

1 to $1\frac{1}{2}$ degrees. When the number of leucocytes has risen to double the normal, blood is withdrawn a second time. At first five to six hours elapsed before the second blood-letting; later an interval of twelve to fifteen hours was allowed to pass between the injection and the second bleeding.

The defibrinated blood, obtained in the stage of hyperleucocytosis, exerted a decidedly more energetic bactericidal effect than normal blood of the same animal; which would indicate that in dogs the course of infection may be very favorably influenced by artificial hyperleucocytosis.

A favorable action is to be expected from hyperleucocytosis only in those cases where the bacteria do not remain localized and cause mischief by their toxins, but where they really pass into the circulation. In the human subject, in harmony with the animal test, a decided increase is to be registered in the energy of the blood rich in leucocytes. The investigations are naturally not to be regarded as completed so far as the human subject is concerned. But in view of the results thus far obtained, it is highly probable that the bactericidal potency of human blood depends substantially on the number of leucocytes, and that it will be possible to augment the natural resisting power of the human subject through an induced hyperleucocytosis.

Of course, artificial hyperleucocytosis will not favorably influence all bacterial affections. With respect to diphtheria, it seems almost established that a persistent increase in the number of leucocytes is to be regarded as unfavorable—a fact which certainly calls for further explanation. In other infections, where the bacteria remain localized, and exert their harmful action, not by their direct presence in the blood, but rather by their locally produced toxins, as in cholera and tetanus, but little is to be hoped for from hyperleucocytosis. Here we have less to do with the destruction of living bacteria than with the problem of immunizing the body against the toxins. In these conditions antitoxic serum-therapy must continue to occupy the foreground of clinical interest. The situation is different in the septicæmic infectious processes. The results thus far obtained in the treatment of anthrax, by immunization with serum, are by no means brilliant, despite varied and extended experiments. At all events, they are far inferior to those obtained from immunization through attenuated cultures. A similar state of things seems to prevail with respect to the streptococcic serum. Accordingly, in those infectious processes which are due to the presence of bacteria in the blood, we have still left to us a field for immunization through attenuated cultures, and for cure through elevation of the natural powers of resistance. This cure is, prospectively, to be achieved through the artificial production of hyperleucocytosis.