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Record No. 1957/104.

LAVAS FROM SAVO VOLCANO

by

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Olivine-pyroxene andesite (slide 2791) was collected from deeper flows exposed in the gorge through the old crater wall. The rock consists of numerous zoned phenocrysts from 1 to 2 mm. in size, of pleochroic zoned diopsidic augite (20%) and plagioclase (45%) and irregularly-shaped magnetite grains (3%) in a matrix of microphenocrysts of plagioclase, augite, magnetite and interstitial chlorite and accessory minerals. The zoned plagioclase phenocrysts are arranged in a sub-parallel fashion indicating flow movement. The plagioclase phenocrysts consist of bytownite cores surrounded by labradorite zones. Some labradorite zones in every grain have numerous dark inclusions, some of which appear to be glass and some iron ore.

Euhedral olivine grains (3%) are accessory and are replaced, for the most part, by fine-grained serpentine, carbonate and hydrated iron ore.

Apatite needles are also accessory.

The overall darkness of the rock can be attributed to the dark inclusions in the plagioclase grains, to interstitial chlorite in the groundmass and to the large pyroxene phenocrysts. The rock is an olivine-pyroxene andesite; or a basaltic andesite; to determine the correct name, a silica analysis would have to be made.

The biotite - hornblende andesite (slide 2792) from the last nuee eruption, was collected from a creek leading down from the crater. It is typical of lavas in the fragmental rocks.

The thin section reveals that abundant zoned feldspar phenocrysts and some biotite and green hornblende phenocrysts are set in a very finely vesicular matrix of microcrystalline feldspar, particles of iron ore and accessory apatite needles. Phenocrysts of plagioclase are about 1 mm. in size.

The plagioclase consists of labradorite cores surrounded by andesine; some of the cores may be xenocrystic in origin, as the core margins are so irregular.

The rock is a biotite - hornblende andesite; the percentage (5 to 7) of ferromagnesian minerals is unusually low for an andesite.

The pyroxene andesite (slide No.2793) is compact; it contains numerous black phenocrysts.

Phenocrysts about 1 mm. in size, of labradorite surrounding bytownite cores, clinopyroxene and pseudomorphs of amphibole (lamprobolite) lie in a matrix of microphenocrysts of feldspar and pyroxene, and subhedral and anhedral grains of black iron ore. The amphibole pseudomorphs consist of magnetite, pyroxene, and plagioclase; only very little lamprobolite remains and even this is somewhat bleached by incipient alterations.

Apatite is an accessory mineral.

rim of oligoclase An_{27}. Some sections of bytownite enclose fawn glass.

The xenoliths in the rock consist of pyroxene grains some of which are partly replaced by lamprobolite, and some olivine grains. Lamprobolite surrounds the pyroxene and olivine to form the rim of the xenolith.

The variation in the amphibole in the lavas, from red lamprobolite to brown hornblende probably represents a difference in physical conditions in different parts of the magma.

The dome lavas most closely approximate to the biotite - hornblende andesite (slide 2792) from the nuee deposits.

	OLDER LAVAS	NUEE DEPOSITS		DOME LAVAS		RECENT LAVAS	
Slide No.	2791	2792	2793	2796 (Savo D.)	2797 (Savo L.)	3122 (Savo A.)	3123 (Savo B.)
Name	Olivine-pyroxene-andesite	Biotite Hornblende Andesite	Pyroxene Andesite	Biotite-lamprobolite andesite	Hornblende Andesite	Biotite lamprobolite andesite	Biotite lamprobolite andesite
Phenocrysts: Feldspar	Bytownite cores, labradorite 45%	Labradorite cores, andesine 40%	Bytownite cores, labradorite 25%	Andesine cores, oligoclase 45%	Andesine cores oligoclase 45%	Andesine cores oligoclase 50%	Bytownite oligoclase 50%
Phenocrysts: Pyroxene	20%	-	10%	-	-	-	-
Phenocrysts: Amphibole	-	Green hornblende 5%	Pseudomorphed lamprobolite 10%	Red lamprobolite 7%	Brown hornblende 5%	Brown lamprobolite 7%	Red lamprobolite 10%
Phenocrysts: Biotite	-	2%	-	Brown 5%	Brown 3%	Brown 5%	Brown 5%
Phenocrysts: Magnetite	3%	-	10%	5%	3%	5%	5%
Matrix	Microphenocrysts	Vesicular Microcrystalline	Microphenocrysts	Cryptocrystalline	Crypto	Crypto + clay	Crypto + clay
Accessories	Olivine (3%) Apatite	Apatite	Apatite	-	Apatite	Apatite	Apatite