

have no difficulty of recognising the re-action of the mineral. Phosphate is one of the most abundant minerals in the Laurentian vein stones, of which it often constitutes the entire mass; it then appears as a crystalline rock of uneven fracture, and sea green color, passing into greyish or redish, sometimes intermixed with scales of black mica; in some instances, it forms a coarse crystalline mass, in which distinct prisms of apatite are observed penetrating the confused crystalline mass of the same mineral, which has apparently been deposited round them; it is most frequently associated with pyroxene and mica; also, calcite, generally of a pink color, hornblend, granite, and nearly all species contained in the Laurentian strata; the most characteristic are, however, pyroxene, calcite and mica. In most of the rich deposits, the pyroxene prevails largely, calcite and mica; being present in very small quantities; the pyroxene generally occupies the sides of the veins; the phosphate, which is often intermixed with small pieces of calcite and a few scales of mica, fills the central part. The apatite seldom forms a continuous belt of any considerable extent, but is cut off by pyroxene; many rich veins are filled with alternating irregular masses of apatite and pyroxene; some of these masses of apatite are very large, in a few instances five or six hundred tons have been found in a body; these deposits often terminate abruptly, but are generally connected by strings. In a great number of veins, they are, however, entirely separated by the pyroxene vein stone, in which they are imbedded; but, in most of these cases, a crack or joint in the pyroxene will lead to the next mass of phosphate; this irregularity will be better explained farther on.

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## PART II.

### ROCKS OF THE LAURENTIAN FORMATION.

**GRANITES.**—Granite is one of the crystalline rocks, and is a mixture of quartz, feldspar and mica; it is a hard and compact rock of red color, and is a valuable building stone.

**GNEISS.**—Gneiss consists of the same material as granite, but is divided into beds or layers of more or less thickness or regularity. It is sometimes difficult to say if a rock should be considered gneiss or granite, as there are all grades from genuine