muscles being represented at a higher level, and more externally in the spinal column. This corresponds to the arrangement in the upper limb.

R. G. Gordon.


With a view to determining the true nature of the normal spinal fluid immediately after birth the author performed lumbar puncture on 423 babies, no regard being taken as to the character of labour or the condition of the child at birth. The great majority of punctures were made within the first twenty-four hours, and on many patients a subsequent puncture was done about the ninth day of life.

The routine examination of the spinal fluid for cellular elements gave data of no unusual interest. The average cell count was 6.3 per cubic millimetre, the highest being seventeen, which occurred in a fluid giving a 4 plus Wassermann reaction, and the lowest recorded being two. The majority of fluids showing a positive Wassermann reaction gave counts above ten, though several were as low as three or four. As the observations progressed, one striking feature of the fluids was noted. No fluid was obtained which was absolutely colourless, all showing some degree of pigmentation, varying from a pale straw to a deep yellow. In no case was there any evidence of jaundice during the first twenty-four-hour period in which the primary puncture was done, and no relation existed between the character of the labour and the intensity of the pigment. The size and general physical development of the child, however, had a definite bearing on the degree of xanthochromia. All premature infants, small full-term infants and twins invariably showed a marked pigmentation, while as a general rule the large full-term babies gave a fluid that contained relatively little pigment.

The presence of blood in macroscopic quantities, not resulting from the spinal puncture, was regarded as evidence of intracranial haemorrhage, and this condition was found to exist in sixty infants, but in only twenty-six were there any clinical symptoms attributable to intracranial haemorrhage.

The conclusion is reached that xanthochromia of the spinal fluid in newborn infants is a physiological condition and is in no way dependent on the existence of haemorrhage or other pathological condition of the nervous system.

R. M. S.

NEUROPATHOLOGY.


This short article is an apologia for the name ‘état marbré,’ and a reply to a paper by Scholz in which he proposes to rename the condition “Partial infantile sclerosis of the striatum.” The author rejects this nomenclature on three main grounds:—(1) That the status marmoratus is shown by clinical evidence to occur during foetal life, in which case it is not infantile. (2) That the characteristic of the condition is hypermyelination of the finest fibres of the striatum; this may result from destruction of some of the fibres of the
striatum in infancy, but she does not think that all forms of partial destruction at this age produce it. In support of this view she cites the closely allied plaques of myelinated fibres in the cortex cerebri; these, no doubt, sometimes result from foci of encephalitis, but on the other hand areas of old encephalitis are often found in which there is no hypermyelination. (8) While in some cases the status marmoratus is associated with overgrowth of neuroglia and of small vessels, in the majority of cases there is no evidence of this. Finally she draws a distinction between cases in which the normal bands of myelinated fibres in the striatum are unusually prominent and true cases of status marmoratus, and states that she has never seen any transition forms between these two conditions.

J. G. GREENFIELD.


The author reviews the effect of alcohol and other toxins on the cells of the liver and the neuroglia of the central nervous system and points out the frequency with which neuroglial proliferation is associated with ordinary cirrhosis of the liver. From this he concludes that the lesions in hepato-lenticular degeneration have a common toxic origin.

R. G. GORDON.


In four cases belonging to the group of extrapyramidal disease (Parkinsonian cases) intramuscular injections of physostigmin accentuated and aggravated the existing symptoms; injection of scopolamin promptly inhibited these. In five other cases, however, coming under the same category no effect could be found as the result of physostigmin administration. The author is at some pains to ascertain this variability of action, and can only suppose that the exact pathological localization was somewhat different in the two groups; he argues this must be of significance in relation to the central mechanism on which physostigmin acts.

S. A. K. W.


It has been known for a long time that under the influence of scopolamin an extensor plantar response can be obtained in the absence of organic pyramidal disease. The author has had frequent opportunity of observing this fact in mental cases submitted to prolonged narcosis by resort to this
drug. In Parkinsonian cases, however, a change from plantar flexion to extension is rarely if ever got, notwithstanding administration of scopolamin. The suggested explanation is that the drug acts primarily on the extra-pyramidal system, modifying the interaction of that system on the pyramidal motor system; if the former is diseased its interaction on the latter is so altered that scopolamin will not be able to affect the change in the sole reflex.

