of the bulb. The two points thus found are joined respectively to X_1 and X_2 , and the intersection of these last lines is vertically over the point of the foreign body which casts the shadows X_1 and X_2 .

The ladder can be affixed immediately to a plate facing in any direction, and can be used with any type of apparatus. The procedure is quick and simple, and could be used at the bedside in case of need. The distance from plate to anticathode and the distance the bulb is moved are not required; the shadow displacement has not to be measured, but merely set off with compasses and matched, a simpler and more accurate proceeding. The estimation of depth can be easily made to a millimetre without any measurement whatever, and the one plate carries the complete data of localization of all foreign bodies whose shadows fall upon it. The instrument is made by Messrs. Newton and Wright, 72, Wigmore Street, W.

NOTE ON THE TREATMENT OF THE SYMPTOMS ARISING FROM INHALATION OF IRRITANT GASES AND VAPOURS.

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INTRODUCTION AND MODE OF EXPERIMENT.

The following observations deal with the early stages of the bronchial and bronchiolar obstruction set up by inhalation of irritant gases.

They represent a preliminary account of unfinished work, and are given so early partly on account of immediate call for treatment of the condition in question and partly on account of the striking failure of treatment *via* the blood stream.

The animals employed were cats, initially anaesthetized by ether, then pithed through the foramen magnum, and supplied with air by a method of artificial respiration, previously devised by Golla and Symes, which has already been described in full detail.¹

The principle of the method is as follows: The lungs are made to dilate rhythmically by rhythmically diminishing the pressure on their outer surface by means of a pump, the piston of which produces the same pressure changes in the pleural cavity as are produced normally by the diaphragm. As in spontaneous breathing also, the lungs are emptied by their elastic recoil.

The condition of the airway (bronchioles) was recorded by a sensitive membrane manometer connected with the trachea. This shows, as in spontaneous breathing, negative pressure (downstroke) during inspiration and positive pressure (upstroke) during expiration.

Obstruction of the airway is indicated by diminished amplitude of the respiratory tracing, whilst conversely augmented amplitude of the tracing shows relief of the obstruction.

The "gas" (bromine vapour) was administered through a tracheal cannula. Its usual effect was rapid obstruction of the airway. Less commonly the obstruction came on gradually, several minutes elapsing before the tracing was reduced to one-half of its initial amplitude. In some cases profuse bronchorrhoea appeared in the course of an hour.

In all cases the relief afforded by intravenous injection of broncho-dilator drugs has been little or nothing, whilst the same (or similar) drugs administered by inhalation have consistently given relief, which, though not always great, has at times been considerable. The relief shown in the figure is moderate in degree and of short duration.

The drugs so far tested are the following:

Amyl Nitrite.

Injected intravenously, in suspension in normal saline, or subcutaneously without dilution, this body has given no relief. Inhaled, it has at times produced slight and temporary dilatation of the airway, but has more than once appeared to increase bronchorrhoea.

Atropine.

Atropine sulphate, in intravenous doses ranging from 0.5 mg. to 10.0 mg., has been without effect on the airway.

Adrenalin.

Intravenous administration of 0.1 mg. of adrenalin chloride has, on one occasion, afforded slight and temporary relief, but in the majority of cases has been without benefit.

Stramonium.

Intravenous injection of an infusion of stramonium leaf was without effect. Inhalation of the fumes from the smouldering powdered leaf, on the other hand, has consistently relieved the obstruction. The degree of relief depends, obviously, on the amount of fume inhaled. With respiration diminished by pronounced obstruction the relief is consequently small; but when the force of (artificial) respiration is augmented, and pulmonary ventilation thereby increased, stramonium fumes produce considerable and lasting dilatation of the airway.

The upper tracing shows bronchial spasm produced by bromine vapour, the middle tracing its relief by stramonium fumes, and the last gives the time in minutes.

Lobelia, Tobacco, Opium.

Pulv. lobeliae co. (Martindale), a powder containing a little lobelia in addition to stramonium, has also worked well, though, up to the present, it has not seemed more efficacious than the stramonium alone.

Fumes from smouldering tobacco (or snuff) have also dilated the airway.

