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# Molecules in Biology Before Molecular Biology

Daniel Liu\*<sup>1</sup>

<sup>1</sup>University of Wisconsin-Madison, Dept. of History of Science – United States

## Abstract

Since the 1970s *molecular biology* been an umbrella term to describe a set of techniques and core ontologies for studying genes and proteins, holding both kinds of objects as both three-dimensional objects whose functions are largely determined by a one-dimensional code. However, Warren Weaver in 1938 did not originally use the term "molecular biology" only in relation to genetics and protein synthesis. This paper will argue that by 1938 many biologists and biochemists were quietly set on "molecularizing" the cell and its functions, well before the blockbuster discoveries of the structures of macromolecules in the 1950s. The cytologists, plant physiologists, and general physiologists who began exploring molecular structures did so with firmly biological concerns for explaining the *aggregate* structures and functions of living cells and protoplasm. Such a perspective came directly from biology's wholesale adoption of colloid physical chemistry in the 1920s. Rather than an immediate "overthrow" of colloid chemistry some time during the Second World War, the newer ontology of biomolecules and repeated monomers complemented the descriptive language of colloid chemistry up through the 1950s. However, as techniques for examining cellular structures became finer and more sophisticated, cell studies split into detailed research on individual parts - mitochondria, cell cell wall, membrane structure - at the expense of understanding cell structure as a whole.

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\*Speaker