XXI. A NOTE ON THE PRODUCTION OF CASEIN FROM CASEINOGEN.

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In the last number of this Journal a paper by A. Harden and A. B. Macallum [1914] appeared, in which certain experiments on the production of casein from caseinogen are described. They draw the conclusion that this process is accompanied by a cleavage of nitrogen, phosphorus and calcium from the latter substance. These results are not in accord with my own [1913, 1, 2] and those independently obtained by Bosworth [1913]. I should like to draw attention to the reason of this apparent discrepancy. My own results were obtained with a solution of caseinogen in half-saturated lime-water, which had been obtained by rotating the lime-water with excess of caseinogen for several hours, and was consequently saturated with the acid and had a strongly acid reaction. Harden and Macallum, on the other hand, ground up their caseinogen preparation with excess of calcium carbonate and obtained thereby a solution of the basic caseinogenate. Now the acid solutions obtained by my method give clots with extraordinary readiness without addition of a soluble calcium salt when treated with rennin, even at ordinary room temperature. They also give clots with calcium chloride alone within certain limits of concentration when very gently warmed (to 25°). A condition for this very rapid clot formation is that the solution should be saturated with caseinogen. The rapidity of clot formation diminishes as soon as the acidity of the solutions is neutralised with calcium hydroxide. Under the conditions under which I worked, clots were obtained, the free acids from which had precisely the same empirical composition (*N* and *P* content and acidity) as caseinogen. The products were, however, only half as soluble in lime-water as caseinogen, and the solutions thus obtained could no longer be got to clot on rennin addition. A large number of attempts to produce a clottable solution from casein have been made, but without success. On the

question of the irreversibility of the casein formation, I am in accord with Harden and Macallum. I still think it quite likely that the casein is a compound of caseinogen with the ferment, although this suggestion has not yet been definitely proved.

REFERENCES.

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