PAST AND PRESENT.

The life of any branch of science is continuous although its form may change; yet it is remarkable that in few branches of medicine has progress been steadily continuous and knowledge accumulated step by step. Rather has the science evolved in a series of waves with intermissions and often phases of actual retrogression. To this observation neurology furnishes no exception. Clinical and therapeutic facts of far-reaching significance have been recorded, only to be lost sight of until rediscovered at a much later period. Even at the present day, how often will an apparently new observation, an unfamiliar symptom or physical sign be found, on close examination of the literature, to be well-known and fully described by earlier writers?

What of the past? Many neolithic skulls have been discovered with artificial openings indicating that the operation of trephining was practised in prehistoric times. It is true that Broca considered that the perforations in such skulls might have a ritual or religious significance, but Horsley and Lucas Champonnière were definitely of the opinion that they represented trephine openings performed for therapeutic purposes. Horsley, indeed, pointed out that the opening was nearly always over the Rolandic area of the cortex. Evidence of survival for a long period following the operation is in many instances quite distinct. Trephining was also of common occurrence in the time of Hippocrates (300 B.C.) and was apparently continued by Galen (150 A.D.). For many centuries following this, medical science appears to have been at a standstill, but trephining is again mentioned by Guy de Chauliac in 1363 and subsequently by sixteenth century writers. Following Galen, however, little advance was made either in the application or the technique of the operation until comparatively modern times.

It is said that the thyroid gland of the sheep was well known to the ancient Chinese as a remedy for mental deficiency—presumably cretinism—and certain forms of goitre; and it is mentioned in a Chinese medical classic—the “Thousand Gold
Remedies"—published in the sixth century. Yet only within living memory has thyroid-substance appeared in recognised therapeutics; its application to cretinism and myxoedema is a triumph of experimental medicine for which we are indebted to Victor Horsley and his pupil Murray.

The significance of certain neurological symptoms was also known to the ancient physicians. Hippocrates recognised that an injury to one side of the head might be followed by convulsions or paralysis of the opposite side, while Celsus (30 B.C.) was well aware that subdural haemorrhage could produce diminished visual acuity. The site of some of the lesions resulting in paralysis must have been familiar to Galen, who, in animals, had divided the spinal cord at different levels and removed portions of the brain. Then follows the long period of darkness extending almost to the sixteenth century, when little of scientific value was added to neurology and much was forgotten.

In the following century, however, the work of the famous Andreas Vesalius (1514-1564) was to illuminate all branches of medicine. As regards neurology he writes: "So also does the brain manufacture the animal spirit—on the one hand it employs this spirit for the operation of the chief soul, and on the other hand it distributes it to the instruments of the senses and of movement by means of nerves—which serve the same purpose to the brain as the great artery does to the heart and the vena cava to the liver." Yet it is obvious that Vesalius took a strictly physiological view of the origin of the "chief soul" and that he considered it as engendered in the brain by "virtue of the power of the proper material and form of the brain," or, as we might say in more modern form, "psychical phenomena result from the activity of nervous tissues." Following Vesalius, Massa in 1536 describes a case of cerebral abscess causing contralateral paralysis, and Valsalva in the seventeenth century reaffirms the fact that motor palsy resulting from a brain lesion is on the opposite side of the body. Larrey (1766-1842) describes a case of Jacksonian epilepsy cured by operation, but not until nearly a century later does that great neurologist Hughlings Jackson definitely establish the form of epilepsy that bears his name. In 1873, David Ferrier rediscovers the science of experimental neurology, apparently lost since Galen, and by means of his brilliant observations places on a firm and lasting basis the principles of cerebral localisation. With Hughlings Jackson, Charcot, Ferrier and Quincke, the golden era of neurology may be said to have begun.
What of the trend of more recent neurological observations? It is now the age of the extrapyramidal system. About 1885, Gowers had noted certain cases exhibiting general muscular rigidity with involuntary movements which usually occurred in more than one member of a family. Sir David Ferrier mentioned these cases as exhibiting something between disseminated sclerosis and paralysis agitans. It was left for Kinnier Wilson, in 1912, to describe the lesion of progressive lenticular degeneration with hepatic cirrhosis and establish on a firm clinical and pathological basis the disease known by his name. Of paralysis agitans, Gowers writes in 1888 that in the absence of any anatomical evidence, the pathology has been the subject of much speculation, and he advances reasons for regarding the cortical cells as the seat of the disease. In spite of this suggestion as to its organic origin, scarcely twenty years have passed since paralysis agitans was regarded as amenable to treatment by hypnotism. The reproduction of the same symptom-complex by encephalitis lethargica, with its associated histological changes in the midbrain, has finally dispelled any doubts regarding the fundamental organic nature of the former disease. In encephalitis lethargica itself have we indeed a disease dating only from 1917, or at longest from the Tübingen epidemic of 1912? Was Dubini's electric chorea, described in 1846, the myoclonic form of the affection? It is to be remembered that cases of "paralysis agitans" occurring at ages of 17 (Berger), 19 (Duchenne) and 21 (Buzzard) and up to 30 years were described in the latter part of the nineteenth century. Pathological observations in epidemic encephalitis, moreover, have suggested an organic basis for other forms of tremor, myoclonus and hyperkinesis previously regarded as "functional"; but the actual mechanism still escapes us. Of Sydenham's chorea, now virtually recognised as a form of meningoencephalitis, Osler writes as recently as 1909: "the most generally accepted view is that it is a functional brain disorder affecting the nerve centres controlling the motor apparatus, an instability of the nerve cells." Narcolepsy is now a well-recognised condition, though more probably a symptom-complex than a definite clinical entity. Originally described by Gélineau as long ago as 1880 and again fully dealt with by Gowers in 1907, this interesting condition remained almost forgotten until recent years. The disorders of behaviour following epidemic encephalitis show a tendency to be reduced to an organic basis and the thalamus is cited as the structure at fault. It is noteworthy that such behaviour disorders
may be associated with symptoms usually ascribed to disordered function of the pituitary body; at the same time, cases have been recorded showing moral delinquency with undoubted dyspituitarism quite apart from any suggestion of encephalitis. Is a disturbance of the hypothalamus as well as of the thalamus responsible for both types of case? The physiology of the pituitary body itself is in the melting-pot, and how many of the functions previously attributed to this gland are, in reality, carried on by hypothalamic centres remains uncertain.

Much valuable work has been done regarding the anatomical basis of the more obscure examples of nervous disease; nevertheless, essential causes still escape us. The exact nature of epilepsy remains as obscure as in the days of Julius Cæsar, and "idiopathic" still means that we do not really know. The alleged spirochaete of disseminated sclerosis has not yet emerged; and progressive muscular atrophy, although it has acquired a new name (motor neurone degeneration), is still a premature decay. In other branches of medicine the modern tendency is towards ascertaining the exact functional capacity of the living organ rather than towards concentrating on its morbid anatomy; numerous biochemical tests of functional activity have appeared during recent years. Is it too much to hope that similar tests of nervous function will eventually evolve? Shall we live to see the phobia, the obsession and the delusion reduced to a biochemical reaction? Many consider that the psychoses will be explained by metabolic dyscrasias or ultramicroscopic changes as yet obscure. Professor Weygandt in his opening paper at the last British Medical Association meeting (Section of Neurology and Psychological Medicine) gave an admirable summary of the abnormalities of metabolism that may be met with in mental disorders. By no means is it suggested that psychopathology is without importance. Symptomatology, psychological investigation, physical examination, biochemistry and morbid anatomy are but lines of research all converging upon the same point—the elucidation of the ultimate causes and the adequate treatment of nervous disease.