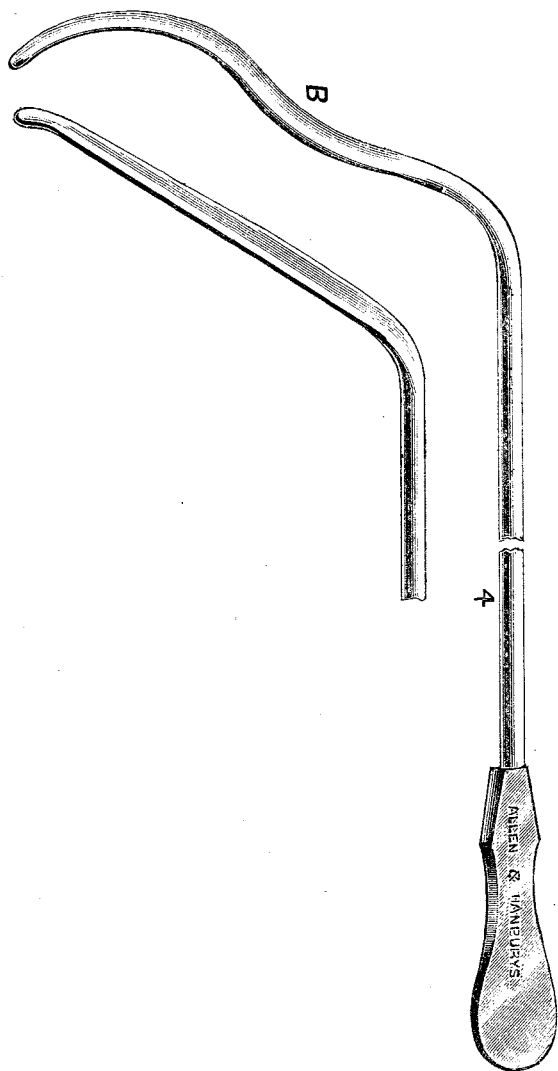


## New Inventions.

### A NEW SOUND AND A URETHRAL STAFF.

THE instruments here illustrated I have found to possess definite usefulness. The instrument marked 4 shown with its handle I intend chiefly for cases where it is desirable to bring the vesiculæ seminales, the base of the bladder, and the prostate more satisfactorily within reach of the finger, placed in the rectum for purposes of examination usually,



but sometimes for operative procedure. Personally, I never, without its use, satisfied myself that I could feel the normal vesicles. The instrument being passed, the prostate fits into the space B, and this gland, together with the parts named, is easily forced down by gentle properly-directed pressure towards the finger, and at other times towards the perineum if desired. The staff, of which the beak only is shown, is intended chiefly for purposes of fixation and approximation in abscess in and about the prostate whilst incisions are made. By its aid, however, I have treated two cases of annular stricture in a way which, I think, is quite novel. I introduced the tapered beak through the strictures and cut from the outside nearly down to, but not through, the mucous membrane. The strictures were then continuously dilated from within without rupture of this membrane—a very desirable thing when possible.

The instruments were made, from models shown to them, by Messrs. Allen and Hanburys, Plough-court, Lombard-street, London, E.C.

Finsbury-pavement, E.C.

JAMES MACMUNN.

## THE WATER-SUPPLY OF LISBON.

IN past years the city of Lisbon must have suffered considerably from want of water. During the earlier part of the eighteenth century it is estimated that the supply amounted to no more than seven litres per head.<sup>1</sup> About the middle of that century (1748) some fresh sources were tapped and the quantity per individual was raised to 8·4 litres. In 1835 an aqueduct was completed which served, by bringing in a new supply, to raise the amount per head to 14·3 litres. From this date nothing very much was done (except the utilisation of some ancient sources in 1869) until 1880, when for the first time water was brought from Alviella, a place situated at a distance of about 100 kilometres from Lisbon.

On the introduction of these new supplies those already in use were not abandoned, and at the present time water is obtained from three distinct sources, about which a few words may be said. 1. The low waters are derived in the neighbourhood of the city from the southern slope of the hill of St. Jorge. This is the water which has been longest in use. It is not only liable to pollution but is undoubtedly polluted, as shown by the fact that the bacillus coli has been frequently found in it. No method of purification is adopted in the case either of this or any of the other water which is distributed in Oporto. 2. The high waters are derived from a large number of separate sources, 58 in all, which are situated at a distance of 12 or 13 kilometres from the city, to which the water is conducted by the aqueduct of D. João V. The sources of this water do not all appear to be above suspicion. Some are near houses and some are near ponds used by laundresses. These supplies cannot be considered altogether free from the possibility of contamination. They ought to be, and, in fact, are, it is said, the objects of special "surveillance." "Field observation" as to the probability of contamination does not satisfy the writer of the water company's report, he awaits with more confidence the results of bacteriological examination. 3. The water of Alviella, the latest of the supplies obtained, is the most ample in quantity and the best (or least bad) in quality. It is true that the bacillus coli has been found in specimens of it which were taken in Lisbon, but the pollution has apparently been traced to a source which affected the water *en route*. The spring itself seems to be free from suspicion. as it is derived on high ground from "vast subterranean reservoirs and calcareous caverns," whence it is conducted through an aqueduct to the city.

The manner of distribution is so arranged that the water derived from each of these three sources has its own area of supply. About 25 per cent. of the water is distributed by gravity and 75 per cent. is pumped up to the reservoirs, of which there are 11. It is arranged that in case of emergency each of the three systems can be utilised to aid either of the others. The supply is in the hands of a company which is required to supply gratuitously to the municipality all the water required for public purposes. The quantity of water which is required for municipal purposes is considerable; it always greatly exceeds the amount used by private consumers. The income of the company is derived from payments made by private consumers and by the Government.

The private supplies are given by metre—the method favoured by some authorities in the City of London. Many varieties of gauges are in use and amongst these may be mentioned the "positive" instruments of Pinto Bastos, Frost-Tavenet, Frager, Kent and Worthington, and the "inferential" metres of Tylor and of Siemens and Halske. Lisbon therefore offers a fine field to those who wish to observe the practical working of metres and the advantages or disadvantages attending this method of supply. Those of our countrymen, however, who may have occasion to go to Lisbon will do well to eschew rather than to swallow the water of that city.

The Compagnie des Eaux de Lisbonne may be congratulated on having produced an excellent pamphlet which gives a full account of the water-supply of the city. The volume contains good illustrations of the aqueduct of the high waters, of the Alviella Springs, and of various parts of the aqueduct, the arcades of Louriceira and of Pero Filho, of the siphon in the Valle de Torno, and of the bridge siphon at

### A SANATORIUM FOR PULMONARY TUBERCULOSIS.

—The subscriptions to the Didworthy Sanatorium for Consumption for the counties of Devon and Cornwall are steadily increasing, upwards of £5000 having now been received towards the £6000 required to commence the scheme.

<sup>1</sup> Notice sur l'Alimentation de la Ville de Lisbonne en Eaux Potables. Compagnie des Eaux de Lisbonne, Lisboa Typographia da Companhia Nacional Editora, Largo do Conde Barão, 50, 1900.