are especially rich in almandine. Garnets from eclogitic lenses included in marbles contain more grossularite component. The comparison of microprobe data, from which no andradite end-member has been calculated, and wet chemistry data shows that oxidized iron is present in both eclogites and schists, but almost absent in orthogneisses and meta-pegmatitic rocks. The common zonation pattern is bell-shaped for Mn (and Ca), and bowl-shaped for Fe, some garnets from eclogitic rocks show a reversed zonation pattern.

Two generations of garnet have been identified in some schists, the second one forming small grains, or rims around big previous grains; garnets of the first generation are Mg-poorer and Ca-richer than the second ones.

No correlation has been found between the iron to magnesium ratio in the host rock and in the garnet, although the bulk composition of glaucopanites appears to contain more iron than that of eclogites.

Na-pyroxenes from both eclogites and schists are omphacite, whereas those from orthogneiss, « inzigite », and meta-pegmatitic rocks are jadeite. In the schists they are somewhat richer in aegyrine component. The zonation is limited (jadeite content slightly increasing towards the rim), irregular or absent.

Analyzed Na-amphiboles are all pure glaucophane, sometimes with a faint increase in Fe, and decrease in Mg, towards the rims.

Calculated from the wet chemical analyses only, where the partition between Fe^{2+} and Fe^{3+} is known, the average value of $K_D \, {}^{Fe^{2+}}_{Mg} \, {}^{gr}_{pyr}$ would correspond, according to the curve of Raheim and Green (1975), to a temperature of 540° C with $P = 12$ kb for $Jd_{50}Di_{50}$, or 550° C and $P = 16.5$ kb for Jd_{100}. These temperature values are in accordance with those obtained by stable isotope analysis (see Desmons and O'Neil, this Genova meeting). However, the values show some scattering, perhaps indicating lack of complete re-equilibration.

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R. Compagnoni, L. Fiora - *The Passo Gallarino Complex: an eclogitized slice of layered intrusive complex in the Monviso metaophiolites (Western Alps).*

A subhorizontal slab of alternating metagabbros and eclogites (about 1500 × 500 × × 100 meters) outcrops at Passo Gallarino in the southern portion of the Monviso ophiolitic massif. The slab consists of repeated layers of metagabbros and eclogites, with minor chloromelanitites, glaucophanites and rare quartz-zircon-bearing leucocratic layers. It is overlain by foliated serpentinites; a tectonic contact, marked by a thin layer of phyllitic calcschists (« calcescisti »), divides the slab from the prasinites of the underlying Viso Mozzo Unit.

In spite of a superimposed mylonitic structure the primary plutonic character of the sequence is still recognizable because of the widespread occurrence, in all rock types, of centimeter-sized chloromelanite crystals pseudomorphically replacing magmatic clino-pyroxenes.

The metamorphic history observed in the Passo Gallarino Complex is very similar to the polyphase evolution described for the Ligurian meta-ophiolites and particularly for the Voltri Group eclogites: an « eclogitic » event, which produced chloromelanite-garnetepidote-rutile assemblage in eclogites and chloromelanite-epidote assemblage in metagabbros is followed by a « glaucophanitic » event; a later greenschist-facies event, in places, completely transformed into prasinites both metagabbros and eclogites.

Chemical analyses of selected samples showed that metagabbros have bulk compositions close to typical « ophiolitic » Mg-rich gabbros, and eclogites very close to Fe-rich gabbros with high (5-6 %) TiO_2-content (as in the Voltri Group eclogites).

On the basis of field, petrographical and chemical data the Passo Gallarino Complex is considered a fragment of a layered intrusive complex originally crystallized in the oceanic crust of the Piemonte basin and later re-equilibrated under « eclogitic » conditions in the earliest phases of the Alpine metamorphism.

P. F. Williams * - *Deformation structures in the Albard area, Sesia Lanzo Zone.*

A small area (4 km^2) on the northern slope of Val d'Aosta in the region of Bard and Donnaz has been mapped in detail. Three mappable units are recognised and from north-west to south-east they are:

(*a*) a massive sequence or leucocratic gneisses and meta-aplitic dykes;

(*b*) a sequence of well foliated schists, gneisses and intercalated amphibolites with a striking red colouration due to weathering and

(*c*) a unit comprising schists (eclogitic mica schists) and intercalated lenses of ortogneisses meta-basites and marbles.

Unit (*a*) resembles the « Gneiss Minuti » and contains relics of pre-Alpine plagioclase and no evidence of jadeite + quartz. The only evidence of high pressure metamorphism is found in isolated eclogitic boundins close to the contact.

Unit (*b*) is characterised by early-Alpine, high pressure assemblages including albite + white mica pseudomorphs after porphyroblastic jadeite. The presence of the latter indicates that the pressure was too high for primary plagioclase to be preserved. There is thus a jump in the pressure indicated by the metamorphic assemblages across the contact between units (*a*) and (*b*), and the contact is therefore interpreted as tectonic. Mineral assemblages in unit (*c*) are also predominantly early Alpine high pressure type but locally, earlier brown hornblende amphibolites are preserved from a pre-Alpine amphibolite facies metamorphism. Units (*b*) and (*c*) are commonly separated by early Alpine, high pressure phyllonites and other phyllonitic layers are found within these units. There is owever, no evidence of jumps in metamorpic grade associated with these tectonic contacts.

Four generations of folds have been recognised. The first of these deforms the high pressure minerals which are generally recrystallised suggesting that F_1 was essentially syntectonic with the early Alpine metamorphism. The hornblende amphibolites are apparently preserved in the hinge of a large F_1 fold. Small F_1 folds have a consistent vergence to the north. The second deformation is responsible for a large fold which occupies muc of the area. This fold has an axial plane dipping steeply north-north westerly, it plunges steeply north-east and has a northerly vergence. Third generation folds have axial surfaces dipping shallowly towards the north-east, plunge mostly north-easterly and have

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