

tated the assumption of a complex organization. In his classic work, entitled *Die Elementarorganismen* (1861), Brücke first clearly contended for the necessity of this conception. "We must", he said, "ascribe to living cells, in addition to the molecular structure of the organic compounds which they contain, still another, and otherwise complicated, structure; and this is what we designate by the term organization." "We must always see in a cell a little animal body." The necessity of the assumption is simply that we cannot conceive of function apart from structure, and that the structure must be more than that of chemical complexity is shown by the perennial marvel of the chick developing from the egg. "The species", Nägeli said in 1860, "is contained in the egg of the hen as completely as in the hen, and the hen's egg differs from the frog's egg just as widely as the hen from the frog." All through the Victorian era there has been a succession of theories and phrases as to ultimate vital organization,—the "physiological units" of Spencer, the "gemmules" of Darwin, the "micellæ" of Nägeli, the "plastidules" of Hæckel and Elsberg, the "inotagmata" of Engelmann, the "pangens" of De Vries, the "plasomes" of Wiesner, the "idioblasts" of Hertwig, the "biophores" of Weismann, and the "idiosomes" of Whitman. There is no clearer expositor of the conception than Whitman, from one of whose essays the quotations in this paragraph have been borrowed. "Development, no less than other vital phenomena, is a function of organization." "A certain grade of organization is the result of heredity." "Organic unity depends on intrinsic properties no less than does molecular unity." "Organization precedes cell-formation, and regulates it." He looks forward to finding "the secret of organization, growth, development, not in cell-formation, but in the ultimate elements of living matter or 'idiosomes'." "What these idiosomes are, and how they determine organization, form, and differentiation, is the problem of problems on which we must wait for more light. All growth, assimilation, reproduction, and regeneration

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