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## REMOVAL OF SODIUM FROM BIOLOGIC MENSTRUUMS BY CALCIUM ZEOLITES

GEORGE B. GORDON, HERBERT A. WEITZNER

AND

ROBERT D. BARNARD<sup>1</sup>

The exchange resin nature of the natural and artificial zeolites has found wide application in industrial water-softening and ammonia removal processes. More recently polysterene resins have been used biologically in the removal of excess hydrogen ion from gastric juice and to inhibit clotting of blood specimens by the removal of calcium ion. In a search for a cheaper material with which to decalcify and recalcify blood plasma reversibly, experiments were undertaken with the commercial zeolite, permutit. During the course of coagulation of citrated blood plasma with calcium zeolite it was observed that a stoichiochemical equivalent of sodium was removed from the plasma and that the zeolite was completely inert insofar as any apparent denaturation effects were concerned. Since the removal of sodium ion may be a desirable end in the treatment of congestive heart disease and thrombophlebotic edema and since this might be accomplished from those menstruums where the presence of calcium zeolites would not be prohibitive (intestinal contents) the feasibility of sodium removal by this means from such menstruums was explored.

Preliminary experiments indicate that the sodium content of neutralized peptic digests can be reduced to traces by one hour's contact with specially prepared calcium permutit. For effective sodium removal within this interval of time, the volume of the permutit must be from one-third to one-half that of the elutate. The administration of permutit in the treatment of congestive heart failure would therefore have to be supplementary to an initially salt-poor diet.

No deleterious effects have so far been observed from the administration of calcium zeolite to human subjects in doses of 10 grams, three times daily.

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<sup>1</sup>The experimental work upon which this preliminary report is based was conducted on the Medical and Laboratory Services of the Veterans Administration Hospital, Batavia, N. Y.