FURTHER INVESTIGATIONS of GRAVITY ANOMALIES in the MAGUNDY RIVER AREA, YUKON TERRITORY

The Bouguer Gravity Map displays a similar appearance to the topographic variations within the survey area. This usually means that the Free-Air-Correction is under compensated; in otherwords the "density" used for combined topographic correction (elevations and Bouguer) is less than the actual density of the crust. However, in this program a value, as high as 2.95 g/Cm^3 has been tested and it still gave the mirror image between the Bouguer gravity and the topography. Therefore, we must consider the presence of denser rocks within the geological section.

In many of the Yukon elevated regions it has been found that large masses of granitic rocks were intruded within the metasedimentary strata. In the Magundy River survey area the surface of lowlands (such as creek valleys) is generally covered with unconsolidated pleistocene deposits

(till), and the youngest bedrocks deposited in this area are generally Tertiary basic volcanic rocks. The Bouguer gravity high is situated in the middle and southeast part of the survey area and is concident with the topographic high. It is calculated from Line No.134 that an enormous gravity gradient of 54 milligals/mile with north-south orientation is present. This tremendous gravity high must be caused by high density rock body beneath that particular locality. Reviewing the residual gravity map we find a three milligal anomaly being established due to the presence of some mass. Assuming the maximum density contrast between this intruded body and the metasedimentary strata is 1 g/Cm^3, this granitic rock body must have a minimum built up of at least 4,000 feet in thickness within a horizontal distance of one mile. The three milligal residual gravity anomaly however, might be caused by either a "high density rock body" or by "heavy mineralized mass" deposited above the supposed granitic rock body.

Further, there may be bedding planes within the metasediments. This being the case dense south dipping beds flanked by less dense beds, may terminate at the surface where the rock ridging takes .....(Cont'd).

place. Thus we could account for the topographic highs as well as gravitational highs appearing over the dense bands. We feel this latter explanation is possibly the best reason for the linear gravity features existing over topographic highs. As a change in the Bouguer-Free-Air correction factor does not change the mirror effect we can only conclude that dense material does in fact exist in these localities.

Respectfully submitted by:

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