injected twice a week; no trouble has been experienced in the introduction of the apparently large amount of fluid, and even the most debilitated patients, male or female, have shown no ill effects.

An ordinary two-way aspiration syringe of 100 c.cm. capacity is used, with a needle of suitable bore. If the bore is large there is considerable leakage from the site of the puncture, and if it is too small the back pressure on the syringe makes the giving of the injection a tedious process both for the patient and the giver. The syringe and needle are sterilized by boiling; where an antiseptic lotion has been used for this purpose one has found difficulty in removing all trace of the antiseptic, and a slight local reaction has occurred. The flank or the back is the most suitable place, and each side is used alternately; the near area of the sciatic nerve should be avoided, and if the temporary swelling is at the level of the iliac spine a little more discomfort is caused to the patient.

The skin of the selected site is well washed with ether soap and then treated with iodine before being frozen with an ethyl chloride spray. It is impossible to give a general statement as to how deep the needle should go. In some cases the needle is passed definitely to the subcutaneous tissues; in others there is less discomfort if the injections are made into the superficial muscles. As a rule the treatment causes transient discomfort and nothing more.

The fluid has been injected at varying temperatures, but one has found that about 105° F. is very suitable, and tends to cause less of a rigor than a temperature lower than that of the body. The fluid should be injected slowly, otherwise the tissues have insufficient time to avail themselves of their natural elasticity, and the patient becomes very restless and complains of a "drawing" pain. When the desired amount has been given the needle should be slowly withdrawn, and the site of the puncture massaged with iodine before being sealed with flexible collodion and covered with a swab. Slight oozing nearly always occurs if the injection has been actually subcutaneous, but this readily stops without interference. If the injection is made into the superficial layers of muscle there is, as a rule, no leakage.

The patient should be carefully propped up in bed by pillows so that the distended area does not take any pressure. Absorption is very rapid, and there is seldom any trace of the fluid after two hours. We have had none of the reported soddenness of the skin even after fifteen or twenty injections have been given.

If it is desirable to give intramuscular medication to the patient this can readily be combined with the Ringer-Locke injection into the superficial muscles. The absorption of, say, karsulphan has, it is thought, been much more rapid, and no after-effect has been observed.

About two to six hours after the injection most patients have some rise in temperature, attended in the majority of instances by a mild rigor. Morowoka states that general paralytics seldom have a rigor, but this has not been borne out here. Practically every patient of this type has a definite elevation of temperature after one or more of the injections; in one patient the temperature rose to above 102° F. twice in the first twelve injections; in another 101.6° F. was the highest figure recorded; whilst a third had a temperature of 103° F. after the second and fourth injections, and no rise above 100° F. subsequently.

The senile type of case, as a rule, shows little reaction of temperature, but in the toxic case there is a definite tendency to rigor. One such patient had a temperature of 103° F. four times in the first fifteen injections; in another the temperature rose to 102° F. after each treatment; whilst a third rose to 104° F. after the first three injections and then settled down to an almost regular normal figure. Usually the temperature subsides within twelve hours and is unaccompanied by any disturbance of the pulse or respiration rate. Sleep is usually much more tranquil, and the patient feels decidedly better.

There seem to be no contraindications. In only one case has the treatment by Ringer-Locke solution been abandoned, and then because a coexistent and spreading attack of herpes made it a matter of difficulty to find a suitable site. Trophic sores in the general paralytic are by no means a contraindication; indeed, we have found that in

the very rare cases where such existed they tended to heal more quickly when ordinary treatment was combined with the injection of Ringer-Locke solution. Certainly, the tendency to secondary septic infection is much lessened.

Except for rise of temperature no complications have been observed. Morowoka states that in dementia praecox a rash is sometimes seen; this has not been the experience here with other classes of cases; only once has a slight rash been observed, and that in a patient of plethoric mien.

Results.

Treatment by the Ringer-Locke solution has been carried on here with great regularity and comparatively extensively, but the results obtained with the treatment will not bear comparison with those of either Morowoka or Ishida in point of time, numbers, or actual benefit to the patient. Nevertheless very definite improvement has been observed which may be summarized as follows:

In toxic insanities, after the third or fourth injection it is quite usual to see a clearing of the complexion, and to find a returning power of free natural elimination, a return of tranquil sleep, with an accompanying mental improvement. In debilitated general paralytics, where the stage of acute restlessness has been reached, it has been noticed that after the third or fourth injection the patient becomes much more tranquil.

