Tasmania Department Of Mines — Report 1992/31

Notes on previous mining and exploration activities in the Interview River area (Revision 1)

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Abstract

The tungsten deposits at Interview River have been of interest to prospectors for over 100 years. Intermittent prospecting has been done, mostly by hand, on a small scale until an intensive phase of exploration in the early 1980s resulted in a series of backhoe trenches being dug at 40 m intervals over the entire deposit area.

Discussions between various Government agencies via the Mineral Exploration Working Group led to a decision to have the trenches, which were quite visible on the most recent (1985) air photos, filled in. However a reconnaissance inspection (January 1992) prior to the mobilization of machinery revealed that much of the area was now overgrown and some 40 hours machine time would be needed to walk the excavator into the area each way. Photographs taken from a helicopter by the Survey Division of the Department of Environment and Planning reinforced the ground observations. In the light of this new information the Mineral Exploration Working Group resolved to implement a smaller manual rehabilitation programme, whereby the remaining bare areas will be covered with ti tree slash and fertiliser, this programme to be undertaken jointly by the Department of Parks, Wildlife and Heritage and the Department of Mines.

These notes on previous mining and exploration activities have been compiled to give an outline of the various phases of activity known to have occurred in the field.

INTRODUCTION

The Interview River area, on Tasmania's West Coast, was visited briefly by Van Diemens Land Company Surveyor Clement Lorymer with Jorgen Jorgensen in March 1827, on an excursion which "achieved practically nothing"[1] and is remembered primarily for the death of Lorymer who drowned whilst trying to swim the Duck River — after which the rest of the party crossed upstream over a log. This event has the distinction of being the "only recorded death of a member of an exploration party in the whole history of western exploration" [2]. Lorymer was looking for stock routes, not minerals, and as no suitable stock routes or grazing lands were found the area received little attention for some time.

Small quantities of alluvial tin were discovered in the 1890s in many of the rivers and creeks draining westward from the Frankland and Norfolk Ranges[3]. The quantities of tin around the Interview River area were very small, but another interesting mineral, wolfram, was discovered in 1891[4]. The area has been prospected intermittently since that time, but no commercial mining of the wolfram has ever eventuated.

LOCATION AND ACCESS

The Interview River tungsten deposits are located 12–14 km north of Pieman Heads, between Chimney Creek in the north and Interview River to the south, and are about 3 km inland from the coastline. The locations of the prospecting areas are shown in Figure 1.

Access has always been difficult, there being no formed roads in the vicinity of the deposits. At the turn of the century a pack track extended from Remine to Circular Head. All food, tools, personal belongings and mining equipment had to be carried by pack horse or human labour to the Interview River area[5]. By 1910 a fairly good pack track extended southwards from Balfour to Interview River; from here to Corinna or the Pieman Heads there were a number of tracks, all in poor condition[6].

Henderson noted in 1935 that the field could be reached by following a "coastal stock route" south for about 28 miles (45 km) from Temma (Whale's Head) — so perhaps Lorymer's excursion was not in vain after all — or by a staked walking route from Pieman Heads. Persons using this southern route could get to Corinna by road, then had to be conveyed by a boat a distance of 14 miles (22 km) down the Pieman River to the pack track[7]. By 1943 this route was only suitable for people, not horses. The northern route, from Balfour, was also difficult.

While there was a pack track from Interview River to Balfour, getting to Balfour from anywhere was a real trial. A rough vehicular track extended from Marrawah, mostly a corded track on which vehicular traffic was lucky to make the 42 mile (67 km) trip in less than three days and which involved taking equipment on a ferry over the Arthur River. When this ferry was out of service, individuals were reduced to transporting supplies from one side of the river to the other in a small rowboat[8], surely enough to try anyone's patience.

A rough vehicular track was put in from the Pieman River end in the 1950s. This route is now largely overgrown. During the 1980s phase of exploration machines and vehicles were taken along the northern (Temma) route, using in part the long sandy beaches as "roads".

