anesthetic and danger lines is narrow, and there is no reliable danger sign.

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The relation of leucocytic extract to body fluids.

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In a previous communication[1] it was shown that a comparatively strong bactericidal substance can be extracted from horse leucocytes. This substance loses its bactericidal power, in whole or in part, if it is mixed with homologous or foreign sera, with pathological exudates, with cerebro-spinal fluid, with the products of aseptic tissue autolysis, or with most of the products obtained by the bacterial decomposition of tissues. It also loses its bactericidal power if it is mixed with the products obtained by the prolonged autolysis of leucocytes themselves.

With sera that are in themselves bactericidal, not only is there a loss of the bactericidal power of the leucocytic extract in such mixtures, but there is also a destruction or inhibition of the bactericidal power of the serum itself. This gives the phenomenon of two bactericidal substances, an active serum and an active leucocytic extract, added to each other, producing a non-bactericidal substance, a good culture medium for bacteria.

An analysis of the antibactericidal action of serum shows that it is due to the combined effects of three factors: (1) the antibactericidal power of the serum colloids, (2) the antibactericidal power of sodium chloride and the other neutral diffusible serum components, and (3) the antibactericidal action of the diffusible serum alkalies.

Alkalies are very strongly antagonistic to the leucocytic bacteriolysin. The addition of 1/200 per cent. NaOH to leucocytic extract is usually sufficient to completely inhibit its bactericidal action. Acids, on the other hand, apparently have little or no antibactericidal effect.

This antibactericidal power of serum and tissue fluids can not be overcome by increasing the amount of leucocytic extract in the

[1] These PROCEEDINGS, Vol. IX, 1912, p. 74.

mixtures, except when the serum and tissue fluids are tested in minute quantities or greatly diluted. If tested in the full strength in which they appear in the animal body, no amount of leucocytic extract added to them is able to overcome or to exhaust their antibactericidal power.

Attempts to lessen the antibactericidal power of serum and body fluids by neutralizing their alkalinity with boric acid, acetic acid and other weak acids, are occasionally partially successful. Acidulation of the non-bactericidal mixtures occasionally restores part of their bactericidal power. In no experiment thus far done however has more than a quarter of the original bactericidal power been restored by this means.

The mechanism of the antibactericidal actions of serum and tissue fluids has not been determined.

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On the lysis of tubercle bacilli.

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It was pointed out by Koch, and has since been confirmed by others, that an animal suffering from a chronic local tuberculous lesion is more resistant than the normal to inoculation with tubercle bacilli.

This heightened resistance has been studied by numerous workers. Calmette, for example, found that tubercle bacilli, injected into the subcutaneous tissues of tuberculous cattle, soon showed marked involution and degenerating forms, but that the bacilli did not completely disappear from the site of the inoculation and the neighboring lymph glands by the end of 120 days. A rapid lysis or destruction of the bacilli was not observed by these workers.

Recently Beycke and Much[1] and others have applied the Pfeiffer

[1] Beycke and Much, *Beitrag z. Klinik f. Tuberk.*, 1910, XV, p. 277.
Much and Leschre, *ibid*, 1911, XX, p. 405.
Kraus and Hofer, *Deutsch. med. Wochenschr.*, 1912, XXXVIII, p. 1227; *Wiener klin. Wochenschr.*, 1912, XXV, p. 1112.