Daily catheterization was needed in one such case which was admitted in an extremely low condition; enemata and hypnotics were a routine. After the third injection the catheter was used chiefly as a precaution, and after the sixth its use was discontinued altogether; after the seventh injection the daily enema was discontinued, as a dose of liquid paraffin was sufficient to ensure free elimination. Hypnotics are now practically never necessary, as the patient sleeps most of the night.

Another patient, having frequent and heavy seizures which resulted in a partial left-sided paresis, was treated by injection of Ringer-Locke solution. Marked improvement was noticed in both the number and severity of the seizures after the second injection, and the paresis cleared up after the third. No further seizures have been noted. Restlessness is diminished, urine is being passed in full quantities, and a fair measure of sleep is being obtained.

Repeated treatment with Ringer-Locke solution in debility of senility has been followed by really good results; restlessness diminished, elimination increased, there was less danger of the onset of stupor, and appetite tended to revert to the normal.

Conclusions.

Regular and repeated injections of the Ringer-Locke solution have been of definite benefit in cases in which there was a toxic element, and the mental condition seemed to improve more rapidly under this treatment than when "forced" elimination alone was employed. In the debilitated toxic patient the time which must necessarily elapse before the toxic focus can be attacked is materially shortened.

The general paralytic in poor bodily health seems to benefit to a very considerable degree; in fact, the treatment is used here with a view to bringing the patient into a suitable condition for tryparsamide medication. In addition, with the bodily improvement there is an increase in the eliminatory powers. So far but little difference in habits has been observed.

In the "psychological" insanities little improvement has been noticed from the mental side, but even in this difficult class of patient the increased length of sleep and diminution of restlessness is of considerable advantage both to the patient and to the hospital.

I am indebted to the medical superintendent of this hospital, Dr. H. G. Drake-Brockman, for his permission to publish details of the work.

CONGENITAL WORD-BLINDNESS.

BY

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In congenital word-blindness the visual memory for letters and words is defective; that is to say, great difficulty is experienced in learning to recognize printed letters and words, so that spelling and reading are exceedingly troublesome, or even impossible. No other defects may be found

in the eyes and eyesight, and no difficulty may be experienced with figures and sums. The condition is said to be uncommon, but it is highly probable that it is frequently overlooked. The following case is evidence of this.

A boy, aged 14 years, was brought to see me by his widowed mother with the object of ascertaining whether his difficulty in learning the letters of the alphabet and his inability to read could be attributed to some visual defect. The family had only recently removed to Dundee from another district of Scotland.

The following history was obtained. He was sent to school at the age of 5 years. At once his teachers noticed that he experienced the greatest difficulty in learning the written letters of the alphabet, and that he was totally unable to recognize written words, however simple. This peculiarity being attributed to backwardness or stupidity he was relegated to, and kept in, the infant classes throughout his school life, even although he showed no difficulty in learning figures and in being able to do simple sums correctly.

On examination his vision was found to be 6/6 in each eye, as ascertained by the figures on Snellen's test types. The refraction was emmetropic. The boy was undersized for his age, but healthy looking, bright, and intelligent. He had had no serious illnesses, and no history of eye troubles could be obtained in any other member of the family. When asked to read printed letters he only did so correctly after several unsuccessful attempts. He was totally unable to read even the simplest words, such as "cat" or "dog," but the pictures of a cat or a dog he at once recognized and named correctly. Figures and easy sums, such as are suitable for infant classes, presented no difficulty. He could write slowly and distinctly, but was unable to do so to dictation. He showed a marked aptitude and keenness for drawing.

The patient was shown at a meeting of the Forfarshire Medical Association in January, 1927.

The chief interest in this case lies in the fact that its true nature was not realized until the boy had reached the age when he was about to leave school and try to earn a living for himself, very heavily handicapped by his inability to read. Had the condition been discovered earlier special tuition in spelling and reading could have been instituted, with the hope of overcoming to a certain extent this congenital disability. Several successful results have been recorded by various authorities.

The condition, as has been said, may very easily be overlooked, the child's inability to learn his letters put down to mental backwardness or sheer stupidity. It is, therefore, highly important that all cases of children who exhibit a marked difficulty in learning their letters should be carefully investigated, and special individual tuition adopted if congenital word-blindness be diagnosed.

