Irradiated stimuli before joining to cause pain determine by latent addition a more or less accentuated hyperalgesia. Referred pain due to irradiation is a more or less accidental phenomenon and cannot be regarded as exact in its significance. When cutaneous pain irradiates, pain may be referred to the viscera, especially if these are in a condition of latent hyperalgesia. When an analgesic is injected into a cutaneous area of referred pain it may or may not suppress the visceral pain. If it does, it acts by cutting down the amount of stimuli below the threshold level which produces pain. Pain in phantom limbs shows that the pain is really due not to peripheral stimulation but to central radiation.

R. G. G.

[85] Clonic contractions induced by stimulation of the spinal medulla at different levels (Contrazioni cloniche messe in evidenza colla stimolazione del midollo spinale a differente altezza).—A. Rizzolo. Riv. di pat. nerv. e ment., 1931, xxxvii, 626.

The clonic component is always functionally present at the level of the cortex, the corona, and the spinal medulla.

The contention that clonic contractions can only be induced by stimulus of the spinal medulla after ten or more days have elapsed after lesions of the cerebral cortex is not confirmed, since these were obtained within two hours after removal of the gyrus cruciatus on both sides and immediately after interruption of the corticospinal tracts.

The author thinks that the clonic component in movement is primary and the tonic component is secondary, the latter following the former.

R. G. G.

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Histological studies were made of the central nervous systems of fifteen macacus rhesus monkeys surviving from 19 to 309 days after the onset of acute poliomyelitis. In all cases pathological changes were seen.

The type of pathological lesions found in the acute and reparative phases of poliomyelitis corresponded roughly to the duration of the disease.

Inflammatory areas persisted in the central nervous systems of four animals which had made a good functional recovery.

A detailed study was made of the distribution and character of the lesions in the various levels of the nervous system, viz.: spinal cord, spinal
ganglia, medulla and pons, midbrain, basal ganglia, cortex and cerebellum.

These lesions have been interpreted as: (1) degenerative and inflammatory, including meningitis (negligible), perivascular and extra-adventitial infiltration, degeneration of the nerve-cells and fibre-tracts; and (2) reparative, including proliferation of microglia, astrocytes and capillaries.

Certain clinical applications of these applications may be suggested. It is true that the infection in monkeys produced in the laboratory is far more severe than the disease in man, and it may be possible that the persistence of the lesions in human cases may be correspondingly less striking, but it seems highly probable that the process may continue to smoulder long after the acute symptoms have disappeared, thus suggesting that prolonged rest may be indicated before reconstructive therapy is begun.

R. M. S.

[87] Centripetal paralysis arising out of arrested bloodflow to the limb.—
THOMAS LEWIS, G. W. PICKERING, and P. ROTHSCHILD. Heart, 1981, xvi, 1.

Among the authors' conclusions are the following:—

1. If the circulation to an arm is arrested, the limb after a time ceases to function owing to paralysis of its nerves (ischaemic paralysis). It is the nerve itself and not the nerve-ending that is affected.

2. Loss of tactile sense and of sense of position is early; it begins distally and spreads centripetally. Appreciation of pain, heat and cold is maintained much longer than is the tactile sense. The motor apparatus is affected in a centripetal order. Extensors suffer before flexors. The pilomotor nerves long retain their function.

3. Recovery from ischaemia is rapid and the order of recovery is the reverse of the order of involvement.

4. The nerves (both motor and sensory) become more sensitive to ischaemia as they are traced back from their endings towards the central nervous system.

5. Subjective tingling occurring after the bloodflow to an arm has been arrested and released is due to a certain state of recovery of the fibres of the nerve trunks, and is referred to the periphery. There is evidence tending to suggest that it is an affair of the tactile nerves.

6. The resemblance of the paralysis of ischaemia to that of peripheral neuritis is pointed out and it is suggested that centripetal paralysis is particularly correlated with peripheral nerve affections.

