the several effects of these were illustrated by the movements of rabbits shot whilst running away from a gun. In reference to the representation of orientation in the cerebrum attention had hitherto been chiefly paid to the excito-motor or kinæsthetic part of the pallium, the ascending frontal gyrus, but since the most direct anatomical connection between the pons and the cortex was with the posterior two-thirds of the temporal lobe it is here the centre of orientation should be located.

In an attempt at exact anatomical diagnosis in a case of vertigo the first step is to localise the direction of the sense of vertigo and the direction of the forced movement. Next, functional cases must be excluded. Following this is a claim for a complete examination of the nervous system, for by such means only can the localisation of the cause of the disturbance of equilibrium be obtained. Speaking of treatment, Sir Victor said that in middle-ear disease the position simply demanded the application of surgical measures to the diseased bone and mucous membrane. In Menière's disease, that is where in conditions of gout or allied states congestion of the semicircular canals had been diagnosed, he had usually suggested (1) the application of the Weir Mitchell method, (2) hydrobromic acid, and (3) antigouty treatment. He had never had occasion to divide the eighth nerve, though this had been done by other surgeons, and he was quite prepared to do so should the occasion arise. But in his experience one or other of the above lines of treatment had appeared to be sufficient.

In the same discussion Dr. Risien Russell considered vertigo from the medical point of view and in the strict sense of a subjective sensation of movement of the body in some direction in space, whether accompanied or not by actual movement, or a sensation that surrounding objects, though actually stationary, were in movement. In intracranial suppuration due to ear disease it was necessary to recognise that as vertigo might be due to the original ear affection its occurrence might not receive due weight. Dr. Russell, when dealing with vertigo due to organic disease within the skull referred to gross lesions affecting the cerebellum, the temporal lobes, and to extra-medullary lesions at the base of the brain. Vertigo does not distinguish between a lesion at the base of the brain and disease of the ear, for its characters might be the same in both. In a lesion of the left temporo-sphenoidal lobe any indications of word-deafness were of high localising value; careful examination should also be made for any signs of hemiplegia. In gross disease of the cerebellum the vertigo alone might be sufficient to distinguish such a lesion from mere disease of the ear. Experiments showed that in lesions on the same side the direction in which the animal rotated when the eighth nerve was irritated was the opposite to that in which it rotated when a unilateral ablation of the cerebellum had been performed. There were in addition to the above other diseases of the nervous system in which vertigo is sometimes a symptom. In disseminated sclerosis it is a common complaint. In tabes it is much less frequent and is apt to be associated with deafness, from atrophy of the auditory nerve, and thus to come under the notice of the otologist. In idiopathic epilepsy loss

of consciousness was of great importance in the diagnosis but here it was essential to recognise that an attack of auditory vertigo could be so sudden as to stun the patient and might cause also loss of consciousness or, at least, so much mental confusion as to make it impossible to distinguish the condition from attacks of *petit mal* associated with vertigo. The vertigo of epileptic origin might be either unattended with such loss or the loss might be so slight as to escape recognition. The relationship of tinnitus and deafness to vertigo becomes of great importance in these cases. Either or both these symptoms might accompany an epileptic attack, but, unless from accidental complications, neither would be present between the attacks. In auditory vertigo, on the other hand, the tendency was for tinnitus and deafness to persist between the attacks. Other causes of vertigo were such functional conditions as hysteria and neurasthenia. In the latter the complaint was rather of giddiness than true vertigo; deafness is exceptional, though tinnitus is not uncommon. Vertigo in hysteria may have all the characters of that due to ear disease. The absence of such disease to examination and the general investigation of the case must be relied on for the correct diagnosis.

¹ Brit. Med. Jour., Sept. 16, 1905.

PNEUMOTHORAX IN TUBERCULOUS SUBJECTS.

In a lecture on this subject Dr. F. Parkes Weber¹ relates several cases of interest, and then proceeds to deal with the general questions of symptomatology and prognosis. The physical signs of pneumothorax are largely influenced by the presence or absence of pleuritic adhesions. Thus adhesions if situated anteriorly may prevent the displacement of the heart and mediastinum which is so conspicuous a feature of complete pneumothorax. Again, when adhesions limit the extent of the pneumothorax, and more especially in a weakly patient confined to bed, the condition may develop without any of the dyspnoea, pain, and syncope which usually attend its occurrence in a pleural cavity free from the restrictive action of adhesions. Another important point in diagnosis is the frequent absence of one or more of the characteristic physical signs. Thus amphoric breathing may be absent, and at times no breath sounds of any kind can be heard. In some instances the "bell sound" cannot be obtained, in others the affected side appears to move as freely as the opposite chest. Metallic tinkling is by no means always present, yet in some cases it is conspicuous from the outset.

