limited amount of pressure, therefore, may be quite sufficient in some individuals to excite changes in the optic nerves, when the evil effect of the pressure is enhanced by the chemical irritation of the toxins.

We venture to suggest that in many cases of purulent thrombosis of the large sinuses, and in at least a certain proportion of the cases of brain abscess, optic neuritis, when present, is caused by serous meningitis, either accompanying or immediately preceding these grave complications of purulent ear disease.

CONCLUSIONS.

Briefly stated, the following are the conclusions arrived at as the result of this investigation:

1. Optic neuritis may occur in cases of purulent middle-ear disease without obvious signs of an intracranial complication (11 times in 160 cases, or 6.8 per cent.).
2. Apart from optic neuritis, vascular changes of a lesser degree are frequent (39 times in 160 cases, or about 25 per cent.).
3. Cases of purulent middle-ear disease, in which optic neuritis or vascular engorgement of the fundus is present, are much less amenable to local treatment than those in which the fundus is normal.
4. As a general rule, an improvement in the eye condition is accompanied by improvement in the aural condition, while an increase in the intensity of the changes in the fundus or their persistence is associated with less amenability to treatment and greater gravity of the ear condition.
5. The most probable cause of vascular engorgement of the fundus or optic neuritis is serous meningitis (diffuse or localized).
6. Optic neuritis caused in this way is not usually followed by atrophy, and unless there are other symptoms demanding it, opening of the dura mater is unnecessary.

The practical lessons deducible from these are (1) that a case showing these changes in the fundus should be closely watched, and their existence regarded as an additional reason for the early performance of the radical mastoid operation; (2) if, on the other hand, they show a tendency to clear off, especially with improvement in the ear condition, or if the fundus is normal to begin with and remains so, we may with more confidence look for a favourable response to conservative treatment.

Finally, we again plead for a more systematic general use of the ophthalmoscope in cases of purulent disease of the middle ear, as we are convinced that the trouble involved will be more than repaid by the results, both as regards the progress and prognosis of this disease.

NOTE.—Since writing this we have had the opportunity of reading a most interesting paper⁶ on experimentally-induced choked disc, by Drs. Harvey Cushing and James Bordley. From an experimental standpoint these two observers come to conclusions very similar to our own, and we quote them here in full:

1. That the occurrence of neuro-retinal oedema is primarily dependent on the passage of cerebro-spinal fluid under tension from the subarachnoid space of the interpeduncular region (anterior cisterna) into the vaginal sheath of the optic nerve, and that cerebral decompression often allows the process to subside, owing to a resultant diminution of tension from release of the confined fluid.

2. That the experimental work corroborates many of the more recent clinical observations in showing that a choked disc, even of considerable height, may be rapid in its formation and, provided it has not gone on to the stage of new tissue formation, may rapidly subside, and thus speaks strongly in favour of a mechanical as opposed to a chemical or inflammatory origin for the lesion.

REFERENCES.

- ¹ BRITISH MEDICAL JOURNAL, October 10th, 1908. ² Arch. . Ohrenheilkunde, Band lxxiv, S. 45. ³ BRITISH MEDICAL JOURNAL, August 25th, 1906. ⁴ Transactions of the Otolological Society, vol. vii, p. 41. ⁵ BRITISH MEDICAL JOURNAL, October 10th, 1908. ⁶ Lehrbuch der Ohrenheilkunde, Professor A. Politzer, fünfte Auflage, S. 507. ⁶ Bulletin of Johns Hopkins Hospital, April, 1909.

THE Association of German Scientists and Medical Practitioners will hold its eighty-second meeting at Königsberg this year from September 18th to 24th. Among the addresses of medical interest to be delivered in full session are the following: Dr. Cramer, of Göttingen, "Puberty and the School"; and Professor von Monakoff, of Zurich, "Localization of the Functions of the Brain." The combined medical sections will hold eighteen sittings. Communications should be addressed to the Managing Committee, Drummstrasse 25-29, Königsberg, Prussia.

