PART III.—PSYCHOLOGICAL RETROSPECT.

1. *Pathological Retrospect.*

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The subjoined scheme, drawn up by the writer eighteen months since, has been put to practical test at the West Riding Asylum during that time, and found to answer its purpose. Several practical suggestions made by Dr. C. H. Bond, Pathologist at Banstead Asylum, have been incorporated with it, and are here acknowledged. The corresponding scheme for the spinal cord it is proposed to give in a later number.

EXAMINATION OF BRAIN AND COVERINGS.

Examination hours p.m.
Temp. Room.
Atmosphere: Humidity of { more. / less. / usual.

SCALP—Anomalies or Lesions of.
SKULL-CAP (sawn at fixed level, *e.g.*, 3 centim. above root of nose).
- Thickened or thinned.
  - If alteration, gen., local.
- Translucency, degree of.
- Diploë at cut surface.
  - Amount.
  - Colour (vascularity).
  - Meshes open or filled up (incr. density).
- Hard or soft.
  - If alteration, gen., local.
- Pacchionian indentations.
  - Size.
  - Depth.
  - More or less numerous.
- Bosses or Spicules from Inner Table.
- New Layering of Inner Table.
- Bosses from Outer Table.
- Colour (vascularity).
- Symmetry.
- Weight.
- Caries of bone.
- Any lesion not coming under above.
- Measurements.*
  - *a.* Diameters.
    - Antero-posterior.
    - Transverse
    - (Others if time permits).
  - *b.* Circumferences.
    - Antero-posterior.

SKULL-CAP (*continued*)
- Transverse.
- Horizontal.

BASE OF SKULL.
- Any lesion of, esp. caries.
- Symmetry.
- State of palate.

MEMBRANES.
- *a.* Dura Mater and processes of.
  - Adherent to skull-cap.
    - Extent of adhesion.
    - Site „ „
    - Degree „ „
  - Tense { normally. / unduly.
  - Flaccid (wrinkled).
  - Thickened or thinned.
    - If alteration, gen., local.
  - Colour (vascularity).
    - Any local congestion.
  - Adherent to arachnoid.
  - Undue amt. subdural fluid.
  - Quality of „ „
    - Semi-gelatinous, lymph-flakes.
    - Cysts.
  - Blood-effusion or new formation on inner surface: N.E. characters of.
  - Bony deposits in.
  - Sinuses of.
    - Capacity.
    - Contents.

* According to directions given by Topinard ("Anthropology").

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MEMBRANES (*continued*)
- Lining-membrane.
- Undue adhesion to base of skull.
- Any lesion not coming under above.

b. Arachnoid (at parts distinct from pia).
- Undue granulation of outer surface.
- State of Pacchionians.
- Undue opacity (esp. white spots and patches, indicative of thickening).
  - Site of.
  - Degree of.
- Swollen, gelatinous (site).
- Blood-effusion in connection with (site).
- Sub-arachnoid fluid: quantity: any notable alteration in quality.
- Any lesion not coming under above.

c. Lepto-meninges.
- Undue opacity.
  - Site of.
  - Degree of.
- Normal tenuity, or
- Swollen, gelatinous.
  - Gen., local.
- Vascularity: excessive, or pallor.
  - Gen., local.
- Blood-effusion: site.
- Adhesion to cortex.
  - Extent, site of adhesion.
  - Strength of adhesion.
- If no adhesion, how does pia strip from all parts: normally, or in sheets.
- Any adhesion between hemispheres.
- Any lesion not coming under above.

CEREBRUM.
- Size.
  - Average.
  - Small.
  - Large.
- Diminution in size of individual lobes.
- Consistence.

a. Indications of gen. diminution of.
- (i.) On superficial inspection.
  - Collapsed state of hemispheres.
  - Undue separation of hemispheres.
  - Laceration of corpus callosum.
  - Gaping sulci.
  - Etc.
- (ii.) On Palpitation.

b. Firmness of C. as a whole, average, or increased [degree of increase].
- Undue surface-greasiness.