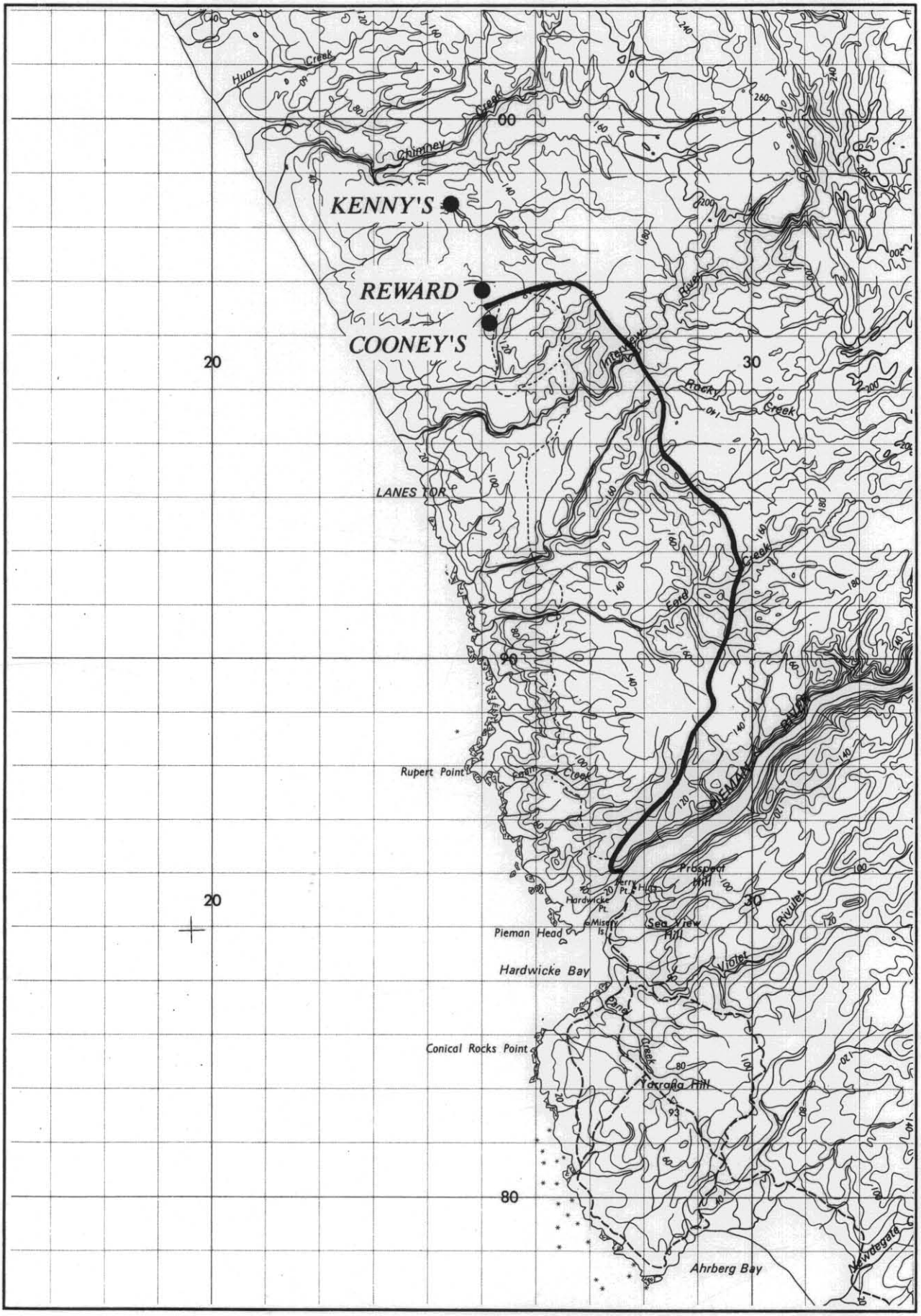

Figure 1.

Location of Interview River area, showing major prospects and approximate location of proposed road.

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GENERAL GEOLOGY

The deposits of "wolfram ore" (i.e. tungsten) are contained in a belt of granite country which runs along the coast for about 16 km north of the Pieman River[9]. Small pockets of alluvial tin were worked at the turn of the century, by sluicing in the creeks which "traverse the granite belt". Waller remarked on finds of rounded natural glass "buttons", called "Australites" by the miners, which turned up in the alluvial tin wash[10].

The wolfram ore is found in veins of quartz which "stand out boldly above the surface of the granite". Minerals associated with these veins include wolframite, scheelite (ores of tungsten), tourmaline, pyrite, arsenopyrite, pyrite, mica and small amounts of feldspar[11].