A SHORT NOTE ON THE SCOPOLAMINE-MORPHINE NARCOSIS.

By R. HILLHOUSE JAMIESON, M.B., F.R.C.S. EDIN.,

FREELAND BARBOUR SCHOLAR, UNIVERSITY OF EDINBURGH.

(From the Pharmacological Laboratory, University of Edinburgh.)

IN the course of some pharmacological experiments with scopolamine and morphine I found in animals certain effects produced on the respiration similar to those which sometimes attend the clinical use of scopolamine and morphine as an anaesthetic.

The experiments were made on cats, the blood pressure and respiratory movements being recorded in the usual way.

The preparation used was the tablet form of hyoscine hydrobromide (gr. $\frac{1}{100}$) and morphine sulphate (gr. $\frac{1}{2}$), prepared by Duncan, Flockhart and Co., Edinburgh. This dose was calculated as being that for an adult of 70 kg., giving a dose per kilogram of body weight of hyoscine gr. $\frac{1}{7000}$, morphine gr. $\frac{1}{1400}$. Accurate dosage was attained by dissolving one tablet in a definite quantity of Ringer's solution, and using intravenously such proportion of the solution as was required.

Fig. 1 (cat 2,850 gram) shows the normal respiratory

Fig. 1.

and circulatory movements, and the effects thereon of a normal therapeutic dose of hyoscine and morphine intravenously. There is no immediate effect on the respiration rate, but ten minutes later, as shown in Fig. 2,

Fig. 2.

the respiratory rate has been reduced from 34 to 20 a minute.

Fig. 3 shows the effect of a second intravenous injection,

Fig. 3.

given thirty minutes after the first, the dose of hyoscine and morphine being this time equal to only half the previous dose. Yet one notices the immediate reduction in the respiratory-rate of from 26 to 14 a minute, and later to 10 a minute, as shown in Fig. 4, taken three minutes later. Thirty minutes later, when the animal was killed, the respiration-rate was 16 a minute.

In the next experiment a cat of 3,900 grams was taken, and to it was given thrice the normal therapeutic dose

ntravenously, tracings of the blood pressure and respirations again being taken. Fig. 5 shows the immediate cessation of respiration and the transient rise of blood pressure followed by the marked fall. Artificial respira-

Fig. 4.

tion (20 a minute) was used, and slowly the blood pressure rose again, only to slowly fall whenever artificial respiration was discontinued, as is well shown in Fig. 6. The animal was kept alive by artificial re-

Fig. 5.

spiration till in Fig. 7, one hour later, natural respiration had started—slow and shallow, but gradually increasing in rate and in depth till the animal was killed two hours after the initial injection.

Fig. 6.

Clinically one meets with those apparently alarming cases in which the respiration-rate is greatly reduced to 5 or 6 a minute, and Figs. 3 and 4 demonstrate this clinical point in animals. Fig. 5 shows clearly where the

Fig. 7.

danger of the scopolamine and morphine narcosis lies, and equally clearly, in Figs. 6 and 7, is shown the clinical importance of artificial respiration in cases of an overdose of scopolamine and morphine; and this artificial respiration, combined with drugs which stimulate the respiratory centre, such as strychnine, seems to offer the most logical method of treatment in cases of an overdose.

AT a meeting of the American Health League recently held at New York a resolution was passed urging that measures should be introduced in Congress providing for the establishment of a national bureau of public health.

A COMMITTEE has been formed, among the members of which we note such well-known names as Professors Bouchard, Dastre, Simon Duplay, Laveran, F. Raymond, and Drs. Lermoyez, Moure, and Depierris, General Secretary of the French Society of Oto-rhino-laryngology, and Veillard, General Secretary of the Society of the same name, for the purpose of celebrating the jubilee of M. Gellé père. A medal will be struck in his honour.

DEATH UNDER SPINAL ANAESTHESIA BY JONNESCO'S METHOD IN A CASE OF ACUTE INTESTINAL OBSTRUCTION.

By F. VICTOR MILWARD, M.B., F.R.C.S.,
ASSISTANT SURGEON, GENERAL HOSPITAL, BIRMINGHAM.

