

# SCIENCE

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MECHANISMS OF CELL ACTIVITY<sup>1</sup>

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EVERY scientist who concerns himself with the problems of his own specialty must devise for himself certain concrete pictures of the nature of the fundamental units with which his specialty deals, in order that he may have a concrete form in which to clothe his thoughts. Thus each chemist must form for himself some sort of concrete notion concerning fundamentals, like atoms, molecules, chemical affinity, valence and ionization, imagery which he must avoid mistaking for absolute reality, and which he must be ever ready to shift and change and modify, in accordance with the development of chemistry.

The biochemist also has his imagery, only he takes the data of the chemist and physicist as the material out of which he constructs an imagery of his own, dealing not with atoms or molecules as such, but with conceptions of the physical and chemical nature of protoplasm.

I would present to you to-day the hypothesis which some biochemists have developed for themselves concerning the structure of protoplasm and the cell. Such a presentation must be very largely a personal one, for two biochemists would hardly be likely to agree on all the details, however much they might be in accord on the essentials. Consequently, what I am about to offer will contain nothing essentially new.<sup>2</sup>

<sup>1</sup> Address presented before the general meeting of the American Chemical Society at Minneapolis, Minn., December 28, 1910. Published by permission of the Secretary of Agriculture.

<sup>2</sup> For an earlier presentation cf. Hofmeister, Fr., "Die Chemische Organisation der Zelle," Braunschweig, 1901.