IV. THE COALESCENCE OF AN UNFILTERABLE PRECIPITATE OF BARIUM SULFATE

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The coalescence of barium sulfate precipitates was studied at temeratures in the neighborhood of 100 degrees C. The size of the particles were determined at various times during digestion; first, by seeing whether they would pass through the pores of ordinary quantitative filter paper; and, second, by actually measuring many of them with the aid of a filar micrometer mounted upon a high power microscope. It was found that larger particles of barium sulfate do not grow at the expense of smaller ones if these latter are larger than about two micons in diameter. When the digestions were carried out without stirring the small particles were found to clump together to form larger aggregates which were not easily broken down.

It follows that the coalescence of barium sulfate preipitates on digestion which renders them filterable cannot be adequately explained in terms of the growth of large particles at the expense of smaller ones. It is brought about, rather, by the collection of particles into relatively large aggregates, followed by the cementing together of the unit particles in the aggregates.