

## Medical Matters.

### THE HOT-AIR TREATMENT OF CHRONIC DEAFNESS.\*

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I have been asked to give you this afternoon some description of a new method of treatment for certain forms of chronic deafness, and I need scarcely say how deeply I feel the honour you have done me, or with what pleasure I accede to the request.

In preface, however, I wish to point out that this hot-air method is at present quite upon its trial in this country. Despite the fact that in the United States it has been described by its originator, Hopkins, of Cleveland, Ohio, in somewhat glowing terms, and with the assertion that it has been used by him in sixty-two cases with but four failures, the results of experiments with other American remedies have made the medical profession in England a little cautious in its acceptance of them without due care and trial. Therefore I would beg you to remember that the super-heated air treatment of chronic deafness is still *sub judice*, and, until it is submitted to careful and prolonged experiment, cannot be decidedly pronounced upon, although it bids fair to be very useful in certain cases.

Before entering upon any description of the method, it is necessary to first touch upon the conditions found in cases in which the hearing power is chronically impaired from pathological processes in the middle ear. Putting aside all those cases in which the deafness is due to destruction from old suppurative processes, we have two conditions which are practically responsible for all cases of chronic deafness, excepting, of course, those due to diseases of the internal, or perceptive, portion of the organ.

The two conditions are chronic catarrhal inflammation of the tympanum and middle ear sclerosis.

The first of these is the one to which I would particularly draw your attention. Chronic non-suppurative catarrh is nearly always the result of colds in the head and, in its early stage reacts most satisfactorily to treatment. Unfortunately a large percentage of its victims neglect themselves until one or both ears have become past cure, and the result is chronic deafness. In the early stages the patient is deaf with a cold, recovering his hearing power as he loses his catarrh, but with each cold he becomes a little more deaf,

and recovery is less easy and less complete. At last comes a time when the deafness remains after the cold is gone, and even then, if one ear (as is generally the case) is further advanced than the other, he still neglects the condition, and thinks there is no cause for alarm until the hearing is seriously impaired on both sides.

This chronic tympanic catarrh runs through four distinct stages, which, however, merge the one into the other without any recognisable line of demarcation. The first stage is that of congestion and exudation, the second that of proliferation, or the formation of inflammatory new tissue, the third stage is occupied by the transformation of this new tissue into fibrous tissue and its consequent contraction, and the fourth and last stage is one of cicatrisation. This final result is best called the *post-catarrhal stage*, and is characterised by the general binding together of the contents of the middle ear by scar tissue and adhesions, so that the drum membrane is drawn inwards, the small bones bound down, hampered in their movements, and their joints more or less stiff, and the tiny muscles atrophied and useless. This stage is characterised by a symptom known as *paracusis*, in which the patient finds that he hears better in a noise. This symptom means that the stiff joints of the chain of small bones work better in a loud noise (such as the rattling of a train or omnibus), and can then more easily respond to sounds of less intensity.

The second condition responsible for chronic deafness is middle ear sclerosis. This disease has been very generally confounded with the post-catarrhal stage which I have just described, but most otologists now recognise it to be a distinct disease. It is characterised by the formation of adhesions in the tympanum, with general atrophy of the drum-lining membrane, and the formation of new bone about the aperture in which the little stirrup bone plays, and in the internal ear itself. It is a disease which especially affects the young and women more than men, coming on usually from about twenty to thirty years of age, and slowly, but surely, progressing. It is decidedly not an inflammatory disease.

Now a word as to the treatment of these two maladies. As I have hinted, if properly taken in hand during its early stages, chronic middle-ear catarrh is easily managed, but when it comes to us at its contracting period, or in the post-catarrhal stage, it presents difficulties which are at times quite insurmountable. It can be readily understood that when the whole apparatus for the transmission of sound to the auditory nerve is bound down by contracting bands of fibrous tissue the ear is useless as a hearing organ. It was in these cases, especially, therefore, that Hopkins designed to apply super-heated air,

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