

1879

The Throat and The Voice: Part 2, Chapter 1: The Voice

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the mouth be kept open during the process, and all movements of swallowing avoided. With fluids of proper temperature and density, these precautions will almost always secure the individual from injury, unless there is some deformity, congenital or from disease, or an unnaturally large orifice to the vent-tube of the ear-drum.

When there is an offensive odor from the retained masses of phlegm and mucus, a disinfectant should be added to the cleansing solution. These ablutions should form an essential part of the daily toilet, as much so as a resort to the tooth-brush or the wash-basin.

Cases of naso-pharyngeal catarrh kept up by the presence of foreign bodies, tumors in the nasal passages or dead bone, will not get well until after the removal of these sources of irritation.

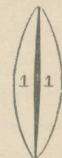
PART II. THE VOICE.

CHAPTER I.

VOICE.

THE VOICE is the sound generated in the larynx at the upper part of the air-passage, by the rapid vibration of the edges of two membranous bands, stretched transversely over the top of the windpipe, from before backward and slightly downward. A delicate elliptic space is left between the two vocal bands (Fig. V.); and the air from the lungs, as it escapes forcibly through this contracted passage, strikes the edges of these bands with a force which sets them vibrating. The sound started in the air-tube by this vibration is the voice. During ordinary respiration, these vocal bands are widely separated behind, so as to present a large trianguloid space between their edges for the uninter-

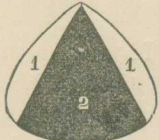
Fig. V.—Diagram of the Vocal Bands as Adjusted for Phonation, or Voice.



1. 1. Vocal Bands.

rupted and free passage of the air (Fig. VI.); and they separate a little more during a deep inspiration, and move slightly towards each other during expiration.

Fig. VI.—Diagram of the Vocal Bands Separated Behind, as in Ordinary Breathing.



1. 1. Vocal Bands. 2. Free Space for the Breath.

In sounding the voice, however, as above stated, the vocal bands are brought together posteriorly to the middle line, and held there as long as the sound is being made (Fig. V.); separating again when a deep inspiration is to be made (Fig. VI.); the process being repeated as long as vocalization is continued. It is thus that the ordinary expiratory current of breathing is utilized in the normal production of the voice. A vocal sound can be produced by the inspiratory current likewise, if a special effort is made to do so, as sometimes practised by ventriloquists; but the sound is rough, coarse, and disagreeable, and the effort soon becomes tiresome and difficult.

In cases of spasmodic approximation of the vocal bands, as occurs in certain cases of false or spasmodic croup, and in a number of diseases of the upper portion of the air-passage, this unnatural vocal sound is actually produced at every forcible effort of inspiration, and constitutes a special alarming and heart-rending sound which is known as stridor.

CHAPTER II.

ACOUSTICS OF VOICE.

THE physical laws in accordance with which voice is produced are just the same as those which control the physical production of all other sounds. If, therefore, the general laws of sound (acoustics) are reviewed, and then the mechanism of those portions of the human organism concerned in the production of vocal sound is studied afterward, considerable insight will be gained as to the nature of the voice.

What is *sound*? "Something we hear," some bright little reader may mentally reply. And so it is,—something that is heard. And it is only by hearing it, that it can be comprehended. The deaf-mute has no conception of the nature of sounds. If he were standing alone by the Falls of Niagara, there would be no sound, for there would be no organ of hearing to interpret as sound the commotion in the water and in the atmosphere produced by the great cataract.

The sensation of sound is due to a certain motion or tremor produced in the molecules of the extreme