3. Much evidence was collected that an absolute and relative change of axes takes place in many instances and in two directions, towards a symmetrical arrangement of the two members and, away from such symmetry, and the extent of such changes was determined and measured. There is no clear evidence of any change in polarity.

66 (998)

The influence of certain agents on the activity of phospho-nuclease.

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The influence of certain chemical agents on the action of the phospho-nuclease of the intestinal mucosa of the hog was studied. In most cases 2 per cent. solutions of the substances tested were used with 10 c.c. of a 20 per cent. tissue extract, and 5 c.c. of 2 per cent. solution of neutral sodium nucleate.

Salts of Ca, Ba, Sr, and Li inhibited the action considerably while Mg, the phosphate of which is more soluble, did not inhibit. Uranium salts entirely inhibited. The inhibition in these cases appears to be due mainly to the removal of phosphate. The salts of the heavy metals, Hg, Ag, Cu, and U almost entirely inhibited while lead salts had less effect. The effect of these latter may be largely due to destruction of the enzyme.

Oxalate, tartrate, and fluoride had marked inhibitory effect while citrate did not show this. With the exception of citrate these form insoluble salts with Ca. Apparently the inhibitory action is due to removal of Ca ions. The suggestion that a slightly acid solution was favorable could not be confirmed. HCl to make 0.05 per cent. solution practically stopped the action while an equal amount of NaOH doubled the amount of phosphoric acid set free. The same favorable effect was found when a little $NaHCO_3$ was added and the mixture saturated with CO_2. Apparently a slightly alkaline or balancing solution is favorable. NaCl, K_2SO_4 and KI stimulated slightly. NH_4NO_3 and potassium arsenite inhibit somewhat. KCN in .25 per cent. neutral solution

paralyzed the action. In all of these cases the protective action of the protein of the intestinal extract must be borne in mind.

The inhibition by Ca precipitants may aid in explaining the toxicity of these agents for nucleated cells. The fact that while small amounts of Ca seem to be necessary for the action, larger amounts inhibit is of interest in connection with Ca metabolism. Nor can we disregard the fact that many of these substances (oxalate, tartrate, fluoride, uranium salts) produce a tubular nephritis in animals. It would appear that this was associated with a disturbed nuclein metabolism of the epithelial cells, and through this of the secretion of Ca and P, and as other evidence would indicate, of sugar and uric acid also; so that the excretion of Ca for example should be a good index of this function. This view is intimately bound up with the regulation of the blood reaction through phosphate excretion, and probably also to the related secretion of CO_2 by the lungs, which, as well as the kidneys, are high in phospho-nuclease. The intertransformation of Ca carbonate and phosphate in the bodies of higher and lower animals is a striking phenomenon in this connection.

67 (999)

Studies on so-called protective ferments. VI. On the action of anesthesia in anaphylaxis.

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It is assumed by Besredka,[1] that the shock in anaphylaxis is due to the direct toxic action of protein split products upon the cells of the central nervous system. Such a view of shock would most satisfactorily explain why anesthesia prevents the shock. The experiments of different authors however have definitely shown that the central nervous system is not primarily, but only secondarily involved in the anaphylactic symptom-complex. They failed however to explain the action of certain anesthetics as preventing shock.

[1] *C. R. Soc. Biol.*, 1907, T. 62.