to the naked eye by wide sulci and sharp and thin convolutions. The brain substance is brittle and stringy when subject to chromic acid, and sections split in the directions of the fibres like over dried wood.

(5.) Colloid degeneration is one of the most interesting forms of brain lesion, being, Dr. Tuke believes, the primary pathological change in certain of the most prominent and well-defined varieties of insanity. Colloid bodies appear first in the white matter immediately contiguous to the cortical substance, but as the disease advances become more diffused.

J. M.

The following is Professor's Ferrier's summary of his very important "Experimental Researches in Cerebral Physiology and Pathology," which appeared originally in the *British Medical Journal* for April 26, 1873, and subsequently with a full account of the experiments in the *West Riding Lunatic Asylum Medical Reports*, vol. iii. There is no doubt that those experiments open up a most important field and mode of research. To be able to stimulate directly limited parts of the brain in a living animal is a great step in advance of anything as yet attempted in investigation of cerebral function. It is not only what Professor Ferrier's experiments prove, but what they suggest, and will undoubtedly lead to, that gives them their superlative interest to all students of brain function.

1. The anterior portions of the cerebral hemispheres are the chief centres of voluntary motion and the active outward manifestation of intelligence.

2. The individual convolutions are separate and distinct centres; and in certain definite groups of convolutions (to some extent indicated by the researches of Fritsch and Hitzig) and in corresponding regions of non-convoluted brains, are localised the centres for the various movements of the eyelids, the face, the mouth (and tongue), the ear, the neck, the hand, foot, and tail. Striking differences corresponding with the habits of the animal are to be found in the differentiation of the centres. Thus the centres for the tail in dogs, the paw in cats, and the lips and mouth in rabbits, are highly differentiated and pronounced.

3. The action of the hemisphere is in general crossed; but certain movements of the mouth, tongue, and neck are bilaterally co-ordinated from each cerebral hemisphere.

4. The proximate causes of the different epilepsies are, as Dr. Hughlings Jackson supposes, discharging lesions of the different centres in the cerebral hemispheres. The affection may be limited

artificially to one muscle, or group of muscles, or may be made to involve all the muscles represented in the cerebral hemispheres, with foaming at the mouth, biting the tongue, and loss of consciousness. When induced artificially in animals, the affection as a rule first invades the muscles most in voluntary use, in striking harmony with the clinical observations of Dr. Hughlings Jackson.

5. Chorea is of the same nature as epilepsy, dependent on momentary (and successive) discharging lesions of the individual cerebral centres. In this respect Dr. Hughlings Jackson's views are again experimentally confirmed.

6. The corpora striata have crossed action and are centres for the muscles of the opposite side of the body. Powerful irritation of one causes rigid pleurosthotonus, the flexors predominating over the extensors.

7. The optic thalamus, fornix, hippocampus major, and convolutions grouped around it, have no motor signification (and are probably connected with sensation).

8. The optic lobes or corpora quadrigemina, besides being concerned with vision and the movements of the iris, are centres for the extensor muscles of the head, trunk, and legs. Irritation of these centres causes rigid opisthotonus (and trismus).

9. The cerebellum is the co-ordinating centre for the muscles of the eyeball. Each separate lobule (in rabbits) is a distinct centre for special alterations of the optic axes.

10. On the integrity of these centres depends the maintenance of the equilibrium of the body.

11. Nystagmus, or oscillation of the eyeballs, is an epileptiform affection of the cerebellar oculo-motorial centres.

12. These results explain many hitherto obscure symptoms of cerebral disease, and enable us to localise with greater certainty many forms of cerebral lesion.

PART IV.—NOTES AND NEWS.

The Medico-Psychological Association. Proceedings at the Annual Meeting of the Association, held (by permission of the President and Fellows) in the Royal College of Physicians, London, on Wednesday, August 6th, 1873.

The Council met at the Royal College of Physicians at 10.30 a.m. Dr. Harrington Tuke, President-Elect, in the Chair.

The Morning Meeting was held in the Library of the Royal College of Physicians at 11 a.m., and the Afternoon Meeting at 2 p.m.

Members and Visitors present:—Dr. Harrington Tuke, President, Dr. I.ush, M.P., Dr. Buckmill, F.R.S., Dr. Sibbald, Dr. Paul, Dr. Maudsley, Dr. Guy, Dr. Batty Tuke, Dr. Rogers, Dr. Murray Lindsay, Dr. Yellowlees, Mr. Mould, Dr. Lalor, Dr. Rhys Williams, Dr. Duckworth Williams, Dr. Arlidge, Mr. Toller, Dr. Clouston, Dr. Davey, Dr. Boyd, Dr. Blandford, Mr. Thompson, Dr. Stocker, Dr. Munro, Dr. Jepson, Dr. Rayner, Dr. Langdon Down, Mr. Stewart, Mr. Ley, Dr. Deas, Dr. Chapman, Dr. Bywater Ward, Dr. Sutherland, Dr. Duncan, Dr. Parsey, Dr. Sankey, Dr. Blanche (of Paris), Dr. J.