Grey Matter and Gyri.
- Diminished consistence (flabby, yielding too readily to pressure, etc.).
  - General.
  - Local: old, recent (tint).
- Firmness average.
- Sclerotic changes, with site.
- Arrangement main gyri.
- Degree of convolution.
- Atrophy of gyri.
  - General (state of sulci).
  - Local (convolutions sunken below gen. level anywhere).
- Colour (vascularity), on surface and section: any patchiness of colour.
- Blood-extravasation: site.
- Erosion from stripping pia: site.
- Cheesy, chalky nodules, or other focal lesions: seat.

White Matter.
- Consistence: average possibly increased.
  - Diminished Gen., local { Tested by touch, water-stream, section: does subst. cling to knife?
- Colour (vascularity).
  - State if local alterations.
- Vessels coarse, bristly.
- Blood-extrav.: seat.
- Œdema (slighter degrees shown by brilliance of exposed surface).
- Undue porosity (état criblé).
  - Indicative of atrophy.
- Sclerosis: seat.
- Scars, cysts, nodules, or other focal lesions: seat.
- Any recent softening about these.
- Other lesions not coming under above.

Basal Ganglia and Capsules.
- Size (of ganglia) any shrinkage laterally (atrophy).
- Consistence.
  - If softening: seat.
  - If sclerosis „

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CEREBRUM (*continued*)
- Colour (vascularity).
- Blood-extrav.: seat.
- Scars, cysts, nodules, or other focal lesions: seat.
- Etat criblé (of ganglia).
- Other lesions, not coming under above.

Ventricles (lateral and third).
- Dilated.
- Excess of fluid.
- Appearance of fluid removed by pipette.
  - (More precise examination in special cases if desirable.)
- State of ependyma.
  - Granular, thickened, macerated.
- Anomalies of cornua.
- Consistence of fornix, white and grey commissures, septum lucidum.
- Abnormalities of choroid plexuses and
- Velum interpositum.
  - Congestion, exudation in, cysts, etc.
- Other lesions not coming under above.

Corpora Quadrigemina, state of.

PONS AND MEDULLA.

Size.
- If diminution, gen., local (incl. unilateral).

Consistence.
- If diminution, gen., local.

Colour (vascularity).

Blood-extrav.: seat.

Ependyma of fourth ventricle.

Does pia strip normally.

PONS AND MEDULLA (*continued*)

Other lesions not coming under above.

BASE OF CEREBRUM.

Main vessels at base.
- Relative size of corresponding ones.
- Arrangement.
- Atheroma.
- Occlusion.

Cerebral peduncles.

„ nerve-roots: optic tracts.

Pituitary body.

Other lesions not coming under above.

CEREBELLUM.

Size.
- If diminution, gen., local (incl. unilateral).

Consistence.
- Normal.
- Softening: gen., local.
- Sclerosis: seat.

Colour (vascularity) of grey and white matter.

Blood-extrav.: seat.

Corpora dentata.

Does Pia strip normally.

Other lesions (as growth) not coming under above.

Weights.*
- Whole Brain.
- Right Hemisphere.
- Left „
- Pons, Medulla, and Corp. Quadrigemina together.
- Cerebellum.

Amount of Fluid collected.

Lysol as a Preservative.—The writer's attention was first drawn to lysol by an article in "Zeitschr. f. Hygiene," 10 Band, 2 Heft, 1891, by V. Gerlach, who there demonstrates its strong antiseptic power. He appears to use solutions varying in strength from 1-5 per cent. Lysol is composed of tar-oils which have been rendered soluble in water by special treatment. That used by the present writer is a dark-brown fluid, with an odour at once suggestive of its origin. A 1½ per cent. solution is made with distilled water; a little agitation produces a clear fluid with a yellow tint. In this strength lysol has been employed tentatively in the laboratory of this asylum as a preservative of fresh tissues. It has been found to prevent decomposition altogether. Relatively speaking, the odour is preserved well (fading of the blood-tint in notable degree

* And of individual lobes if desired.