Opium fumes have been found to give relief. The dilatation has not been great but has, once, proved relatively lasting.

Chloroform.

Chloroform vapour has on one occasion distinctly increased the obstruction. On no occasion has it appeared to give relief.

DISCUSSION OF RESULTS.

The failure of atropine injections to relieve the respiratory obstruction was surprisingly complete. In view of this failure and of the equal non-success of stramonium infusion and of adrenalin, contrasted with the efficacy of stramonium and other fumes, it appears that the bronchial circulation was largely, if not completely, arrested by the bromine vapour, and that relief was only afforded by direct contact of the remedies with the bronchial (and bronchiolar) mucosa. The efficacy of the stramonium fumes indicates further that muscular spasm is a factor in the obstruction.

Of the drugs that have been tried stramonium has, so far, been the most successful. Mixed with a little nitre it is readily ignited and smoulders freely. The fumes should, for obvious reasons, be inhaled through the nose rather than through the mouth. Overdosage from absorption of the active principles—atropine, hyoscyamine, hyoscine—through the pulmonary alveoli will be shown so clearly by thirst, by dilatation of the pupil, and by acceleration of the pulse, that dangerous dosage should be readily avoidable. Moreover, it may be anticipated that early and

repeated administration will diminish the distressing bronchorrhoea of the later stages of gas poisoning.

Lobelia, tobacco, and perhaps opium, may fairly be tried, either alone or with stramonium. The objections to the use of opium fumes are obvious and serious. But in the absence of relief from other sources, and given adequate ventilation of the ward, these objections do not suffice to debar a careful trial.

For the reasons given above both chloroform and amyl nitrite appear to be objectionable, and their use, if adopted, should be carefully watched.

Conclusions.

The respiratory obstruction set up by inhalation of irritant gas is relieved by inhalation of stramonium and other fumes.

Treatment through the blood stream, either *via* the mouth or by injection, appears to be inefficacious.

REFERENCE.

¹Golla and Symes, *Journal of Pharmacology and Experimental Therapeutics*, v. 1913, p. 92.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TECHNIQUE OF ANALGESIA IN INTRANASAL SURGERY.

AN article under the above heading appears in the JOURNAL for June 26th, and in it the use of cocaine and adrenalin for intranasal anaesthesia is deprecated, and a complicated and lengthy technique advised. Now, for the past five years I have operated, both in private and in hospital, upon the turbinal bones and nasal septum, under cocaine-adrenalin anaesthesia, without a single bad result that could in any way be ascribed to the anaesthetic, and, what is more, without any of the symptoms, such as marked excitability, difficulty of breathing, etc., that Dr. Wilson describes.

My technique is simple: The nose is packed with ribbon gauze soaked in a mixture of 20 per cent. cocaine and adrenalin—equal parts of each—half an hour before the time fixed for the operation. The patient walks to the operating theatre, the packing is removed, the operation is performed, and, after the nose has been plugged with Simpson's sponge splints and half an ounce of brandy and 10 grains of aspirin have been administered, the patient returns to bed. In this way I have operated on some 75 private patients, including some members of our own profession, and some 150 hospital cases, and in no single case have I ever seen any after-sickness or has any case had to have stimulants administered. In hospital practice the patients remain in until the plugs are removed on the following day, and in private I arrange for the operation on a Friday, and they return to their work on the following Monday or Tuesday.

Some twelve months ago I was persuaded to try quinine-urea anaesthesia in these cases, and my results were most unsatisfactory, as not only is the sloughing more, but it leads in some cases to post-operative haemorrhage. In conversation with an American nasal surgeon recently he told me that for these reasons urea-quinin anaesthesia was dying out in the States.

My apology for taking up so much of your space is that it seemed that my results were so much at variance with Dr. Wilson's that they would be of interest. With my technique the whole operation, from time of packing to the return to bed, does not occupy more than an hour, whereas with Dr. Wilson's an hour and twenty-five minutes elapses before the operation commences.

I may add that my technique is not in any way original, but is the one in ordinary use at the Eye and Ear Infirmary here.

Liverpool.

ADAIR DIGHTON, F.R.C.S.

