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between 0.18% and 0.33%, and $Ti/Zr = 9-10$, and P_2O_5 contents from 0.06 - 0.10%. Sample 563719 has over 8% K_2O , which suggests that the mineral identified as albite in the groundmass is orthoclase and not albite. It is not evident to me why the K_2O content of 563718 is not also very high, as the mineral making up groundmass and coarser patches in this rock is to me identical to that in the groundmass of 719. I wonder if the analysis for K_2O is correct, as in more than 60 analyses of Hellyer region dacites, I have no record of K_2O being $>6\%$, and in those most K-rich samples, Na_2O and CaO approached zero, unlike in 563719. The 8+% K_2O rocks are more typical of granitoid-related metasomatism such as is well shown south of Queenstown.

CORRELATION

An attempt is offered below to compare and correlate MAC 27 lava groups identified above with similar compositional groups known from drilled sections of the Hellyer stratigraphy elsewhere in the region, mainly from the Placer holes west of the highway, and MCH-1 at Mt Charter.

GROUP 1:

Compositionally similar low-Ti basalts (single analysis has 0.31% TiO_2 and $Ti/Zr = 22$, 0.11% P_2O_5) occur immediately below the Que Rv Shale around 400m depth in Placer Hole BRD-02 (located 500m due SE of BRD-01) and are around 20-30m thick. Significantly, no similar low-Ti basalts are known from the Mines Dept hole MCH-1.

Another group of low-Ti basalts compositionally very similar to the MAC-27 Group 1 low-Ti basalts occur as Unit 3 (~755-800m depth) in the Placer Hole BRD-01 some ~4km further north ($TiO_2=0.27-0.35\%$, $Cr=500-700ppm$, $P_2O_5 < 0.06\%$). This unit in BRD-01 is separated from the base of the Que River Shale by some 250m of fairly primitive basalts with significantly higher TiO_2 contents and Ti/Zr . This implies that a direct correlation of 563711 and associated basalts in MAC-27 with the compositionally similar Unit 3 in BRD-01 can only be possible if there is a pronounced wedging southward out of the upper lava units in BRD-01 (see below).

The basalts interbedded in the basal Que Rv Shale in MAC-27 are unlike those at an identical position within the Que Rv Shale in Placer hole BRD-05 (600m due S of BRD-01), which have around 0.5% TiO_2 , $P_2O_5 > 0.33\%$ and Ti/Zr fairly constant at 22.

GROUP 2

These andesites and basalts show some compositional similarities to those interbedded in basal Que River Shale in BRD-05. However, the P_2O_5 contents of the MAC-27 Group 2 samples, especially the more basaltic samples 14 and 16 (0.15%), are uniformly lower than those for the basalt