J. V.
Research on the behaviour of the alkaline reserve in the blood and the urinary pH value in epileptics in the interval period and during the convulsive crisis (Ricerche sul comportamento della riserva alcalina del sangue e del pH urinario negli epilettici nei periodi intervallari e durante le crisi convulsive).—F. DI RENZO. Riv. di pat. nerv. e ment., 1980, xxxvi, 549.

Epileptic convulsions are preceded by an increase in alkaline reserve in the blood which is obvious 24 to 48 hours before the fit and becomes more and more evident, reaching a maximum in the last hour before the crisis. In the few minutes preceding the fit, however, there is a rapid diminution in the alkaline content which may return almost to normal. During the epileptic convulsion the reserve is normal and remains so until the approach of another fit. The same process is seen in the urinary pH value. The urine, however, only shows an increase in the reaction in the hour which immediately precedes the crisis, then a rapid lowering in the last minutes before the fit with a return to a normal value after its onset. All this shows that the fit coincides with a rapid liberation of acid into the circulation, similar to the increase in quantity of calcium in the blood-plasma. We may presume, therefore, that the convulsive crisis in epileptics is preceded by an upset in the acid-base equilibrium in the tissues and a consequent disturbance of the electrolytes, to which the alteration in the blood-plasma bears witness and which similarly correspond to the morbid syndrome.

R. G. G.


According to Globus and Silbert, the glandular character of the pineal body cannot be disputed, at least at some stage of its development. This is particularly striking about the sixth month of intra-uterine life. Its cellular constitution and organisation at that time point definitely to a glandular character. In later stages of differentiation, a new feature, rich vascularization, lays the foundation for an organ destined to perform an important function during a given stage in its evolution. This is emphasised by the relation of these vessels to the parenchymatous elements of the organ, a characteristic that is frequent in glands of internal secretion. However, its glandular structure is only a part of a short transitional period. During the early months of postnatal life, it loses this structural character and assumes a new architecture, which does not permit of functional interpretation.

With regard to pineal tumours, it is possible to assemble the majority of these, though diverging in histological structure, into a single group. The
seven cases reported by the authors reveal no new or unusual clinical features, but add further support to the diagnostic criterion that in the presence of manifestations of increased intracranial tension the appearance of signs indicating involvement of structures in the periaqueductal region (external and internal ophthalmoplegia, skew deviation, impairment of upward gaze) justifies a diagnosis of tumour in the region of the quadrigeminal plate. In such event the lesion is most likely of the nature of an autochthonous teratoma of pineal body (pinealoma).

The occurrence of alterations in the secondary sex characteristics (pubertas praecox) is not essential for the diagnosis of pinealoma. In the authors’ material only one case displayed such changes and only to a slight degree. In one instance manifestation of vegetative dysfunction (polyuria, polydipsia and somnolence) was present, but the effect of the obstructive hydrocephalus on the hypothalamic structures must be borne in mind in evaluating these symptoms.

R. M. S.


Herniation of the cerebral and cerebellar cortex into arachnoid granulations or pacchionian bodies is a well-recognized complication of high-grade increased intracranial pressure.

According to Wolbach, such hernias are of constant occurrence, and failure to report them in necropsy protocols is due to lack of careful examination of the sinuses of the dura mater.

They are seen in a most striking manner in cases of tumour of the brain or internal hydrocephalus, but may occur acutely in cerebral haemorrhage. An unusual case of thrombosis of the motor cortex from herniation into large pacchionian bodies is reported.

R. M. S.

[91] Diffuse progressive degeneration of the gray matter of the cerebrum.—B. J. Alpers. Arch. of Neurol. and Psychiat., 1931, xxv, 469.

Alpers remarks that knowledge of the pathology of numerous nervous disorders in infants is still in an insecure state, and save for a few diseases, little is known of the factors behind the production of organic nervous disease in infants.