Both the ‘spontaneous’ plantar extension of pyramidal cases and the ‘artificial’ extension following scopolamin injections in normal subjects can be in their turn altered by administration of physostigmin.

S. A. K. W.


After briefly reviewing the literature the author describes the post-mortem findings of a typical case of Wilson's disease in great detail. A second case less minutely investigated seems to correspond to Hall's hepato-lenticular degeneration and to be associated with syphilitic infection.

R. G. Gordon.


The material on which this study was made came from three cases of gunshot wound of the cord at the level, in one case, of the second and, in the other two, of the fourth thoracic vertebra. The brain stem, cerebellum and brain were studied in serial sections by the Marchi method in each of the three cases. The results of this investigation for the most part agree with, but also to some extent amplify, the classical descriptions of the ascending fibres of the cord, and we therefore give a full description of them.

Connections of the posterior columns.—The fibres of the tracts of Goll and of Burdach for the most part pass into the corresponding nuclei at the lower end of the medulla; a certain number pass through these nuclei and, joining the fillet, continue upwards with it to the thalamus; still others pass forwards and outwards into the corpus restiforme.

Connections of the lateral columns.—These form in the cord the tracts of Flechsig and of Gowers. In the medulla the fibres of Flechsig's tract pass into the corpus restiforme. Of those of Gowers' tract, some pass backwards into the corpus restiforme; some inwards to the nucleus lateralis of the medulla, the inferior olive and the substantia reticularis; others continue their course upwards through the pons, where they gradually come to lie near to the outer part of the mesial fillet, and further away from the corpus restiforme, but all the time they are sending a few fibres backwards to that structure.
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In the cerebellum all the spinocerebellar fibres go towards the vermis, some crossing in its commissure, and end partly in it (especially the inferior vermis), partly in the dentate and roof nuclei, and partly in the quadrilateral and amygdaloid lobules of the cerebellar hemispheres. In the upper part of the pons one set of fibres turns round the superior cerebellar peduncle, crosses in the vermis and ends there. The other set passes upwards on the outer and dorsal border of the mesial fillet, sending fibres into the posterior corpus quadrigemimum, the corpus geniculatum internum, and the substantia nigra. The remaining fibres pass upwards to end for the most part in the ventrolateral nucleus of the thalamus, but also partly in the globus pallidus and, via the posterior end of the internal capsule, in the ascending parietal (post-central) convolution.

Some fibres from the upper thoracic segments of the cord pass up in the posterior longitudinal bundle, and a few also in the pyramidal tracts, but the latter do not ascend beyond the pons.

J. G. GREENFIELD.


After reviewing the evidence as to the etiology of this condition and describing his own findings, the author concludes from histological examination that the disease is an embryological disturbance in which spongioblasts have assumed undue prominence in development to the detriment of neuroblasts. This appears as a hypertrophy of neuroglia, which damages the nerve cells. The latter are disorganised in their distribution and consist of small misshapen cells which form the majority, though a few are giant cells with alterations in their cytoplasm and nuclei. This view is borne out by the absence of remains of disease processes and the normality of the vessels.

R. G. GORDON.

[140] General paralysis and miliary gummata (Paralysie générale et gommes miliaires).—F. D'HOLLANDER and T. RUBBENS. L'Encéphale, 1925, xx, 301.

In describing a case in which the lesions of general paralysis were associated with miliary gummata in the brain, the authors attempt to formulate the histological changes which characterize the various forms of cerebral syphilis, and to answer the question whether true transition forms exist between general paralysis and meningovascular or gummatous cerebral syphilis. They divide cerebral syphilis from the histological standpoint into:

I. General paralysis: (a) the usual form; (b) the convulsive form.

II. Cerebral syphilis: (a) syphilitic meningitis; (b) cerebral gummata; (c) syphilitic cerebral vascular disease; (d) diffuse cerebral syphilis.

