11 (1189)

The action of xanthin and methyl xanthins on the isolated intestine.

By WILLIAM SALANT and E. W. SCHWARTZE.

[*From the Pharmacological Laboratory, Bureau of Chemistry, Washington, D. C.*]

The tests were made with different concentrations of xanthin and its derivatives dissolved in Locke's solution which were carried out on segments of different parts of the intestine of the rabbit. Sodium xanthin in concentrations of 1 : 2,000 and 1 : 1,000 caused increased tonus which was more pronounced in the large than in the small intestine. The rhythmic contractions also improved under these conditions but this effect was not constant. Experiments with solutions of 1 : 10,000 sodium xanthin were negative or produced a slight stimulating action. All the methyl derivatives when employed in concentrations of 1 : 2,000 and 1 : 1,000 produced marked depression of the rhythmic movements and of tonus. The effect of higher concentrations varied. A solution of 1 : 10,000 caffein caused moderate stimulation of the movements of the small intestine but had no effect on the large intestine. This concentration of theobromin proved to be a much greater stimulant while theophyllin 1 : 10,000 induced irregular action in the small intestine with lowered tonus and disappearance of contractions in the large intestine. In still greater dilutions, however, as 1 : 50,000 theophyllin produced a marked increase in the force of the contraction of the small intestine. Similar results were obtained with 1 : 25,000 theobromin, but tests with 1 : 25,000 caffein proved to be negative.