In regard to the course and prognosis, it must be allowed that in many cases pneumothorax is a terminal event, and many patients die almost immediately after its occurrence. More frequently they recover from the immediate symptoms attending the perforation of the pleura, and in the course of a few days fluid, as well as air, is found to be present. This is usually serous at first, and though it may subsequently become purulent, it does not invariably do so. Even when there is much dyspnoea and distress at the onset, these, if the patient survives, usually diminish in the course of a few days, the respiratory mechanism managing to accommodate itself

to the altered physical conditions. In a few cases no fluid effusion occurs, and the air undergoes absorption. Probably, in such instances, the condition was caused not directly by a tuberculous focus, but by the rupture of an emphysematous bulla formed below the pleura and in connection with a healed tuberculous lesion. Even when hydropneumothorax follows, the patient sometimes recovers without operative interference.

The ultimate prognosis in tuberculous pneumothorax must depend on the extent of the pulmonary disease, on the general condition of the patient, and on the treatment adopted. Several cases have been recorded of phthisical patients living even for several years and able to enjoy life, after the occurrence of pneumothorax.

In addition to the general hygienic measures demanded in pulmonary tuberculosis pneumothorax demands special consideration in reference both to the immediate and the later treatment. With symptoms of collapse at the onset diffusible stimulants are needed, and such drugs as digitalis and strophanthus may be given. To meet pain and excitement sedatives are required; for example, codeine or small doses of morphine, but care must be exercised, as a decided narcotic effect may be harmful. Aperients to reduce portal congestion may be advisable in very full-blooded patients, and in every case the patient should be disturbed as little as possible. Another measure to meet an emergency is the inhalation of oxygen. Whenever the distress is due to excessive tension ("valvular pneumothorax"), and this probably arises in only a limited number of cases, some of the air may be permitted to escape. To effect this a cannula fitted to an india-rubber tube may be used. The end of the tube may be conducted into a basin containing sterilised

water, or the air may be allowed to escape through the cannula into antiseptic dressings. Dr. H. von Schrötter has reported the following treatment in a case of closed right pneumothorax unattended by fluid effusion in a youth of 17 years. Air was aspirated from the pleura and oxygen introduced into the lung through a metal catheter inserted into the right bronchus. The effect of the treatment was watched and controlled by Röntgen-ray examination. The last remains of the pneumothorax were made to disappear by the help of long-continued inspiration of oxygen under increased pressure, using an inhalation mask for the purpose. When hydropneumothorax or pyopneumothorax has developed the question of removal of the fluid arises. If the pulmonary condition is one of advanced disease operative interference beyond mere paracentesis is hardly practicable. But where this is not the case and pus is present in the pleural cavity the case is best treated as an ordinary empyema, though repeated paracentesis sometimes leads to a cure. The same practice when the fluid is serous is also in some cases successful. Many records exist of successful re-section of ribs and drainage of the pleural cavity, the patient surviving the operation and regaining a fair measure of health for several years. Occasionally, but only occasionally, Estländer's operation may be advised. The enormous importance of general hygienic treatment is indicated by the fact that at Davos, out of 20 tuberculous cases recorded by Spengler, in five of the patients (ages between 18 and 30 years) complete apparent cure was obtained. In all serous or sero-purulent effusion was present, and operative treatment was limited to paracentesis. Two of the patients were under observation for several years after their recovery.

¹ Lancet, Sept. 16, 1905.

PROGRESS IN MEDICINE AND SURGERY.

DERMATOLOGY.

Ringworm.—Since the introduction by Sabouraud of the method of removing the hairs in ringworm by means of the *x*-rays a great many cases have been published proving the value of the treatment. The method involves a more careful use of the rays than formerly was employed, and considerable ingenuity has been exhibited in the apparatus for measuring the dosage used. Considering the possibility of causing a permanent alopecia if the reaction proves too severe, the estimation of the amount of rays used is of primary importance. The apparatus devised for the measurement of the rays include: Pastilles of platino-cyanide of barium (Sabouraud and Noiré) which change colour under the rays; Benoist's radiometer, a device for the estimation of the quality of penetrability of the rays; Villard's valve, and a milli-ampère-metre. Holtzknecht has arranged a number of standard tints, with which the pastilles mentioned above can be compared, and it has been found that when one of the pastilles of Sabouraud has attained the colour of No. 5 of Holtzknecht's chromometer then sufficient rays have been emitted by the tube to have caused an alopecia of the area under treat-

ment. It is a matter of opinion as to whether this maximum dose should be given at one sitting. Macleod¹ goes so far as to say that "if the treatment of ringworm by the *x*-rays is to be a practical success and a real saving of time, it is necessary that a single exposure produce a clean defluvium of the area exposed without impairing regrowth." Belot,² on the other hand, is of the opinion that two or three doses of medium intensity with intervals of one or two days is the best method of application. In either case the aim is to produce the removal of the hair, which occurs after an efficient radiation, the hair falling out by the roots, diseased and healthy alike. While it is not argued that the rays have any bactericidal power over the fungus, yet the impossibility of any antiseptic reaching the roots of the hair by external application has long been recognised. Attempts have been made by other means to remove the hairs before the day of the *x*-rays, as Aldersmith³ reminds us, for in 1893 he advocated the production of a temporary alopecia by altering the nutritive condition of the skin or by causing irritation and exudation around and in the hair-follicles. This he performs by croton oil, or by soaking the hair con-