SYSTEM OF MEDICINE

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try conditions these concentration to be emarcation between that suppurative dis-

of the kidney in the

bacterial irritants: it is, however, possible to make a general grouping of those affecting man, as follows: —

(i.) Micro-organisms characteristically leading to pus and abscess formation — Staphylococci and streptococcus pyogenes, B. anthracis.

(ii.) Those leading to abundant exudation with necrosis - B. of malignant ædema.

(iii.) Those leading to cellular infiltration without usually causing abseess formation — B. typhi abdominalis, M. gonorrhœæ, B. diphtheriæ, etc.

(iv.) Those inducing characteristically the development of inflammatory neoplasms — B. tuberculosis, B. pseudo-tuberculosis, B. mallei, Actinomyces, Aspergillus fumigatus.

Similarly, chemical substances may roughly be grouped into --

(a) Substances causing so slight an irritation when introduced into the organism as to induce cellular overgrowth only in their immediate neighbourhood — such as bland foreign bodies, bullets, etc.; inhaled particles of coal, stone, iron, and the like, conveyed into the pulmonary lymphaties.

(b) Substances leading to vesicular inflammation, e.g. blistering agents, such as cantharides. (This result, however, depends more upon the position than the nature of irritant.)

(c) Substances leading to cell necrosis, followed by the formation of granulation tissue — caustic agents.

(d) Substances leading to cell necrosis and suppuration, such as copper, mercury, mineral acids, etc. (a very rare result in man).

These lists, from the considerations given above, are necessarily unsatisfactory and imperfect.

Other Considerations. - Among other factors varying the inflammatory process may be mentioned the duration of the action of the irritant, which of necessity must modify the extent of the manifestations of disturbance in the tissues. A simple aseptic incision, for example, leads to a much milder and slighter series of changes than do the prolonged presence and growth of the tubercle bacillus. Yet while at first it might appear an easy matter to name case after case where the irritant has but a momentary action, upon further consideration it is found that, in the majority of cases of purely mechanical injury, this is not the case; or, to express the matter more exactly, in the case of physical injuries, it is not the act of wounding that causes the inflammation, but the damage inflicted upon the cells of the tissues; as, to a very large extent, inflammation is set up by the products of the injured and destroyed cells. A bone may be suddenly broken, and nevertheless, even under the most favourable circumstances, pain, swelling, and congestion may affect the region of fracture for several days. One or other region of the body may be rapidly frozen: the inflammation does not manifest itself till after the physical agent has ceased to act, but it continues for hours, and even for days.

There are, moreover, physical irritants of another nature producing