

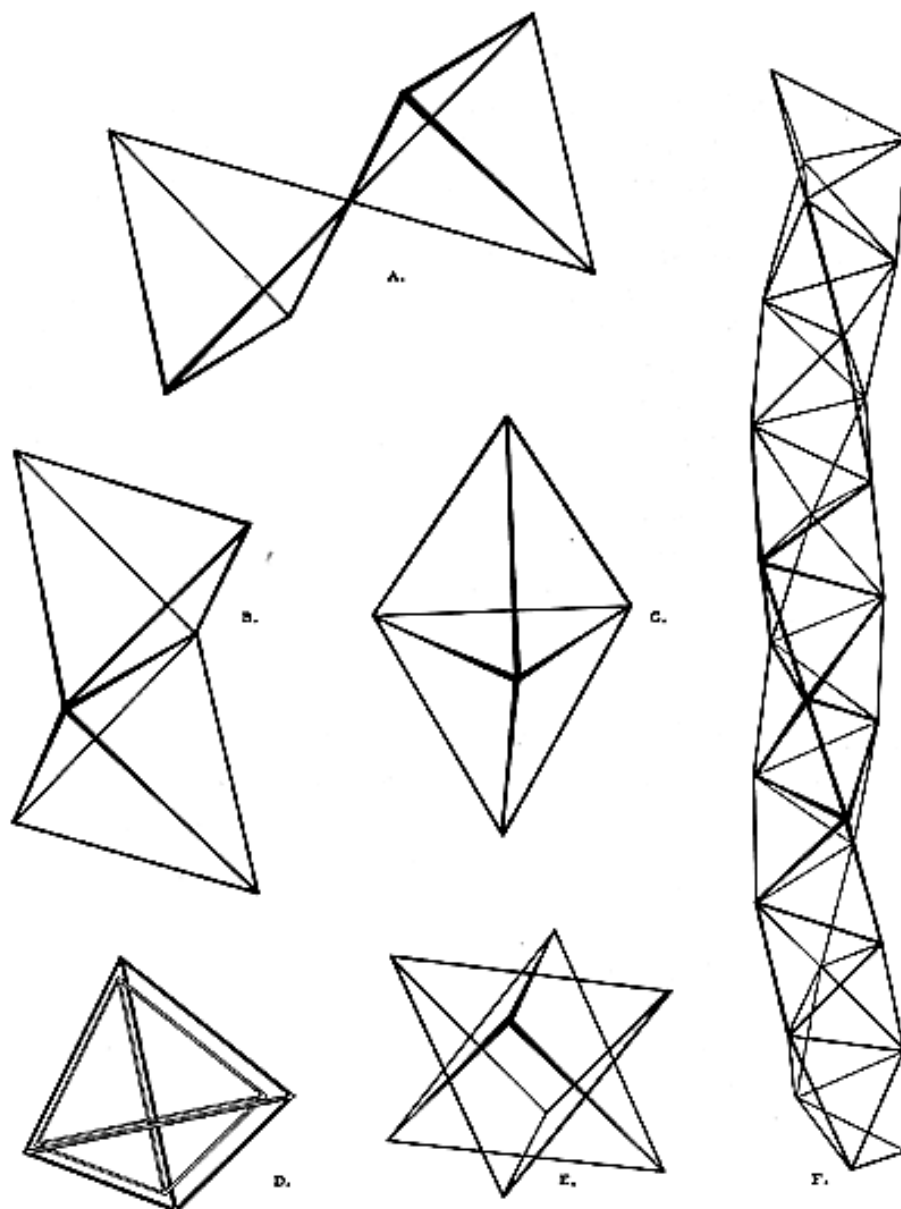


Fig. 931.10 Tetrahedral Characteristics of Chemical Bonding: Tetrahelix: Chemical bonds as demonstrated by arrangements of tetrahedra:

- A. The single-bonded tetrahedron system is like an engineering pin joint: it can move in any direction. It characterizes the behavior of gases.
- B. The double-bonded tetrahedron system is like an engineering hinge joint: it can rotate about an axis. It characterizes the behavior of liquids.
- C. The triple-bonded tetrahedron system is like an engineering fixed joint: it is rigid. It demonstrates the behavior of crystalline substances.
- D. & E. The quadri-bond and mid-edge-coordinate tetrahedron systems demonstrate the super strength of substances such as diamond and the metals.
- F. The tetrahelix: a helical array of triple-bonded tetrahedra.