The wolframite occurs either as isolated blades up to 100 mm long, or as rich aggregates or "bunches" distributed sporadically throughout the veins. Scheelite is generally associated with wolframite aggregates, but is found forming aggregates of its own in quartz[12].

The economic minerals which the prospectors were seeking in this mélange were wolframite [$(Fe,Mn)WO_4$] and scheelite [$CaWO_4$], both of which contain the metal tungsten (W). The Latin name for tungsten is "wolfram", hence the symbol "W", and these two names are sometimes interchanged. Tungsten is used primarily in the manufacture of a very hard, tough steel, suitable for making cutting blades and surgical instruments. Tungsten steel is also used in the manufacture of weapons, and in war time is considered a "strategic" mineral.

The granite in which the tungsten lodes are found has been described as "equigranular, fine to medium grained biotite/adamellite of the Devonian Pieman Granite"[13]. The veins in which the tungsten minerals occur are from 100 mm to one metre wide, and are discontinuous[14]. The series of quartz veins are fracture fillings, and extend over 2 km, trending 350°M[15]. Waller described the occurrence of the minerals as "bunchy"; spot samples of pieces of vein are of little use in determining the overall economic grade of the deposit.

PREVIOUS MINING HISTORY

A Reward Lease for wolfram of 80 acres (32.4 ha) at the Interview River was granted to Alfred Foster on 7 July 1891. This lease was transferred to Adolphus Oppelheimer on 31 July 1893[16], and for a short time small quantities of ore were won from trenches cut to expose the thin mineralised veins. The position of this initial Reward Lease is shown in Figure 2 (as 5119M).

The first Government inspection of the field was by G. Waller in 1901, who reported that while a little activity had taken place on the Reward Lease, and both to the north and south of it, the field was, at the time of his visit, not being worked[17]. However leases were held and others marked out, so there was still some interest in the area.

On the northernmost lease (4943-93M) Waller noted "some old trenches from which a good deal of vein quartz has been obtained" some ten years earlier (i.e. around 1890). These are in the area now known as "Kenny's Prospect".

South of this, Waller saw that "an old shaft had been sunk" (this would be on the Reward Lease, shown as Lease 5119 on Figure 2). The mullock heap around this old shaft had been picked over and Waller observed that the "greater part of the wolfram [had been] taken away" [18].

South of this again were some 1.5 m deep trenches (on Lease 5121) and to the northeast of these trenches was one 15 m long trench — filled in at the time of Waller's visit, much to his annoyance, but from which one ton of ore had been won. Nearby was a shaft, 2.7 m deep and full of water, dug on a vein containing wolframite following the discovery of this particular vein in March 1899[19]. This collection of scrabblings is in the area now known as "Cooney's Workings".

The field was visited by the Assistant Government Geologist, L. Keith Ward, in 1910. Ward recorded his findings in two Departmental publications, a Geological Survey Paper and later a Geological Survey Bulletin[20, 21]. Little work had been done since Waller's 1910 visit.

Ward eloquently described the geology, mineralogy and mining activities, mainly of tin mining in the vicinity of Balfour, and detailed work on two sets of leases on the Interview River; an eastern group close to the foothills of the Norfolk Range, which included a Reward Lease for copper (Elliott's Reward Mine) and the western group, in granite country, which contained the Wolfram Reward and other tungsten prospects.

The majority of the previous work had been done on the southern leases (i.e. in the area of Cooney's Workings). Shortly after Ward's return from the field a fresh discovery of wolfram in the western portion of Lease 5120M was reported. This is in the area of Kenny's Prospect, and later phases of exploration have tended to centre on this particular prospect.

The field received little attention for many years. Quentin Henderson visited the site in 1935 and noted nothing had been done since Ward's 1910 visit, and whilst the area would be worth further examination "...the creeks are heavily overgrown with peppermint, cutting grass, etc. and there is an almost universal covering of peat, making prospecting very difficult" [22]. Access was also a problem, there being "no certain means of taking a pack horse loaded with stores from Balfour to the Interview River". A track did exist from Marrawah, one which followed "the coastal stock route" from Temma. However, the isolation of the area served to keep most prospectors away.

