adjacent tissue, as is seen in Fig. 2, the section being made where the visceral pericardium is replaced by a sheet of growth $\frac{1}{2}$ to $\frac{3}{4}$ of an inch thick, the free surface of which is lined by a layer of flattened cells, while the cells of the other passed freely between the muscle fibres of the heart wall. A similar condition is present where the sheet of tissue invades the lungs and pleuræ. No evidence was found of thymic tissue. The spleen was but little enlarged, showing (microscopically) leukæmic infiltration; the Malpighian bodies and their germ centres were very clearly marked. The liver showed some

FIG. 1.—Section of mediastinal tumour.

infiltration, while the kidneys were almost unaffected. The abdominal glands were only very slightly enlarged, as were the axillary, cervical, and inguinal; microscopically, there was leukæmic infiltration, but the general structure of the glands was unaltered. The bone marrow of the sternum showed masses of the leukæmic cells, together with megacaryocytes, myelocytes, and erythroblasts.

Remarks.

This association of mediastinal tumour and escape of cells into the blood stream is of considerable rarity and of great interest on account of the possible connexion between the leukæmias, lymphadenomata, and lymphosarcomata. Sternberg held that there were two distinct conditions:

FIG. 2.—Section showing infiltration of heart wall.

(1) Increase of cells of the small lymphocyte type with hypertrophy of the lymphatic apparatus and infiltration of the various organs—that is, lymphatic leukæmia; and (2) mediastinal leukosarcomatosis as described above. Fraenkel, on the other hand, thought that (2) was simply a leukæmia tending to form tumour-like masses of cells having the appearance of malignant growths. The situation of the growth suggests association with the thymus, and appearances have been described in similar cases which resemble Hassal's corpuscles. In this connexion it may be mentioned that Gamgee has described a lymphosarcoma of the thymus with no increase of white cells in the blood, while Lochte mentions two cases of enlarged thymus "epithelioid transformation" associated with acute lymphatic leukæmia.

The case described above presents one very remarkable feature, the high proportion of red cells

right up to the time of death. For comparison, counts of other cases are given:—

(1)	Red cells:	1,500,000 per c.mm.	leuc.	176,000.	(Parkes Weber.)
(2)	"	1,600,000	"	103,125.	(")
(3)	"	1,472,000	"	295,000.	(O'Kelly.)
(4)	"	2,000,000	"	60,000.	(St. Bart.'s Mus.)
(5)	"	"	"	810,000.	(Mager.)
(6)	"	4,100,000	"	210,000—	case described here.

In conclusion we wish to express our thanks to Majors W. Essex Wynter and A. F. Voelcker, R.A.M.C. (T.F.), for their kind assistance.

A NOTE ON THE "NEW GAS AND ETHER."

BY J. BLOMFIELD, O.B.E., M.D. CANTAB.,
SENIOR ANÆSTHETIST AND LECTURER ON ANÆSTHETICS,
ST. GEORGE'S HOSPITAL.

By "gas and ether" is usually meant, since the day of Clover, its inventor, a method of anæsthesia in which nitrous oxide plays a merely preliminary part in the induction, the maintenance of anæsthesia being entirely supported by ether. By "new gas and ether" I mean a method in which nitrous oxide is relied on throughout, and ether plays the supplementary part. The one is continuous ether with preliminary gas, the other continuous gas with occasional ether. It is a system which is widely applicable, gives good results, and requires only comparatively simple apparatus, for which reasons I venture to draw attention to it, although, no doubt, other anæsthetists have, like myself, been in the habit of using "gas and ether" apparatus in this way for years. I do not, however, remember having seen it definitely described.

The apparatus necessary is merely a Clover's inhaler, preferably the wide-bore modification, and attached to it an ordinary 2 gallon bag with Hewitt's stopcock, connected with gas cylinders. With a small prop between the teeth, and the head turned well to one side, the face-piece is accurately fitted to the face while the bag is about two-thirds distended. The induction is now carried out as ordinarily with "gas and ether." That is to say, unconsciousness is secured with gas only, an ounce and a half of ether then put into the chamber, the expiratory valve shut, and the indicator fairly rapidly advanced till at the end of about four minutes there is stertor and full narcosis.

From now onwards, instead of getting rid of the "gas," as in the old method, the aim is to use it all the time and the ether as little as possible. The procedure is as follows:—

If the patient is a muscular man or in any way what is called a difficult subject let the indicator be advanced quite to "full" in the course of the induction. When anæsthesia is present turn the indicator rapidly back to "0." The patient is now re-breathing a mixture of N₂O, E., and expired air with CO₂. Open the expiratory valve, thus emptying the bag, and at once fill it two-thirds full again with N₂O, which you allow to be re-breathed. Give breaths of air by means of the stopcock as often as it is necessary to do so to keep the colour free from all blueness. Empty the bag, by opening the exploratory valve, about every five minutes. Any indication that the narcosis is too light is met by advancing the indicator and admitting a little ether.

