7. CONCLUSIONS

1. By fine grinding and flotation a concentrate assaying 92.5% CaF_2 with a recovery of ~~45.7%~~ 64.9 was produced from a feed assaying 16.5% CaF_2.
2. Removal of magnetite by magnetic separation applied to either the flotation feed or concentrate resulted in a high loss of fluorite due to the poor liberation characteristics of magnetite.
3. Grinding to 17 μm is necessary for good liberation of fluorite. Scheelite is well liberated at flotation sizes but little cassiterite liberated above 9 μm. Much of the magnetite is liberated at 33 μm but finely disseminated magnetite is evident in grains finer than 15 μm.
4. The chief contaminants in the flotation concentrate are magnetite, calcite, scheelite and amphibole. Further flotation cleaning stages should reject calcite and amphibole, but the magnetite occurs as fine inclusions in the fluorite. Differential flotation of the scheelite from the fluorite has not been studied.
5. It is unlikely that a high grade magnetite concentrate suitable for heavy medium use could be recovered from the ore because of the poor liberation characteristics of this mineral.
6. The composite ore sample contains 0.13% Sn, 45% of which is present in solid solution in garnet. The remaining tin is present as cassiterite which is too finely disseminated for physical beneficiation.
7. The composite ore sample contains 0.11% WO_3 as scheelite. This scheelite concentrated to 0.4% WO_3 with the fluorite during flotation but it is doubtful whether the scheelite could be recovered economically from this concentrate unless chemical treatment was carried out.