much this arrangement facilitates the exploration and working of coal, we can hardly doubt but it is the result of Divine Benevolence.

The *Diamond*, which is pure crystalized carbon, has been found associated with a variety of New Red Sandstone, called itacolumite, at Golconda, India, and with talcose schist in Brazil. Both these rocks have been subject to high heat, and pressure, and hence perhaps the crystalization of the carbon. In general, the diamond is found in drift; having been removed from its original situation; and we may always presume that every mineral existing in the older rocks will be found also in Drift; because their detritus must contain them.

It has been inferred from the preceding facts that all the varieties of carbon, above described, had their origin in vegetable matter; and that heat and water have produced all the varieties which we now find.

Gems and Metals.—Almost all the precious stones, such as the sapphire, emerald, spinel, chrysoberyl, chrysophrase, topaz, iolite, garnet, tourmaline, etc., are found exclusively in the most crystalline rocks. Quartz in the various forms of rock crystal, chalcedony, carnelian, cacholong, sardonyx, jasper, etc., is found sometimes in the Mesozoic strata, and especially in the trap rocks associated with them.

Some of the metals, as platinum, gold, silver, mercury, copper, bismuth, etc., exist in the rocks in a pure, that is, metallic state; but usually they occur in the state of oxides, sulphurets, and carbonates, and are called ores. It is rare that any other ore is found in sufficient quantity to be an object of exploration on a large scale.

These ores occur in four modes: 1. In regular interstratified layers, or beds. 2. In veins or fissures, crossing the strata, and filled with ore united to foreign substances, forming a gangue or matrix. 3. In irregular masses. 4. Disseminated in small fragments through the rocks.

Iron is the only metal that is found in all the rock series in a workable quantity. Among its ores, only four are wrought for obtaining the metal: viz., the magnetic oxide, the specular or peroxide, the hydrated peroxide, and the protocarbonate.

Manganese occurs in the state of a peroxide and a hydrate, and is confined to the metamorphic rocks; except an unimportant ore called the earthy oxide, which exists in earthy deposits.

The most important ores of copper are the pyritous copper, and the car-