away, they are often found in beautifully fresh condition. They have not, as yet, received the thorough description which they merit, Kemp's account of them being the most exhaustive which has yet appeared.[1]

The usual diabases consist essentially of a plagioclase feldspar, mostly either andesin or labradorite, augite and magnetite. To these olivin must be added in a very large portion of the dikes, the number of olivin diabases equaling or exceeding that of those without this mineral, so far as the writer's observation goes.

The smaller dikes are, almost without exception, porphyritic, and the same is true of at least the borders of the larger ones, though these frequently become sufficiently coarse grained in their central portions to cause this character to lose its distinctness. As a general proposition, the dikes may be said to be characterized by two generations of one or more of the minerals present, sometimes the feldspar alone, sometimes the augite alone, sometimes both, occurring in this way. The olivin, when present, seems always to belong to the first generation.

Three of the Franklin county dikes are notable in containing an orthorhombic pyroxene, bronzite, in considerable quantity. It is porphyritic in all, and with its coming in, olivin retreats. In two of them, it gives rise to beautiful parallel growths with augite of a certain sort, nearly all the bronzites being bordered by a narrow zone of this mineral, after the usual law of such growths. The augite plainly did not begin to form till the period of bronzite formation had passed, and the crystals furnished nuclei favoring augite growth.

In some 25% of the dikes biotite is present, occurring in frequent small scales in the ground-mass, with a notable tendency to border the magnetite crystals. In such situation it has been sometimes regarded as primary and sometimes as a result of magnetite-feldspar corrosion. Kemp looks on it as the former, in the Essex county dikes. The writer has been unable to satisfy himself as to which view is the proper one, in the case of his own dikes, though disposed to the latter view.

That these rocks show a notable range in composition is indicated by the considerable variation in the relative amounts of feldspar and augite, the former being very materially in excess

[1]U. S. Geol. Sur. Bul. 107, p.24-27.