In three cases, including one studied by Alpers in the laboratory of Professor Jacob, the clinical picture was one of Little's disease with subnormal mentality, hyperkinesias, choreo-athetotic movements and
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epileptiform convulsions, with hypertonicity of the musculature and at times opisthotonos. The patients were aged 4 months, 8 months and 19 years. The anatomical substratum in each case consisted of a marked demyelinization of the cortex, due probably to a failure of development, and a similar though less marked absence of fibres in the basal ganglia. The cortex showed a diffuse loss of ganglion-cells in the third lamina. Microscopic examination in the three cases revealed areas of incomplete necrosis scattered diffusely throughout the brain. Though the three cases showed different cell pictures, they probably represented different stages in the same process, rather than three different types of reaction. In only one case could a definite etiology be adduced, viz., asphyxia. In the other two cases a toxic process was probably operative.

The lesions described are confined almost entirely to the gray matter, in direct contradistinction to the pathology in diffuse sclerosis, which is largely confined to the white substance.

R. M. S.


Experiments were done in dogs to determine the exact localization of the lesion necessary to produce polyuria as a result of puncture operations.

It was found that absence of the hypophysis did not influence the occurrence of polyuria, and that this was determined by a lesion of the anterior hypothalamic nucleus and the nucleus tuberis.

R. G. G.

[93] Reactions of the microglia and neuroglia to X-rays and radium (Le reazioni della microglia e della neuroglia alle radiazioni roentgen e del radium).—D. Bolsi and E. Conte. Riv. di pat. nerv. e ment., 1931, xxxvii, 776.

This research on rabbits showed that microglia and neuroglia cells showed no vital reaction to X-rays even in massive doses, but short exposures to radium resulted in marked multiplication and hypertrophy of both types of cell.

While the microglial reaction proceeded beyond the phase of hypertrophy, inasmuch as many microglial elements were transformed into reticulated and fat granular bodies as a result of the liberation of products of abnormal metabolism and degeneration, the progressive reaction of the astrocytes was arrested at the phenomenon of hypertrophy and proliferation. There was no evidence of the phagocytic action of neuroglia. It is therefore only the microglia which shows properties of phagocytosis.

R. G. G.
Contribution to the knowledge of the histopathology of the substantia nigra (Contributo alla conoscenza della istopatologia della substantia nigra).—M. Emma. Riv. di pat. nerv. e ment., 1930, xxxvi, 483.

The author examined the region of the substantia nigra in 65 subjects whose death was due to trauma or to various diseases of the vegetative organs of the nervous system which did not affect the anatomical formation, comprised in the so-called extrapyramidal motor system, and who, in life, showed no signs of the extrapyramidal syndrome. In 21 of these there was revealed on histopathological examination evidence of morbid processes involving the nerve-cells, the vessels, the glia and the connective and mesenchymal tissues. These reports showed a distinct correspondence with those described in the substantia nigra in delayed forms of epidemic encephalitis and in Parkinson's disease. From these data the conclusion is reached that even in cases which do not show signs of extrapyramidal disease there may be the same profound lesions in the substantia nigra as occur in the Parkinsonian syndromes. It would thus appear that there is a similar uniform method of reaction in the cells of the substantia nigra to various morbid stimuli which act on them, whatever may be their nature.

R. G. G.

Cerebral birth conditions, with special reference to cerebral diplegia: A preliminary report of a clinical study.—C. A. Patten. Arch. of Neurol. and Psychiat., 1931, xxv, 458.

