of water is necessary to get 99 per cent. reduction with a spore former in six hours, while 0.5 part to 1,000,000 is sufficient for this degree of reduction with non-spore formers.

4. Sixteen parts of available chlorin per million of water does not effect complete killing of *B. subtilis;* 1.5 parts brings about complete sterilization with *B. coli* and *B. prodigiosus.*

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Studies on barium feeding.

By **C. L. ALSBERG** and **O. F. BLACK.**

[*From the Office of Drug Plant, Poisonous Plant, Physiological and Fermentation Investigations, Bureau of Plant Industry, Department of Agriculture, Washington, D. C.*]

Half-grown rats fed for some months on a mixed diet to which $BaSO_4$ was added remained in good health and did not store up measurable traces of barium in their tissues. However, when instead of a mixed diet one poor in calcium was fed, other conditions being the same, a few milligrams of barium were stored in the tissue of each animal. It is therefore evident that under special conditions even very insoluble substances may be absorbed to some extent.

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The production of grafted and multiple embryos.

By **A. J. GOLDFARB.**

[*From the College of the City of New York.*]

After removing the fertilization membranes of sea urchin eggs (*Arbacea*) and allowing them to develop to the desired stage, the eggs were placed in an alkaline (NaOH) sea water and centrifuged in narrow bore tubes. In this way large numbers of eggs were agglutinated, and developed into double, triple, etc., blastulæ, gastrulæ and plutei. In ten to forty per cent. the eggs and blastomeres were more or less completely fused, forming giant blastulæ, composed of three, four or more eggs.

In the first group parallel development took place, resulting in double, triple, etc., embryos, many of which were subsequently separated by the antagonistic sweep of the cilia. In the second group, the eggs were more intimately united to form a common