

rites of Rougemont and Mount Royal are cut by dykes of trachyte. Similar dykes also traverse the diorite of Yamaska, and may perhaps be connected with the trachytic portion of this mountain. It is probable, judging from some specimens from Rougemont, that the dolerite is there intersected by veins of diorite, some of which resemble that of Belœil, and others that of Monnoir. Dykes both of trachyte, phonolite, and dolerite are also found traversing the Lower Silurian strata in the vicinity of the great eruptive masses; and the conglomerate of St. Helen's mentioned above is traversed by dykes of dolerite, which in their turn are cut by others of trachyte.

A second and smaller group of intrusive rocks occurs to the north-west of Montreal, chiefly in the county of Grenville, where they traverse the gneiss and limestones of the Laurentian system. The principal undulations of these rocks have, like those of the Appalachians, a north and south direction; but there is apparent also a second series of undulations, affecting in a less degree the geographical distribution of the strata, and having, like the Montreal and Rigaud undulation, an east and west direction. Coincident with the latter system of folds is a series of doleritic dykes, which nowhere attain a great breadth, but have in some cases been traced more than fifty miles in a nearly east and west direction. These dykes are interrupted by a great mass of reddish syenite, passing in some parts into granite, and occupying an area of about thirty-six square miles in the townships of Grenville, Chatham, and Wentworth. Dykes of this syenite extend from the central mass, and traverse the surrounding gneiss and limestone. Numerous dykes of quartziferous porphyry intersect both this syenite and the surrounding gneiss, and are seen in one case to proceed from a considerable nucleus of porphyry, which rises into a small mountain; rendering it probable that numerous other porphyry dykes of the region radiate in like manner from other nuclei of the same rock. Some parts of this porphyry enclose fragments of syenite, dolerite, and gneiss, which vary in size from small grains to several feet in diameter, and often give to the rock the character of a breccia. In one instance a bed of gneiss, upwards of a hundred yards in length, is completely surrounded by the porphyry.

#### ORTHOPHYRE AND SYENITE.

ORTHOCLASE-PORPHYRY OR ORTHOPHYRE.—Under this head may be noticed a rock which has for its base a compact petrosilex,