Table 3
Electron microprobe analyses of amphiboles from selected wet runs on the high-alumina quartz tholeiite composition.

Conditions of run	10 kb 920°C $7\frac{1}{2}$ hr WET	10 kb 960°C 4 hr WET	9 kb 1040°C 4 hr WET	9 kb 1040°C 4 hr WET	10 kb 960°C 4 hr WET	10 kb 920°C $7\frac{1}{2}$ hr WET	10 kb 940°C 6 hr WET	10 kb 920°C $5\frac{1}{2}$ hr WET
	Runs conducted in platinum capsules			Analyses adjusted for iron loss			Runs conducted in graphite capsules	
Co-existing phases	cpx *, opx, plag *	cpx *, opx	cpx *, opx *	cpx *, opx *	cpx *, opx	cpx *, opx, plag *	cpx *, opx, mt	cpx, opx, mt
SiO_2	40.5	40.8	39.8	39.3	40.2	39.9	40.0	40.2
TiO_2	2.9	2.8	3.9	3.8	2.8	2.9	3.0	3.1
Al_2O_3	15.8	14.4	15.8	15.6	14.2	15.6	14.8	15.4
FeO	10.0	8.2	7.6	9.8	10.6	12.6	9.4	9.8
MgO	13.1	14.9	14.9	13.7	13.6	11.6	12.9	12.1
CaO	12.4	11.7	12.0	11.8	11.5	12.2	11.6	11.8
Na_2O	2.5	2.7	2.9	2.9	2.7	2.5	2.0	1.8
K_2O	0.4	0.4	0.2	0.2	0.4	0.4	0.3	0.3
	97.6	95.9	97.1	91.7	96.0	97.7	94.0	94.5
$\frac{100\ Mg}{Mg + Fe}$	70.3	76.4	77.8	71.4	69.6	62.1	71.0	68.8
Structural formulae – calculated on 'dry' basis of 23 [0] since H_2O content could not be determined								
z Si	5.932	6.025	5.802	5.790	6.002	5.909	6.288	6.039
z Al	2.068	1.975	2.198	2.210	1.998	2.091	1.712	1.961
y Al	0.659	0.531	0.516	0.498	0.500	0.631	1.029	0.766
y Ti	0.320	0.311	0.427	0.422	0.314	0.323	0.354	0.350
y Fe	1.209	1.013	0.927	1.208	1.324	1.561	1.236	1.231
y Mg	2.862	3.281	3.239	3.011	3.029	2.561	3.024	2.710
z Ca	1.945	1.851	1.874	1.862	1.840	1.936	1.954	1.899
z Na	0.709	0.861	0.820	0.829	0.781	0.717	0.610	0.524
z K	0.074	0.075	0.037	0.037	0.075	0.075	0.060	0.058
z	8.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00
y	5.05	5.14	5.11	5.14	5.17	5.08	5.64	5.06
z	2.73	2.79	2.73	2.73	2.70	2.79	2.62	2.48

* Denotes co-existing phase analyzed.

enrichment of iron relative to magnesium would have been decreased if the experiments had not been carried out under such reducing conditions, since under more oxidising conditions a significant amount of iron in the trivalent state may be taken into the amphibole and pyroxene structures. For example amphiboles and pyroxenes from plutonic and effusive members of the calc-alkaline series contain a significant amount of ferric iron ([(100 Fe_2O_3)/($FeO + Fe_2O_3$)] ranges from 15.7–48.6 for amphiboles and from 19.1–32.8 for clinopyroxenes [13-16]).

The most significant feature of this experimental investigation at 9–10 kb under hydrous conditions where $P_{H_2O} < P_{load}$, is that the amphiboles and pyroxenes are subsilic, so that extraction of these phases provides a very efficient means of enriching liquid fractionates in silica. Thus the residuum in equilibrium with a liquid of basaltic andesite composition will consist of approximately equal proportions of pyroxene and amphibole. However, amphibole and subordinate pyroxene will form the residuum in equilibrium with a liquid of andesite composition (the