holding numerous large crystals of feldspar scattered through it. These feldspar crystals have, under the microscope, a turbid appearance; they sometimes occur in simple forms, sometimes in twins according to the Carlsbad law; and one or two of them in the section showed an extinction parallel to a crystallographic axis, thereby proving that the feldspar is really orthoclase. A few plagioclase crystals, like those of orthoclase much decomposed, but showing polysynthetic twins with very narrow lamellae, are also present in the section. No quartz crystals are present in any of the three sections of this rock which have been prepared, and it has accordingly been classed as a quartz-free porphyry, although some quartz recognizable by its unaxial and positive character is present in the groundmass, so that, strictly speaking, it would probably occupy a position intermediate between the quartz and quartz-free porphyries, such rocks being by no means rare*. The rock is, however, a good deal decomposed, calcite being present in the groundmass, so that the quartz may be a secondary product.

Disseminated through the groundmass, and in smaller amount in the imbedded crystals, there are numerous opaque black grains generally irregular in shape, but sometimes occurring in little cubes. These are probably an iron ore.

Associated with these grains, at a few places in the groundmass, there is a strongly pleochroic mineral, the colours changing from light yellowish-brown to a dark-brown, and with the greatest absorption parallel to a very good cleavage. Betwee crossed nicols, extinction takes place when the plane of polarization of either prism coincides with this cleavage, so that the mineral is probably a magnesia mica. In a section, the groundmass appears of a light-brownish tint, the colour being due to a yellowish-brown mineral which is finely disseminated through it and which also occurs, though in much smaller quantity in the imbedded crystals, either in little patches or running with their cleavage lines."

Condition of Cooling of Dykes.

Dykes cooled slowly.

The prevailingly coarse texture of the dykes of Shefford mountain and the absence of glassy material in them point to their having cooled slowly, presumably due to their solidification at greater depth or to a heated condition of the side walls at the time of the injection

* Compare Rosenbusch, Mikroskopisch Physiographie der Massigen Gesteine, p. 129, ed. 1877.