

years, been found to contain deposits of apatite of economic importance; one in the province of Ontario, in which the above observations were made by the writer previous to 1866, including parts of the counties of Lanark, Leeds, and Frontenac; and the other, since made known, in the province of Quebec, chiefly in Ottawa county. In both cases it is found in the rocks of the Laurentian series, consisting of granitoid gneisses with bands of quartzite, of pyroxenite, and of crystalline limestone. These ancient and highly inclined strata, with a northeast strike, rise from beneath the horizontal paleozoic rocks near Kingston, and again pass beneath them near Perth. These overlying strata belonging to the Ottawa basin, hide, moreover, to the eastward, the apatite-bearing gneisses of this district; which, a short distance to the westward, are again concealed by the Taconian and other overlying pre-Cambrian groups in Hastings county. The gneissic belt is here seen chiefly in the townships of Loughborough, Storrington, Bedford, North and South Crosby, and in North Burgess, where the apatite was first discovered.

The country presents a succession of small, isolated, rounded, rocky hills, alternating with numerous small lake-basins, hollowed out of the gneiss, and sometimes out of the interstratified limestones; the general trend both of the hills and the lakes being coincident with the strike of the rocks. These, though concealed in the valleys by considerable depths of alluvial soil, are seen in the hills to be hard and undecayed. These geographical features, as I have elsewhere pointed out, were apparently determined by sub-aërial decay previous to the erosion which removed from them the softened and disintegrated portions, leaving the present outlines.\*

When, after cutting the forest-growth which covers these hills of granitoid gneiss, fire is allowed to pass over the surface, destroying the undergrowth, the comparatively thin layer of soil is laid bare and is soon washed away by the rains; leaving the bald rocky strata exposed in a manner singularly favorable for geological study, but rendering the region sterile. To prevent this process of denudation it has become the practice in some parts of the country, after burning over the hillsides, to sow them, without

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\* See the author's paper on "Rock Decay Geologically Considered."—*Amer. Jour. Sciences*, Sept., 1833.