FURTHER CHEMICAL DATA ON THE UPPER ORDOVICIAN ACIDIC PLUTONISM IN THE AUSTRIDES OF THE EASTERN ALPS.

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Previous authors demonstrated that the "Caledonian" acidic magmatism (Upper Ordovician) is the most important magmatic activity recorded in the Eastern Alps, both as concerns amount of melts and size of the area in which it took place. It developed both in volcanic and plutonic conditions, producing a large acidic volcanic plateau (now "porphyroids" in the low grade areas, sheet-like leucocratic gneisses and augengneisses elsewhere) and numerous granitoid bodies (now sharply-boundaried bodies of granitic to granodioritic orthogneisses).

New chemical data on this plutonism are presented here. They concern rock samples from Oetztal, Pitztal and Val Casies (Gsiestal). These new chemical data cover the SiO_2 range 67-77 wt%. The data points cluster in two subgroups along a more or less well-defined pattern in several variation diagrams concerning major, minor and trace elements, including REE.

These new data are compared with previously published data concerning: (i) similar Austridic orthogneisses; (ii) Austridic sheet-like gneisses, augengneisses and "porphyroids"; (iii) Southalpine "porphyroids". The variation diagrams based on all these data support the following considerations, consistently with the conclusions reached by some previous authors:

— Upper Ordovician plutonism and volcanism display identical chemical features, and can be related to a unique cycle of magma generation;

— this statement does not imply a unique magma, part of which should have fed the volcanic activity, and parts intruded to give numerous plutonic bodies; it could only mean that numerous patches of melts were formed in different places in a relatively short time under identically constrained conditions at expenses of similar source rocks, so that these patches of melts could have taken similar geochemical features;

— these melts display a calc-alkaline character, covering almost continuously the 62-77 SiO_2 range without any significant gap;

— this magmatism mainly produced an enormous amount of acidic melts: the lack of cogenetic basic rocks and the insignificant amount of intermediate rocks represent a feature which is meaningful for the genetic interpretation;

— crustal anatexis seems to be the most appropriate process for explaining all available data.