

Geological Progress Report at Storeys Creek Tasmania

Introduction

The writers visited Storeys Creek between 18th and 22nd October 1968 to review the progress of routine geological mapping and interpretation and to establish ways and means of extending the work undertaken by Mr. R. M. Thomson. The writers were very favourably impressed by the progress made by the mine geologist Max Rangott but realised that it would be impossible for him to meet all the requirements of day to day assistance to the mining section and to undertake major studies envisaged to extend Thomson's work.

It was noted that owing to his departure from the field Thomson had failed to produce level plans incorporating lithological and structural data and the three cross sections produced although quite satisfactory did not show any measured structural data between vein and wall rock. It was apparent that additional cross sections should be prepared as soon as structural data could be collected. In addition it was decided that a study of jointing should be made both in the sediments and granite with the object of establishing data relating to vein structure and orientation. A further requirement would be longitudinal sections for both the Hanging wall and footwall vein systems incorporating structural data which could be related to vein width studies.

During the visit the No. 9 level was remapped for major structure and lithology and a preliminary plan drawn incorporat-

ing this information. Preliminary cross sections at 3100N and 3500N were commenced. The emphasis on interpretation of the northern section of the mine was made because of the proposed northern exploration drive on the No. 9 level.

Structural Study

On the No. 9 level a reasonably reliable stratigraphic sequence (if not thickness) of this part of the mine was established. This is necessary to determine accurately the elements of the south east fault system and to establish the exact size and shape of the major and minor folds in three dimensions. As shown on the plan it is possible to correlate fold axes and lithologies over the whole length of the mine with a fair degree of confidence. The extrapolation of this information onto the cross sections can only be made when further levels have been interpreted and detail mapping down the section is complete.

Joint Study

It is suggested that the study of the jointing should be made in three rigid subdivisions.

- i. in the country rock away from the main veins
(i.e. in the long cross-cuts).
- ii. in the immediate vicinity of the veins and along strike from veins where they taper off (i.e. in drives, raises and stopes)
- iii. in the aplite cupola.

Within each subdivision the veins should be studied with some property of the known country rock as a constant parameter (e.g.

a planar dipping limb either to the east or west, a hinge which is generally narrow and a constant lithology). Properties of joints which are likely to be significant are the spacing, length persistence and nature of the surface, whether planar or curved. It is then easy, even if somewhat time consuming to analyse all these properties with the stereographic projection.

After collection of data from the No. 9 Level about 100 observations on joints were made in the 2900N and 2950 N cross cuts on the No. 9 level. It seems that there is a strong relationship between bedding and joint direction, lithology and joint direction and lithology and joint spacing. Joints are mainly parallel to bedding in slates and psammopelites with minor jointing normal to bedding. Quartzites and quartz-rich psammopelites have many more directions of jointing which appear to be dependent on the local attitude of bedding. A brief examination of joints near the veins indicated that these are joints parallel or sub parallel to the veins. However there are a large number of joints which are oblique to the veins but readings on these have not been made as yet.

Recommendations for Future Work

In setting forth recommendations for future work it should be noted that there is an overlap between what the mine geologist might accomplish and what are special studies involving outside assistance. The following therefore are more in the nature of approach to the problem of relationship between vein structures and matrix bed structures than specific recommendations.

1. Lithological and structural fact plans for 11,987, and possibly 6 levels. (Mainly outside assistance).
2. Structural interpretation leading to a three dimensional fold style and shape and a stratigraphic sequence. (Outside assistance).
3. Joint studies leading to orientation relationships among veins, bedding and joints (Outside study).
4. Fact cross sections with vein structure and country rock structure relationships (Mine Geologist).
5. Vein splits & rolls projected and traced from level to level. Here changes in lithology where veins are discordant should be noted and multiple joint directions checked (Mine Geologist).
6. Preparation of longitudinal sections for hanging wall and foot wall vein systems showing all plunge and pitch data (Combined outside assistance and mine geologist).
7. Detail mapping of veins in relation to mineralisation and attitude of country rock in development of openings (Mine Geologist).
8. Items 4 and 7 should receive the highest priority by the Mine Geologist.

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