At a time when trial is being given in this country to Jonnesco's method of spinal anaesthesia, it would seem advisable that all fatalities should be reported. The following case has occurred in my practice at the General Hospital, Birmingham.

On the evening of January 24th, 1910, a man aged 50 was admitted suffering from intestinal obstruction. He was of moderate build, and had not complained of any symptoms of disease until eight days before admission. Since that time obstruction had been complete, and vomiting had set in and had been persistent. On admission he was found to be much distended, and vomiting of a faecal and regurgitant nature was occurring at intervals of a few minutes. His pulse was 108, and of fair strength. The type of vomiting suggested special dangers for a general anaesthetic, and having recently used Jonnesco's dorsi-lumbar method with marked success in an exactly similar case, I determined to use it again.

The patient was therefore brought into the theatre, and the usual preparations having been made, an injection of 10 cg. of stovaine and 1 mg. of strychnine in 1 c.cm. of water was made in the dorsi-lumbar region. On account of the patient's condition and abdominal distension, it was not possible to employ the sitting position and forward arching of the back to any advantage, and it was only after three attempts that the introduction of the needle was successfully accomplished.

The subsequent sequence of events was as follows:

January 25th, 1 a.m.—Spinal injection of stovaine and strychnine given in dorsi-lumbar region, the patient being on the right side, with the head raised on a thick pillow. After the injection the patient was immediately turned on his back, the pillow being left under the head.

1.6 a.m.—The patient, who had been moaning, began to look ill compared with his previous appearance.

1.7 a.m.—Pupils dilating, and commencing failure of the pulse. The patient now looked very ill, and vomited liquid faeculent matter. Inj. aetheris 3ss into thigh. Inj. strych. m10 subcut.

1.10 a.m.—The patient quite unconscious. Giving forth gasping respiration, and vomiting large quantities of the most offensive matter, exactly resembling faeces, without effort.

1.11 a.m.—Respirations very shallow, and dying away. On account of the vomiting, the head, which until now had been raised, was lowered, and artificial respiration was resorted to. The continual stream of vomit seemed, however, to render this proceeding useless. The fauces were repeatedly mopped out, and the tongue drawn forward. Two syringefuls of ether and more strychnine were injected, and hot and cold water alternately applied to the chest.

1.12 a.m.—The pulse was now imperceptible, and all natural efforts of respiration had ceased. The conjunctival reflex was still present, and the pupils were contracted. Inj. adrenalin m20 (1 in 1,000).

1.15.—The conjunctival reflex now lost, and the pupils in mid-way position and fixed. Vomit still continued to pour from the mouth, suggestive of the fact that the gastric sphincters were relaxed. Various means of resuscitation still continued, but the patient had apparently ceased to live.

The artificial respiration was continued for one hour after all signs of life had ceased, and no operative measure was undertaken for the relief of the obstruction.

Necropsy.

A post-mortem examination held at the General Hospital on January 26th, 1910, showed the following appearances.

Externally, the body was that of a well-developed man. There was a slight distension of the abdominal parietes, and in the dorsi-lumbar region a considerable swelling caused by a subcutaneous haematoma. This was to be accounted for by the needle puncture and by hypostatic congestion.

Internally, the heart muscle was firm. The left ventricle slightly hypertrophied and dilated; the right ventricle slightly dilated. There was fibrosis of the musculi papillares in the left ventricle, but none of the valves were thickened or in any way diseased.

Both lungs were congested and dark in colour, and in both lower lobes were small areas of commencing broncho-pneumonia. Oedema and emphysema of both lungs was also present.

The trachea contained some dark greenish mucoid material resembling the vomit, but not sufficient to have caused asphyxia.

Both visceral and parietal layers of the peritoneum were scattered all over with small grey nodules of malignant growth. They were thickest in the pelvic region, and at the mesenteric attachments of the gut. The sigmoid flexure was severely kinked by the attachment of a nodule of growth in the omentum to an epiploic appendix. A little free fluid was present.