quality non-tubular or simply blowing, it is either a cavernous sign or it denotes delay and hindrance to the free exit of air in the expiratory act, as in cases of emphysema. The prolonged expiration in emphysema is always low and blowing, not high and tubular, at least without the areas in which a normal broncho-vesicular respiration may be present. A prolonged expiration is not a sign of phthisis (exclusive of cavity), unless the pitch be raised and the quality more or less tubular; or, as stated by Jackson, unless it have something of a bronchial character.

I pass by adventitious sounds, simply remarking that my experience corroborates a statement made by Skoda—namely, the pitch of moist bronchial râles, or coarse and fine bubbling, and of the subcrepitant râle, denotes either, on the one hand, solidification around the tubes in which the râles are produced, or, on the other hands, absence of solidification. The pitch is more or less raised when these râles occur in connection with pneumonia, phthisis, or other affection involving solidification. The pitch is not raised when they occur in bronchitis, in pulmonary œdema, or in other morbid conditions which do not involve solidification of lung.

SIGNS REFERABLE TO THE LOUD VOICE AND SPEECH.

The analytical study of transmitted voice-sounds is simpler than that of the respiratory sounds, but not less important with reference to clearness and precision as regards the distinctive characters of vocal signs. Suppression of vocal resonance, and simple diminution of the normal intensity, are signs which do not call for analysis. It is not so with the remaining signs referable to voice and speech—namely, bronchophony, increased vocal resonance, ægophony and pectoriloquy.

Bronchophony, the sign correlative to bronchial respiration, is characterized by concentration of the transmitted voice, nearness to the ear and elevation of pitch, as compared with the diffusion, distance, and lowness of pitch, which are the characteristics of the normal vocal resonance. It is important to note that intensity is not an element of bronchophony; the distinctive characters of this sign may be not less marked with a feeble as with a loud vocal resonance.

An abnormal loudness of the transmitted voice-sounds, without the characteristics of bronchophony—that is, the characters of the normal resonance preserved exclusive of intensity—is to be distinguished as increased vocal resonance. This sign signifies either a degree of solidification falling short of that requisite for bronchophony, or the transmission of a voice through a cavity.* It seems an incongruity, but clinical experience shows it to be true, that a moderate degree of solidification of lung may give rise to more intensity of resonance than a greater degree of solidification, the lesser resonance having the characters of bronchophony, and the greater resonance retaining the characters of the normal resonance exclusive of intensity. A cavity not surrounded by solidified lung may be represented by notable intensity of vocal resonance, but without the bronchophonic characters.

Normal bronchophony is sometimes found within the area in which the respiration may be normally broncho-vesicular. In general, however, within this area—that is, over the primary and secondary bronchi, the resonance is simply more intense than in the other thoracic regions.

The opinion held by Laennec, that pectoriloquy is exclusively a cavernous sign, has long since been disproved. Articulated words, or the speech, in addition to the voice, may be transmitted by solidified lung as well as through a cavity. The characters pertaining to the transmitted voice, associated with the speech, however, enable the auscultator to decide, in individual cases, whether the pectoriloquy be, or be not, a cavernous sign. If pectoriloquy be accompanied by the characters distinctive of bronchophony (nearness to the ear, and elevation of pitch), the transmission is by solidified lung; if, on the other hand, speech be transmitted, and the characters of bronchophony be wanting, the inference is that the pectoriloquy denotes a cavity. Two varieties of pectoriloquy, therefore, may be recognized—namely, bronchophonic and cavernous. This statement conflicts with the opinion of Skoda and others, who hold that pectoriloquy is simply an exaggeration of bronchophony.

I would remark that pectoriloquy, which may be defined the transmission of speech, is often not sharply discriminated by writers on auscultation, as well as by practical auscultators, from bronchophony—the latter being the transmission simply of the voice; and it is evident that the discrimination was not clearly made by Laennec. Laennec seems to have been biased by a desire to establish pectoriloquy as exclusively a cavernous sign. That pectoriloquy is entitled to be considered as a sign distinct from bronchophony is shown by the fact that it may exist without any of the characters of the latter. Under circumstances, in accordance with what has been stated, it is always a cavernous sign.

To the vocal sign called ægophony, Laennec in his treatise on auscultation, devoted more space than to any other physical sign; and perhaps there is no sign which has been more discussed than this by subsequent writers, although it is a sign of comparatively small practical importance, inasmuch as other well marked and readily available signs suffice for the diagnosis of pleural effusion. Laennec confessed that he encountered much difficulty in the explanation of this sign. That, as a rule, if not invariably, the sign repre-

* I dissent from the statement made by some writers that bronchophony is a cavernous sign. Clinical study, as I believe, shows that merely intensification of the resonance is the sign when the voice is transmitted through a cavity. The voice may be bronchophonic over a cavity surrounded by solidified lung, but then the sign represents the latter condition, and not the cavity.