

organisms in the capsule are to some extent protected against phagocytes, and other protective factors. The capsules are usually surrounded by fibrin and strands of connective tissue, and lie in a membrane of tissue that has grown about them.

Incidentally, it has been noticed that in the case where the capsule had remained in place four months, the organisms were, at the end of this time, culturally and morphologically identical with the ones that had been put in, which furnishes some evidence, at least, against the mutations of streptococci in the animal body advocated by Rosenau.

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The effect of temperature and of hydrogen ion concentration upon the rate of destruction of antiscorbutic vitamine.

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Experiments were made upon 300 gram guinea pigs fed a new basal diet designed to furnish practically optimum amounts of all nutrients except the antiscorbutic vitamine. The latter was furnished exclusively in the form of filtered canned tomato juice. Relative amounts of this vitamin in the treated and untreated portions of this juice were measured by determining the amounts necessary to prevent scurvy or by a quantitative rating of the severity of the scurvy produced. The technique and the probable degree of precision of the results will be discussed in a later paper.

In the case of tomato juice of natural acidity, P_H 4.2, it was found that boiling for one hour destroyed practically 50 per cent., and for four hours practically 70 per cent. of the antiscorbutic vitamine present. The time curve of the destructive process is therefore much flatter than that of a unimolecular reaction. The latter finding applies also to similar heating experiments at 60° and at 80°. In such experiments at 60° to 100°, the temperature coefficients are relatively low ($Q_{10} = 1.1$ to 1.3).

In experiments in which the natural acidity was first neutralized in whole or in part, the juice then boiled for one hour and

immediately cooled and reacidified, it was found at P_H 5.1 to 4.9 (natural acidity less than half neutralized) the destruction during one hour's boiling was increased to 58 per cent. Neutralization of a larger proportion of the natural acidity regularly increased the rate of destruction of the vitamine at 100° . When alkali was added to an initial P_H of 11, which fell to about 9 during the hour of heating, the destruction found by feeding of the juice thus treated but immediately cooled and reacidified, was about 65 per cent. On repetition of the last mentioned experiments but with reacidification omitted, and the treated juice stored up to five days in the refrigerator before feeding, the destruction found was 90 to 95 per cent. Whether the difference between the juices which were, and those which were not, reacidified is attributable wholly to the prolonged action of the hydroxyl ions at a temperature of $10^\circ C.$, and P_H only 9, or whether there are here involved other factors possibly including a tendency toward reversal of the destructive process upon reacidification, remains to be determined.

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**The tuberculin reaction and anaphylaxis as studied by the
Dale method.**

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It is natural that the various tuberculin reactions, as well as other specific phenomena of hypersensitiveness in bacterial disease, such as the mallein and typhoidin reactions should have been thought of from the beginning as probably anaphylactic in nature.

We do not think it suitable in this preliminary communication to go into the details of the controversial literature that has been waged for some time concerning this problem. Our studies are not completed, but as far as they go, they show sharp results in that we have checked up skin sensitiveness in tuberculous and experimentally sensitized animals with the state of general anaphylaxis as indicated by the uterine reaction observed by the Dale method.