Table 14. *Calculated compositions of liquid fractionates and crystalline residua derived from the high-alumina quartz tholeiite and basaltic andesite compositions at 18 kb*

Composition	High-alumina quartz tholeiite			Basaltic andesite		
Temperature		1,330° C	1,300° C		1,280° C	1,250° C
Nature and estimated % of crystals	Initial liquid	15% cpx	50% cpx 10% plag 5% ga	Initial liquid	10% cpx	25% cpx 10% plag 1% ga
Liquid fractionate						
SiO_2	52.9	53.8	58.1	56.4	57.1	58.8
TiO_2	1.5	1.5	1.8	1.4	1.4	1.7
Al_2O_3	16.9	17.7	17.8	16.6	17.1	15.9
Fe_2O_3	0.3	0.4	0.9	3.0	3.3	4.7
FeO	7.9	8.1	9.0	5.7	5.3	4.5
MnO	0.2	0.2	0.5	0.1	0.1	0.2
MgO	7.0	5.9	2.1	4.3	3.4	2.6
CaO	10.0	9.0	4.0	8.5	7.8	6.4
Na_2O	2.7	2.9	3.7	3.0	3.2	3.2
K_2O	0.6	0.7	1.6	1.0	1.1	1.5
	100.0	100.2	99.5	100.0	99.8	99.5
Mol. Prop. $\frac{100\,MgO}{MgO+FeO_{Total}}$	60.4	55.4	27.6	47.7	42.2	34.8
CIPW norm						
Qz	1.3	3.0	13.1	10.7	12.4	17.6
Or	3.5	4.2	9.4	5.9	6.5	8.8
Ab	22.8	24.6	30.7	25.4	27.1	27.1
An	32.2	33.2	19.9	28.9	29.0	24.6
Diop	14.2	9.4	2.7	10.8	14.7	5.6
Hyp	22.6	22.5	19.0	11.3	9.5	5.7
Ol	—	—	—	—	—	—
Mt	0.4	0.6	1.3	4.3	4.8	6.8
Ilm	2.8	2.8	3.4	2.7	2.7	3.2
Crystal residuum						
SiO_2		50.1	48.0		50.5	52.1
TiO_2		1.4	1.3		1.0	1.0
Al_2O_3		16.4	12.3		11.7	17.8
FeO		7.3	6.9		9.7	7.8
MnO		tr	—		—	0.1
MgO		9.7	13.5		12.2	7.3
CaO		13.2	15.4		14.8	12.2
Na_2O		2.2	1.4		1.2	2.6
K_2O		0.1	—		—	0.1
		100.4	98.8		101.1	101.0
Mol Prop. $\frac{100\,MgO}{MgO+FeO}$		70.3	77.7		69.2	62.5

Table 15. *Calculated approximate composition of liquid fractionate and crystalline residuum from the andesite composition at 18 kb*

Note: Suitable electron microprobe analyses of garnet and plagioclase could not be obtained at 18 kb. However as an approximation the composition of the garnet from a 22.5 kb run is taken. The composition of the plagioclase is estimated as $Or_5Ab_{65}An_{30}$ by comparison with plagioclase in the basaltic andesite at 18 kb and assuming that the albite enrichment trend with increasing pressure continues to 18 kb in the plagioclases crystallizing from the andesite (see p. 129).

Temperature		1,260° C	Temperature		1,260° C
Nature and estimated % of crystals	Initial liquid	12% plag 3% ga	Nature and estimated % of crystals	Initial liquid	12% plag 3% ga
Liquid fractionate			*CIPW norm*		
SiO_2	62.2	62.8	Qz	15.5	18.7
TiO_2	1.1	1.3	Or	13.6	15.4
Al_2O_3	17.3	16.4	Ab	27.9	22.0
Fe_2O_3	0.3	0.4	An	25.7	25.4
FeO	5.9	6.3	Diop	0.2	0.7
MnO	0.1	0.1	Hyp	14.8	14.8
MgO	2.4	2.4	Ol	—	—
CaO	5.2	5.3	Mt	0.4	0.6
Na_2O	3.3	2.6	Ilm	2.1	2.5
K_2O	2.3	2.6			
Mol. Prop.	100.1	100.2	*Crystal residuum*		
$\frac{100\ MgO}{MgO + FeO_{Total}}$	41.0	39.1	SiO_2		58.9
			TiO_2		0.2
			Al_2O_3		22.5
			FeO		3.5
			MnO		0.1
			MgO		2.2
			CaO		4.4
			Na_2O		7.1
			K_2O		0.8
			Mol Prop.		99.7
			$\frac{100\ MgO}{MgO + FeO}$		52.9

and alumina and also in iron (except where crystallization is greater than 30%) but there is marked depletion in magnesia. Thus the fractionating liquids show a large drop in the $\frac{Mg}{Mg + Fe}$ ratio. In contrast to the trends at 18 kb, the liquid fractionation trends at 27—36 kb (Tables 16—20) show significant enrichment in silica and alkalies, alumina remains approximately constant, and iron and magnesium are both depleted. The $\frac{Mg}{Mg + Fe}$ ratio shows a slight decrease, so that there is some iron enrichment relative to magnesia. This effect is probably accentuated by the experimental conditions where there is some iron loss to the platinum capsule during a run. This factor will mean that the iron content of the mafic phases as analyzed will be slightly less than expected for similar crystals in equilibrium with a melt without iron loss.