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appears unavoidable, whatever the preservative medium employed). Tissues acquire an unnatural translucency; this is a disadvantage which applies to lysol. Recently Dr. Hime, of Bradford, showed the writer the intestines and portions of other viscera from a case of cholera. These had been in lysol 1 per cent. several weeks; they were quite sweet, and presented an almost natural appearance. Lysol may be set down as non-poisonous in the strength recommended (1½ per cent.), and its odour (like that of creolin) would probably be agreeable to most people—properties which may be accounted advantageous where occasional handling of preparations is necessary. It may be mentioned that a one per cent. solution serves to disinfect the hands entirely, according to Gerlach.

Thoma's Preservative Fluid.—This was brought to the writer's notice by Dr. Alex. Bruce. It is to be recommended for the preservation of the natural colour of organs. Thoma uses two fluids, apparently indifferently. Fluid A is the one employed here, though for no special reason. The formulæ are as follows:—

	A.	B.
Crystals of Sulphate of Soda	100 grammes	60 grammes.
Chloride of Sodium	100 „	100 „
Chloride of Potassium	100 „	100 „
Nitrate of Potash	10 „	10 „
Water	1 litre	1 litre

Tissues are washed as little as possible at the autopsy. Large organs, such as liver and enlarged spleen, should be cut into slices of the thickness of a finger. All pieces or organs should be hung up in the fluid, so that opposite surfaces do not touch. After 18-24 hours in A or B brush off any blood on the surface, and place in spirit, which should be changed once or twice.

Gravitz's Preservative Fluid (for fresh preparations).—This has been in use some time, but as the formula does not appear to be very accessible. It is given here:—Common salt, 150 grm.; sugar, 40 grm.; saltpetre, 20 grm.; water, one litre. Add three per cent. boracic acid, or some tartaric acid, until the solution is acid.

Fresh preparations are placed in the above solution, and then this fluid is diluted with water until the preparations sink. Replace by fresh fluid in 4-8 weeks.

Giacomini's Process for Preserving Brain.—This process, the reputation of which is well established, is referred to here, not with the object of detailed description (for this see Lee's "Microtomist's Vade-Mecum,") but simply to lay tress upon one or two practical points. Book-teaching is to the effect that the brain should be left in sat. aqu. sol. chloride of zinc for five days or so. Here the zinc is employed for a much longer period, from 4-6 months, because shrivelling of the surface and collapse of the organ in mass have ensued when it has been used for a shorter time. Should this shrivelling occur in specimens otherwise good it may be removed by keeping the organ in glycerin for a prolonged

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period (weeks to months). Remove the varnish by spirit before immersing in the glycerin.

Stieda's Process for Preserving Brain.—A modification of the preceding. Place the brain in chloride of zinc, sat. aqu. sol.; leave 24 hours. Pia now removed. Transfer to 96 per cent. alcohol; change latter every 5-6 days. Brain sufficiently hardened in 2-3 weeks. Place in turpentine; leave 2-4 weeks. This penetrates the quicker the better the brain has been dehydrated; at least two weeks needed. The organ becomes again rather soft, but "transparent;" it acquires a brownish tint. Place in varnish (so-called "drying-oil") for two weeks. Remove and allow to dry thoroughly in air. Experience here shows that much more shrinkage takes place by this method than by Giacomini's, and that a cheesy dryness of portions of the surface quickly occurs, even when much more time than that recommended is spent over the process. Dr. Adair, Pathologist at Wadsley Asylum, has also failed to get satisfactory results with the method. By stopping short of the varnish-stage and leaving the brain in the turpentine the writer finds that very good museum-preparations may be obtained.