The Second World War changed the outlook for this area drastically. The metal tungsten suddenly attained national strategic importance and the hitherto neglected Interview River field received some close attention. Henderson was again dispatched in 1943 to examine the field[23]. Access had still not improved; all stores were back-packed into the area, there still being no proper pack-horse track.

Henderson described the northern prospect as "Kenny's Workings"; here, some 120 m (total length) of trenches (or "underhand stopes", as Henderson terms them) had been

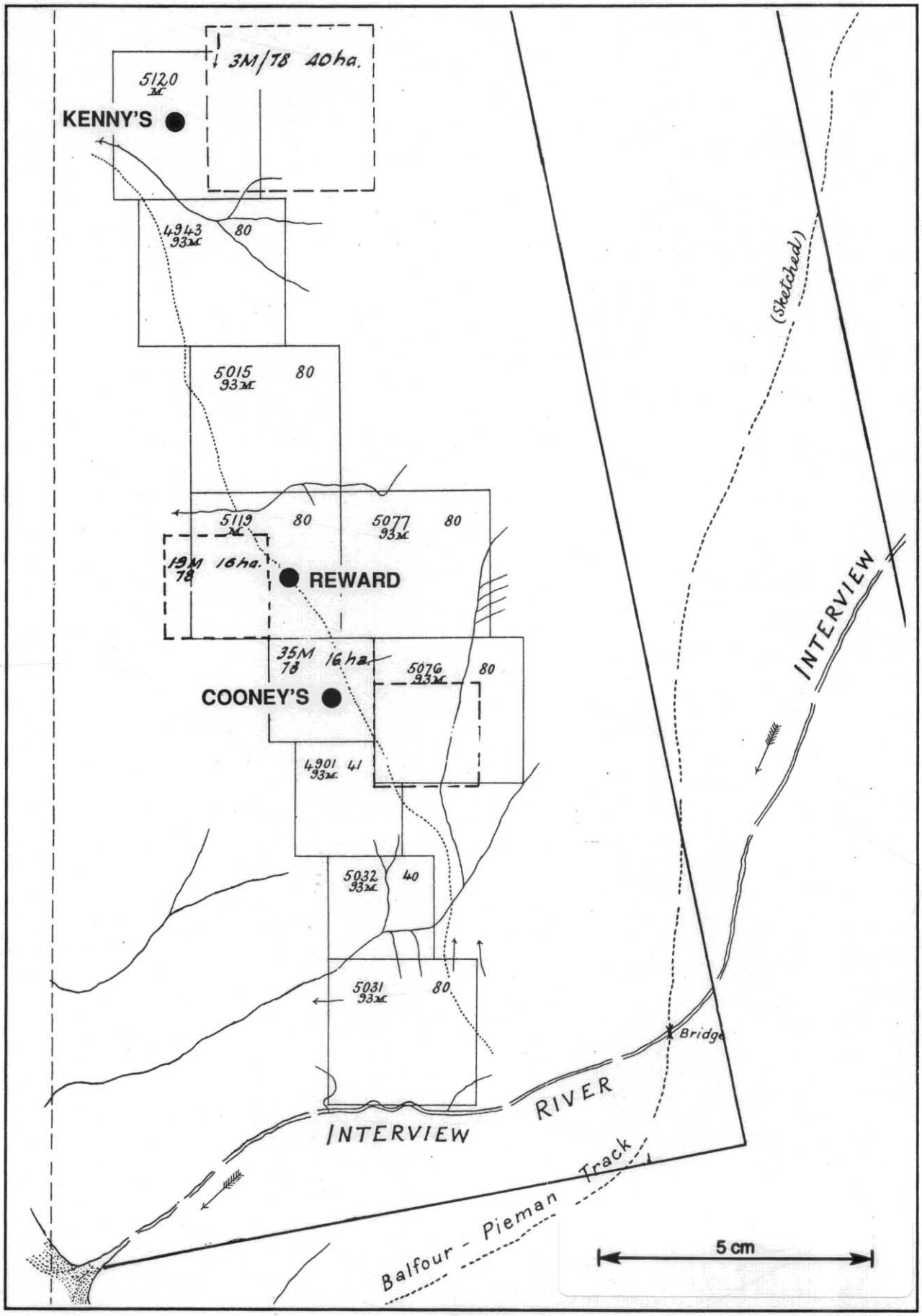

Figure 2.

