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## Production of Bacterial Growth Stimulants by Heating the Medium Under Pressure.

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Fulmer and Huesselmann[1] showed the production of yeast growth stimulant by sterilizing sucrose in the presence of ammonium chloride, dipotassium phosphate and a mixture of the 2 salts. Similar results here are recorded for the following bacteria: *Aerobacter faeni, Escherichia freundii,* Actinomyces Sp?, *A. aerogenes, Serratia Marcescens, Esch. coli,* and *Bacillus subtilis.* The first 4 named were considerably more stimulated than the last 3. Treatment of the caramalized media with Norite A removed the coloring matter but not the stimulant. The stimulation took place at any pH value through the viable range. The results are especially interesting in view of the recent report by Lewis[2] that the growth of several bacteria studied by him was inhibited by caramalization of the medium in the presence of nitrogenous compounds.

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## Demonstration of Presence of Fowl Pox Virus in Wild Caught Mosquitoes (Culex Pipiens).

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Kligler, Muckenfuss and Rivers[1] have shown that fowl pox could be transmitted experimentally by culex and stegomyia mosquitoes when fed on lesions of fowl pox infected chickens, either by interrupted or successive feeding. They also showed that when culex were liberated in a box containing healthy and infected chickens, the healthy chickens soon developed a fowl pox infection. Kligler

[1] Fulmer, E. I., and Huesselmann, B., *Iowa State Coll. J. Sci.*, 1927, **1**, 411.

[2] Lewis, I. M., *J. Bact.*, 1930, **19**, 423.

[1] Kligler, I. J., Muckenfuss, R. S., and Rivers, T. M., PROC. SOC. EXP. BIOL. AND MED., 1928, **26**, 128; *J. Exp. Med.*, 1929, **49**, 649.

and Aschner[2] confirmed these findings and showed that the virus remained on the proboscis at least 14 days but could not be demonstrated within the insect.

We have now obtained evidence that *Culex pipiens* taken in the vicinity of chickens infected with fowl pox harbor the virus. In our experiments with fowl pox virus, healthy and infected chickens were always kept in the same room without the occurrence of spontaneous infections. During October spontaneous infections suddenly appeared among our healthy native chickens, kept in separate cages in the same room with infected ones. This room was heavily infested with *Culex pipiens*. The chickens were bought September 14th and the infection appeared between September 25th and 28th.

At the same time, 5 leghorn cockerels kept in an adjacent screened room remained uninfected. One of these was inoculated October 27th and became positive October 30th. November 10th, 10 additional leghorns were put in this room. Three days later mosquitoes were discovered in this room. The 14 healthy chickens were then transferred to another room. All developed spontaneous infections about a week after removal from the mosquito infested room.

At the same time (November 13) mosquitoes were caught in the screened as well as in the large room where the infected chickens were kept. Twenty-six mosquitoes were caught; 7 of these were fed on one wattle, and the heads of the other 19 were rubbed onto the other wattle after scarification. Eight days later a typical infection developed at the point of inoculation, and on the 10th day a vesicle appeared at the point where the mosquitoes were allowed to feed.

On November 16th, 360 mosquitoes were caught in a room near the animal house, where they had apparently collected for hibernation. The heads were triturated and the thick paste inoculated on the wattle of each of 2 chickens. After 7 days both points of inoculation were covered with a typical fowl pox lesion; on one wattle there were 5 discrete vesicles, while on the other there was a massive lesion.

These observations demonstrate that spontaneous infections developed among healthy chickens kept in separate cages in the same room with infected ones. These infections occurred when the room was infested with culex mosquitoes. Some of these mosquitoes taken in the room where the infections occurred, as well as in a room outside but adjacent to the animal house, were shown by feeding

[2] Kligler, I. J., and Aschner, M., *Brit. J. Exp. Path.*, 1929, **10**, 347.

and inoculation to harbor fowl pox virus. The inference is clear, therefore, that *Culex pipiens* may serve in nature as an active agent in the spread of epidemics of fowl pox among chickens.

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## Effect of Renal Vessel Ligation and Insulin on Sugar Tolerance of Phloridzinized Dog.

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Dogs were phloridzinized according to the Coolen method and the D:N ration in the urine determined on the day of experiment. In one or 2 instances when the D:N was not determined, the blood sugar was 40 mgm. % or lower. The dogs were then placed under amytal anesthesia and the tolerance curves run. One cc. of 50% pure glucose solution per kg. of body weight was used and was injected intravenously at a uniform rate. When insulin was used it was incorporated in the glucose solution in amount equal to one clinical unit per kg. of body weight.

After ligation of the renal vessels the tolerance curves naturally reached a much higher level than before. The rate of fall of the sugar level for the first hour following the peak of the curve, also, was much greater after ligation than before. Thus, in one experiment, before ligation the rate of fall was 150 mgm. % the first hour, and after ligation it was 270 mgm. % in the same length of time. When insulin was injected with the sugar the same result was obtained, *i. e.*, the rate of fall after ligation was more rapid than before, but the difference was not so great with as without insulin. In one experiment where insulin was given with the sugar by vein, the rate of fall in one hour was 145 mgm. % before ligation, and 195 mgm. % after ligation. It is clear that tying off the renal blood vessels and thereby raising the blood sugar level accelerates the rate of utilization of sugar (combustion or glycogen formation, or both) both with and without extra insulin. The smaller differences between the 2 reactions in the presence of extra insulin indicates a lower threshold of combustion, and elimination of the kidney factor (leakage) does not have so much influence on the rate of utilization.

Control experiments on normal dogs gave an identical tolerance