definite loss of the cell CO_2, there being no change in the total amount. In acute tetany, however, there is a definite loss of CO_2 from the blood amounting to a loss of some 20 per cent. The point of note here is that the cell loses a much greater percentage of its normal content than does the plasma.

With regard to chlorides it is evident that they undergo little change in the whole blood or plasma while from the cells there is a definite loss of chlorides even in mild tetany. That some toxin is at work destroying cellular function is indicated. As to the nature of the mechanism involved we can at present offer no explanation.

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A method for maintaining stability in reaction of solutions during sterilization.

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Of the various means employed to prevent the marked changes in H-ion concentration which solutions undergo during sterilization, the use of relatively large quantities of Na or K phosphate has proved the most satisfactory. While this method may be suitable for certain types of solutions, the presence of large quantities of phosphate in solutions used for intravenous injection, and serological procedures, is undesirable. A very much smaller quantity of phosphate added to an adjusted solution after sterilization will maintain a stable reaction satisfactorily, but the disadvantage of adjustment after sterilization is obvious.

An attempt to adjust and buffer certain solutions before sterilization with an amount of phosphate as low as that found in the circulatory blood plasma, led to recognition of the fact that the chief variable in the solutions tested was their CO_2 content. The degree of CO_2 exchange between fluid and surrounding air during heating determined the reaction of the solution afterwards. Elimination of this variable by the use of CO_2 free

water and CO_2 free reagents made it possible to autoclave 0.9 per cent NaCl solution, dilute gelatin solutions and water without changing, to more than a slight degree, their initial reaction. The method employed was as follows:

The water employed was twice distilled and rendered CO_2 free by boiling just before use or preferably by bubbling CO_2 free air through it for 24 hours. After the addition of the solute 1 per cent M/7.5 H_3PO_4 (previously boiled and kept in a bottle stoppered with a soda-lime trap) was added. Next, M/7.5 NaOH, prepared in the same way as the H_3PO_4, was added in sufficient quantity to bring the solution to the desired reaction. The solution was autoclaved at 14-15 lbs. steam pressure, care being taken not to let the steam escape during sterilization. The autoclave was not opened until the following morning.

Solutions prepared in this way showed a slight but constant change toward acidity as a result of sterilization. The degree of change seemed to depend on the initial reaction of the solution before sterilization. Solutions adjusted to pH 7.0-7.5 were found after autoclaving to be 0.1 to 0.2 of a pH unit lower than the initial reaction, while with reaction of pH 7.6-8.0 before autoclaving the change was found to be slightly greater, 0.2 to 0.4 of a pH unit. The change in pH during sterilization was found to be greater in the more alkaline solutions. The reaction then remained practically constant over a period of two to three weeks. Since the phosphate content of the above solution is about the same as the concentration of the inorganic phosphoric acid compounds found in the normal human blood plasma, physiological salt solution prepared in this way should prove suitable for intravenous injection.