

77 (1659)

The effect of Heat and Age upon the Antiscorbutic Vitamine in Tomatoes.By **MAURICE H. GIVENS** and **HARRY B. McCLUGAGE**.

[From the Department of Physiology, University of Rochester, Rochester, N. Y., and the Research Laboratories, Western Pennsylvania Hospital, Pittsburgh, Pa.]

Some time ago we proved¹ that the raw tomato is an efficient antiscorbutic agent; that the fruit can be subjected to a temperature of 55-60° C. for 14-24 hours or 35-40° C. for 36-44 hours and still retain a significant content of its antiscorbutic vitamine; and that such heat treated material is still potent after three month's ageing. Simultaneously Hess² proved that canned tomatoes are effective as antiscorbutic agents for children and guinea pigs; and later³ he showed that tomatoes "canned almost a year previously were noted not to have their antiscorbutic value diminished appreciably by this ageing."

The value of the tomato as an antiscorbutic agent having been proved, it is highly desirable to have determined the effect of heat and age upon the antiscorbutic accessory in the fruit. With this end in view feeding experiments have been conducted on guinea pigs. In this way we have found guinea pigs protected against scurvy by daily doses of 2.5 grams of fresh raw tomatoes; by 10 grams of fresh raw tomatoes heated one hour at 100° C.; by 2 grams of dried tomatoes heated fifteen minutes at 100° C.; by 10 grams of tomatoes canned at fifteen pounds pressure for thirty minutes; by 3 c.c. of commercial canned tomatoes three years old; and by 10 grams commercial canned tomatoes, three years old, cooked fifteen minutes at 100° C.

¹ Givens, M. H., and McClugage, H. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1918, xvi, 2.

² Hess, A. F., and Unger, L. J., *PROC. SOC. EXP. BIOL. AND MED.*, 1918, xvi, 1.

³ Hess, A. F., and Unger, L. J., *Am. J. Dis. Children*, 1919, xvii, 221.