

this slip faulting is of the normal or reverse type, that is, whether it took place under conditions of tension or of compression. But the whole aspect of the exposures indicates the action of compressive forces. The best localities for observing the conditions are in the rock cuts along the New York Central and Hudson River Railroad west of Saranac Inn station. All of these show the anorthosite to have been much shattered and sheared, with alteration of the feldspar to saussurite where the action has been most violent. There are four main sets of joints shown in the exposures: a nearly vertical n.  $50^{\circ}$  w. set, the steadiest and most persistent of all; a nearly vertical n.  $80^{\circ}$  e. set; a somewhat erratic set, shifting from n.  $45^{\circ}$  e. to n.  $15^{\circ}$  e. and not vertical; and a n.  $20^{\circ}$  w. set, often with a hade as high as  $40^{\circ}$ . The two latter are the ones which show shearing and slickensiding, and more specially the last one. The shearing planes are closely spaced, dividing the rock into very small blocks, and the minerals are much broken and brecciated. Both these sets appear to be compression joints, representing likely two different periods of compression, and the effect of the shearing would be much more likely to produce compression faulting than tension faulting. The brecciated rock recalls other brecciated strips of the region, notably those described by Kemp from Hammondville, Essex co.<sup>1</sup> These breccias sometimes have a chloritic matrix, but more often one in which quartz and chalcidony predominate and form hard, resistant rocks, so different from the rather loose masses of fault rock which characterize the Paleozoic fault planes of the region that they would seem unquestionably to be much older. That they mark lines of faulting is certain, and the Precambrian age of this faulting would seem beyond dispute.

The Paleozoic rocks are invariably jointed, but in general but two sets are to be made out, they being vertical and at right angles to each other. They show a somewhat varying direction, but usually the more prominent set has a north-south trend, with the minor one running east-west. They are most irregular and least clean cut in the massive Potsdam and Beekmantown beds. They have approximately the direction of two of the

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<sup>1</sup>13th An. Rep't State Geologist, 1893. p.456.