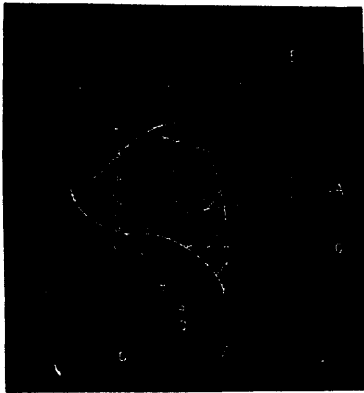


wise, of a fibrino-serous effusion. Fraëntzel affirms, "In almost every case the effusion is at first fibrino-serous, and it is during the subsequent course that it becomes, sooner or later, purulent, and this may occur as early as the first week."<sup>3</sup> Reynold's System, Pepper's System and Quain's Dictionary of Medicine teach similar views. On the contrary, that empyema is a suppurative inflammation from the beginning and not an altered simple pleurisy, is held by many, among whom are Wilson Fox, Austin Flint and Douglas Powell. The latter says, "Unquestionably serum is more easily effused than pus, and purulent effusions are at first thin and diluted, but the pus element is from the first largely present and active in acute empyema."<sup>4</sup> In this early stage, while the effusion is



(From "Diseases of the Lungs and Pleura," by R. Douglas Powell, M. D., Lond.)

Percussion signs in case of moderate effusion. *A*, area of complete dullness ("flatness"); *B*, area of tympanitic (Skodaic) resonance; *C*, inferior curved line of tympanitic (stomach) resonance.

thin and serous, no means that we can adopt will prevent it from becoming purulent. That a fibrino-serous pleurisy may become suppurative, we know only too well, from this untoward event occurring sometimes after operative measures; but without such operative interference, it is seldom such spontaneous alteration in the character of the disease occurs. Excluding cases that arise from such obvious causes as penetrating wounds of the chest, fracture and caries of ribs, pulmonary gangrene, rupture of tubercular cavities into the pleura, phlegmonous abscesses in the walls of the chest, etc., what are the conditions

then that determine a suppurative rather than a simple pleurisy in any given case? The authorities, when they refer to this subject at all, usually assign such causes as "depressed condition of system," "morbid constitutional states," "intensity of reaction," and the like; and we have been usually content to accept unquestioningly such obscure phrases as satisfactory pathological statements. In a recent address, Goodhart, in accounting for the greater frequency of empyema in children than in adults, says, "surely one cannot be far wrong in attributing it to the intensity of reaction in growing tissues to inflammatory irritation, to the rapidity with which cells grow, and to the greater sensitiveness in young life to sudden changes to their environment."<sup>5</sup> This expresses a very prevalent opinion as to the causation of suppurations in general and of empyema in particular. According to this opinion the causes of both kinds of pleurisy may be the same, the difference in the character of effusion being due simply to a difference in constitution. If this theory were correct, then all simple pleurisies would become purulent, were the inflammatory reaction only sufficiently acute and the constitution depressed. But it is well known that even the most severe simple pleurisies do not become spontaneously purulent, and we never expect them to; in fact, while simple pleurisy is fairly common after thirty years of age, and often characterized by the most severe constitutional disturbance, in subjects of low vitality, yet acute empyema is fortunately rarely met with at this period of life. Again, among young persons it is not exceptional to meet with cases of empyema with only moderate reaction, while in others, perhaps less robust, simple pleurisy has been attended with severe constitutional symptoms. It will thus be seen that the difference in the causation of the two varieties of pleurisy cannot be simply one of degree, but must be a difference in kind. Few English or American writers throw any light on this subject; Bristowe, Roberts, Anstie, Loomis and J. Lewis Smith make no reference to it. Donaldson says nothing more than "that there are cases in which neither local nor general conditions explain the transformation of serous into

5. Brit. Med. Jour., 1887, vol. I, p 1203.

3. Ziemssen's Cyclopaedia, p. 611. 4. Diseases of Lungs and Pleura, p. 66.

\*The Address on Medicine at the Canadian Medical Association at Hamilton, August 31st, 1887.