of the region, and in part are true veins of posterior origin. The gneissic rocks, with their interstratified quartzose and pyroxenic layers, and an included band of crystalline limestone, have a general northeast and southwest strike, and are much folded; exhibiting pretty symmetrical anticlinals and synclinals, in which the strata are seen to dip at various angles, sometimes as low as 25° or 30°, but more often approaching the vertical. The bedded deposits of apatite, which are found running and dipping with these, I am disposed to look upon as true beds, deposited at the same time with the inclosing rocks. The veins, on the contrary, cut across all these strata, and, in some noticeable instances, include broken angular masses of the inclosing rocks. They are, for the most part, nearly at right angles to the strike of the strata, and generally vertical, though to both of these conditions there are exceptions. One vein, which had yielded many hundred tons of apatite, I found to intersect, in a nearly horizontal attitude, vertical strata of gneiss; and in rare cases what appear, from their structure and composition, to be veins, are found coinciding in dip and in strike with the inclosing strata.

The distinction between the beds and the veins of apatite is one of considerable practical importance,—first, as related to the quality of the mineral contained, and second, as to the continuity of the deposits. The apatite of the interbedded deposits is generally compactly crystalline, and free from admixtures, although in some cases including pyrites, and more rarely magnetic iron-ore, with which it may form interstratified layers. Many will recall in this connection the bands of magnetite, with an admixture of granular apatite, found interstratified in parts of the great magnetic ore-deposit known as the Port Henry mine, near Lake Champlain, in Essex county, New York; where, in certain layers formerly mined, the apatite made up about one-half the bulk. I have seen an example of a similar association of magnetite and apatite from Frontenac county, Ontario. The latter mineral is, however, for the most part found included in the beds of pyroxene rock, already mentioned, which is generally pale green or grayish green in color, sometimes containing quartz and orthoclase, and distinctly gneissoid in structure.

The veins present more complex conditions; while they are often filled throughout their width by apatite as pure and as massive as that found in the beds, it happens not unfrequently that portions of such veins consist of coarsely crystalline, sparry calcite, generally reddish in tint, holding more or less apatite in large or small crystals, generally with rounded angles, and often accompanied by crys-