blood of the portal system, a large proportion of it becomes retained in the liver provided alkali is simultaneously injected in sufficient amount to produce a distinct lowering of the H-ion concentration of the portal blood. A similar retention can not be demonstrated by the above method when the dextrose solution is neutral or acid, or when it is made markedly hypertonic with sodium chloride.

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Endothelial opsonins.

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If the blood-free liver of a normal rabbit is repeatedly perfused with a sample of Ringer's solution containing a known number of pneumococci, no diminution in the pneumococcic count of the perfusion fluid is observed, even after a dozen passages through the liver.

If the liver of an actively immunized rabbit is similarly perfused, the pneumococcic count is rapidly decreased. After three or four passages, the perfusion fluid usually becomes sterile.

Histological study of the perfused liver now shows numerous pneumococci adherent to the capillary endothelium. Few if any agglutinated masses are seen.

Normal rabbit serum added to the perfusion fluid in amounts not exceeding 10 per cent. causes no appreciable retention of the pneumococci by normal livers. Immune serum similarly added causes a quantitive retention of the pneumoccoci.

Immune serum will cause this retention when tested in less than a hundredth of the concentration necessary to cause agglutination.

The serum component causing the pneumococcic retention is thermo-stable (60° C., 30 min.).

Unagglutinated pneumococci sensitized by exposure to immune serum and then washed free from serum, are retained quantitatively by normal livers.

The serum component responsible for the retention is therefore

evidently an opsonin or bacterio-tropin so altering the pneumococci as to cause their adhesion to the capillary walls.

This opsonin is relatively inactive for the extrahepatic capillaries. The hind-quarters, lungs, kidney and intestines of normal rabbits can be repeatedly perfused with Ringer's solution containing as much as 1 per cent. immune serum, with only a slight retention of the pneumococci by these organs, while 0.001 per cent. immune serum will cause their quantitative retention by the liver. (Spleen and bone-marrow not yet tested.)

Defibrinated normal rabbit blood used as the perfusion fluid will cause a slight deposit of the pneumococci in all organs.

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Specific receptors of fixed tissues.

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If Ringer's solution containing 1 per cent. goat serum is repeatedly perfused through the blood-free liver of a normal, anaphylactic or immune rabbit, no diminution in the amount of goat serum in the perfusion fluid is produced, that can be detected by titration with a specific precipitating serum.

If defibrinated normal, anaphylactic or immune rabbit blood is added to the perfusion fluid, diminutions in the amount of goat serum are observed after repeated liver passage; but in all cases these diminutions are identical with diminutions observed in control samples of the fluid kept at incubator temperature and not passed through the liver.

The perfusion experiments therefore furnish no evidence of the existence of a specific receptor apparatus (Ehrlich) for goat proteins, in normal, anaphylactic, or immune rabbit livers.