was normal. He seemed to me to correspond fairly well with the cases of astasia one met with during the war.

He gradually recovered, and was discharged in June, 1920, for treatment and training at a convalescent camp. There he remained until one day he had a fall, when all his old symptoms reappeared, and in March, 1921, he was readmitted to the South Devon Hospital. His condition then was by no means so severe as when first seen. The rigidity, however, was still extreme, ankle clonus just as readily obtained, and the extensor response the same as before.

His recovery this time was very slow, and he has only just reached a condition in which he is nearly ready to resume training.

The extensor response for a long time never varied, then as the rigidity of the legs decreased it also became less marked; then it would be present on one side and not on the other; then it would be absent on both sides in the morning, returning if he was tired in the evening.

Treatment has not availed him much. Electricity in all forms failed to help him. Hot-air baths certainly seemed to benefit him, as the rigidity was less after them, and his recovery has been more rapid since they were started.

His war history was not beset with any startling incidents; the only event which has probably had some bearing on his disorder was that once whilst coaling at sea a friend of his had both legs badly crushed.

Meanwhile the man has been discharged by the pension authorities as suffering from disseminated sclerosis, which was neither caused nor aggravated by war service, and I feel that this has been brought about because at one time the plantar reflex could always be obtained, and was consistently extensor in type.

ENCEPHALITIS LETHARGICA AFFECTING THE NUCLEI OF THE MID-BRAIN IN AN UNUSUAL MANNER.

BY

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THE following case is of interest, for though the symptoms were obscure it seems probable that the acute illness in June was an attack of encephalitis lethargica.

A married woman, aged 54, under the care of Dr. McDowell, Belfast, had been healthy and had a healthy family. About the end of June, 1921, she had an acute illness, of which the chief symptoms were vomiting, dirty tongue, etc. This condition lasted a fortnight, and at first no nerve signs were evident. She became weak, giddy, with indistinct vision, which, however, varied. The vomiting stopped, but when she tried to stand she felt giddy, as if falling forwards or backwards. On October 21st the general clinical examination revealed nothing abnormal: the urine was normal; there was no high blood pressure; she was perfectly intelligent, even sharp; the motor and sensory systems were normal. She had no difficulty in finding a word, but considerable difficulty in articulation; she had to force her words, and said "wor" for worse, so that at times her speech was a little confluent, slurred and clipped, and at other moments slightly jerky and nearly explosive. There was a want of tone in the feel of the muscles of the limbs, which hardly seemed to be accounted for by the confinement; the plantar reflexes were absent, the knee-jerks were present but not exaggerated; no other muscle jerks were elicited.

In regard to the eyes, there was a slight droop of both upper lids, but this was said to be natural; the left pupil was larger than the right; both reacted to light and to accommodation somewhat sluggishly. When she looked to the left there was lateral nystagmus, when to the right vertical nystagmus, somewhat slow in character. On November 9th, when she looked to the left, the nystagmus was also vertical; but on looking to the left and a little upward a fine rapid lateral nystagmus was visible. With the ophthalmoscope the discs were found to be normal, but a constant slow, vertical, fine nystagmus was seen. The iris did not show the local shadow reaction test.

Her hearing was perfect; she thought that she heard at times "too much," meaning that she heard what was not intended for her to hear. When she got up she had to hold on to something, like the foot of the bed, and have her other arm taken; deglutition was normal.

The most probable explanation, as has been said, would appear to be that the original attack was encephalitis lethargica. There were no signs of cerebral tumour; she presented no signs of vascular degeneration; syphilis may be excluded by her previous good health, her healthy family, and a negative Wassermann test (blood). The site of the lesion is localized; the cortex down to the internal capsule can be excluded, also the two large basal ganglia, and the cord. The

nuclei in the roof of the mid-brain, with their intricate and complicated ramifications, possibly the red nucleus, and Deiters's nucleus in the medulla, are involved. The connexions between the tectum nuclei, the cerebellum, the vestibular nucleus and so with the semicircular canals, and the many tracts to the cord, would seem to explain the vertigo, the loss of tone of the muscles, the nystagmus of the bizarre type, the unequal pupils, and possibly the ptosis. The speech could be explained by the cerebellar asynergy, and as part of the loss of control of the muscles showing itself subjectively in the vertigo. If Deiters's nucleus be affected the nuclei of the nerves for the muscles of articulation are not far off.

We have an analogy in the condition left by encephalitis lethargica in the globus pallidus, simulating paralysis agitans. In both instances all the cells affected are of the motor type, and so follow the rule.

THE ANTISEPTIC PROPERTIES OF CYANINE DYES.*

BY

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THE group of compounds, a few of which form the subject of the present communication, are known as isocyanines and carbocyanines, and are prepared by condensing a mixture of quinoline or quinaldine alkyl iodide with a quinaldine alkyl iodide in presence of an alkali with or without formaldehyde. These substances are used as photographic sensitizers. Thus the isocyanine known by the trade name of "sensitol green" is produced by the condensation of quinoline methiodide with p-tolu-quinaldine methiodide. "Sensitol red" is produced similarly by the condensation of two molecules of quinaldine alkyl iodide with one of formaldehyde under the influence of alkali. According to Mills and Pope² the constitution of "sensitol red" is represented by the following formula:

To this group of compounds, which have been studied by Mills and Pope and Mills and Wishart,³ the generic name of "carbocyanine" has been given, whilst the "isocyanine" will be represented by the following general formula:

in which R stands for an alkyl group.

Antiseptic properties were determined, as previously described,¹ by adding to 1 c.cm. of culture medium varying amounts of the substances to be tested along with 0.1 c.cm. of a 1 in 1,000 dilution in saline of a twenty-four hour culture of the organisms (*Staphylococcus aureus* or *B. coli*) in peptone water. As test media (a) 0.7 per cent. peptone water with a pH value of about 7.2, and (b) undiluted ox serum (previously heated at 56°C.). The mixtures were then placed at 37°C., and were examined after forty-eight hours for the presence or absence of growth, which was determined in each instance by the appearance of turbidity in the fluid, and also by subculturing a loopful on agar.

The compounds tested were "sensitol red," "sensitol violet," and "sensitol green." These names do not describe the colour of the dyes, but the part of the spectrum to which a photographic plate is rendered specially sensitive after treatment with the compounds in question. Owing to the relative insolubility of sensitol red and sensitol green, stock solutions of 1/2 per cent. of the dyes in 50 per cent. alcohol were prepared, and these were further diluted with water as

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