TENNANT CREEK TECHNICAL NOTE
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Summary geological works from 3rd to 13th July 08:

- Literature review of previous works on Tennant Creek
- Geological, geophysical and drilling data reviews of Prosperity tenements
- Discussion with Prosperity Geological team
- Shear zones and quartz veins workshop
- Field visit
- Report

1) Tennant Creek gold deposits characteristics:

- Host rock: predominantly magnetite/hematite elongate bodies (ironstones) in the Caraman formation of the Lower Proterozoic Warramunga Sedimentary Group.
- Structure:
    - Early EW trending, upright open to tight isoclinal folding, with EW planar axial cleavage. Fold axes plunge shallowly both to the west and east.
    - Emplacement of ironstones along the axial cleavages especially at the hinge zones.
    - Emplacement of porphyries, which are sub-parallel and/or crosscut bedding.
    - NW to WNW trending regional shearzones with apparent sinistral movement.
    - ENE trending structures.
    - EW shearing adjacent to ironstones with reverse dextral movement.

- Mineralisation and alteration:
    - Gold/copper/bismuth mineralisation associated with shear zones adjacent ironstones and within the ironstones.
    - Chlorite (+ carbonate) alteration

2) Observations:

- EW trending open folds to the Northwest (Blackeye, White Devil areas) and tight to isoclinal folds to the Southeast (Juno, Peko, Nobbles Nob area)

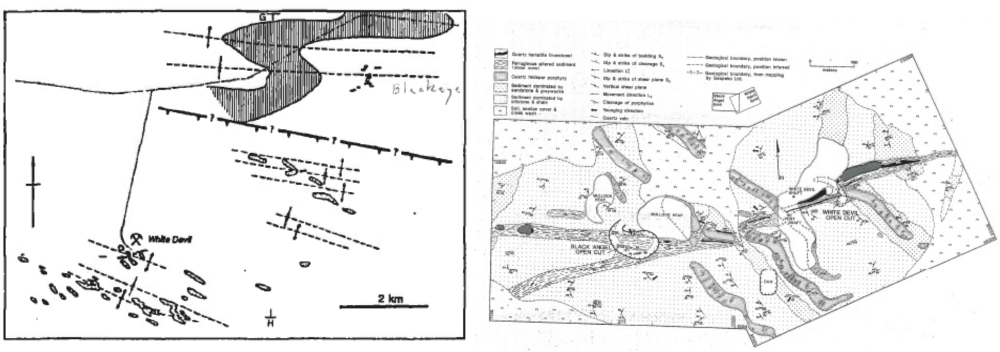
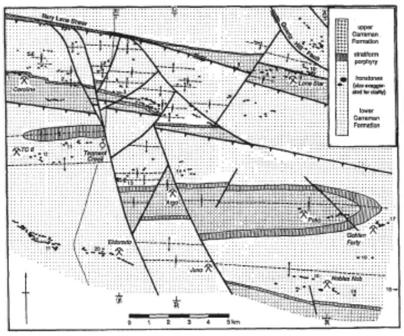


Fig 1: Western Tennant Creek open folds: Blackeye (left, Rattenbury 1992) and White Devil (right, Nguyen et.al. 1988) and Eastern Tennant Creek tight isoclinal folds (below)



- NW to NNW structures with apparent sinistral displacement

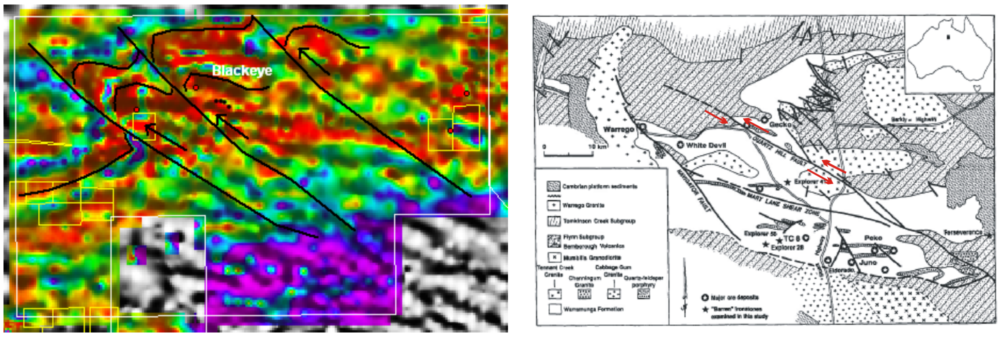


Figure 2: Sinistral displacement on NW trending structures (left, Gravity over Magnetic image and right, regional geology from Zaw et. al. 1994)

- Mineral occurrence commonly associated with large regional NW structures, especially near the intersections of EW trending high magnetic/gravity anomalies and NW trending structures (Figure 3). Sinistral displacement is observed at the intersections.

