illustrated by salicylic acid, a compound containing the acidic hydroxy radical in ortho position to the carboxyl group.

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A Protective Property of Serum in Irradiation of Amylase with Ultraviolet Light.

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(Introduced by Raymond Hussey.)

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The monomolecular character of the inactivation of pepsin by ultraviolet light has been demonstrated.[1] Recently, similar results[2] have been obtained with amylase, employing a viscosimetric method for estimations of concentration. As in the earlier work, infra-red radiation was absorbed in a filter of 5 mm. of water and it was demonstrated that the interposition of a No. 1 Crookes Glass filter prevented passage of the radiation responsible for the changes otherwise observable.

It seemed of interest to ascertain whether or not similar effects could be obtained with amylase in sera. A dilution of about 1 part of dog serum with 4 parts of 0.85% saline (containing 1.56 ± 0.02 units of amylase as estimated viscosimetrically) was irradiated for a period of 3 minutes at 10.0 ± 0.15°C. under conditions such that a simple 0.85% saline solution of pancreatin would have been about half inactivated, according to the findings of the previous work.[2] The estimated amylase concentration after irradiation was 1.52 ± 0.02 units—not significantly different from the previous value (the indicated dispersion measures being the A.D.). In a similar manner solutions containing serum from the same animal mixed in 0.85% saline with pancreatin solution (concentration of amylase, about 10 units) were irradiated with evidence of similar protection in the case of those containing 20% serum even when irradiated under the same conditions for 30 minutes. Finally, such a solution containing but 0.2% serum was about half inactivated in 6 minutes of such irradiation, about half the reaction speed of a similar solution without serum.

Other workers have observed protective effects upon enzymes in

[1] Hussey, R., and Thompson, W. R., *J. Gen. Physiol.*, 1925, **9**, 217.

[2] Thompson, W. R., and Hussey, R., *J. Gen. Physiol.*, 1931, **15**, 9.

the irradiation of animals[3] with ultraviolet and other radiation from a mercury arc in quartz. A protective influence of serum in the irradiation of a bacteria phage,[4] and protection of amylase by proteins from heat inactivation[5] have been observed.

Further work is planned to investigate the nature of such protection as well as its potentiality in other animals of the same and different species.

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Influence of Splanchnic Nerves on Gastric Secretion.

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Very little is known about the influence of the sympathetic nervous system on the gastric glands (Volborth and Kudryavzeff[1]), and the data concerning the effect of epinephrine on the gastric secretion are rather confusing (Lim,[2] Ivy and McIlvain,[3] Sirotinin,[4] Hess and Hundlach[5]).

Experiments were performed on dogs and cats anesthetized with a mixture of chloralose and urethane. The splanchnic nerves were isolated below the diaphragm and placed on shield electrodes. The vagi were either cut at the neck or tied around the oesophagus below the diaphragm. The pylorus was ligated and a fistula placed in the posterior wall of the stomach and brought out in the left flank through a stab wound.

Rhythmic stimulation of the splanchnics was carried out in this fashion for periods of 8 to 10 hours. In most of the experiments a secretion of thick alkaline mucoid fluid began during the first hour of stimulation and continued at a steady rate thoughout the experiment. In dogs of average weight (8 to 10 kg.) the hourly amount was from 3 to 5 cc., and in cats 1 to 2 cc. Occasionally when the stomach

[3] Koldayer, B. M., and Altschuller, M. M., *Z. Physiol. Chem.*, 1930, **186**, 223.

[4] McKinley, E. B., Fisher, R., and Holden, M., PROC. SOC. EXP. BIOL. AND MED., 1926, **23**, 408.

[5] Nakamura, H., *J. Soc. Chem. Ind. Japan*, 1930, **33**, 521, 523, 524.

[1] Volborth, G. W., and Kudryavzeff, N. N., *Am. J. Physiol.*, 1927, **81**, 154.

[2] Lim, R. K. S., *Quart. J. Exp. Physiol.*, 1922, **13**, 79.

[3] Ivy, A. C., and McIlvain, G. B., *Am. J. Physiol.*, 1923, **67**, 124.

[4] Sirotinin, G. W., *Z. f. d. ges. exp. Med.*, 1924, **40**, 90.

[5] Hess, W. R., and Hundlach, R., *Pflüger's Arch.*, 1920, **185**, 122.