IV. Thirty-one cases having both physical and laboratory evidence of central nervous system disease. Appearance time fourteen to eighty minutes, averaging forty-six minutes.

In a general way, delay in excretion ran parallel to the severity of the clinical symptoms, but the quantity eliminated has appeared to be more variable. The method may prove of value in detecting instances of organic central nervous system disease in which the ordinary spinal fluid findings are negative, and since the absorption from the subarachnoid space is believed to be through the blood vessels the delays observed may serve to indicate the degree of vascular change.

42 (1220)

Analysis of the anaphylactic reaction by means of the isolated anaphylactic lung.

By W. H. MANWARING and YOSHIO KUSAMA.

[*From the Department of Bacteriology and Immunology, Leland Stanford Jr. University.*]

Analyses of the anaphylactic and immune reactions by means of perfusion experiments with the isolated guinea-pig lung show that we are here concerned with three essential physiological factors:

(*a*) *Cellular Anaphylaxis* or the anaphylactic response of the hypersensitive fixed pulmonary tissues,

(*b*) *Humoral Anaphylaxis*, or the chemical reactions (anaphylotoxin formation) with the anaphylactic blood elements.

(*c*) *Humoral Immunity*, or the inhibiting and protective action of the immune blood elements.

In the 14-day anaphylactic guinea-pig, the fatal bronchial spasm is due in part to cellular hypersensitiveness, in part to humoral anaphylaxis.

In the 4-week anaphylactic guinea-pig, the humoral reaction is always very slight and usually absent. The cellular hypersensitiveness, however, is usually greater than that of the 14-day anaphylactic guinea-pig. The fatal bronchial spasm in the 4-week anaphylactic guinea pig is usually due solely to the cellular hypersensitiveness.

In the immune guinea-pig, or guinea-pig that has received multiple injections of the foreign protein, the cellular hypersensitiveness is usually greater than that of the 4-week anaphylactic guinea-pig. A bronchial spasm, however, is prevented by the inhibiting and protective action of the immune blood elements.

In the immune guinea-pig, therefore, we have a paradoxical phenomenon, the coexistence of a cellular anaphylaxis and a humoral immunity. A removal or reduction of the humoral immunity leads to a fatal bronchial spasm in the immune guinea-pig.