BOOK REVIEW


It is almost 50 years since serious scientific speculation began with the work of Oparin (1924) and Haldane (1929) on how the complicated organizations of atoms and molecules forming living entities originally came to be developed, or by means of the simpler organizations of inorganic materials. For clay mineralogists it is a fascinating thought that clay minerals may well have played a very important part in the sequence of events from the simplest inorganic to the most complex bioorganic atomic configurations. The present book indicates how far scientific thoughts have progressed in this field. Opening the book at the group of centrally placed plates, we find familiar electron micrographs of clay minerals, which we may like to think is indicative of the central role of "clays and clay minerals" in the development of living forms. Of course, there are many divergent views on how the transition to the first living form came about, but one view is that organic organization on mineral surfaces could have been responsible for the development of complex organic molecules. However, "some kind of accurately self-replicating molecule would have been an essential component of the very first organisms". Since DNA is the genetic material of present-day organisms, it seems likely (at least to some) that "some more or less clothed nucleic acid" may have constituted the first living system on Earth.

It is argued that not only the orderliness of crystals, but also their disorders may have been responsible for "specific genetic patterns" and that "some rather insoluble inorganic crystal, in particular some layer-lattice silicate, [the author has not seen our latest views on nomenclature!] might fit all the required specifications for a primitive genetic material," (p. 120). And so the author moves on to a consideration of the layer silicates, muscovite particularly, and even the quasi-ordered replacement of Si by Al comes into the picture. Is this science, or science fiction? Have the finer points of structural arrangements been responsible for initiating the living world? Perhaps the biologists, biochemists, geneticists, and others also will feel apprehensive when their special areas come into the story. The book is very well written, in an interesting and lucid manner, and though the author may often cross the boundary between science and science fiction he gives a stimulating discussion of the problems confronting those who attempt to explain the origin of living forms. Apart from the main theme, there are many items that are very well expressed. For example, the discussion of energy, entropy and stability is presented in a very illuminating way for the non-scientific reader, and likewise the description of nucleation and crystal growth. The account of how different kinds of clay minerals may behave under the heading "The Story of Sloppy, Sticky, Lumpy, and Tough" (pp. 131–133) is indeed a gem. In conclusion, I welcome this book as a well-written, stimulating account of where we now stand on the question—how did living matter originate on Earth?

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