Paris Médical states that a medical officer who has recently returned from the front tells the following story. A wounded German was taken to an ambulance which was soon afterwards shelled. The French staff was naturally indignant at this violation of the laws of civilized warfare, but the comment of the "cultured" Teuton was: "It is quite natural. Why didn't you remove your Red Cross flag?"

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

BOMBAY BRANCH.

A CLINICAL meeting of the Branch was held on March 26th, Lieutenant-Colonel ASHTON STREET, I.M.S., in the chair. The CHAIRMAN showed: (1) A specimen of *Ruptured spleen* successfully removed by him; (2) a case of *Molluscum fibrosum* where he had removed a small and a large tumour; (3) a specimen of *Sarcoma of the testicles*; (4) a case of *Sarcoma of the eye*. Miss A. M. BENSON, M.D., showed a boy, aged about 9, who had *Superficial nodules on the shins, elbows, and on the back of the forearms*, of two years' duration. Dr. SORAB K. ENGINEER showed: (1) A *Cluster of bronchi and their branches with the trachea of a fowl*. They had been palmed off by a quack as the mass of haemorrhoids removed by application of specific medicines. (2) A case in which the *Intramuscular injection of salvarsan* (Italian preparation) worked satisfactorily. (3) Various photographs of *Tuberculous lesions*. Dr. S. B. NAYAK showed skiagrams, one of which indicated *Very early phthisis pulmonalis* by the peculiar malposition of the cardiac shadow, and in this case no physical signs were then made out. Dr. F. D. BANA showed a simple *Electroscope for nasal and oral work* improvised by him. Dr. A. POWELL showed specimens of *Aortic aneurysm and brain tumour*. Professor Y. G. NADGIR took the members round his anatomical department and exhibited some excellent specimens dissected by him.

Reports of Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF DERMATOLOGY.

At a meeting on June 17th, Dr. J. J. PRINGLE, President, in the chair, Dr. E. GRAHAM LITTLE showed (1) a middle-aged lady suffering from *Mycosis fungoides*, the initial phase of which had been diagnosed as psoriasis, and for which x rays had been applied over almost the entire body surface. The tumour formation followed the x-ray treatment, and Dr. Little thought there was causal connexion between the two conditions. The PRESIDENT, Dr. SIBLEY, Dr. PERNET, Dr. DORE, Dr. SEQUEIRA, and Dr. ADAMSON considered the development of tumours to be fortuitous, and urged continuance of the x-ray treatment as being the only method of controlling the tumour growth. (2) A boy, aged 12, who was in a condition of profound cachexia accompanied by excessive diarrhoea and a very extensive *Pigmentary follicular eruption over the trunk and limbs*. Dr. LITTLE suggested the diagnosis of pellagra. Dr. PARKES WEBER thought Addison's disease more likely. Mr. STEBBING showed, for Mr. LAMING EVANS, a case of *Acute linear atrophy of the skin in the lumbar region*. The patient exhibited no toxæmic manifestations, but had been inoculated against typhoid last October. The case was discussed by the PRESIDENT, and Drs. ADAMSON, PARKES WEBER, ABRAHAM, GRAHAM LITTLE, and WALSH. Dr. STEBBING also showed a case of *Hydroa aestivale* of mild type in a girl, aged 14, the typical seasonal variations of which were unusually marked. The case was discussed by Dr. PARKES WEBER, Dr. ADAMSON, Dr. PERNET, and the PRESIDENT. Dr. PHINEAS ABRAHAM brought forward a case of *Oriental sores* in a young man dating since February, 1915, and contracted in the Persian Gulf, where he had suffered much from mosquito bites. The sores had been successfully treated by scraping and pure carbolic acid. Sections from the case exhibited characteristic Leishman-Donovan bodies. The case was discussed by Mr. T. P. BEDDOES and Dr. PERNET. Dr. J. A. NIXON (Bristol) exhibited a man, aged 23, with deep *Universal pigmentation of the skin and mucous membrane of the mouth*, of six years' duration, accompanied at its onset by severe dyspepsia and neurasthenia. The pigment was always increased by exposure to the sunlight. Dr. NIXON thought there probably had been some lesion involving the supra-