Location of leases, Interview River area.

cut into the rock, exposing veins about 250 mm wide bearing wolfram. A 15 m long trench was dug "south of the creek" in this area, and a shaft 6–7.5 m deep was found just to the north of the creek, along with a few more trenches. (Kenny's Workings are apparently named after a tin miner, Jim Kenny, who won small quantities of alluvial tin from the area at the turn of the century)[24].

Two shafts were found on the old Reward Lease (5119M) — one with a timber collar which had been burnt and one with no timbering. A number of trenches were also found[25].

The southern workings, named "Cooney's" by Henderson, were on old lease 5121M. These workings included three shafts in all, one known as "Cooney's shaft", and six parallel veins (containing wolfram) were exposed in a series of hand-cut trenches. This work was done in 1937 by a J. Cooney and a Mr Stanley, who were granted a "sustenance allowance" from the Government for that year, and the following year (1938) were backed by a Mr Cumming from Burnie. Apparently the trial parcel of ore obtained from this prospecting did not attract a favourable price. The veins, described in detail by Henderson, ranged from 100 mm to 300 mm in width; obtaining any sizeable quantity of ore must have been a real trial.

Waller's old 2.7 m shaft was found; at some stage this had been deepened to 4.3 m and had a 150 mm wide vein at the bottom. The total length of the hand-dug trenches was about 30 metres.

Henderson concluded that small scale mining "would be possible" although more exploratory work was needed, and recommended trenches be dug at an angle N55°W every 50' (15 m) to establish the continuity or otherwise of the very thin ore-carrying veins.

Once again the field lapsed into a period of hibernation.

In 1953 a syndicate was formed to undertake extensive work in the area. The Interview River Wolfram Syndicate was formed by James Cumming Snr, who had earlier grub-staked Cooney and Stanley, Jack Bullman and Jack Pegus[26]. A track was put in by "Cletrac caterpillar tractor" from the Pieman Heads to the Interview River. Bridges were built crossing the Rocky, Ford and Interview Rivers.

Exploratory work was undertaken for a period of around two years by a gang under the supervision of a Mr J. Munday. Work consisted of sinking a 12 m deep shaft and digging (more!) trenches[27]. The price of tungsten crashed in 1954 and the field was once more quiet. The old tractor was abandoned, and a draught horse, 'Cyclops', used at the workings was left to roam the coastline, eventually finding a home on a Temma property, carting materials for the Sandy Cape lighthouse[28].

In September 1970 ACI Ltd and Renison Ltd simultaneously applied for a 460 square mile (700 km^2) exploration licence over an area extending from Sandy Cape to Granville Harbour. Each company was awarded half the area, and exploration proceeded over both licences by a joint venture partnership between ACI Ltd, Renison Ltd, Mt Lyell and Consolidated Goldfields Australia[29].

An aeromagnetic survey was made over most of the licence area[30]. In the Interview River region grids were laid out, soil and stream sediment samples taken, and the old dumps sampled extensively. Results[31] were discouraging, leading the companies to conclude that the "possibilty of developing an economic open cut mining operation for tin and tungsten very unlikely"[32]. Floodwaters destroyed the camp in April 1971, and the licence was given up in 1972.

In 1973 Mr Munday, who had worked in the area during the 1950s, pegged an exploration licence (EL1/73) which was eventually held by the Interview River Mining and Associates Pty Ltd[33], a company formed by shareholders from Launceston and the North West Coast[34]. Dozer cuts were made in the vicinity of Cooney's Workings. File photographs show areas of clearing and drilling work in progress.

The area was examined by Geopeko in 1976, at the invitation of the licence holder. The dozer cuts near Cooney's Workings and a "200 m costean" in this area were examined[35]. Brown attributes the "200 m costean" to Renison, whose grid was still visible in the area. However this particular costean would be not one but three smaller costeans dug in series along the strike of the lode, and shown as such on Renison-ACI joint venture plans. Brown[36] concluded that the prospect had little economic potential, the tungsten being "too irregular and too sparse to allow economic mining". However this did not deter members of the syndicate.