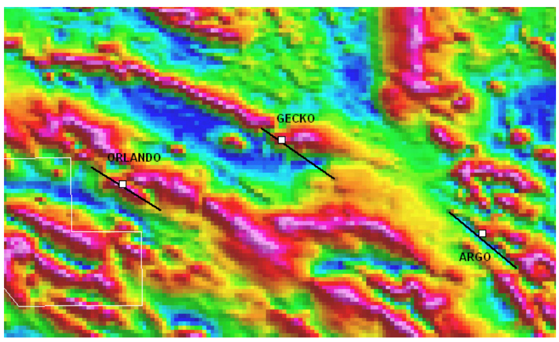


Figure 3: Relationship between gold deposits and NW structures (Magnetic Potential Field Tilt)

3) Field observation:

- Gold/copper/bismuth mineralisation commonly associated with EW shear zones adjacent to the ironstones and in fractures within ironstones.
- These shearzones often contain stringer veinlets of ironstones (Caroline, Orlando, White Devil)
- Intense chlorite alteration associated with shearing in fresh rock, but near surface these shear zones weathered into clay zones with elevated Th (>20ppm)
- Mineralised shear zones generally show reverse-dextral movement.
- Low magnitude NW trending shearzones is common with apparent sinistral displacement from cm to meters scale (Figure 4, left). In some cases, EW trending

copper mineralisation in ironstones shows thickening at NW shear contacts (Figure 4, right)


Figure 4: Common NW trending faults with drag folds indicated sinistral movement (Orlando mine, left). NW fault with thickening of ironstone and oxidized copper mineralisation (right)

- Some surface “ironstone” with no root extension could possible be iron enrichment zones of weathering profile (lateritic cap)

4) Discussion on Tennant Creek gold mineralisation:

- Postdated the folding event (NS compression).
- Associated with EW trending dextral-reverse shears adjacent to ironstones.
- The role of NW structures in the development of gold mineralisation is not fully understood, however, they can be interpreted as movements associated with shear zones during WNW-ESE compression. The movements on these structures can be interpreted to generate dilational sites around the ironstones. They also can be interpreted as fluid conduits to bring mineralisation to EW trending sheared ironstones.
- Ironstones and porphyries could act as both physical and chemical barrier, which trap the upward flows of mineralised fluid at their sub-horizontal orientation (Figure 5 and 6).

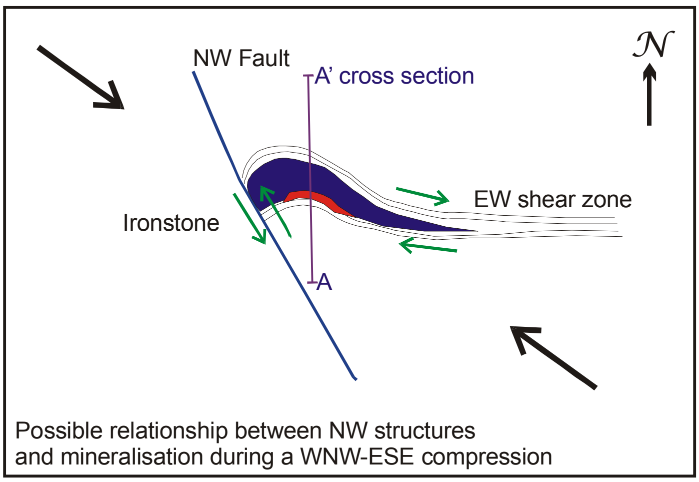


Figure 5: Schematic diagram in plan view, to illustrate the sinistral movement on NW structure and the dextral movement on shearzone adjacent to the ironstone (blue). Dilational site for mineralisation is shown in red.

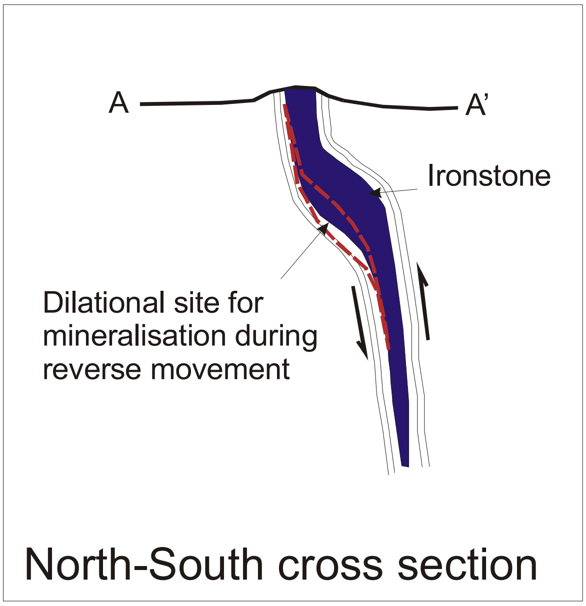


Figure 6: Cross section AA' (from Figure 5), to illustrate the location of mineralisation at flatter dilational site underneath the ironstone.

5) Recommendation:

- Target EW trending magnetic/gravity anomalies with sinistral drag folds where they intersect NW structures (in both exposed ironstones and under transport cover).
- Use north-south aircore lines to test under cover targets (~20mx100m spacing)
- For deeper RC and diamond holes, drill though both sides of ironstone contacts.
- If possible, drill 3 holes on each NS section to test the flexures of the ironstones at depth.
- Caroline, TG12 and Great Eastern appear to be lower risk targets. The prospects have mineralisation in foliated zone adjacent to ironstone, with stringer veinlets of magnetite/hematite.