Few exact determinations of marcasite have been made in the region, although it is the general belief that it is fairly common in association with pyrite. Some of the massive iron sulphide has the characteristic appearance of marcasite and, furthermore, the readiness with which much of it decomposes when exposed to the atmosphere likewise indicate its presence. This is particularly true of iron pyrite in the Friedensville zinc mines and to a lesser degree in some of the limonite mines.

Pyrite (FeS₂)

Pyrite is a common mineral in Lehigh County. In places it is a rather abundant constituent of the gneisses, being well distributed through the normal gneiss and in the pegmatites cutting the gneiss. It occurs almost everywhere in the Hardyston sandstone and by oxidation makes the limonitic stains that render the stone particularly pleasing in color for residences and public buildings. In the compact quartzite the oxidation has extended inward from the bedding and joint planes less than an inch, but in the more porous beds the pyrite has changed to limonite throughout, even though the layers be six inches or more in thickness.

Pyrite is common in all the limestones, especially in those high in argillaceous and carbonaceous matter. Usually it is in small cubes along bedding planes, but is also present in massive form.

Considerable pyrite was encountered in the lower levels, in several of the limonite mines once worked in the county, both in those deposits contained within the Hardyston quartzite and within the limestones. As suggested in the discussion of the origin of iron ores, this furnishes some evidence for the view that all the iron of the limonite ores was derived from pyrite. The commercial aspects are discussed in the chapter on Mineral Resources.

Pyrite is fairly common in the Jacksonburg cement rock, particularly associated with the graphite occurring along slickensided surfaces.

In the Martinsburg slates one occasionally notes small cubes of pyrite or cavities resulting from their removal. In some of the black “ribbons” of the “hard vein” slate the presence of considerable pyrite (and marcasite?) results in fairly rapid decomposition and disintegration.

Molybdenite (MoS₂)

Molybdenite in thin coatings along joint planes in gneiss has been observed in several places by the writer, but the only occurrence known in Lehigh County where the associated rock is in place is in an abandoned quarry in a dense granite gneiss a short distance south of the Reading Railroad about three-fourths of a mile east of Vera Cruz. When the rocks are broken it is not uncommon to find bright fresh pieces of the mineral. Flakes of molybdenite associated with secondary quartz and epidote were noted in loose masses of basic gneiss on the lower slope of South Mountain south of Farmington. It also occurs in some of the gneisses associated with the hematite iron ore mine just west of Old Zionville.