UPDATE ON THE LIMESTONE QUARRY PROPOSAL IN NW TASMANIA

- Arthur Clarke

Introduction

Attendees at the recent ACKMA AGM at Buchan (in June) unanimously agreed to support action against exploration and/ or mining in the pristine virgin forested Mt. Cripps limestone area in NW Tasmania. As previously reported in *ACKMA* Journals (#38 and #39), Mineral Resources of Tasmania (MRT) placed a mineral exploration license (EL) notice in a NW Tasmanian newspaper, on behalf of the Western Australian exploration division of Western Metals Resources Limited (Clarke, 2000a; 2000b). Western Metals sought an exploration license (EL: 17/99), for a 29km² area of limestone in the Mt. Cripps area of NW Tasmania.

Location of Mt. Cripps karst area

The Mount Cripps karst area in NW Tasmania lies within an extensive area of Ordovician (Gordon) Limestone located about 80km south of Burnie and 20km WNW of Cradle Mountain. The karst is formed within a SW to NE trending, roughly linear band of limestone approximately 17km long and 6-7km wide at its widest point. The Cradle Mountain Link Road and North Forest Products timber leases bound the limestone to the north, in the east it is bordered by *Mackintosh Creek* and the *Vale River* and in the south by new hydro-electricity impoundment (*Lake Mackintosh*). [When constructed in 1981, *Lake Mackintosh* "drowned" the southern portion of the limestone, submerging outflow caves and aboriginal occupation sites (Heap, 1999); occupation sites in this area date to 10,000 years BP (Stern & Marshall, 1993).] Immediately west of the limestone and its karst lie the two sulphide ore mine operations: Que River Mine and Hellyer Mine.

The Western Metals limestone-quarrying proposal

In 1998, Western Metals acquired the silver/ lead/ zinc Hellyer Mine from Aberfoyle. As shown on the map in Dave Heap's article (page 5 of *ACKMA Journal* #37), the mine is situated near the *Southwell River* north of *Lake Mackintosh*, located a little more than a kilometre from the Mt. Cripps limestone area (Heap, 1999). The Hellyer Mine has recently closed, but Western Metals are now seeking limestone to neutralise a proposed acid leaching "pressure oxidation process" process of the mine tailings: a process that breaks down pyrite minerals and mobilises heavy minerals, such as gold, silver and residual zinc. The previously mentioned joint venture partner: Dominion Mines (Clarke, 2000b) has now withdrawn from the venture.

After treatment with the limestone, Western Metals propose to treat the leached sludge residue using a cyanide process to separate the gold. In *ACKMA Journal* #39, it was incorrectly reported that 20 million tonnes of limestone was required. It has now been revealed that approximately 2 million tonnes of high-grade limestone is being sought over a ten-year period – the approximate time required to extract all the heavy metals including the estimated 1 million ounces of gold. It should also be noted that in addition to requesting limestone as a "Category 1 (Industrial) Mineral", the advertised EL notice also states that Western Metals is seeking limestone as a "Category 3 (Construction) Mineral", which may mean they do intend to quarry larger volumes, using some limestone for road-making (or other) purposes.

Significance of the Mt. Cripps limestone and its "karst"

The limestone has been partially explored by cavers; the known area contains a suite of karst landforms: surface depressions, swallets, caves, obvious subterranean drainage and a few efflux springs. Apart from the presence of about 215 known caves, rare cave fauna, fossil deposits including megafauna and archaeological sites, the particular significance of Mt. Cripps karst area stems from the presence of its polygonal karst – a crowded network of small and large-scale closed depressions, separated by narrow almost arête like ridge divides. Although there are three other well-documented areas of polygonal karst in Australia (all in Tasmania), the significance of this Mt. Cripps karst area is further enhanced by the fact that it is the only area of polygonal karst in Australia that has been subjected to multiple glaciations and still has its original (unlogged) myrtle-dominant rainforest cover.

Previous protection efforts and land tenure

Based of its known karst attributes, including an undisturbed area of glaciated polygonal karst, there have been several attempts to protect the Mt. Cripps area: by inclusion within the WHA with an extension of the existing nearby boundary; by listing on the National Estate register; and by recommendation for the creation of a Crown Land Reserve. Described as the "*Mt Cripps-Southwell River*" area, the proposal for inclusion in the World Heritage Area was contained in a ministerial report to the Tasmanian Government by the Dept. of Parks, Wildlife and Heritage in 1990. The report stated: "*…The Mt Cripps-Southwell River area would add to the values of the World Heritage Area in terms of criterion (ii), and further satisfy the conditions of integrity for criteria (i) (earth's evolutionary history - sites should contain all or most of the key interrelated or interdependent elements) and (ii) (geological processes - sites should contain the necessary elements to demonstrate the process and be self-perpetuating), for natural property*" (PWH, 1990). This ministerial report was not endorsed by the Tasmanian government or furthered as a nomination for World Heritage Area.

