in this he is quite different from the interesting criminal from whose autobiography passages were quoted in the "Retrospect of Criminal Anthropology" in this Journal for last January. The two criminals have much in common, both being instinctively criminal, so far as can be judged, and both with a taint of insanity, but Bragg possesses the power of remembering and faithfully recording his own mental states.

The publication of the book is due to Sig. A. G. Bianchi, who writes the introduction and who has already done much to further the study of morbid psychology and to create general interest in its modern developments.

PART III.–PSYCHOLOGICAL RETROSPECT.

1. *Pathological Retrospect.*

By Edwin Goodall, M.D.Lond., B.S., M.R.C.P., West Riding Asylum, Wakefield.

Note on a Chinese Brain.

Derkum ("Journ. Nervous and Mental Disease," 1892, xvii.) gives an anatomical description of a Chinese brain, the seventh which has been carefully examined. In this the features characteristic of the other brains were again noted, namely, unusual degree of convolution, disposition to anastomosis in the perpendicular and horizontal directions, and marked obliquity of the orbital surfaces of the frontal lobes (with the last-mentioned may probably be associated the peculiar position of the eyes in the Chinese). Blending of the central and Sylvian fissures is said to be a frequent feature of such brains. For other details see the original paper.

Histology of the Nervous System in Paralysis Agitans and Senility.

Ketscher ("Zeitsch. f. Heilkunde," Bd. xiii., H. 6, 1892; abstract in "Neurolog. Centralbl.," March 1, 1893) has examined the central and peripheral nervous system in three cases of paralysis agitans. In all there were morbid changes. The specific tissue-elements showed various degrees of atrophy; the cerebral ganglion cells were strongly pigmented, rounded, and here and there in a state of granular degeneration; the spinal nerve-fibres, especially in the posterior columns, were degenerate and atrophied, and here and there had disappeared, so that holes were present; the same applied to the peripheral nerve-fibres. The interstitial tissue was much increased in the cord and nerves. Vessels much altered, walls thickened, miliary aneurisms, and hæmorrhages here

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and there, adventitial sheaths bulging in places, and the spaces filled with round cells and lymph. These changes agree with those described by other authors. Conjecturing that they might be due merely to senility, Ketscher examined the nervous system of ten old persons free from paralysis agitans. He found changes which did not differ qualitatively at all from those present in the cases of paralysis agitans, though they were less marked. He is, therefore, of opinion that this affection is merely the expression of unusually pronounced and possibly premature senility.

Van Gieson's Stain for the Central Nervous System.

V. Kahlden ("Centralbl. f. Allgem. Path.," 2 June, 1893) speaks highly of this stain, which is especially adapted for the demonstration of the axis-cylinder. Proceed as follows:—1. Stain sections 3-5min. in a hæmatoxylin solution. Wash well. 2. Stain in a mixture of sat. aq. sol. prussic acid and sat. aq. sol. acid fuchsin—sufficient of the latter fluid to make a deep-red solution. 3. Wash rapidly in water. Spirit, alcohol, origanum oil, Canada balsam. Delafield's hæmatoxylin or ordinary alum-hæmatoxylin may be employed. Axis-cylinder appears deep-red, medullated sheaths yellow, the glia is of a reddish tint, nuclei are blue-violet, sclerosed tissue is intense red. Axis-cylinder, according to V. Kahlden, stain better in preparations hardened in Müller's fluid than in those hardened in alcohol. He says the method is of great service where it is important to differentiate between tissue-constituents. It may be added that with this method hyaline material stains a deep-red, colloid a fainter-red or even slightly brown. The relation of amyloid material, which stains a light-red, to the tissue constituents, especially the vessel-walls, is brought out better by this than by any other method.

Congo-Red as an Axis-Cylinder Stain.

Alt ("Münchener Medizinische Wochenschc.," 1892, No. 4) recommends this highly, especially for peripheral nerves. He states that by it axis-cylinders can be traced to their finest ramifications. Sections of tissues, hardened and cut as usual, are stained in a solution of Congo-red in abs. alcohol [deep-red] at 35° C. for ¾-2 hours. Superfluous stain is removed by placing sections for 10 minutes in alcohol 96 %, and thereafter in absolute alcohol. In the latter the red section becomes of a deep-blue colour, and at the same time some differentiation takes place. Clear in bergamot oil, mount in chloroform balsam. Sandarac is also recommended for mounting, especially for peripheral nerves. Axis-cylinders are stained deep-blue, other tissue-elements shades of blue and violet. It is not clear what, if any, advantages this method has over the old one of Nissl (1886), with which the writer has ob-

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tained good results, and which is as follows:—Sections of nerve-tissue hardened in bichromate are passed out of alcohol 95 °/₀ into aq. sol. Congo-red of strength 5·400. In this they remain 72 hours. Transfer to alcohol 95 °/₀ 5-10 minutes, and then to acid-alcohol (nitric acid 3 °/₀) for six hours. Alcohol, clove oil, balsam. The acid-alcohol acts as the differentiating agent, much stain being dissolved out by it. Alcohol alone will remove some of the stain. Axis-cylinders in transverse and longitudinal section are stained brown-black. Nerve and connective-tissue cells of same tint, or purplish. Ground substance light brown.