General paralysis is characterized by (1) atrophy of the brain, (2) predominance of plasma cells in the perivascular and meningeal infiltrations, (3) absence of any relation between the degenerative cortical lesions and the degree of infiltration of the overlying pia mater, (4) the diffuseness of the process,
(5) the formation of new capillaries, (6) the disappearance of ganglion cells and demyelination of fibres, especially of the tangential fibres, (7) the loss of arrangement of cortical layers, (8) the intense neuroglial overgrowth, especially of the fibrillar neuroglia, the proliferation of the microglia and formation of rod cells, (9) the presence of the *spirochaete pallida* in the brain. In addition Jakob has found in the convulsive form miliary gummata in 10 per cent. and gummatus formations in 50 per cent. of cases. In this form of the disease perivascular infiltration and endarteritis are particularly intense and spirochaetes are especially abundant. In syphilitic meningitis the lesions are greatest on the surface of the brain, where perivascular infiltration may reach a degree rarely found in general paralysis, but the cells forming these infiltrations are almost entirely lymphocytes. This form of cerebral syphilis merges into the gummatus form, the two being in fact merely extreme types of the same process. Syphilitic arteritis may assume many forms, but usually attacks the larger and medium-sized vessels and is more or less localized; the inflammatory cells are chiefly lymphocytes; sometimes gummata consisting of small areas of necrosis and giant cells develop in the vessel walls. Heubner's endarteritis obliterans is almost always syphilitic and has been found in general paralysis; it never affects the cortical vessels.

Diffuse cerebral syphilis may consist of (1) numerous small disseminated syphilitic lesions, (2) a diffuse gummatus process, or (3) syphilitic endarteritis affecting most of the small vessels of the cortex. This last form, which is rare, is characterized by the absence of any inflammatory changes in the brain, and no spirochaetes are found in it (v. this Journal, 1923–4, iv, 256). The chief distinguishing points between general paralysis and cerebral syphilis are therefore the presence of spirochaetes in the brain tissue and the predominance of plasma cells in the former. A slight cellular infiltration accompanying a severe endarteritis is in favour of cerebral syphilis; the inverse is in favour of general paralysis. In the authors' case there were, in addition to the ordinary changes of general paralysis, a few miliary gummata in the cortex, consisting of fibrous tissue, lymphocytes and plasma cells; neither foci of necrosis nor giant cells were found in them. Another unusual feature of their case was the purely lymphocytic nature of the infiltration round a few of the cortical vessels. Both these are rare findings in general paralysis, but have been described by Jakob in the convulsive form. On the other hand, the authors found no spirochaetes in the brain of their case.

J. G. GREENFIELD.

[141] Colloid degeneration of the brain (La dégénérescence colloïde du cerveau).—*Urechia and Elekes. L'Encéphale, 1925, xx, 570.*

In the brain of a case of general paralysis the authors discovered in various parts of the occipital region foci of hyaline or colloid degeneration, involving mainly the grey matter, and to a very much less extent the white. The colloid substance was in the form of small rounded concretions and stained deeply with van Gieson's method and with Weigert's stain for fibrin. It was unstained by Nissl's method. Amyloid stains were similarly negative. Hortega's stain for microglia coloured it intensely, whereas Bielschowsky's...
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The technique proved also negative. In the degenerated areas enormous numbers of spirochaetes were in evidence, arranged in irregular clusters.

The histochemical interpretation of these data is somewhat difficult. The authors conclude that colloid, hyaline, and colloido-calcareous degenerations in reality form a unity, its base being constituted by the colloid element, which may contain salts of lime, occasionally of iron, and also fatty or amyloid substances.

