

whiskey—which is usually purest—for the rich, champagne.

12. *Congestion of brain*.—Apply a sinapism to nape of neck; mustard bath to feet and limbs and purge smartly.

13. *Cranio-tubes*.—This condition, which is only found in rachitic children, is, we think, almost the only cause of laryngismus stridulus or internal convulsions. Any pressure on the brain through the softened portions of the cranial bones causes the spasm. The same treatment should be pursued during the spasm as recommended above for congestion of the brain, as the principal danger is from cerebral congestion. Then treat for rachitis. It is because rachitis is always associated with this disease that we find the line of treatment advised—change of air, nutritious diet, cod liver oil, etc., to be of such benefit.

14. *Pneumonia at the apex* often has, as a symptom in children, convulsions. You will be able to recognize it by the physical signs.

Catarrhal pneumonitis, which is usually preceded by bronchitis, and occurring oftener under the age of three years, requires stimulating treatment. Am. carb. and stimulants. An opiate, as compound tinct. of ipecac, may be added to the cough mixture, if child is restless. Tonics and nutritious diet, with frequent change of position to avoid hypostasis.

Croupous pneumonitis, with which, in the present instance, we have more to do, comes on suddenly, not gradually as catarrhal. The onset usually being with a cold or chill in the adult, gives place to convulsions in the child. If seen at first or within a few hours, give an emetic of ipecac (Trousseau): it is not of any use after the disease has thoroughly set in. Give aconite as a cardiac sedative, with tonics and nutritious diet.

15. *Pressure on the brain*, from chronic hydrocephalus, tubercular tumors, or syphilitic gumma. Our space is not sufficient to take these up, and they need merely be mentioned to be guarded against: (a) hydrocephalus, with its round enlargement of the head; (b) tubercular tumors, the strumous appearance and enlarged cervical glands, with the history; (c) syphilitic gumma, the enlarged epitrochlear glands and history. In the last we have a specific in pot. iodide.

We have not taken up the many instances where convulsions occur—as above mentioned—in place of chill, at the outset, and delirium during the

course of the different contagious fevers, as in these instances the convulsions are purely symptomatic, and do not particularly affect the course of the disease. But in the case of meningitis, cerebro-spinal fever, and pneumonitis, where the final success of the treatment depends on the recognition of the nature of the malady in its first stages, we have given as many data as possible in such small space.

W. B. N.

NEUROLOGY.

What is Nerve Force.

(From an address by Prof. H. P. Bowditch, Boston.)

"Of all the functions of the nervous system, the one which at first sight would seem most accessible to investigation, is that of nerve fibre itself. . . . With the discoveries of Du Bois Raymond, the hope arose that nerve activity might be explained as an electrical phenomenon. . . . The important facts which forbid the identification of nerve force with electricity are the absence of an insulating sheath on the nerve fibre, the slow rate at which the nerve force is transmitted, and the effect of a ligature on a nerve in preventing the passage of nerve force while not interfering with that of electricity. . . . In studying the nature of nerve force two alternatives present themselves. We may conceive the impulse to be conducted through the nerve fibre by a series of retrograde chemical changes in the successive molecules of nerve substance, the change occurring in one portion of the fibre acting to produce a similar change in the neighboring portion. . . . This theory may be called *the discharging hypothesis*. . . . On the other hand, we may conceive that the nerve force is transmitted from molecule to molecule by some sort of vibratory action, as sound is transmitted through a stretched wire. . . . This may be called *the kinetic (motion) theory*."

With the *discharging hypothesis* we would necessarily have associated production of heat and evidence of chemical change, and gradual diminution of energy on continuance of the stimulation; while with the kinetic theory we would expect absence of all of the moving particles which are endowed with elasticity. What are the results of experiment with regard to each of these?

(a) *Chemical changes in nerves*.—The only evidence adduced of this has been the statement by Funke and others, that the normal alkaline condi-