

hand, is no concern of the scientist. Whatever else it may achieve, mechanism can never explain, cannot even face the problem of the existence of matter and energy. Within the world of science these are conserved; only outside that world can they have originated or not originated. As for the existence of life, in spite of our utter ignorance, it must be admitted that a half century has greatly diminished the number of substantial biologists who really look forward to its scientific explanation, and the greatest chemists have ever shared such a view. Liebig is reported by Lord Kelvin to have replied to the question whether he believed that a leaf or a flower could be formed or could grow by chemical forces, "I would more readily believe that a book on chemistry or on botany could grow out of dead matter."¹ Darwin, too, once said, "It is mere rubbish thinking at present of the origin of life; one might as well think of the origin of matter."² Since Liebig's day the chemical organization of the cell has become in scientific knowledge vastly more complex than it was before, and I know of no biological chemist to whom the spontaneous,

¹ Lord Kelvin, "On the Dissipation of Energy," Popular Lectures, Vol. III, p. 464.

² Merz, Vol. II, p. 406.