

only only one or two of these, but as many as nine have been observed in one case. The rude crystals of apatite which are associated with pyrite are cracked across, and the cracks filled with pyrite as shown in figure 5.

The amygdules have a lining of a green structureless mineral (green earth) while the interior is filled with a colorless mineral which appears in most cases to be calcite. In some cases also the cavities contain pyrites, mostly at the junction of the calcite and green earth.

VI. *Madoc, Ontario, lot 24, Range VI.* (Plate, fig. 4.) This rock may be noticed here as a good example of a diorite. It was given to me by Mr. Vennor of the Geological Survey, and stated to have been broken from an undoubted dyke. It was supposed to be a pyroxenic rock, but the microscopic study of a thin section shows it to be a diorite, consisting chiefly of feldspar, hornblende and magnetite, but also containing cubical crystals of iron pyrites and small quantities of a transparent mineral which is probably quartz. The feldspar is a good deal altered, but apparently all plagioclase in the sections examined. The hornblende is of a rich green colour, and much of it shows cleavage lines very distinctly. It is dichroic and polarises beautifully. In places it appears to have undergone some alteration, though not to the same extent as the feldspar.

Conclusions. The first of the rocks just described, on account of the large proportion of viridite which it contains, and the altered state of the feldspar, would be called by German petrographers a diabase. One would also expect to find a larger proportion of water than is indicated by the analysis. In many respects it agrees with Senfter's descriptions of diabase from the Duchy of Nassau in Germany. The alteration which it has undergone, however, is not nearly as marked as in many diabases from much younger formations, as, for example, the Cretaceous of British Columbia. Much of the viridite looks as if it had been one of the original constituents of the rock, but in other places it is pretty evident that it has been derived from the augite.

No. II may perhaps also be called a diabase, although very little removed from such rocks as III and IV. Its general structure is the same, the only important difference being the development of a good deal of viridite. Nos. III and IV are true dolerites or "feldspar basalts," indistinguishable from many

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