equilibrated assemblages of sodic and potassic feldspars (low albite, low microcline) are prone to major changes in their bulk compotision owing to an exchange of Na for K (and *vice versa*). In such rocks, even the elements considered more resistant to moblization (e.q., the rare earths) are likely to have been set in motion at the time the parent feldspar was dissolved. Students of granite petrology need to keep in mind that the alkali-rich feldspars in their rocks are very reactive, are no longer magmatic, and in some cases are likely to be chemically, structurally and texturally much modified. Compositional equilibration involving Na and K, in particular, is particularly, rapid, at least down to a temparature of 200°C. The state of the felspar(s) can provide valuable insight into the postmagmatic stage of evolution of the system. To assume that the ingeous rock still has an igneous mineralogy is a widespread and comfortable point of view, but a highly unrealistic one in the case of granitic and rhyolitic systems.

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MELLINI M.*, TROMMSDORFF V.**, COMPAGNONI R.*** - *Contact metamorphism in the Bergell aureole: behaviour of antigorite*

Antigorite forms a polysomatic series of discrete composition that are chemographically colinear with chrysotile/lizardite, $Mg_3Si_2O_5(OH)_4$, and talc, $Mg_3Si_4O_{10}(OH)_2$. The compositional variations of antigorite correspond to discrete changes in the lattice parameter *a*. A complete suite of antigorites, collected from a cross-section representing increasing metamorphic grade through the Swiss and Italian Alps has been studied by optical and transmission electron microscopy. The specimens within this suite range from those formed near the lower stability limit of antigorite (~ 250C) to those formed near the breackdown temperature (~ 550C). The lower grade samples belong to the regionally metamorphosed upper Pennine Ophiolites of the Oberhalbstein-Malenco area, while higher grade antigorites were obtained from regionally metamorphosed Malenco serpentinites. The highest grade samples are also from Malenco, they underwent a later contact metamorphism within the thermal aureole of the Bregaglia Intrusive.

The lattice parameter *a* of antigorite evolves from longer (60 Å) to shorter (35 Å) values with increasing metamorphic grade. However, individual antigorites almost invariably show also heterogeneous distribution of *a* periodicities, with the highest values close to grain boundaries or reaction fronts and lower values towards the grain centers. The crystal chemical evolution of antigorite, expressed by reduction in *a*, is usually accompanied by increased crystallinity. Under the TEM, this is seen as an increase in crystallite size and decrease in the number of crystal defects (that are twinning, polysomatic disorder, modulation dislocations, wobbling, offset).

The structural and compositional evolution of antigorite requires intracrystalline diffusion and reconstructive transformations at relatively low temperatures. Therefore the process of evolution is sluggish. Equilibrium is frequently not attained and relics of chrysotile may be observed in high-metamorphic rocks of the Bergell aureole, where antigorite coexists with new-formed olivine. Only at one locality is there evidence of «equilibrium»: antigorite formed at 435 C and has $a = 43$ Å, it shows very little variation in the *a* periodicity, and it is characterized by a homogeneous annealing texture. A geothermometer based upon *a* periodicities, as proposed by KUNZE (1961), has limited pratical applicability.

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MESSINA A.*, BARBIERI M.**, COMPAGNONI R.***, DE VIVO B.****, PERRONE V.****, CALANDRA M.*, SCOTT B.A.***** - *Geological and petrochemical features of the Sila Massif (Northern Calabria, Italy)*

The Calabrian-Peloritan Arc is a segment of Alpine Mediterranean chain connecting the N-W trending Apennines with the E-W trending Maghrebides. It is a nappe pile, including thrust sheets, from both a pre-Alpine crystalline basement and Mesozoic ophiolitic sequence. In the Arc two sectors have been distinguished, which are characterized by different alpine evolutions.

In this study geologic, petrologic and geochemical data of Hercynian granitoids from the Sila Unit — northern sector — are discussed. They extend over an area of about 400 km² from Cerva to Rossano. They intrude into both low and high-grade metamorphic rocks developing wide thermal aureoles.

The Sila granitoids form a composite pluton where sin-late to post-tectonic intrusions were recognizes. The intrusive suite ranges in composition from leucogabbro to leucomonzogranite, with prevailing tonalite and granodiorite.

Petrographic and moda data show the presence of the following seven «*main igneous units*»: 1) biotite-amphibole tonalite, 2) biotite tonalite amphibole bearing, 3) biotite tonalite, 4) biotite-amphibolite tonalite to granodiorite, 5) biotite tonalite to granodiorite, 6) biotite granodiorite, 7) biotite-muscovite granodiorite to monzogranite cordierite bearing. Units 1) to 3) are sin-late tectonic, whereas 4) to 7) are late-tectonic.

Several «*subordinate igneous units*», ranging in composition from granodiorite to leucomonzogranite were also recognized; they are characterized by the presence of the assemblage two micas + andalusite +/— sillimanite +/— cordierite.