Weigert has modified his method for staining *medullated nerve-fibres* in such a manner that differentiation as performed in the original method is dispensed with. The modification is, perhaps, not commonly known in this country, and so may be given here (see "Deutsche Medizin. Wochenschr.," 1891, No. 42). Harden as usual and imbed in celloidin as usual. Float the imbedded pieces for 24 hours in the incubator in following solution:—Neutral acetate copper, sat. sol. in the cold, filtered; 10 °/₀ sol. tartrate of soda, equal parts. Then keep 24-48 hours (latter say for pons) in simple aq. sol. neutral acetate copper in incubator. Wash lightly in water; 80 °/₀ alcohol, cut. Have ready sol. A, 7 parts sat. aq. sol. lithium carbonate, 93 parts water, and sol. B, 1 part hæmatoxylin, 10 parts abs. alcohol, 90 parts water, 1 part sat. aq. sol. lithium carb. Just before use mix 9 parts A with 1 part B. Leave sections in mixture 4-5 hours (24 hours not harmful). Wash in water, then in alcohol, 90 °/₀, clear in anilin-xylol (2 parts anilin oil, 1 part xylol), then in xylol. Xylol-balsam.

Black staining on a clear red ground. Over-stained sections are treated with borax ferricyanide, as usual.

Practical Point in Conducting Weigert's Process or Pal's Modification.

The carbonate of lithium solution usually added to the hæmatoxylin stain need not be employed until after the latter. In this case sections are removed from the hæmatoxylin after the lapse of the usual time and placed in sat. sol. lith. carb. Here they remain till sufficiently dark. Proceed then as usual. By following this plan the same hæmatoxylin solution may be used repeatedly. Possibly the hæmatoxylin-lithium solution may be employed several times over, but the fact that it is quite opaque renders it much less convenient to work with than the translucent plain solution, even if the supposition is correct, which is doubtful.

Stains for the Central Nervous System (Rehm, "München. Medizin. Wochenschr.," 1892, No. 13).

Isolated staining of connective-tissues, nuclei, and nuclei of blood-vessels. 1. Sections are placed for a few minutes in 1 °/₀ aq. sol. eosin (cold), washed in water and alcohol, transferred for some

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minutes to 0·1 °/₀ aq. sol. dahlia. Differentiation and dehydration in alcohol; origanum oil, balsam. 2. In place of eosin 1 °/₀ aq. sol. nigrosin, in place of dahlia 0·1 °/₀ alcoholic sol. fuchsin are used. One half-hour in each of these. Differentiation in alcohol, clove oil, chloroform, colophonium. With the first method the nuclei are dark-blue, all other parts red; with the second nuclei are red, other parts blue-grey.

Rehm recommends the following carmine solution as a very good under stain:—Carmine 1 gram., liq. ammon. caust. 1 c.c., aq. dest. 100 c.c. Sections remain in this five minutes, are then washed in 70 °/₀ alcohol, to which is added nitric acid in proportion 1 c.c.-100 c.c. Transfer to pure alcohol to remove the acid, and then to cold sol. methylene blue 10·1 °/₀, in which sections remain half a minute. Differentiation in alcohol, origanum oil, colophonium. Nuclei of nerve-cells bright-red (the nuclear network is well shown), protoplasm of nerve-cells blue. Nuclei of connective-tissue and blood-vessels blue or violet.

For the demonstration of the axis-cylinder Rehm uses a 0·5 °/₀ aq. sol. hæmatoxylin. In this sections remain 1-2 days. Wash in water (to 100 c.c. of which is added 1 c.c. conc. sol. lith. carb.) till no more colour is removed. Differentiate in 96 °/₀ alcohol. Origanum oil, balsam. Axis-cylinders are grey black, connective-tissue is but little stained. Nuclei of vessels clearly shown. By leaving sections one day in the hæmatoxylin, differentiating as above, and transferring (after momentary use of alcohol) for a few minutes to 0·1 °/₀ aq. sol. bismarck-brown, good results are obtained. The axis-cylinders and nerve-cell nuclei appear grey, cell-substance is stained brown.

Sublimate-Toluidin-Blue Method for the Demonstration of Nuclear Structures, Blood-Vessels, and Nerve-Cells.

