SUBJECTIVE SENSATIONS.

It is the common experience of most to suffer at one time or another from such sensations as tingling, pins and needles, burning, or coldness. The mechanism of their production has been studied by U. Ebbecke and others, and has recently been the subject of investigation by Sir Thomas Lewis and his associates. Following constriction of a limb sufficient to stop circulation, tingling and allied sensations are soon felt at the periphery of the limb; gradually the parasthesiae creep proximally towards the constricting band. If, however, at the onset of these sensations a constricting band is placed distal to the original one and the latter released, the tingling disappears. From experiments of this kind it has become evident that the tingling could not be dependent upon changes at the periphery, but must be the result of changes in the nerves underlying the constricting band; in other words, the tingling arose from changes not at the periphery but proximally at the site of constriction. H. C. Bazett and B. McGlone, working on the sensations of cold and heat experienced immediately following the release of constriction, have brought forward evidence favouring their production by biochemical products elaborated during stasis of the blood. With sensitive thermocouples buried in the skin at varying levels, they determined the actual temperature of the tissues during the conscious feeling of cold and heat as above produced. Release of the blood flow with the arm bathed in water at body temperature gave rise to marked sensations of heat, but caused no alteration of temperature in the tissues of sufficient magnitude to account for the sensation experienced. These experiments, elaborated in various ways, led Bazett and McGlone to the deduction that the sensations were dependent upon the action of some biochemical factor upon the temperature nerve-endings. Alteration of the temperature of the arm and of the duration of constriction caused variation in the intensity and character of the sensations, and it appeared that the sensation was roughly associated with the probable acidity of the blood flowing in the dermal area previously rendered stagnant. Further weight is added to this deduction by the demonstration of the greater intensity of the sensations following stasis in the arm than of those following stasis limited to a finger; this observation is regarded as favouring the production of a chemical substance derived from the metabolic processes in muscle tissue during stasis. In this way the work becomes closely linked with that of Lewis upon the pain associated with intermittent claudication. Of great interest is the evidence, produced by various observers, that the sensation of pain, heat, and cold may be separately produced by chemical factors; whether there is a chemical link between stimulation of the normal skin and impulses arising in the sensory nerve-endings remains a problem of the future.

THE DEVONSHIRE COLIC

In 1617 Citois claimed that bad wine which had been treated with lead was a cause of colic among the Pictons or inhabitants of Poitou. This colic, Pictorum he described excellently, but he attributed the disturbance chiefly to the acid of the wine. Late in the seventeenth century colic and paralysis following the addition of litharge to wine became notorious. Indeed, in 1696, the Duke of Württemberg was so impressed with the danger of this practice that he issued a decree making it a capital crime. About this time colic became prevalent among cider-drinkers in Devonshire, but it was many years before lead was proved to be the cause. In 1703 Munsagray stated that the colic in Devonshire, sometimes associated with paralysis, was caused by the excessive use of crude cider which was too acid. Huxham, in 1752, described the colicky pains and paralysis in vivid fashion. He expressed his conviction that the Devonshire colic was due to the tartar extracted from the apples in the process of making cider. It was Sir William Baker, himself a Devonshire man, who first followed up the analogy between lead colic and the Devonshire colic (1767). He finally proved his point conclusively by demonstrating that the cider of Devonshire contained lead, while that of Herefordshire did not. He showed, further, that in Devonshire, but not in Herefordshire, it was a common practice to line the cider presses with lead. He also exposed the practice of adding metallic lead, litharge, or lead acetate for the purpose of correcting sour cider. His investigations created a great storm, and he was denounced as a traitor to his county. Although colic due to the employment of lead in the manufacture and storage of cider has now disappeared, minor outbreaks of plumbism due to cider-drinking still occur from time to time. It is of interest that Dr. and Mrs. L. N. Jackson should have discovered that lead colic is still endemic in Devonshire amongst cider-drinkers, though from a different cause. In a paper in our present issue they describe ten patients with lead colic, occurring eleven public-houses in a Devonshire town. In six of these houses they found lead in the cider as drawn by the bar engine, though samples from the cask were in all cases free from lead. In these days when public-houses are subjected to so many restrictions, designed to protect the public, it is curious that they should be allowed to continue to use lead pipes to convey cider or beer from cask to bar engine.

