ophthalmic responses on intravenous injection with the homologous antigen. Approximately 75% of them give a demonstrable, though less marked allergic cross-reaction with the heterophile antigen.

(2) Anterior chamber injections of equivalent amounts of the alcohol-extractable lipoids from either antigen will not demonstrably sensitize the rabbit eye, nor is demonstrable sensitivity to either sheep erythrocytes or guinea pig kidney effected by local injection of the same lipoids adsorbed onto an alien protein "carrier" (*e. g.*, swine serum).

(3) Rabbits locally sensitized to either sheep erythrocytes or guinea pig kidney give no demonstrable ophthalmic response on intravenous injection with these lipoids or lipoid-protein complexes, nor does such injection demonstrate "desensitizing" the eye.

With the same natural antigens the alcohol-extractable lipoids are the dominant heterophile reacting factors in systemic (*i. e.*, humoral) anaphylaxis and test-tube complement-deviation reactions. From the above data, therefore, one would strongly suspect that there is a qualitatively different heterophile relationship in strictly local ophthalmic anaphylaxis, than there is in routine serum reactions.

6717

A Rapid Method for the Identification of Clostridium welchii.

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In a study of the bacteriology of infected wounds, a rapid demonstration of the presence of *Cl. welchii* may be of considerable importance. Welch and Nuttall[1] showed that this organism produced abundant gas throughout the bodies of rabbits which had been injected intravenously with it, killed shortly thereafter, and incubated for a few hours at 37°C. The rabbit body provided an ideal anaerobic medium in which *Cl. welchii* would outgrow most aerobic organisms, and from which it could usually be isolated with ease.

White mice have been advantageously employed for the same purpose in this study. If a mouse is injected intravenously with a

[1] Welch, W. H., and Nuttall, G. H. F., *Johns Hopkins Hosp. Bull.*, 1892, **3**, 81.

culture of *Cl. welchii,* killed within a few minutes, and incubated for 6 hours at 37°C., a very typical gross and microscopic picture is presented on autopsy. The tissues show a peculiar pink coloration. They impress one as being unusually dry and friable. The liver appears very pale, shrunken and dry, the surface is dull and the consistency is friable. The heart is also pale and friable, and usually contains no blood on section. The amount of gas production, although usually quite considerable, varies. Smears from the liver and from the interior of the heart show many large Gram-positive rods, with a morphology typical of *Cl. welchii.* These rods possess definite capsules when stained by the Hiss method.

The above picture holds true even though the mouse is injected with a mixed culture containing relatively few *Cl. welchii.* In such a case the smears show some of the contaminating organisms, but they show, in addition, a relatively great number of Gram-positive capsulated rods, *i. e., Cl. welchii.*

This mouse injection method has recently been employed for bacteriologic diagnosis at the Los Angeles County General Hospital. An original smear was made from swabs sent in for diagnosis, and these swabs were then cultured in chopped veal infusion broth. If a moderate number of typical appearing Gram-positive rods were present in the original smear, ½ cc. of the culture was immediately injected intravenously into a mouse, and the presence or absence of *Cl. welchii* determined, on autopsy, 6 hours later. If a few or no Gram-positive rods were present in the original smear, the culture was incubated overnight, preferably, though not necessarily, in an anaerobic jar. If typical Gram-positive rods were present on subsequent smear, a mouse would be injected. In any event all suspicious Gram-positive rods were isolated and these organisms were classified according to their cultural characteristics and often, in addition, according to the lesions produced following guinea pig inoculation.

The above method has been utilized on 35 occasions. In 32 instances the results were very clear cut. *Cl. welchii* was shown to be present in 17 instances and absent on 15 occasions by the mouse method, and these results were subsequently confirmed by cultural procedures. Three mice yielded doubtful results.