For the demonstration of nerve-cells and nerve and connective tissue-nuclei the writer finds that the following method presents many advantages; it may possibly be novel. Tissues are hardened in sublimate. (This is not only a good hardening agent, but also an excellent fixative, and so adapted for the demonstration of nuclear structure and other fine details.) The following solution may be used:—Sublimate, 7½ gram.; 0·5 °/₀ salt-sol. 100 c.c. Dissolve by heat. Pieces—not too large—remain in this about 24 hours. Wash thoroughly in water (this is important to remove deposits of mercury), and then pass through alcohols, 30 °/₀, 70 °/₀, 96 °/₀—24 hours in each. Cut sections and stain in aq. sol. toluidin-blue 0·1 °/₀ for about 48 hours. The cortex is now a uniform deep blue, medulla a fainter blue. Wash in water; some stain extracted. Wash in methylated spirit, and finally in abs. alcohol. Much stain is removed. Presently the clouds of stain almost cease to form. Transfer at once to xylol. Further extraction is thus presented. Mount in xylol-balsam. The

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section has a light-blue or purplish tint. Connective-tissue nuclei, including those of vessel-walls, very well stained; so also are nerve-cell nuclei. All these structures blue or purple. Nerve-cells of similar though lighter tint. Their processes are stained about as well as in the case of chrome-hardened specimens treated by the ordinary dyes. The neuroglia basis is practically colourless. The stain must be regarded as chiefly a nuclear one. Specimens some months old show no fading.

A Neuroglia Stain.

It has been observed—especially by Lubarsch—that in Weigert's method for staining fibrin several other tissue-constituents become stained as well as fibrin. Beneke, experimenting with the method, found that connective-tissue is often stained by it. He now communicates to the "Centralblatt f. Allgem. Path.," 28 July, 1893, a modification of Weigert's fibrin-method, by which connective-tissue in the most diverse organs can be consistently stained. Amongst these is the brain; the spider-cells and their prolongations, the fine fibrous networks between pia and cortex and around the ventricles, are stained by the process recommended. The fibrous meshwork of sclerosed tissue is shown remarkably well. The principle of the modified method of Beneke lies in the fact that the Weigert stain is not a specific stain for fibrin; it has an affinity, though less marked, for several other of the tissue-constituents. The stain, as is well known, is anilin-water-gentian-violet. The decolourizing (differentiating) fluid is a mixture of anilin and xylol (2-1), and of these two ingredients only the anilin oil is directly operative; the xylol merely controls the other, having no decolourizing power. Obviously, by increasing the proportion of xylol, the action of the anilin-xylol should be weakened, and thus various tissue-elements might be demonstrated which the original method fails to show. Beneke, in fact, finds that by employing a mixture of anilin oil and xylol in the proportion of 2-3, connective-tissue structures can be well shown. This is the respect in which his method differs from Weigert's. Experience is needed in order to decide the right moment at which the action of the decolourizing fluid should be checked by the use of xylol. For details see the original paper.

Photoxylin as an Imbedding Material.

Photoxylin is said to have replaced celloidin as an imbedding material in many German laboratories, as it possesses all the merits of the latter, and has in addition the advantage of greater translucency. In the investigation of small slightly-stained objects this is a point of undoubted importance, but for ordinary purposes it may be pointed out that common collodion is perfectly suitable, and at the same time less expensive than either celloidin

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or photoxylin. Photoxylin is stated to be allied chemically to celloidin. It has the appearance of fine, pure cotton-wool; is soluble in equal parts of alcohol and ether, and is employed in precisely the same manner as celloidin. It may be obtained from Gruebler, Leipzig, or London (R. Kanthack, Golden Square).

A Simple Method of Fixing Paraffin Sections to the Slide.

This was introduced by Gulland not long since. An essential point in employing the method is to have absolutely clean slides upon which water will lie in a continuous layer. The slides are thoroughly cleaned with a wet cloth. Ribands of sections of suitable length are floated on warm water, below the wetting point of the paraffin; of course curled-up sections are in this way straightened. (This part of the method is not new.) The ribands are then taken up on the slides. Adhesion of the former to the latter is brought about simply by keeping the slides for several hours (*e.g.*, overnight) at about 35° C.—as in an incubator. The sections adhere so strongly that they remain fixed when exposed to a strong stream of water. The paraffin may now be removed—after melting it by placing the slide a short time in the paraffin oven—by xylol, and all customary subsequent manipulations may then be undertaken. This method is much superior to the methods of fixation by albumin-glycerin mixtures, in which the fixing material becomes stained by many of the dyes used.

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2. *American Retrospect.*

By D. Hack Tuke, F.R.C.P.

Progress in the Care and Handling of the Insane in the Last Twenty Years.

Dr. Eugene Riggs, of St. Paul, Minn., U.S.A., the Chairman of the Committee on the History of the Treatment of the Insane, appointed by the National Conference of Corrections and Charities, read the report at its twentieth annual meeting, held June 12-18, 1893, at Chicago. The article is evidently drawn up by himself, and endorsed by the Committee. It constitutes an interesting and valuable review of the progress made in the care of the insane, the first era being that of neglect, the second that of detention more or less severe in character, and the third that in which we live, including the last twenty years. Dr. Riggs commences with the dawn of intelligence in the care of the insane in England in 1792, when the Retreat at York was founded. The period between this date and 1815 is recognized as one coincident in France with the beneficent work of Pinel, reinforced a little later by that of Esquirol. "Since that time both there and here

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