The process of chemical synthesis is analogous to designing and constructing a building. The building blocks at the synthetic chemist's disposal are the elements of the periodic table, and the available construction tools are dictated by the fundamental laws of chemical reactivity. In a sense, a synthetic chemist can be considered a molecular architect.

Mother Nature is the master molecular architect that has accomplished the synthesis of organized molecular entities with extraordinary complexity using building blocks of organic chemistry (carbon, hydrogen, nitrogen, oxygen...). But in its evolution of life, Nature has seemingly chosen to neglect a majority of the elements of the periodic table.