iron-incrusted colonies. Other types as well were found. Of the organisms forming these colonies, cocci and bacilli seem to occur in about equal numbers. There were very few spore formers, no motility, and no liquefaction of gelatin. Dextrose is fermented but lactose and saccharose only rarely so. As a class these organisms were able to utilize the salts of organic acids for their source of carbon, the pH of the medium rising distinctly. Thus they correspond to the group of alkali bacteria studied by Ayers.[2]

The knowledge of the presence of these organisms in milk is believed to be new and significance is attached to them, since frequently undesirable qualities are found in the milk when they are present in considerable numbers.

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## The possible rôle of iron depositing bacteria in the formation of hard pan.

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During the studies of iron depositing bacteria as found in milk (see preceding paper) and being impressed with the possible relation of these organisms to hard pan formation, some iron hard pans such as abound in certain sections in the state of California were inoculated into the ferric ammonium citrate medium of Harder.[1] After standing two months a precipitate appeared which is typical of the reaction of iron depositing bacteria in this medium. Plates poured with this medium showed colonies of bacteria (bacilli) and actinomyces. Observation of these pans under the microscope disclosed as well some very minute threads which on staining suggested crenothrix. Not all of the pans, however, showed this appearance.

[2] Ayers, S. Henry, Rupp, Philip, and Johnson, W. T., Jr., U. S. D. A. Bulletin No. 782.

[1] Harder, E. C., U. S. Geol. Survey Professional Paper 113, 1919.

It is recognized that this is hypothetical, but Morrison and Sothers[2] have suggested this very thing, although with no apparent evidence to substantiate their suggestion. And recently A. C. Swinnerton[3] states that bacteria "may be important factors in the cementation of sand and gravel materials."

Work along this line is being continued.

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**Physical measurements on operated hyperthyroids.**

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A better understanding of the relationship of physical measurements to body weight is necessary before a more certain basis for predicting normality of weight can be found. At present height is practically the sole basis. But height is a very stable measure in which adults are probably more nearly alike than for any other physical measurement. Stature has a coefficient of variability of only 4 per cent, weight has around 12 per cent, and pelvic diameter as representative of bony body widths has approximately 9 per cent. If the bony widths of the body have so much variability as compared with bony lengths should they not be taken into account in estimating the normal weight, which of course is a cubic factor?

A group of adult hyperthyroid cases were measured before, and again, six months after operation. Critical linear measures were carefully taken. The effort was for "bony measurement." Data for 14 cases, 11 women and 3 men, are summarized. The average gain in weight was 9.1 kilograms, an increase of 17 per cent of the preoperation weight. The calories per kilogram decreased 37 per cent. Chest girth, a cross-sectional measure, increased 9 per cent, but the bony lengths gave almost no change;

[2] Morrison, C. G. T., and Sothers, D. B., *J. of Agr. Science*, 1914, vi, 84.

[3] Swinnerton, A. C., *Science*, lxiii, 74.