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Experimental Studies in So-called Agranulocytic Angina.
1. Effects upon Leucocytes by Toxic Products of *Staphylococcus aureus* from Blood of Human Case.

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The strain of *Staphylococcus aureus* employed was obtained from the blood stream of a fatal chronic human case of so-called agranulocytic angina 4 days before death. This patient presented boils and 2 large abscesses.

Injections of suspensions of this culture of *Staphylococcus aureus* subcutaneously into 2 guinea pigs and intraperitoneally into 2 other such animals produced neutrophilic leucocytosis.

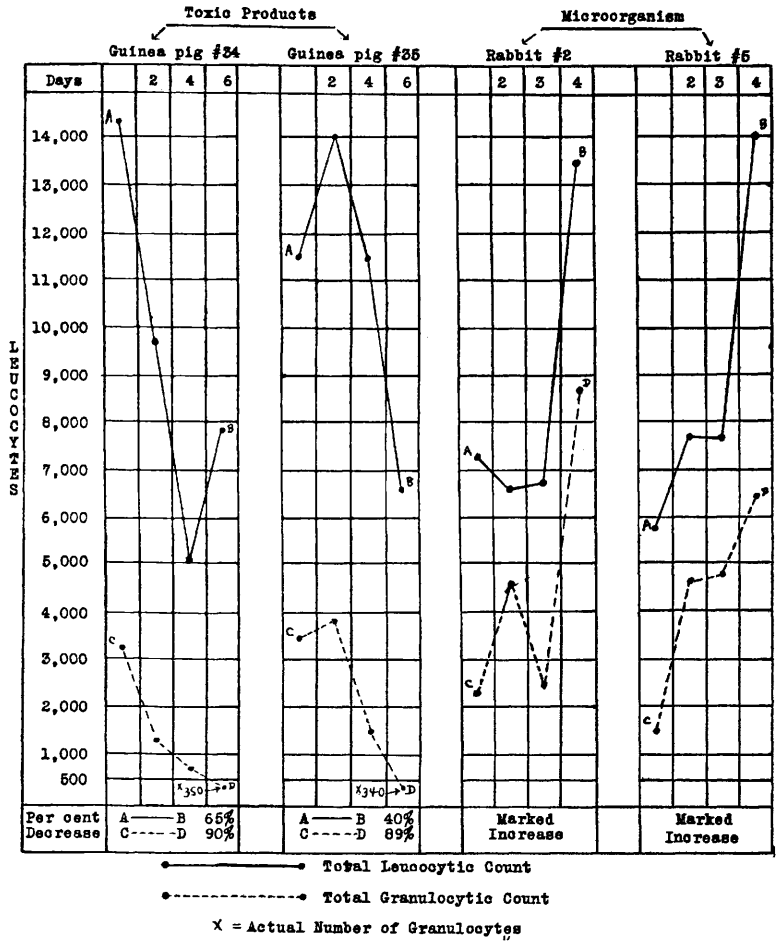
Rabbits 2, 3, and 5 were inoculated in the following manner: Rabbit 2 was injected with 2 cc. of the living suspension in the peritonsillar structures. A marked inflammatory reaction occurred and resulted eventually in necrosis. Frequent leucocytic counts revealed only a neutrophilic leucocytosis. In Rabbit 3, the upper tracheal mucosa was scarified with a hypodermic needle and 1 cc. was injected in and about the eroded area. Neutrophilic leucocytosis ensued.

Rabbit 5 was injected subcutaneously with 5 cc. of melted nutrient agar. This was allowed to solidify and 0.5 cc. of the culture of *Staphylococcus aureus* was introduced into the agar mass. No reduction of the total or granulocytic cells resulted. The Seitz-Wertz filtrate of broth cultures of this microorganism produced only neutrophilic leucocytosis when injected into guinea pigs.

An *in vivo* prepared toxic filtrate was obtained by producing peritonitis in guinea pigs with this culture. A Seitz-Wertz filtrate of the exudative material and peritoneal washings of these supply animals was inoculated into 6 guinea pigs, 3 intracardially and 3 intraperitoneally. Considerable reductions of the total counts and marked granulocytopenia was produced in these animals (see chart). It is of interest to note that one of these animals developed an erythroblastic anemia with 40,000 nucleated red cells per cu. mm., indicating a disturbance of this portion of the hemopoietic system as well as of the myeloblastic centers.

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CHART I.
Effects of *Staphylococcus aureus* upon Leucocytes.



Dennis¹ has shown that when various virulent microorganisms are enclosed in parchment capsules and introduced into the peritoneal cavity of rabbits, in some instances reduction of the total leucocytes and granulocytes is produced by the permeating toxins.

The *Staphylococcus aureus* is commonly found as an intercurrent infection in the human case. It is shown in these experiments that depression of leucocytes and of granulocytes is produced by the toxic moiety of this microorganism when obtained through an *in vivo* method.

¹ Dennis, E. W., *J. Exp. Med.*, 1933, **57**, 993.