The nomination for inclusion on the Register of the National Estate was contained in a more recent report to the Tasmanian Regional Forest Agreement (RFA) that detailed significant sites of geo-conservation value within Tasmanian forests (Dixon and Duhig, 1996). Based on the boundaries defined in the Tasmanian Karst Atlas (Kiernan, 1995), the "*Mt. Cripps Karst*" was shown extending west to the *Southwell River* valley. The karst was deemed as a place "*considered to surpass the threshold for listing on the Register of the National Estate*" and was considered to satisfy National Estate sub-criteria: A1, A2, A3, B1 and D1 (Dixon and Duhig, 1996). Similarly, in the RFA Cave Fauna report, there was a recommendation for the Mt. Cripps karst area to be declared as a Crown land reserve to protect the cave fauna communities [Section 5.5.2(b) in Clarke, 1997] (Clarke, 2000d). However, since the RFA process concentrated on criteria for tall growth forests and biodiversity, rather than geo-conservation values such as karst, many areas of deferred forest and Forestry Tasmania RAP's (Recommended Areas for Protection) including forested karst areas such as Mt. Cripps received scant consideration.

The Mt. Cripps karst now mostly falls into two proposed tenure categories: as a Conservation Area in the north and as part of the Reynolds Falls Nature Recreation Area in the south. These new land tenures have not yet been proclaimed. There is also a small section of unallocated land as State Forest, west of the *Southwell River*, plus an area under the domain of *Aurora Energy*, *Transend* or *Hydro Tasmania* near the shores of *Lake Mackintosh*. Tasmanian Govt. legislation permits mineral exploration and mining in all these tenures (Clarke, 2000d).

Preliminary environmental assessment and objections to the EL

Prior to advertising their EL proposal, Western Metals engaged Ken Grimes as a karst consultant to perform an on-ground assessment of the environmental impacts at three of four preferred quarry sites in the limestone karst. With assistance from cavers (in Savage River Caving Club), Grimes documented the cave and karst features of the known area (Shannon, et. alia, 1991; Heap 1999) near the three potential limestone quarry sites and recommended against quarrying, since this "*…would violate the overall integrity of the Mount Cripps karst area…*"(Grimes, 1999). Although the company had already rejected a fourth potential quarry site, located west of a northern arm in the "new" *Lake Mackintosh* formed by the drowned lower reaches of the *Southwell River*, Grimes suggested since this western area "*…is now isolated from rest of the karst area by the lake…*" this site "*…would have the least impact on the karst…*" He also recommended that Western Metals consider alternate sources of limestone from existing quarries (at Mole Creek or Railton) and "*…investigate alternative sites in other limestone areas of lower karst significance…*"(Grimes, 1999).

Mineral Resources Tasmania (MRT) received four objections to the EL – from the Australian Speleological Federation (ASF), Southern Tasmanian Caverneers (STC), Savage River Caving Club (SRCC) and the North West [Tasmania] Walking Club. The latter group based its objection on concerns for loss of wilderness and forest values, potential destruction of flora and fauna species (including cave species) and visual degradation of the landscape. The other objectors (ASF, SRCC and STC) detailed various aspects of the known karst and its significant attributes: the polygonal karst, caves, cave fauna, fossil deposits and archaeological values. In addition to the EL objections, MRT received a submission from Launceston-based speleologist (and retired geologist): Henry Shannon, who forwarded the novel idea of lowering the *Lake Mackintosh* impoundment to permit limestone quarrying on the present lake floor, with the lake being back-filled after the quarry was completed (Shannon, 2000).

The new (1995) *Mineral Resources Development Act of Tasmania*, states that all objections to an EL or mining license are taken to a Full Bench of the Mining Tribunal in Tasmania. The four objectors to the EL received notices from MRT advising that an "*informal meeting*" was being convened in Burnie on June 1st between Western Metals, MRT and the EL objectors - with the MRT Registrar of Mines (Dennis Burgess) acting as mediator. Shannon was also invited to attend. Although there is nothing in the Act that specifically refers to the mediation process, the MRT letter stated that the mediation session was arranged so the applicant (Western Metals) could "*…discuss your concerns and provide an opportunity for the applicant to provide further details on the proposed work program and exploration activities*."

