plugged with a finger of oiled silk stuffed with gauze.

The description of the first technique was illustrated by a film; that of the other two by lantern slides.

**THE PHYSIOLOGY OF THE UPPER RESPIRATORY TRACT**

by Mr. Angell James

He gave a vivid description of the anatomy and physiology of the nose, pharynx and larynx, and pointed out some contrasts between animals and man. The action of the nasal mucous membrane was to warm the inspired air, to filter it from dust and bacteria and to moisten it. Prominence was given to the role of the cilia, and their movement was beautifully illustrated in a film made by Mr. Negus. To do their work properly, cilia needed the right conditions. Their action was paralysed by drying, and impaired by heat and cold and by some drugs. An intact sheet of ciliated mucous membrane formed an effective barrier to bacteria, but not to viruses. The application of 10 per cent cocaine stopped cilia from working in three minutes. Weaker solutions were less harmful. Adrenalin, applied in solution stronger than 1 in 100,000, slowed them considerably. Ether and chloroform vapour and nitrous oxide had no effect on cilia, but a drop of liquid ether or chloroform killed them at once. The cooling and drying of mucous membranes by the gas stream in insufflation techniques was bad for the cilia on it.

The speaker next referred to reflex responses in the respiratory tract. Stimulation of the asthmagenic zone in the nose led to reflex bronchoconstriction. Radiant heat to the body led to reflex vasodilatation in the nasal mucous membrane with partial nasal obstruction. The nose was sensitive to temperature changes, and chilling of the body led to a lowering of the temperature of the nose, which in turn reduced its resistance to infection.

A second film was then shown. This gave a striking demonstration of ciliary action in man, and of the movements of the palate during coughing, swallowing and phonation. The star was a patient who had had lateral rhinotomy performed, and in whom the interior of one side of the nose was plainly visible. Pus was seen emerging from the frontal sinus and being steadily wafted across the nasal cavity by the action of the cilia.

During the subsequent discussion the speaker said that plastic endotracheal tubes were to be preferred to rubber ones, since plastic material was more inert and less porous than rubber; and it would be an advantage if cuffed plastic tubes were available. Spraying the mucous membrane with cocaine did no lasting damage to the cilia. If adrenalin were used with cocaine the question of absorption was unimportant, and a 10 per cent solution of cocaine had no advantage over one of 5 per cent.

**SOME ASPECTS OF THE TREATMENT OF INTRACTABLE PAIN**

by Dr. J. H. Challenger

Dealing first with the arrangements for a practical organization to help patients with intractable pain, he said that the main desiderata were understanding and sympathy with the patients, familiarity with a wide range of nerve-blocking techniques, and adequate publicity. When confronted with the patient the anaesthetist had to make an assessment based upon the taking of a good history and a careful physical examination. Not only should the diagnosis and the expected time of survival be considered, but also the patient's mental state. Patients with intractable pain were often emotionally unstable, and their pain threshold was low. The next step was to decide on the plan of action, and an important preliminary to this was to determine the pathways involved in the transmission of the pain. Somatic or autonomic channels might be involved, and in some cases both a somatic and an autonomic block was required.

Procaine was a useful agent for diagnostic and prognostic blocks. For longer blocks 6 per cent phenol might be used. The speaker had not had much success with Efocaine. Intrathecal alcohol was probably the best, and in suitable cases would provide relief of pain for weeks or months.

The results of nerve blocks were difficult to predict, and often disappointing. In the speaker's series of 44 patients, 9, or 19 per cent, had complete and lasting relief; 51 per cent had some relief; and 34 per cent no relief. In half of the patients the pain was confined to the lower part of the back, the pelvis and the legs, and many of them were suitable for intrathecal alcohol; but the risk of paresis of bladder and rectum precluded...