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GEOLOGICAL SURVEY DEPARTMENT

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THE GEOLOGY OF THE TSETSEBJWE AREA

(previously known as the Macloutsie Area)
An explanation of quarter degree sheet 2228A

By

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to remain in the Bobonong area.

4.5 Water Resources

All surface drainage in the Tsetsebjwe area is ephemeral and there is no permanent surface water. However, there is perennial water in the sand-beds of many rivers.

In most of the area, the local population relies on shallow hand-dug wells within or beside drainage channels or pans. The village of Tsetsebjwe, the Tuli Block farms and a few cattle-posts are supplied by boreholes. There are several small earth dams in the quadrangle but all were dry during the present survey. There appears to be considerable scope for building small dams or weirs throughout the Thune drainage basin, but rather less elsewhere. A reconnaissance land resource study along the main rivers in eastern Botswana estimated the irrigation potential of parts of the north of the Tsetsebjwe area. The study noted a possible dam-site on the Thune River at about 28°15'E, downstream of which there is about 200 hectares of irrigable land (Mitchell 1976). An alternative dam-site on the Thune River, south of Molalatau (QDS 2228B) was noted in a study by Sir Alexander Gibb and Partners (1977).

According to Jennings (1974) and Dechend (1979), the basement terrain has uniformly poor potential for groundwater development. Although the water itself is normally of good quality, it generally lies in small unconfined reservoirs within open fractures or weathered zones. The best borehole

sites on the basement complex are therefore on such fractures close to present-day drainage, where they can be recharged.

The Karoo sediments are widespread and important aquifers in Botswana. As they are overlain by a thick lava sequence, recharge of the Karoo sediments in QDS 2228A probably occurs mainly at outcrop. However, they may contain considerable connate water. Groundwater flow is generally down-dip, unless interrupted by faults or dykes.

As in the basement, recharge to the water-bearing fractures in the Karoo lavas is probably also limited to areas of present-day drainage. Groundwater in the lavas tends to be partly brackish.