S. A. K. W.


This short paper is the description of a method of staining the blood vessels of the brain by transfusing them with Bielschowsky's solution under pressure and then reducing the silver by fixing the brain in formalin. By this method a network was stained in the fine vessels, each mesh of which surrounded several endothelial cells. It is suggested that the stained lines indicate spaces between the endothelial cells, but whether these are normally present or result from the high pressure at which the injections are made does not appear. In addition the stain brought out a fine spiral lying in the media of the small arteries. The authors do not consider that either the network or the spiral indicates nerve plexuses.

J. G. Greenfield.


Investigations were carried out for the purpose of testing the sensitivity of colloidal gold solutions prepared both by the original method of Zsigmondy as modified by Lange, and by the latest method of Mellanby and Anwyl-Davies. The results obtained indicated that: (1) The solution prepared by Lange's method showed itself less constant in properties than that of Mellanby and Anwyl-Davies, although a perfect solution of the former, once achieved, gave equally good results. (2) Owing to their ease of preparation and to their relatively constant sensitivity and reliability, solutions prepared by the method of Mellanby and Anwyl-Davies were preferable to all other solutions, and might well be adopted as standard solutions. (3) While general paralysis and non-luetic meningitis gave, as a rule, a specific curve, mid-zone curves, as obtained in tabes dorsalis and cerebrospinal lues, were less uniform, although they were apparently always indicative of a luetic lesion of the central nervous system. A table containing 58 cases of various syphilitic and non-syphilitic conditions shows the cell count, globulin content, colloidal gold reaction and Wassermann reaction. The article contains an extensive bibliography.

Lewis Yealland.


The widely held view that the cerebrospinal fluid is largely elaborated by the
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choroid plexus is rejected by Hassin, who adduces pathological and experimental data in support of the opposing theory that the fluid is produced by the brain tissue itself, the villi of the choroid plexus functioning merely as a mechanism for the excretion or absorption of the waste products from the spinal fluid.

R. M. S.


The author tabulates the results of 400 reactions of cerebrospinal fluids with the colloidal gold, benzoin and mastic tests. Only sixteen dissimilar reactions in all three tests were encountered, and the results appear to indicate that the benzoin and mastic are reliable reactions of approximately equal value. The technique of the benzoin test is simpler than the other two, but in special cases, such as meningitis and multiple sclerosis, requiring the original benzoin test of sixteen tubes, the colloidal gold test is preferable.

R. M. S.

SENSORIMOTOR NEUROLOGY.

[146] Inversion of the Babinski phenomenon and the conditions which give rise to it (Inversion des Babinski-Phänomens und seine Entstehungsbedingungen).—Mankowsky and Beder. Deut. Zeits. f. Nervenheilk., 1925, lxxxviii, 42.

Modification of the Babinski reflex in dependence on the position of the patient was first observed by Guillaud and Barré, flexion in the prone position changing to extension in the supine position. According to Bychowski, such a modification is to be observed in about one-third of cases, both slight and severe, unilateral and bilateral (hemiplegia, myelitis, etc.). Another observation has been made by Bauer and Biach, that when the knee jerk and the plantar reflex are simultaneously tested for, in organic corticospinal cases, the Babinski response may be inhibited by the former. Experimental work on changes in reflectivity produced by altering the posture of the extremities has been conducted by many physiologists. The Marie-Poix phenomenon is known to depend on the extension or flexion of the limb respectively before it is elicited. The author adduces much more evidence of this character than can here be summarized.

His own researches have been conducted on some eighty-four cases of organic cerebral and spinal diseases, of all sorts, in every one of which an ordinary Babinski response was present by the customary method of testing. With patient prone (instead of supine), and legs extended, no change took place, whereas when in the prone posture the leg was put in preliminary flexion a plantar response in flexion was at once elicitable in many of them (in twenty-five cases definite, in nine no movement, in six the Babinski reflex was more difficult to get, in the remaining forty-four no change from before). The percentage of change from extension to flexion was 29-7. The author has observed an apparently direct connexion between the size of the angle formed by passive preliminary flexion at the knee and the ease with which