More *basic lithotypes* ranging in composition from leucogabbro to melatonalite, also occur, as fine-grained hectometer-sized bodies, dark microganular inclusions and mafic dikes: they are characterized by the assemblage plagioclase + clinopyroxene + amphibole +/— olivina +/— biotite +/— quartz.

The whole igneous suite is crosscut by a swarm of *felsic dykes* including granitic porphyries, microgranite, leucogranite, aplite and pegmatite.

Field, petrological, modal and geochemical data suggest the Sila granitoids, as a whole belong to a calcalkaline magmatic suite, which derives, by a fractionation process, from a parental magma of high-alumina basaltic composition. The most primitive members of the suite are mafic dykes, dark microgranular inclusion and fine-grained bodies. The more fractionated members are represented by the subordinate igneous units and felsic dykes.

The process responsable for the fractionation of the Sila granitoid series must have taken place under relatively different physical and chemical conditions, especially as regard to the H_2O activity. This is shown by the presence of three calcalkaline magmatic trends, defined by different K content.

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MESSINA A.*, RUSSO S.*, STAGNO F.*, CALANDRA M.* - *Contribution to the knowdledge of late Hercynian peralumious granitoids of the Calabrian-Peloritan Arc (Southern Italy): Monte Cacciagrande, granite - Stilo Unit*

The Stilo Unit basement (Calabrian-Peloritan Arc is composed mainly of late-Hercyniac composite plutons. The paper describes the results of the studies on the Monte Cacciagrande granitoid stock, southernmost Serre, near the tectonic contact against the underlying Aspromonte Unit.

The monzogranitic to granodioritic Monte Cacciagrande stock is characterized by the occurrence of K-feldspar megacrysts. Its calc-alkaline peraluminous character is shown by the presence of muscovite and minor sillimanite, andalusite and cordierite. The chemical composition indicates that it is a single body with an internal fractionation. This granitoid was affected by a deformative — though not pervasive — event which causes cataclastic to flaser structures.

Compared with the other intrusive of Stilo Unit, the Monte Cacciagrande granite is crearly different from the nearby peraluminous Cittanova granite, but it shows a common origin with the two bi ± ms, bi ± amph granite to granodiorite stocks from the Serre. The felsic and peraluminous character higher than that one of the two stocks of the Serre, suggests for the Monte Cacciagrande granite a more advanced stage of magmatic evolution.

The deformative event is most likely related to the Oligocene emplacement of the Stilo and Aspromonte Units during the Alpine orogeny.

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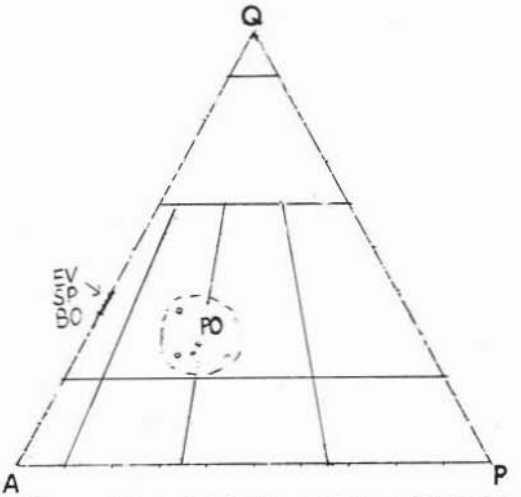
MIGHELI A.* - *Petrographical and petrochemical features of some permian granites of the complex of M. Cinto area (north-western part of Corsica)*

Several granitic samples from the ring complex of M. Cinto area (nort-western part of Corsica) were analysed.



These rocks intruded the Hercynian batholith during Permian and are related to a thick layered series of acid volcanites, mostly of ignimbritic type.

According to analytical results, it is possibile to distinguish two different granites: the first one (Bonifato, Spasimata and Evisa) is of peralkaline type, with a low CaO content (except for samples carrying fluorite), while the second one (Massif of Popolasca) is characterized by a major CaO and Al_2O_3 content, as shown in the following table:

	Peralkaline granites			Popolasca granites
	BO (average an. on 6 samples)	SP (average an. on 10 samples)	EV (average an. on 3 samples)	PO (average an. on 6 samples)
SiO_2	75.69	77.19	77.19	70.68
TiO_2	0.15	0.13	0.08	0.41
Al_2O_3	12.53	11.62	11.79	14.32
Fe_2O_3	0.98	1.11	0.55	0.98
FeO	1.04	1.24	0.56	2.22
MnO	0.03	0.02	0.02	0.06
MgO	0.05	0.43	0.05	0.37
CaO	0.37	0.04	0.18	1.52
Na_2O	3.74	3.31	4.29	4.47
K_2O	4.67	3.94	4.61	3.91
P_2O_5	0.01	—	0.01	0.10
F_2	0.17	—	—	—
H_2O	0.57	0.97	0.67	0.96