An Axis-Cylinder Stain.—Quite recently Stroebe ("Centralbl. f. Allgem.," Path iv., Band No. 2) has described a novel method of staining the axis-cylinder which he has found very serviceable in the study of peripheral nerve regeneration, but also quite satisfactory for staining this structure in the central nervous system—a result which was to be expected, since the fine axis-cylinders of the young nerve-fibres met with in the earliest phases of regeneration form severe test-objects for stains. The special feature of this method is that a practically isolated stain of the axis-cylinder is obtained. Effective contrast-staining is possible. The procedure is as follows:—1. The tissue is hardened in Müller, thereafter in alcohol (if desired), and sections cut as usual. 2. Stain in fresh sat. aqu. sol. anilin-blue, 10 min.-1 hour; sections become blue-black. 3. Wash off excess of stain in water, then place in a small porcelain-dish of absolute alcohol, to which have been added 20-30 drops of one per cent. solution of alkali-alcohol (1 grm. caustic potash to 100 ccm. alcohol). In the alkali-alcohol sections turn of a light-rusty colour, clouds of reddish colouring matter issuing from them. As soon as these cease to form, and the sections are of a light red-brown colour and transparent, differentiation is complete (1-several minutes). 4. Wash in distilled water (5min.); the sections acquire a clear blue tint. 5. Contrast-staining in conc. aqu. sol. safranin, dil. with equal parts of water, $\frac{1}{4}$-$\frac{1}{2}$ hour. 6. Place in abs. alc. to remove excess of safranin, and to dehydrate; the sections now look red, with a tinge of blue. Xylol, xylol-balsam. Axis-cylinders appear dark-blue, medullary sheaths, cell-protoplasm, ground-substance, and cell-nuclei various shades of red; the last-named sometimes retain the blue colour.

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Kulschitzky's Stain for the Central Nervous System.—Sections made from tissues hardened in Müller or in Erlicki's fluid are stained for 18-24 hours in the following solution, slightly acidified before use by the addition of 2-3 drops of acetic acid to a watch-glassful of stain:—Hæmatoxylin, grm. i.; abs. alc., a few ccm., sufficient to dissolve this; saturated sol. boracic acid, 20 ccm., dist. water, 80 ccm. The stain is at first yellow, but in 2-3 weeks becomes deep-red, and is then fit for use. A simpler way of preparing the stain is as follows:—Dissolve 1 grm. hæmatoxylin in a few ccm. alcohol, and add 100 ccm. of two per cent. aqu. sol. acetic acid.

After staining, wash in alcohol; here differentiation takes place. The medullary sheaths of nerves are stained deep blue; other tissues remain unstained or acquire a yellowish tint. Staining is particularly effective when the sections, after differentiation, are allowed to remain 24 hours in sodium or lithium carbonate (sat. sol.). By allowing sections stained after the ordinary Weigert-Pal method to remain (after differentiation) in conc. lith. carb. sol. awhile the staining is improved, a fact brought to the writer's notice by Dr. Adair.

Lissauer introduced the following method of conducting Weigert's process—distinguished by its rapidity. If reliable (the writer has no experience to adduce) it is certainly worthy of adoption. Sections as thin as possible, from tissues hardened in Müller, are placed in one per cent. sol. chromic acid, which is carefully warmed until bubbles begin to form; they are then lightly washed in water, and again warmed, in similar fashion, in Weigert's hæmatoxylin solution. The usual treatment with permanganate of potash and sulphurous acid is then proceeded with. Medullated fibres are stained deep-black, and are brought out uncommonly distinctly.

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2. *Retrospect of Criminal Anthropology.*

By Havelock Ellis.

The Elmira Reformatory.

The "Year Book" of the Elmira Reformatory for 1892 is an admirably produced volume; it contains, also, a very large number of process illustrations from photographs, as well as 100 woodcut portraits of inmates with accompanying histories. Like last year's "Year Book," it is the product of the intelligence, skill, and industry of inmates engaged on the institutional journal, "The Summary."

It is satisfactory to find that considerable space is devoted this year to the interesting operations of the Physical Training

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