

observations of Von Limbeck, Rieder, Löwitz, and Sherrington, we are in possession of more exact knowledge. On acute local inflammation of some extent the circulating blood becomes inspissated; by exudation it loses some of its plasma, while the more solid constituents—the red corpuscles—do not escape. The amount of fluid lost to the circulation is not equalised by increased entrance of lymph into the circulation: in one experiment of Prof. Sherrington the blood remained apoplasmic (*i.e.* its specific gravity remained heightened) for more than sixty hours after the infliction of injury. This apoplasmia or diminution in the relative amount of plasma in the blood appears to depend in some measure upon the extent of the vascular area involved in the inflammation; for example, Sherrington shows that when both feet are involved, by plunging the limbs in water of 52° C., the apoplasmia is more severe than in experiments affecting one foot only. Another well-marked change in the blood concerns the leucocytes. As suspected by Löwitz and proved by Sherrington, there is, in some forms of inflammation at least, a primary diminution in the number of leucocytes per unit volume of blood (leucocytopenia), followed by a marked increase in the number of leucocytes in the blood (leucocytosis). The number of leucocytes was in some instances increased sevenfold. In the leucocytopenia of inflammation, the diminution is chiefly confined to the finely granular leucocytes—the finely granular oxyphile cells of Kanthack and Hardy. These observations of Sherrington are confirmed by the observations of Everard, Demoor, and Massart.

Whether the diminution be due to disintegration, or to collection in some area of the circulation, is not yet determined. The leucocytosis may become obvious within an hour after the establishment of a local lesion; and it may be prolonged for several days, even in cases where the injury has been of a mechanical nature. Here, again, according to most observers, it is chiefly the polynuclear or finely granular oxyphile cells which increase in numbers. It is interesting to note that coincidentally the coarsely granular eosinophile cells appear to undergo great diminution. I can do no more than point out the existence of those blood changes, and further that changes in the number of leucocytes in the blood are certainly not accounted for by the number passing from the blood into the inflamed area. It would seem that local inflammation in some way brings about an over-stimulation of lymph glands, whereby an increased number of leucocytes are poured into the blood; or it may initiate increased proliferation of the leucocytes already in the circulation; but how one or other of these effects is produced is at present unknown. Certainly the direct introduction of the products of bacterial growth into the circulating blood may lead to a more or less pronounced and rapid diminution of the number of leucocytes in the blood, and this diminution, as shewn by Löwitz, may be preliminary to a subsequent increase.

The further important general disturbance associated with local injury, more especially when of bacterial origin, namely, the occurrence of fever, will be described in another article. Bacteriological studies