

where the sounds of one watch is in greater intensity, and the other is placed where the sound of the other watch is in greater intensity, and the result is obtained of one watch only ticking in one ear, and of the other watch only ticking in the other ear. The greater intensity of each watch-sound in one ear has rendered all hearing of it in the other ear impossible, and as each watch-sound in its greater intensity is conveyed to different ears, one is heard in one ear only, while the other is heard in the other ear only. Without the stethophone, or some such instrument, this analysis could not be made; the ordinary stethoscope will not succeed, for wherever it is placed it conveys the mixed or compound sound to the ear. If the naked ear be applied over and upon the watches, the same result follows, and it is the same if instead of two arms of the stethophone we employ only one. This remarkable separation of the components of a sound may be effected also when the sounding bodies are enclosed in a box capable of transmitting sound, or when separated from us by the interposition of materials capable of conducting sound, and by successive trials and comparisons of intensity at different places, and by a process of exclusion of those parts which fail to cause sensation, the respective positions of two adjacent sounding bodies may be predicated. If, for example, we have two watches, A and B, enclosed in a box, and through one cup A, we hear watch A, and with the other cup B, we hear watch B, we may conclude that cup A is nearer watch A, than cup B is, and so on. In the same manner we may auscultate the morbid sounds of the heart. By cup A, placed at the apex, and cup B, placed at the base, we hear separately the morbid sounds of the two parts; for example, a blowing murmur at the apex in one ear, and a rasping murmur at the base in the other ear. This we are enabled to do, although at any intermediate point with the single ear, either with or without a stethoscope, we hear the conjoined two sounds. It is obvious, that with the stethophone we not only succeed in separating sound, but that this instrument or some similar contrivance, affords the only possible means of hearing with two ears at once, sounds emanating from the same region or surface, for the sides of the head can be applied, of course, to the same sounding surface only in turn or succession. With this instrument we, as it were, place our ears in our hands, apply them where we choose, and listen with them both at adjacent or distant parts of the same surface, at one and the same instant of time.

It is not unlikely that the property which the stethophone possesses of pointing out with precision where sound is most intense, may be very usefully employed. It seems possible that it might be turned to account in discovering the points where operations in military mining may be going on.

It is, however, in the practice of medicine only that the differential stethophone has been hitherto applied, and it may be here permitted to me to point to some of the chief purposes for which it is adapted, and for which it has been employed.

In respect to respiration, we may compare at once, and without the inconvenience of moving the head, or the ordinary stethoscope, from place to place, the extent of the respiratory sounds in different parts, so that a very minute difference, an excess in one part, or a deficiency in another, may with certainty be