

irritate it to activity and overgrowth; this activity leads to the "reproduction of the cells of the part," which newly formed cells, being aggressive and active, are doubtless a great source of strength to the tissue; the homely example that occurs to me, is that of the small dog, the toxin that irritates the large dog, the tissue, until the latter irritated to activity, bestirs himself and kills its tormentor.

In explanation of the second of these degrees of toxin-strength, it may be pointed out that the sequence of events may occur rapidly or rules, which properly applied, underlie all inflammatory reaction, acute inflammation of the cell, the point at which an inflammation becomes chronic being arbitrary.

What are, then, the cut-and-dried facts which one must have grasped as a basis of all inflammatory reaction? There are certain fundamental rules, which properly applied, underly all inflammatory reaction, acute or chronic, and a practical, though incomplete rule of thumb, is here stated.

*The irritant.*—We refer to an irritative agent of the second class, that is, one not strong enough to "strike dead" the tissues, nor so weak as not to damage them. It matters not if the irritant be physical, chemical or bacterial.

*The tissues.*—Consider every organ as possessing two parts; (a) its parenchyma, the essential cellular structure, it may be a liver cell, a muscle cell, a mucosal cell, or a lymphocyte; and (b) its connective tissue filling the subsidiary rôle, the capsule, the stroma, etc. The parenchyma is more highly organized, fulfils the higher functions, is, in fact, the aristocracy of the tissue; the connective tissue, lower in function, more mechanical in its purposes, is the "common people." Observe that a toxin, sufficient to injure the highly organized "aristocratic" cell may produce no perceptible effect upon the "coarser grained" connective tissue fibre. These two kinds of tissue are everywhere side by side, and the irritant necessarily reaches both; it is essential, then, in the study of any case, to ask: What is the effect of the irritant upon (a) the parenchyma; (b) the connective tissue?

*The Process.*—(1) The cell (think of a concrete example, such as a kidney-tubule cell or a muscle fibre) becomes swollen, cloudy, irregular and indistinct of outline; then its cytoplasm becomes granular, it may develop fat droplets, and gradual disintegration occurs; instead of running the whole gamut, it may at any stage, if the irritant permit, begin to recover and finally return to the normal. (2) For an example of connective tissue, take, instead of the stroma of an organ, a piece of lax subcutaneous tissue, with its fibres, its blood vessels, considering it as an aggregation rather than as individual elements. The vessels dilate, congestion occurs, serum exudes, diapedesis of leucocytes goes