Patten concludes that the question of the part played by birth injuries in the causation of cerebral diplegia must depend on further histological study of the entire nervous system, particularly from the standpoint of myelogenesis. The literature on the subject contains many reports, some of them the result of careful observations checked by laboratory investigation. For the most part, however, contributions have emphasised some particular phase of the problem and stopped there. Hæmorrhage or vascular disturbance of some nature seems to occupy first place, an encephalitic process of some type, second place, and porencephaly, third. Some vascular lesions have been considered due to intrauterine disease, the blood vessels being thought so immature in development that they ruptured under the influence of pressure at birth. Fatty degeneration of the walls of the blood vessels has also been put forward as a possible locus minoris resistentiae. Actual tearing or rupturing of meningeal vessels has been noted at autopsy, and subdural or pial hæmorrhage has been observed as the most frequent occurrence. Instances of intracerebral hæmorrhage have been rare.
The majority of reports indicate that tearing of the tentorium cerebelli and less frequently of the falx is not infrequently seen at autopsy. The vessels most frequently involved are the middle cerebral arteries and veins. Of the various encephalitic processes, localized areas attributed to an anæmic necrosis or the result of some prenatal inflammatory condition are the more usual postulations. That encephalitis results from acute infectious conditions in the mother or from some of the more chronic diseases, like syphilis, seems well established. Cortical atrophy and the so-called walnut kernel type of brain, atrophy of isolated convolutions and the like might result from many causes, but are attributed most frequently to vascular lesions. Failure of development of certain symmetrical areas without known cause has been predicated by some authors. This has been termed neuronic degeneration. Careful histological examinations of the entire brain have been made in too few cases of diplegia from this standpoint, so that one cannot be sure that the condition is or is not a part of a generalised effect. The gross defects in true porencephaly are well known, and, although they may produce a picture in some ways similar to cerebral diplegia, it is possible that porencephaly is only occasionally responsible for the condition.

Tuberous sclerosis is not a common pathological condition and is probably a defect of another type.

Cysts are occasionally noted and are attributed to either hæmorrhagic conditions or the results of inflammation.

Microcephaly is occasionally observed in cerebral diplegia, but, on the other hand, a large number of microcephalic infants show no motor involvement.

Hydrocephalus occurs sometimes as a result of prenatal conditions and the patients may be diplegic and mentally defective, but on the other hand, there are many diplegic infants and not so many cases of hydrocephalus.

R. M. S.


In 1913 and 1914 Professor Stockard in America published the results of a long experiment he had conducted to test the effects produced by alcohol on the fecundity of guinea-pigs and on the quality of their offspring. His records seemed to prove that the daily administration of alcohol, in quantities enough to produce visible intoxication, but not otherwise to impair
the vitality and health of the parents, caused a fall in the number of births, an increased liability to still-births, and the production of weakly and defective offspring. Of even more serious import was the evidence that these tendencies were inherited, so that, without further exposure of the stock to alcohol, the proportion of animals showing weakness and deformity continued to be high in later generations. The results clearly suggested that alcohol in the circulation can injure the germ-plasm and produce a permanent deterioration of the race, even without obvious injury to the generation directly exposed. In later publications Professor Stockard suggested, indeed, that a process of natural selection ultimately corrected this tendency and established a stronger stock from the survivors. It was obvious, however, that his findings, if confirmed, would have implications of the gravest importance for humanity. There could be no reason for assuming that alcohol alone, of all the poisons distributed by the circulation, could thus injuriously affect the germ-plasm and so injure the descendants through many generations. Any circulating poisons, such as those which occur in certain acute infections, might, on this evidence, be expected to cause an injury revealing itself only in subsequent generations. It was thus clearly desirable that Professor Stockard's experiments should be repeated with critical care, and with the application of more recent knowledge of the constituents of a diet necessary for full health and normal reproduction.

Miss Durham accordingly undertook, in the course of her work at the National Institute, an experiment of which the results have now been assembled for publication. A small group of healthy guinea-pigs was chosen about nine years ago, and a stock has since been maintained by inbreeding from these. In each generation a number of males and females have been exposed daily to alcohol, the dosage and method of administration being made to follow Stockard's description exactly. Adequate numbers of control animals have been kept and observed under identical conditions, except for the absence of treatment with alcohol. The offspring from each mating have been carefully weighed and examined, and further generations have been bred from those of alcoholic parentage, with or without further exposure to the action of alcohol. The diet has been standardized for the whole stock, with care to ensure an adequate ration of the essential vitamins and the results have been statistically analysed. It may be stated that on no essential point has it been possible to find any confirmation of Professor Stockard's results. The litters obtained from alcoholic parents, or from their descendants, have been as numerous and as heavy as those from the control matings, and have shown no excess of still-births or of deformities. Their offspring for several generations have exhibited no transmitted defects of the kinds described by Stockard.