

artificial membrana tympani, made of very thin vulcanized India-rubber or gutta-percha, which is so applied as again to render the tympanum a closed cavity — *Med. Times and Gazette*, Feb. 26, 1853, p. 229.

ON A SIMPLE METHOD OF ASCERTAINING, WITHOUT THE USE OF THE CATHETER, WHETHER THE EUSTACHIAN TUBES ARE PERVIOUS.

By Joseph Toynbee, Esq. F.R.S.

[The common mode of exploring the Eustachian tube by the catheter produces pain and discomfort, and requires great experience in its use. The plan also of attempting to distend the tympanum by a forcible expiration, while the mouth and nostrils are kept closed, is by no means always successful].

In a paper recently read before the Royal Society, the author endeavoured to show that the guttural orifice of each Eustachian tube is generally closed, and that the air in the tympanum is not continuous with that in the cavity of the fauces, except during the momentary act of deglutition. In proof of this, the following experiment was cited:—If the mouth be shut, and the nostrils be held closed by the finger and thumb, and then the act of swallowing be performed, a sensation of fulness or pressure is experienced in each ear; and this sensation does not disappear upon the removal of the pressure from the nose, but it vanishes at once when the act of swallowing is again performed, while the mouth and nostrils are open. During the first act of swallowing, a small quantity of air was forced into the tympanic cavities through the Eustachian tubes, and it therein remained until the second act of swallowing again opened the tubes and permitted the air to escape. The muscles whereby the Eustachian tubes are opened are the tensor and levator palati, which, it is well known, takes origin from the cartilaginous walls of the tubes. As, during the act of swallowing with closed mouth and nostrils, air is forced through the Eustachian tubes into the tympanic cavities, it is evident that the permeability of these tubes can be ascertained by making the patient swallow some saliva while the mouth and nose are shut. Nor need the surgeon depend upon the statement of the patient respecting the sensation of distention felt in the ears: for by listening with the *otoscope*, should the Eustachian tubes be pervious, the air will be distinctly heard to enter the tympanic cavities, and produce a gentle crackling sound. The author next proceeds to consider the treatment of cases of obstruction of the Eustachian tubes, especially in reference to the use of the catheter. It having been ascertained that these tubes are obstructed, is it desirable to attempt to open them by means of the catheter? Believing that obstruction of the Eustachian tubes generally depends upon a thickened state of the mucous membrane covering the guttural orifice, and that this state is always associated with a thickened condition of the faucial mucous membrane of the tympanum, the author suggests, especially to the inexperienced in the use of the catheter, not to attempt to pass this instrument—first, because, in such cases, the mucous membrane of the Eustachian tube is often so tumefied that no ordinary degree of pressure will force the air into the tympanum; and, secondly, because, should the surgeon succeed in transmitting a few air-bubbles, the relief obtained is only partial, and endures for a very brief period, since the mucous membrane remains as thick as before. And the ill effects of the obstruction soon recur, from the air in the tympanum becoming of a different density from that without. The membrana tympani becomes more or less fixed. The treatment recommended is such as shall tend to reduce the thickened mucous membrane of the guttural orifice of the Eustachian tubes to a healthy state, so that these muscles may be able to open them. For this purpose, besides the use of general remedies, the subnitrate of silver, or a strong solution of hydrochloric acid, may be applied to the mucous membrane of the fauces and to the apertures of the tubes, and gentle counter-irritation is to be kept up over the region of the fauces.