

A boy aged 4½ was admitted for investigation and treatment as a case of megasigmoid, ? Hirschsprung's disease. He had previously had a coloproxy done, but no improvement had ensued, so medical treatment was instituted, using the method of Klingman. Treatment with prostigmin orally was started, 5 mg. three times a day being given for two days and then 7½ mg. three times a day for two days. On the fifth day he had 10 mg. three times a day, the last dose being at 10 p.m. Until then there had been no effect. During the following night he slept well, with a normal pulse rate, from 90 to 100. He was awakened at 6 a.m. and given a small soap-and-water enema. Following this he vomited four times and complained of abdominal pain. By 7 a.m. his pulse had become irregular, though remaining still at 90. He became increasingly pale and irritable and sweated considerably. The pulse decreased in volume and his face began to twitch. He seemed very shocked, and as the enema had had a moderately good result this was at first thought to be the cause, particularly as the symptoms had occurred so long after the last dose of prostigmin. He was watched until 11 a.m. His condition remained unchanged. He was then given 3 minims of adrenaline (1 in 1,000) and 1/150 gr. of atropine subcutaneously. The effect was very marked; the pulse improved and his colour returned within thirty minutes, and during the following hours he steadily improved and became more co-operative. At 2 p.m. he was given a further 3 minims of adrenaline (1 in 1,000) and 1/100 gr. atropine subcutaneously. By 5 p.m. he had fully recovered.

The toxic effects of prostigmin are discussed by Goodman and Bruckner, the latter personally having toxic effects after experimentally taking 45 mg. by mouth. Symptoms developed within two hours; slowing of the pulse was marked, dizziness, restlessness, and fear of impending death were symptoms and were associated with tremors and tonic contractions of muscles. Treatment with atropine 1/50 gr. intramuscularly restored the patient partially within 45 minutes and fully within two hours.—I am, etc.,

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### Formalin Treatment of Diphtheria Carriers

SIR,—In my annual report for 1939 to my Councils, I reported, among other matters, as follows:

I have instituted a treatment for diphtheria nose-and-throat carriers which is proving successful. The patients are given the treatment twice a day for approximately seven days, while in hospital, and are then swabbed prior to discharge—over 90% have been cured in seven days, the remainder after 14 days' treatment. The treatment is also given twice daily for approximately seven days, as below, without swabbing. My Council have agreed to pay 5s. to medical practitioners for this treatment for all *first contacts* of a diphtheria case.

The treatment is given at the patients' own homes and they are allowed to carry on their own duties while receiving the treatment, except in special cases of persons working in food stores and schools, etc. In these cases swabs are taken of direct contacts, and, if positive, they are removed to hospital.

Prescription for formalin special treatment as follows: Formaldehyde 11%, gelatin 2%, industrial spirit 15%, ol. menth. pip. 1%, aq. dest. ad 100%. This has been costed at the rate of 4s. per quart.

Special formalin solution for the treatment of diphtheria (nasal and throat) carriers: *For Nasal Carriers*.—Dilute 1 in 20—i.e., half a tablespoonful to half a tumblerful of warm water. *For Throat Carriers* and as a general preventive gargle.—10 drops of solution to a half tumblerful of warm water.

1. The patient should blow the nose hard.
2. A cotton-wool compress is lightly twisted with a point about 4 cm. long, so as to remain porous.
3. The plug is impregnated with a solution of formalin special treatment, 1 in 20, and the plug gently inserted well into the nose. The plug should remain in position for half an hour, and care should be taken to see that the patient does not move the plug from position.
4. During this time the patient should gargle with a solution of formalin special treatment (10 drops to half a glass of water).
5. At the end of half an hour the plug is removed. To avoid re-infection the patient must be forbidden to touch the nose. With children it may be advisable to bind the fingers with sterile dressing.
6. The treatment is repeated twice daily until at least one negative nose-and-throat swab is obtained. (Hospital cases only.)

In cases where the formalin treatment is unsuccessful:

1. A virulence test is carried out, and, if cases are non-virulent, these are discharged; if virulent, formalin treatment is continued or action taken as para. 2 below.

2. Certain children, having unhealthy tonsils or adenoids, are suitably operated on, resulting in negative swabs.

Since late in 1938 the above treatment has been carried out in my isolation hospital with great success; out of 39 nose and/or throat carriers treated 36 were negative (one nose-and-throat swab) after seven days' treatment; 3 were negative (one nose-and-throat swab) after fourteen days' treatment. In addition, many general practitioners in my districts have assisted me by carrying out with great success the treatment as outlined above. I have tried the "formalin treatment" in a few cases of haemolytic streptococcal carriers and meningococcal carriers with success. Perhaps others would care to try this treatment out, though I realize much research work has still to be done in the matter of "carriers" generally.

I have to thank Miss Minty, matron, Dutton Isolation Hospital, for the supervision of the treatment and the careful records kept.—I am, etc.,

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### Sexes in Dispersion of Intelligence

SIR,—I was much interested in Dr. Fraser Roberts's article on the difference between the sexes in dispersion of intelligence (May 26, p. 727). For many years the doctrine of greater male variability was regarded as a fundamental biological law and was believed to hold for all traits—physical as well as mental. Havelock Ellis wrote: "From an organic standpoint, therefore, women represent the more stable and conservative element in evolution . . . in men, as in males generally, there is an organic variational tendency to diverge from the average; in women, as in females generally, an organic tendency, notwithstanding all their facility for minor oscillations, to stability and conservatism, involving a diminished individualism and variability."

Karl Pearson was among the first to challenge the adequacy of studying sex differences in variability by a comparison of the extremes of the distribution. He called attention to the needs for direct measurement of variability around the average in large groups of unselected subjects. He and many others like Hollingworth and Montague found no clear evidence of greater male variability.

Dr. Fraser Roberts maintains that the result of the Scottish Council's survey and his own investigations put "all legitimate doubts at an end" and that "the existence of the difference is abundantly demonstrated." As selective factors are often difficult to detect and to control, I doubt whether even this careful analysis is fully convincing. For instance, can the difference in the developmental rate of boys and girls be lightly dismissed? Should not the developmental stage rather than the chronological age be the basis for comparison? In the sampling, has the difference of the social background and environmental stimulation been duly taken into account? Further, as sex differences in so-called general intelligence are probably attributable to differences in special aptitudes, could the apparent sex differences at both ends of the scale be due to the specific test material mentioned?

Group differences at high schools may be explained by the more rapid elimination of boys than girls; boys whose academic work is not satisfactory are more likely to leave school and go to work. The preponderance of males in institutions for mental defectives is probably due to the fact that house-work, prostitution, and marriage provide a means of livelihood for the feeble-minded woman, whereas boys in competitive work will much sooner reveal their mental deficiency.

Finally, as mental testing cannot provide any means of distinguishing between the effects of innate capacity and environmental influences on a person's general intelligence, it seems that much research will be necessary to ascertain the influence of different cultural *milieux* on the question of sex differences in variability of intelligence (cf. Mead, M., *Sex and Temperament in Three Primitive Societies*, 1935).—I am, etc.,

London, W.1.

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