sents pleural effusion, I do not doubt, notwithstanding the opinion of Skoda and others to the contrary.

Here, as in other instances, Laennec naturally sought to give an idea of the sign by comparisons. The name which he gave to it applies resemblance to the cry of the goat. He also compared it to the voice when a counter is placed between the teeth and the lips, to the voice transmitted through a metallic speaking trumpet, and to the nasal intonation which is assumed in the performance of Punch. Studied analytically, it has the concentration and the high pitch of broncho phony. It differs from the latter sign in being distant, and in its tremulous or bleating character.*

SIGNS REFERABLE TO THE WHISPERED VOICE.

The sounds heard over the thorax when words are whispered, have not, as yet, been recognized as forming a separate group of auscultatory signs. They seem to me to be entitled to this distinction. It is true that a whisper is almost always an expiratory act, and, therefore, the characters of the sounds thus produced are identical with those of expiration in the respiratory signs. The expiratory effort in a whisper, however, as a rule, has more force and emphasis than in the acts of respiration; hence, the characters of the sounds heard over the thorax are more marked; and, moreover, there is sometimes an advantage in listening to these sounds disconnected from the inspiratory sounds. Practically, the whispered voice will be found useful, especially in the diagnosis of incipient pulmonary phthisis.

The whispered voice, as heard over the healthy chest, may be called the normal bronchial whisper, inasmuch as the same is conducted by the bronchial tubes. The normal bronchial whisper is low in pitch, its quality is blowing, and its intensity in different persons variable, these characters corresponding to those of the expiratory sound in the normal respiratory murmur. The characters are normally modified over the primary and secondary bronchi, especially on the right side of the chest, in the same way as the expiratory sound in normal broncho-vesicular respiration. The abnormal modifications may be named so as to correspond with the signs referable to the loud voice, as follows: 1. Increased bronchial whisper; 2, Bronchophonic whisper, or whispering bronchophony; 3. Cavernous whisper; and 4. Whispering pectoriloquy.

The whispered, as well as the loud voice and the respiration, may be amphoric; but I pass by now, as hitherto, this sign, for the reason that it does not require analytical study, the musical intonation being alone sufficient for its recognition.

The bronchophonic whisper is correlative to bronchophony referable to the loud voice, and to bronchial respiration. It is a high-pitched tubular sound, more or less intense.

Increased bronchial whisper is correlative to increased vocal resonance and to broncho-vesicular respiration. It is less high in pitch, less tubular, and less intense than the bronchophonic whisper.

The cavernous whisper is correlative to cavernous respiration. It is low in pitch, blowing in quality (as distinguished from tubularity), and of variable intensity.

In whispering pectoriloquy the speech—that is, articulated words—are conveyed to the ear of the auscultator. Whispered speech is oftener transmitted than words spoken with the loud voice. The whispered words may be transmitted either by solidified lung or through a cavity, and it is easy to determine, in individual cases, whether or not it be a cavernous sign. If the pectoriloquous whisper be also bronchophonic—that is, the sound high in pitch and tubular in quality—the conduction is by solidified lung. If, on the other hand, the whispered words be associated with the characters of the cavernous whisper, the conduction is through a cavity.

SIGNS PRODUCED BY PERCUSSION.

The advantages of the analytical method of study are as marked in its application to percussion as to auscultation. The results of the study, however, will require much less extended consideration.

Taking, as a point of departure, percussion in health, and the characters of the normal resonance as a standard for comparison, the number of morbid signs need not exceed six, and considering, as might be done, three of these as varieties of one sign, the number is reduced to four. Thus, either four or six signs represent the important morbid physical conditions incident to different pulmonary diseases, in so far as these conditions are determinable by percussion. An important result of the analytical method of study is the elimination of such vague terms as full, empty, hard, wooden, tracheal, bandbox, resonance, etc.

The normal resonance on percussion varies in different persons and in different parts of the chest,

*I refrain in this paper from entering into a consideration of the mechanism of signs; but, with regard to ægophony, I will venture to offer an explanation, which I do not remember to have met with in any work on auscultation. It is that the sign is produced when, owing to either old adhesions, or recent agglutination by fibrinous exudation, the pleural surfaces adhere in the upper part of the chest, so that the lung resists the pressure of the liquid; consequently the pressure upon the lung below the adherence condenses it to such a degree as to give rise to bronchophony. The bronchophony, under these circumstances, lacks the nearness to the ear which it has when liquid is not present, and the presence of the liquid causes the goat-like characters of the sound. This explanation tallies with the fact that the sign is generally limited to a narrow strip near the level of the liquid, and also with the fact that the sign is rarely found except when the level of the liquid is at or near the lower angle of the scapula. According to this explanation, as well as to the results of analysis, ægophony is a modification of bronchophony.