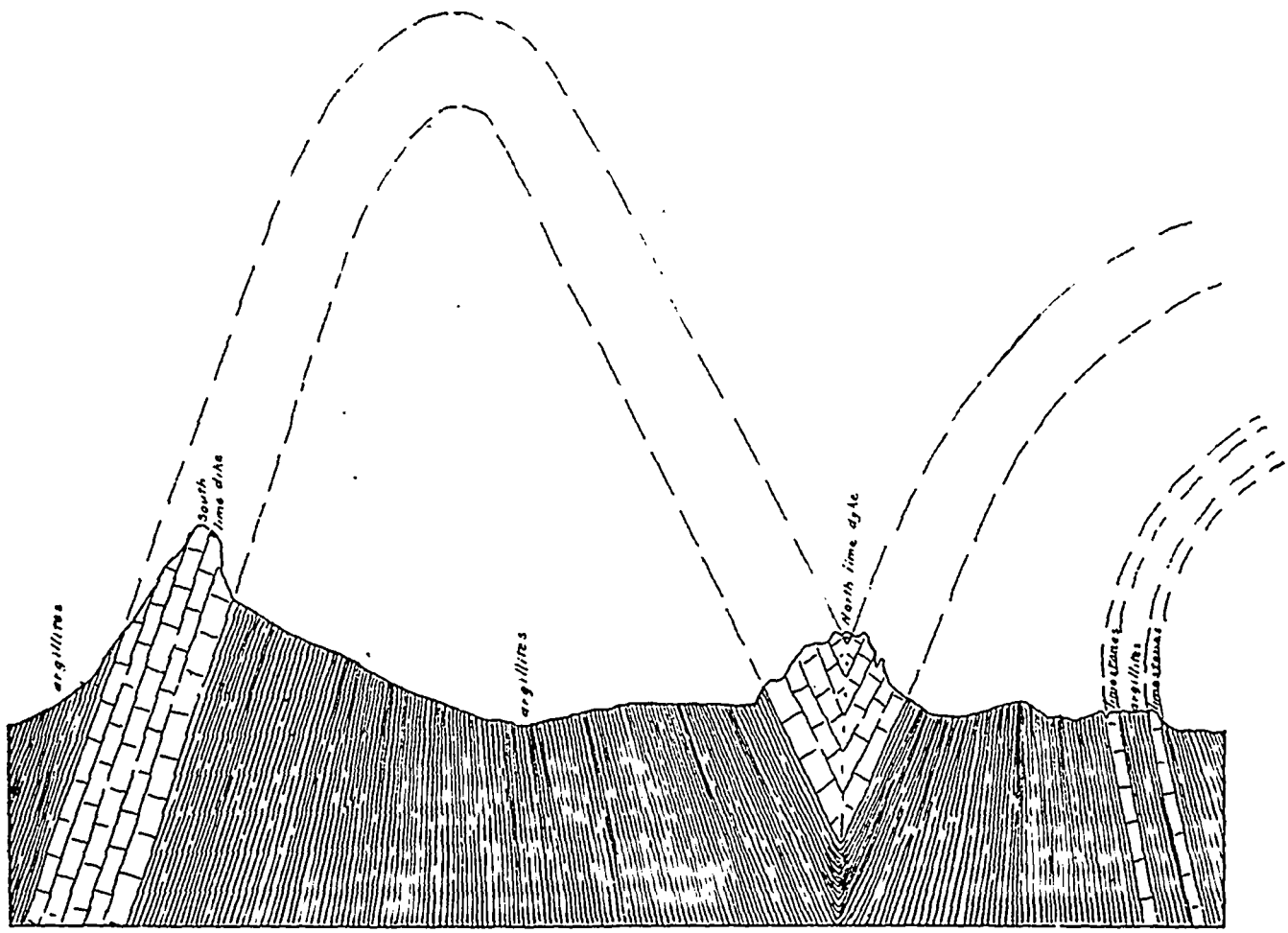
The latter consist of argillites, limestones and sandstones and conglomerates, altered by the mountain building process to phyllites, generally carbonaceous, sericite and chlorite schists, calc-schists, crystalline-limestone and quartzites, or squeezed quartz porphyries. At one or two points volcanic tuff may be recognized and some of the schists may represent altered ash rocks.

In these sedimentary rocks, often interbanded but sometimes cutting across them at low angles, are dykes and masses of diorite or gabbro porphyrites and possible augite porphyrites, but these rocks are usually so altered by dynamic metamorphism that their original nature cannot be determined with precision. They are now usually in the form of green chloritic schists. Intrusive in these preceding rocks, though often interbanded with them, are small dykes of a rock which is now generally a rusty weathering schist consisting of various secondary minerals of which serpentine, quartz, sericite and carbonates are the most prevalent. In an extreme form of alteration it consists of sericite, carbonates and some limonite; the carbonates may be present in such quantity that the rock effervesces violently with acid, and might thus be mistaken for a limestone. In less altered samples, and in its geological relationship it is clearly seen to be an intrusive rock; microscopic examination points to its having been in all probability a diabase originally, and in this paper it will be referred to as a diabase or diabase schist. Along the south-western border of the district a white acid granite, intrusive in all the other rocks, occurs. In places it is a normal granite, in others a hornblende granite.

Aplite and pegmatite dykes are numerous at many points, even at some distance from the granite outcrops. The granite is very fresh in appearance and has escaped most of the metamorphism that the older rocks have suffered from.



Section showing folding and lime dikes on ridge south-east of Porcupine Creek.

STRUCTURE OF THE DISTRICT.

Since there are few well-marked horizons, and since the eruptive rocks interfered with the regular sequence of the stratified rocks, it is difficult to make out the structure of the district. Faulting adds to the complexity of the problem. Throughout the greater part of the district the rocks are tightly folded along an axis of approximately 280 degrees.** At many points

**The bearings in this paper are magnetic. The local variation of the compass is about 25° east. That is, for true astronomical bearings add 25° to the reading of the instrument.