how the presence of such a large proportion of nitrogen is produced, although knowing the small proportion of nitrogen which exists free in the blood of warm-blooded animals it seems probable that an actual metabolic process must be brought into play. But we may fairly conclude from these analyses that the presence of a large proportion of nitrogen in the mixture of gases contained in any viscus does not necessarily imply that the origin of that gas is the atmospheric air. If one can argue that what is the case in cold-blooded vertebrata is probably true as regards warm-blooded animals it seems that we must reconsider our deductions concerning intestinal gases based on the fact of the predominating volume of nitrogen in both gastric and intestinal flatus; in other words, we have no right to assume that when we find nitrogen in about the same proportion as it exists in air that that nitrogen is the nitrogen of the air and that the other constituents have been altered by the peculiar nature of the environment, in the stomach the oxygen being replaced by carbonic acid gas, and in the intestines by hydrogen, carbon-dioxide, and marsh gas.

THE TREATMENT OF LACHRYMAL OBSTRUCTIONS BY STYLES.

[By R. SHALDERS MILLER, F.R.C.S.,
Windsor.

THIS little section of surgical therapeutics has probably been less successful than the operative treatment of other disorders of the eye and its subsidiary apparatus.

Since 1877, when I first became a clinical assistant at Moorfields, it has been my habit to treat all organic strictures of the lachrymal duct—that is, all parts of the outfall from the lower *punctum lacrymale* to the exit in the inferior turbinate sinus of the nose—by means of styles, in most cases permanently retained. Except for temporary wear, they should be made of pure platinum wire, about 25 gauge, and I always make them myself for each individual case. The shape, direction, and length of the nasal duct being variable, this special adaptation is the key to success in the use of styles, which consist of a vertical stem, with a short arm bent at or about a right angle to the stem. Usually this arm is made double by recurving the wire back to the stem, so that the arm consists of two thicknesses of wire, parallel and quite close together, the recurved part lying vertically beneath the other. In this way the slit in the edge of the lid is just filled up, but no metal is visible unless the lid be everted. Sometimes the furrow produced by slitting up the canaliculus is very shallow; then the arm of the style is single.

The length of the arm should be such that it completely but easily fills the slit-up canaliculus; it must not be tight. The stem should always be long enough to project through the lower opening of the ductus ad nasum in the inferior nasal sinus. The measure can be readily taken by passing a probe. The practical effect of a style in maintaining the patency of the lachrymal exit depends upon the lateral movements of the lower lid, imparted by those long straight muscular fibres which take origin at the tendo palpebrarum, and run horizontally outwards to the surface of the malar bone, and are anatomically quite separable from the oval bundles of the orbicularis proper. The tubular styles of the instrument makers are worse than useless; they soon become choked with mucus and dust. Also, in the case of the grooved styles, the necessarily thin edges of the furrow cause irritation and the production of a granulation which stops the way. The stem of a style should not be straight except in the case of a very short duct, but somewhat concave outwards.

The lower opening of the duct may be obstructed by an excessively incurved lower turbinate, but even this is scarcely an excuse for turbinotomy. I have found no difficulty in pushing a probe through the turbinate bone, and a style, made long, follows. Some of my patients have worn a platinum style for eight or more years without its ever having been removed from the moment of its first introduction.

In every case of lachrymal abscess a style ought to be used, for a time at least; in most instances it is needed permanently, but a temporary one must be first inserted of a form modified

according to the amount of swelling in the part. Such style may be of lead or silver, and several different forms and sizes are sometimes desirable in succession, to suit the changing size and shape of the lid and canthus. I have found it necessary to make an eyed probe of lead, pass it through the duct and anterior naris, and, by means of a thread attached, pull a fine drainage tube through, and thus restore a lachrymal passage that had been obliterated by an encysted abscess for sixteen years. A platinum style was afterwards worn with a perfect result.

The wire has been drawn for me by Messrs. Curry and Paxton, and by Messrs. Coxeter and Son, and I have used some yards of it. It is well annealed, and very easy of manipulation.

PERFORATING ULCER OF THE FOOT.

By CAREY COOMBS, M.D.,
Castle Cary.

A FEEBLE old woman, aged 72, showed me an ulcer in the sole of her foot about 1 inch long and wide, and $\frac{1}{2}$ inch deep, with hard white edges and a pale pink base. It had existed for thirty years, but she had not asked advice because she was afraid I should "cut it." The removal of some fragments of carious bone and the use of carbolio lotion gave her much relief, and the ulcer grew less.

The illustration shows the ulcer and the deformity of the foot resulting from the loss of phalangeal and metatarsal bones, but the shortening of the other foot is much more marked. In thirty years I have met with about twelve cases of this disease, about half of them in the great toe, which has in two cases required amputation. One old man who had lived for several years in Newfoundland, and who had a large plantar ulcer, consented to Pirogoff's operation; but when, under chloroform, the foot was thoroughly explored, so many fragments of the tarsal and metatarsal bones were removed, that it was thought better to leave the greater operation. The foot healed after a few weeks. The interest of this case arises from the family history; the woman's father suffered badly, the uncle slightly, from the disease. Two of her sisters, one brother, her daughter, and a niece have all had sore feet.

The ulcer begins as a swelling like a soft corn, under the great toe or sole; in the centre of this is the opening of a sinus leading down to the diseased bone. The ulcer rarely attains $\frac{1}{4}$ inch in diameter on the toe, but in the sole where