THE PREVENTION OF POST-VACCINAL ENCEPHALITIS

In the absence of precise knowledge of the aetiology of post-vaccinal encephalitis any suggestion as to its prevention, however slenderly based, is worthy of notice. The observation made by the New York Poliomyelitis Commission, 1916—that among 954 poliomyelitis patients, 1 to 4 years of age, the attack-rate among the Schick-positive was six to seven times as high as among the Schick-negative children—has recently been recalled in another connexion. In a recent issue of the public health reports of the U. S. Public Health Reports, 1932, xlvi., 1553.
Treasury Department, Dr. Charles Armstrong summarises what is known of post-vaccinal encephalitis and its prevention, and suggests that collateral immunity against other diseases may carry with it a certain resistance to this grave, if very rare, complication of vaccination. Certain experiments were devised to test the hypothesis, using a strain of vaccinia developed some years ago by Rosenau and Andervont, which produced a fatal meningo-encephalitis when injected intracerebrally into white mice. A dose of this virus was selected which was slightly less than that sufficient to kill all of a group of normal mice, and the effect of this dose was compared on groups of normal mice and in mice which had been previously immunised with diphtheria toxoid. At the end of 25 days, the toxo-dervived in the immunised group was 12 per cent., while in the immunised group they were 27 per cent. Previous immunisation to diphtheria toxoid thus appeared to turn the scales against the incidence of cerebral complications occurring in mice. Dr. Armstrong admits that the protection of a few mice from a cerebral virus infection by means of a previous non-specific stimulation of the defence mechanism does not necessarily lead to the conclusion that the physiology and immunity protected similarly from the post-vaccinal encephalitis, but in the absence of any other method of protection the suggestion arising from Dr. Armstrong’s experiments might be followed up. He proposes that primary vaccinations, especially after the first year of life, should be deferred until immunisation against diphtheria or other diseases by means of inanimate antigens has been accomplished. Such a definite recommendation coming from a highly expert official is worth considering by those who have to face a delicate problem in administrative hygiene. Immunologists rightly hold fast to the strictly specific view of immunity upon which all that is most solid in their science is based, but “practice makes perfect” is a biological law of wide application, and it may well be that a preliminary exercise with one antigen somehow teaches the organism how to deal with others far removed in the scale of specificity.

THE BRIGHTER SIDE OF EPILEPSY

It is common knowledge that there are more epileptics outside institutions than inside, and that much, if not most, of the published work on epilepsy has been done in institutions. Epilepsy, in this respect, shares the fate of other diseases in its disregard of the clinical and social facts. There is no reason why the physiology of the central nervous system should not be described on the basis of extramural patients, epilepsy, psychoses, alcoholism, and other manifestations of the neuropathic heredity, except migraine and so-called nervousness, were far less common than among those of institutional patients. It would require other surveys of records in private practice before Dr. Paskind’s picture can be taken as typical; but it should at least encourage those who have epileptics under their care to combat the lack of incentive and of competition that induces the progressive narrowing of mental horizon generally considered typical of epilepsy.

LOCALISATION OF CEREBRAL TUMOURS

It is disappointing that increased knowledge of the physiology of the central nervous system has as yet brought little help in the localisation of cerebral tumours. Neurologists and neuro-surgeons continue to find regional diagnosis very difficult. The introduction of ventriculography by W. E. Dandy some years ago appeared to offer hope of a considerable advance in accuracy. The value of this technique has recently been assessed by A. W. Adson and F. C. Grant, who have published separately the results of an extensive trial of this method. Both have used two procedures, (1) direct filling of the ventricles with air, and (2) the replacement of the cerebrospinal fluid with air via the lumbar route; this method permits air to pass not only into the ventricle but also over the surface of the brain. Following direct ventriculography, a study of the X-ray appearances of the outline of the ventricles in varying positions of the head frequently offers help. The internal hydrocephalus associated with tumours situated in the posterior fossa, the distortion of one or both anterior horns associated with frontal tumours, and the alteration in the outline of the lateral ventricles associated with temporal lobe tumours are well recognised. But the real value of this technique can be assessed only by a consideration of the results obtained in tumours not localisable after a careful neurological examination. Adson found that this method gave positive localising evidence in 23 per cent. of cases not localised clinically; Grant found it successful in 21 out of 48 cases without localising signs. Both observers have thus been able to reduce the number of cases in which they would have hesitated to operate. On the other hand, the technique is by no means safe; fatalities are recorded, and the alteration in the outline of the lateral ventricles associated with temporal lobe tumours are well recognised. But the real value of this technique can be assessed only by a consideration of the results obtained in tumours not localisable after a careful neurological examination. Adson found that this method gave positive localising evidence in 23 per cent. of cases not localised clinically; Grant found it successful in 21 out of 48 cases without localising signs. Both observers have thus been able to reduce the number of cases in which they would have hesitated to operate. On the other hand, the technique is by no means safe; fatalities are recorded, and the percentage must of course be considered with due regard to the bad prognosis in cerebral tumours which cannot be located for operation. Encephalography, a simpler procedure than direct ventriculography, is also less useful; it is contra-indicated in cases of increased intracranial pressure, especially in tumours situated in the posterior fossa. It may, however, give help in the differential diagnosis of varying conditions involving the cortex, such as cortical atrophy, traumatic lesions, and vascular disturbances. It is

1 Arch. of Neur. and Psych., August, 1932, p. 370.
2 Arch. of Neurology and Psychiatry, 1932, xxvii., 1310.