TABLE 5

Compositions of analyzed crystals obtained in crystallization of olivine basalt at 13.5 kb and 18 kb under "wet" conditions i.e. lowering of liquidus by ~120 °C by the addition of water.

Phase	Temperature (°C)	100 Mg / Mg+Fe++ (atomic) ratio)	Molecular proportions Ca	Mg	Fe	Weight per cent Al_2O_3	CaO
A. *At 13.5 kb*							
Olivine	1200	86.9	0.2	86.7	13.1	<0.2	0.2
Olivine	1190	86.9	0.2	86.7	13.1	<0.2	0.2
Orthopyroxene		90.0	3.4	87.1	9.6	1.7	1.8
Olivine	1180	84.8	0.2	84.6	15.2	<0.2	0.2
Orthopyroxene		88.1	3.6	85.2	11.3	1.7	1.9
Olivine	1160	81.4	0.2	81.2	18.6	<0.2	0.2
Orthopyroxene		84.3	4.0	81.2	14.8	4.4	2.0
Clinopyroxene			no consistent analyses				
Olivine	1150	80.0	0.3	79.8	19.9	<0.2	0.3
Orthopyroxene		83.3	4.0	80.0	16.0	4.3	2.0
Clinopyroxene		83.3	32.0	56.6	11.3	6.1	≥15.2
Olivine	1130	81.0	0.2	80.8	19.0	<0.2	0.2
Orthopyroxene		82.8	4.0	79.5	16.5	4.5	2.0
Amphibole		—	not analyzable				
B. *At 18 kb*							
Orthopyroxene	1260	89.3	3.8	85.9	10.3	2.4	2.0
Orthopyroxene	1240	86.1	3.9	82.8	13.3	2.5	2.0
Clinopyroxene		83.5	30.4	58.0	11.6	5.5	≥14.0
Orthopyroxene	1200	85.6	3.9	82.3	13.8	3.1	2.0
Clinopyroxene		83.2	35.5	53.4	11.1	5.9	16.2

Coexisting orthopyroxene and clinopyroxene

	13.5 kb 1150 °C		18 kb 1240 °C		18 kb 1200 °C	
	Opx	Cpx	Opx	Cpx	Opx	Cpx
SiO_2	51.1*	51.7*	55.3*	52.8*	54.9*	52.3*
TiO_2	—	0.6	0.4	0.7	0.4	0.7
Al_2O_3	4.5	6.1	2.5	5.5	3.1	5.9
FeO	10.4	6.9	8.8	6.8	9.1	6.4
MgO	29.4*	19.3*	30.9*	19.2*	30.5*	17.5*
CaO	2.0	≥15.2	2.0	≥14.0	2.0	16.2
Na_2O	—	0.3	—	1.0	—	1.0

* Calculated values.

The depression of the liquidus of the olivine basalt to 1200 °C at 13.5 kb resulted in appearance of olivine as the liquidus phase, closely followed by orthopyroxene and joined by clinopyroxene as the third phase. At 1130 °C, amphibole may replace clinopyroxene as the latter was not definitely identified. It may also be noted that the olivine coexisting with amphibole at 1130 °C is more magnesian than that at higher temperature. Olivine is present throughout the crystallization interval studied but remains a minor phase and does not perceptibly increase in abundance, in contrast with the large increase in abundance of the orthopyroxene and clinopyroxene. The orthopyroxene analyses (table 5) show CaO contents consistently lower than those obtained from orthopyroxenes at 1320–1330 °C. Al_2O_3 contents in the higher temperature orthopyroxenes are low but increase in the 1160–1130 °C runs. The clinopyroxene analyzed at 1150 °C has higher Al_2O_3 content than coexisting orthopyroxene and, most significantly, has a very much higher CaO content than the