By this simple method a great many patients can be kept satisfactorily anæsthetised by an inhalation which is for the most part one of nitrous oxide. Consequently they are saved from the after-effects, which are the drawback to ether. At the same time they have the pleasant and quick induction

due to nitrous oxide and they are provided with such advantages as may accrue from small quantities of CO₂ and from a vapour which is warmed. The completeness of relaxation which can be achieved depends a good deal upon the extent to which ether is admitted. For abdominal operations this is not a good method unless an oxygen cylinder is connected up with the bag, in which case results can be obtained equal, I think, to those that are secured by the fashionable "sight-feed" machines. In the absence of oxygen I find that too much ether is needed to get abdominal relaxation for this method to be any superior to open ether or to a C.E. mixture. Relaxation, in fact, is largely a matter of oxygenation. It is for such operations, though, as were so frequent in war surgery—long operations upon bones and sinuses of the trunk or limbs—that I have found the method so very useful, both because of the condition obtained on the table and for the freedom from much sickness afterwards. Here, for example, is a case typical of what I wish to enforce:—

Oct. 24th, 1917: Captain —, in good health, slight build. Operation: reamputation of thigh; anaesthesia by "new G. and E.," 1 ounce of ether in wide-bore Clover; indicator to "F." during induction, then "E." off altogether and "G." re-breathed. Frequent breaths of air needed to keep colour good. Twice "E." admitted for a minute at a time on account of slight movement in other leg. Slight cyanosis allowed several times. No signs of shock. At end of 40 minutes operation finished. Patient talking within five minutes and very incredulous of operation having been performed. No after-sickness, no discomfort.

Another patient who had undergone a plating of the femur under C.E. narcosis had suffered greatly from sickness, so at a second operation I used this "new gas and ether." The operation took 50 minutes and he was conscious within three minutes, not nauseated at all, and feeling "quite happy." This patient was pale from long sepsis and needed very free aeration.

With this method, as with all others, perfect results are not to be obtained with every kind of subject. Very fat persons, and those with narrow or obstructed upper air-passages are unfavourable. By modifying the procedure through the introduction of oxygen, in the feebler kind of subject, and small quantities of chloroform added to the ether in the robust kinds, the great majority of patients can, however, be very well managed for a great variety of operations. When chloroform is added it should not be in proportions greater than 1 to 12 of ether. Generally speaking, it is not the method of choice for operations upon the upper abdomen, and is, of course, out of court where the face is concerned, except for very short procedures. It provides an excellent anaesthesia for rectal operations, for curetting the uterus, and for such proceedings as radical cure of hernia and hydrocele, and all operations upon the limbs.

LITERARY INTELLIGENCE.—Messrs. William Hodge and Co., Ltd., London and Edinburgh, announce for early publication, in their series of Notable Trials, "The Trial of Hawley Harvey Crippen."

ENHAM VILLAGE CENTRE.—The town of Southampton has collected towards the funds of the Enham Village Centre the sum of £500, which will be devoted to the erection and equipment of a basket-making shop, called the "Southampton Hut." It is hoped that many other towns in the United Kingdom will follow the lead given by Southampton. Subscriptions should be sent to the Secretary, The Village Centres Council for the Curative Treatment and Training of Disabled Ex-Service Men, 51, Lincoln's Inn-fields, Holborn, W.C.2.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OTOTOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 16th, Mr. HERBERT TILLEY, the President, being in the chair.

New Knowledge on the Vestibular Structure.

Dr. ALBERT A. GRAY (Glasgow) demonstrated, by means of a series of beautiful slides, some previously unrecorded anatomical details of the human vestibule, relating at the same time how the discovery was made. The first is a curious band of cartilage which encircles the oval window. The foot-plate of the stapes has a layer of cartilage on its vestibular surface, but no observer has pointed out that there is a considerable layer of cartilage extending over the inside of the vestibular wall, towards the cochlea, above the vestibule, and posteriorly towards the semi-circular canal. Another feature which he regards as new is a cleft coming down from the anterior margin of the oval window. This he has found to vary a good deal in different cases. Posteriorly, in many cases, Dr. Gray found a foramen of 1/10 mm. behind the posterior margin of the oval window. Another feature, which the demonstrator found it difficult to explain, concerns the position taken up by the stapes after death. In the exhibited specimens the stapes is rotated on a vertical axis, which passes through the junction of the middle and posterior thirds. Stereograms show that the stapes in the cadaveric position is not in the same plane as the wall of the oval window round about it, but the anterior two-thirds of it is rotated inwards, and the posterior third outwards. That he attributed to the action of the stapedius muscle, possibly, in his opinion, it is due to the spasmodic contraction of that muscle in the death agony, or to rigor mortis. In the ninth specimen which he examined the crura and the stapes had been rotated by caries or by cholesteatoma, and there was no drag on the stapedius muscle; and in that instance the foot-plate of the stapes was in the same plane as the oval window. This seems to give a clue to the function of the stapedius muscle. The cartilaginous layer Dr. Gray regards as a remnant of the cartilage surrounding the otocyst in lower forms of animal. Some authorities, he said, considered this change of bone in front of the oval window to be the cause of otosclerosis, but he thought these cells played more than a passive part in otosclerosis. The bony change seemed to always begin in the cochlear portion, never behind the oval window, though extension to the latter might occur. The persons from whom the specimens were removed were between the ages of 20 and 65.

The PRESIDENT cordially congratulated Dr. Gray on his work.

Cases of Meningitis and Labyrinthitis.

Mr. J. S. FRASER and Dr. J. K. MILNE DICKIE (Edinburgh) described an interesting series of cases—i.e., three examples of epidemic cerebro-spinal meningitis, and one of pleuro-pneumonia, bronchiectasis, meningitis, and labyrinthitis. In connexion with meningitic labyrinthitis the authors said that though most of the cases of labyrinthitis resulted from middle-ear suppuration, a minority were due to purulent leptomeningitis, and in these latter, labyrinthitis secondary to epidemic cerebro-spinal meningitis occupied the first place. They agreed with those who considered that mumps deafness was secondary to meningitis. The original site of infection must be the upper or lower respiratory tract, the parotid gland, the tonsil, the alimentary tract, or other parts, but in all cases probably invasion of the blood stream was the next step in the production of meningitis. Mr. Fraser suggested that cases of meningitic labyrinthitis were much commoner than is generally supposed. He regarded