Outcomes from the mediation discussions in Burnie on 1June 2000

Following discussion with the objectors in the Tasmanian offices of Western Metals at Wivenhoe (near Burnie), the Tasmanian Manager (Greg Marshall) agreed to modify their EL to avoid the high sensitivity karst areas (highlighted in the Grimes report). Defining boundaries on the Sophia 1:100,000 sheet, Marshall agreed to reduce their 29km² EL proposal by two-thirds to a lesser 10km² area west of Gridline 395mE and south of Gridline 5393mN. This 10km² area, now centred on the *Southwell River* valley and the northern arm of *Lake Mackintosh* would include their fourth non-preferred quarry site, located more distant to the mine site and present access roads. (This 10km² area also includes a known efflux spring on the lower western slopes of Southwell Peak, east of the *Southwell River*.) In similarity with the recommendations in their consultant's report (Grimes, 1999), Marshall also agreed that Western Metals would investigate alternative limestone deposits where there were no known karst values (Kiernan, 1995) and consider sourcing their product from the existing limestone quarry at Railton, transporting it to their now-defunct ore transporting railhead at the Hellyer Mine. The proposal by Shannon to quarry limestone from the lake floor was not given a hearing. However, both MRT and Western Metals were interested to hear Shannon's reports of other

limestone outcrops in the *Southwell River* valley (Shannon, *et. alia*, 1991), not described by Grimes.

Subsequent to the mediation session in Burnie, the objectors received two notices from the MRT Registrar (Dennis Burgess): firstly, copies of "notes of the meeting", agreed (?) "Resolutions" and a request to confirm whether we were withdrawing or not withdrawing our objections; secondly, a notice of a modified EL17/99 application by the Western Australian office of Western Metals showing an area of 13km² (Clarke, 2000c; 2000d). The three additional kilometre squares lie north of Gridline 5393mN, but west of Gridline 395mE and contain additional outcrops of limestone reported by Shannon at the mediation session in Burnie.

Continued objection to the EL and limestone mining in the Mt. Cripps area

Following the MRT response showing the modified EL area, all three caving bodies: ASF, SRCC and STC initially continued to maintain their objections. The MRT advised that Monday December 4th has been set as the date when the matter concerning the EL objections will be listed for Mention at the Mining Tribunal in Hobart. At this "listing for mention", a single magistrate will determine whether we (the objectors) have legal standing (interest or estate) under the legislative jurisdiction of the 1995 Act to object to the EL, in order for the case to proceed to a hearing.

The ASF representative has had preliminary discussions with the Environmental Defenders Office (EDO) in Hobart. Although the EDO has indicated support for our cause, they cannot assist us because they still do not have a solicitor in Tasmania. Furthermore, the EDO indicates an unwillingness to fund our case because they are doubtful about ASF gaining legal standing – even by supporting SRCC – because in the strict letter of the law, it is unlikely that we would be able to prove a proprietorial "interest" in the EL area, as required by the legal jargon in the new 1995 legislation.

Following is a referenced summary of the ASF concerns in regard to the modified EL17/99 (taken from Clarke, 2000d):