ANEURYSM OF THE LEFT INTERNAL CAROTID ARTERY SIMULATING PITUITARY TUMOUR.

BY

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AND

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LEEDS.

THE patient, a woman aged 52, consulted Dr. S. T. Rowling on September 27th, 1926, with a history of failure of left vision since January of that year. She noticed, as the first indication of disability, that she was bumping into objects on her left side only. In July, 1926, right vision began to fail, but there were no other symptoms except slight dizziness of one month's duration. She was admitted to the General Infirmary at Leeds on November 1st, 1926, complaining of headache and nausea in addition to the failure of vision. Examination revealed complete amaurosis of the left eye; in the right eye fingers could be counted at two feet distance, but in the temporal field only. The pupils were dilated and sluggish; the fundi were normal, and showed no evidence of optic atrophy. The patient was drowsy, and there was polyuria. It was thought that the hands and feet were slightly enlarged, but this was doubtful, and the general appearances rather suggested hypopituitarism, although without definite signs of myxoedema. It appeared that the condition was one of physiological block rather than of atrophy of the optic nerves, and that decompressive operation might restore some degree of vision. The urine was normal as to constituents, and sugar tolerance and the blood sugar were within physiological limits. The Wassermann reaction was

negative. Further neurological investigation yielded negative results. X-ray examination showed absorption of the posterior clinoid processes, the sphenoidal air sinuses being clear. A diagnosis of pituitary cyst was made.

At 4 p.m. on November 9th a cerebral catastrophe took place. The patient complained of severe occipital pain, and of flashes of light before the eyes. She vomited copiously, and gradually passed into coma. The pupils became contracted and sluggish and the arms flaccid. The abdominal reflexes were absent; the knee-jerk was absent on the right side, just present on the left. There was a bilateral Babinski response. The coma deepened, and death ensued at 7 p.m. Clinically it was suggested that the catastrophe was the result of haemorrhage into the tumour.

Autopsy.

At *post-mortem* examination, on November 10th, a firm, globular, pedunculated mass was found projecting upwards from the base of the skull into the region of the pituitary fossa. On further investigation this was found to be an aneurysm springing from the left internal carotid artery, the interior being filled partly with pale, laminated thrombus, partly with soft mixed thrombus, and partly with blood clot (see figure). The aneurysm was almost

Medial (antero-posterior) section through the central portion of the base of the skull, showing the aneurysm situated on the top of the rather flattened out pituitary fossa and hypophysis cerebri. A, Wall of aneurysm; B, pale, firm, laminated thrombus occupying a large part of its interior; C, soft red blood clot; D, posterior clinoid process; E, pars nervosa, and F, pars glandularis, of pituitary body; G, basi-sphenoid and basi-occipital bone; H, sphenoidal sinuses; I, left internal carotid artery.

exactly spherical, and measured 3.5 cm. in diameter. It projected deeply into the base of the brain in the region of the interpeduncular space, the under surfaces of the frontal lobes, and the anterior extremity of the corpus callosum. There was much softening of adjacent brain tissue, and the optic tracts and chiasma were stretched out ribbon-like over the mass, obstructing its forward extension. Recent haemorrhage, presumably from the aneurysm, had taken place into the third ventricle, and had extended from there both upwards into the lateral ventricles, especially the right, and downwards into the fourth. Escaping to the surface, the blood had accumulated in the pia-arachnoid, at the base of the brain, and had even trickled down the spinal canal. The pressure of the aneurysm had also led to much flattening of the sella turcica, with compression of the pituitary gland.

There were no other evidences of syphilis, a scar near the apex of the left lung being regarded as tuberculous in origin. The gall bladder contained a solitary cholesterolin gall stone.

Histology.

The wall of the aneurysm is composed of extremely dense fibrous tissue, with much collagen and few and flattened cells, and still bears some resemblance to the arterial wall from which it was derived. Some small foci of early calcification are seen in the inner layers. The contents of the aneurysm consist of typical pale laminated thrombus in the one part and a mixture of blood clot and early thrombus in the other. There is no evidence of organization of thrombus. The pituitary gland, which is slightly compressed, shows a considerable mass of colloid in the