

## BIOLOGICAL MATERIALS AND SOCIETY

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### **Abstract**

Natural (or biological ) materials are an intrinsic and inseparable part of the ascendance of Humans to civilization in the Neolithic. The first materials to be utilized were bones, antlers, hides, wood, and stones. The use of synthetic materials, starting with ceramics (pottery and glasses), metals (copper, bronze, iron, and the cornucopia of alloys), and polymers (starting with Dr. Leo Baekeland </wiki/Leo\_Baekeland>'s invention, bakelite, in the early 1900s) marks a magnificent development of the field of Materials Science and Engineering. In a full circle, we are in the midst of a revival of interest in biological materials, of which we seek to understand of the structure and properties because of their unique properties and architecture. Some of their unique characteristics have been identified: Hierarchical structure Self assembly Multifunctionality Ambient pressure and temperature synthesis Limited availability of raw materials This work has two components: A fundamental one, in which Materials Scientists and Engineers are using their extensive arsenal of computational, experimental, and characterization methodology to provide novel insight into biological materials. A technological one, by which the lessons learned from nature can be applied in the design of new materials and structures. Both components are proving to be fertile grounds for investigation.

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