- Despite the difference in size of EL areas proposed by the Tasmanian office and Western Australian office of Western Metals, a 10km² or 13km² area still appears to be an excessively large EL area for a limestone quarry, estimated to attain a size less than 200m² (Clarke, 2000a; 2000c; Grimes, 1999; Shannon, 2000);
- ASF opposes the exploration and/ or mining of limestone from karst areas. There are numerous areas of carbonate rock including limestone, but karst itself is a comparatively rare natural feature (Kiernan, 1995; Shannon, 2000). ASF supports the established IUCN provisions and guidelines for cave and karst protection, including the protection of catchments to karst areas (Watson, *et. alia*, 1997);
- The Mt. Cripps karst area has been previously described as a highly significant area of glaciated karst with large "pockets" of the even more rare polygonal karst with enigmatic subterranean drainage and unique cave fauna. The limestone, its karst and the glacial cover support a unique and significant natural vegetation comprising of virgin, climax (myrtle-dominant) rainforest and mixed wet sclerophyll forest (Clarke, 2000a; 2000b; 2000c; Heap, 1999; Kiernan, 1995);
- The significance of this area can be attested by the fact that the entire Mt. Cripps karst area - including the area bounded by the western side of the *Southwell River* valley - has been previously proposed for inclusion in the World Heritage Area and also nominated for inclusion on the National Estate (Clarke, 2000c; 2000d);
- The unit of Ordovician limestone in this Mt. Cripps region – encompassed by the original 29km² EL17/99 area and/ or the modified 13km² EL17/99 area – is essentially the same contiguous geological rock unit. The area west of the northern arm of *Lake Mackintosh*, listed as "*W8*" – "*Charter-Southwell*" by Kiernan, is described as being geologically "*...a westward extension of the Mt. Cripps and Blackwater Creek areas...*" (Kiernan, 1995). It is likely to feature a similar range of surface, sub-surface or subterranean karst features (including palaeokarst), along with significant cave fauna and other natural attributes (Clarke, 2000c);
- As an aside from these reasons above, ASF could not agree to an EL being granted in the revised or modified area where no preliminary "on-ground" surface karst investigations have been undertaken by the consultant (Ken Grimes) or by cavers and karst experts. The consultant's report (Grimes, 1999) states that aerial photograph interpretation suggests the possibility of large dolines and a possible small area of polygonal karst – west of *Lake Mackintosh* (Clarke, 2000c; 2000d);
- The absence of obvious surface karst features (possibly covered by glacial till deposits) does not negate the presence of subterranean karst features. There has been no indication by Western Metals or MRT of any course of action if surface, sub-surface or subterranean karst features are encountered during the course of exploration or mining of the limestone (Clarke, 2000b; 2000d; Shannon, 2000);
- ASF is concerned by the need for limestone as a "*Category 3 (construction) mineral*" in addition to a "*Category 1 (industrial) mineral*". Western Metals did not acknowledge the requirement for limestone as a "Category 3" construction mineral during the mediation session. It is unknown whether the need for this "Category 3" limestone commodity (and the volumes required) is included within the estimated annual requirement of 160,000 tonnes of limestone (Clarke, 2000b);
- There are already unconfirmed reports from SRCC cavers of turbidity and flocculent in the *Southwell River* arising from the mine tailing dams at the Hellyer Mine site. In addition to continued turbidity, there is added concern that a cyanide treatment process could result in leakage into river systems and waterways which drain into the karst aquifer systems or through the karst: both could potentially impact on natural processes and the cave fauna ecosystems (Clarke, 2000b; 2000d).

Where to from here

Following my return from China – where the continued quarrying or exploitation of limestone karst is not considered an issue – I have been advised that SRCC have had more private talks with the local Burnie-based Tasmanian manager of Western Metals. As a result of these discussions, SRCC now feel that their concerns are no longer warranted regarding the possible impacts to known karst features east of the *Southwell River* within the modified EL area. SRCC have also conducted a brief (six-hour) surface exploration in part of the EL area west of the northern arm of Lake Mackintosh (the flooded lower reaches of the *Southwell River*) and apart from a small cliff of broken limestone near the lakeside, SRCC have not been able to locate any karst features or additional outcrops of limestone. The conservation officer for SRCC (Frank Salt) has reportedly written to MRT advising that SRCC will no longer continue their objection to the EL. (SRCC are also in the unenviable position of being based in the Burnie region of NW Tasmania – an area of high unemployment – where their continued objection to a potential employment initiative could bring them disfavours from the wider community, possibly limiting access to other karst areas.)

This recent decision by SRCC obviously weakens the stand of ASF. SRCC may have possibly proved a reasonable case for "proprietorial interest" in the EL area by virtue of their decade of karst exploration activity in the area, their caving hut on the North Forests lease and holding the key to the access gate boom barrier leading into forest leases bordering the karst and EL area. Combined with this, the response from EDO indicating that ASF would have difficulty proving its "interest" in order to gain legal standing suggests that it might be better to let the EL run its course with the promised assurance that the company and relevant government bodies will conduct their own satisfactory environmental assessment.

Recent correspondence from MRT advises us (the objectors) "*…before any on-ground activity may take place on the license area, the explorer must seek written approval from Mineral Resources Tasmania (MRT). Because the license overlies sensitive areas, MRT will refer any work program proposals to the Mineral Exploration Working Group (MEWG). Members of the MEWG will in turn refer the program to specialist officers within their agencies for advice and comment as required. The MEWG may request further studies be carried out prior to work commencing to ensure that a proper assessment is made of likely impacts from proposed activities. MRT has agreed that any work program put forward for EL 17/1999 must address any potential effects on karst values within the area of the proposed activity. MRT and MEWG will be mindful of the need to protect karst values when assessing any proposed work program in this area.*" The MEWG comprises representatives of MRT, DPIWE (Parks & Wildlife Service and Environment & Planning sections) and Forestry Tasmania.

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