Early in 1978 Mr M. P. Munday, his son, and two other men, camped in the Kenny's Prospect area. They uncovered various veins and opened an adit 35 m south of "Kenny's Shaft", following a 40 cm wide vein for ten metres. Work initially stopped when the adit reached a fracture plane, striking N40°W. The mineralised vein was offset, and although the adit was extended to 25.5 m, the vein was not rediscovered. Some three tonnes of wolfram ore was produced. Mining equipment was acquired and taken to the site, including a compressor, a jaw crusher, roll table, and a magnetic separator[37]. Later in 1978 M. P. Munday and D. Holness applied for three mining leases (3M/78, 35M/78 and 19M/78). These were granted and transferred to the Interview River Mining Associates Pty Ltd[38].

In November 1978 the Syndicate made application to the Tasmanian Department of Planning and Development for a Government guarantee over a proposed bank loan to facilitate working the deposit[39]. To assist in assessing this request, Department of Mines geologist P. L. F. Collins visited the workings in January 1979. Collins reported that the major prospect was at Kenny's Workings; old trenches and a shaft could be seen at Cooney's and trenching had been done at two places in between. However each of these four prospects had an entirely different small vein system, and there was no evidence to indicate continuity between the four sets. At Kenny's Workings a number of trenches up to 2.5 m deep, 5 m long and 1.5 m wide were seen, along with the adit, now extended to 25.5 m in length. Collins concluded that underground mining would not be feasible because of the irregular nature of the veins, the lack of proven depth extensions of the veins, and the capital expense involved in such a remote area[40]. The Syndicate was contemplating crushing the ore and sluicing to obtain

a concentrate, but Collins envisaged problems with a water supply during dry periods.

Transporting the ore would also have been problematical. There had been suggestions to transport the concentrate to Corinna by helicopter, or to fly it by light plane to Smithton and then to Western Australia for treatment[41] but the mown (!) airstrip would need to be upgraded[42]. An airstrip had been mown on light buttongrass country close to the "mine site".

The coastal "route" was unsuited to any regular access, and Collins observed that the cost of constructing an access road from Corinna would be prohibitive. Production from this phase of activity was confined to two parcels of ore sent for assay. Collins concluded that there were no proven ore reserves in the district and "no proof of the continued quality of the veins either at Kenny's Prospect or the three other prospects".

Collins also records the presence of the unusual tungsten mineral ferritungstite ($Ca_2Fe^{++}{}_2Fe^{+++}{}_2(WO_4)_7.9H_2O$), specimens of which were collected at Kenny's Workings during his visit[43].

Exploration Licence 1/73 expired on 11 July 1980[44]; the leases were transferred to Abignano Constructions in 1981[45]. A new exploration licence (EL 13/81) was taken out surrounding the leases. Access to the site was still a problem and the new lessee commissioned a study to find a route for a new road to the workings[46]. The approximate route is shown in Figure 1. The track was never constructed.

Henderson's grand scheme of intensive trenching was realised in 1981. A series of backhoe trenches was dug at intervals of 40 m from Kenny's Workings in the north to Cooney's Workings in the south. All occurrences of mineralised veins were meticulously mapped[47, 48, 49]. An adit at Kenny's Workings was re-timbered and extended. Numerous samples were taken and assayed. The vein system was estimated (but not proven) to extend over a distance of 2.5 km, and one report[49] concluded that the area could possibly contain, given a number of optimistic assumptions, 1.6 million tonnes of ore, at a grade of 1.4% WO_3, giving (in 1982 dollars) a potential worth of $125M, with $1.7M needed to prove up the existence or otherwise of this possible target.

Collins[50] made a rough calculation of the reserves of wolframite at Kenny's Prospect, assuming:

- the vein (0.32 m thick) to be continuous over the full 215 m exposed in the trenches, which was not, at that time, proven;
- grade of the vein assumed to be 3.8 mass% wolframite (2.9 mass% WO^3);
- a mining thickness of 1.20 m (0.32 m vein, 0.88 m granite waste);
- density of the vein 2.88 t/m^3 and granite 2.67 t/m^3.

Given these assumptions, Collins thought Kenny's Prospect could yield 1473 t of ore (416 t vein, 1057 t granite). At the forecast extraction rate of 10 tonnes of WO^3 per month, these reserves would last three months.

The exploration licence (EL 13/81) was relinquished in November 1982. Another EL (64/83) was taken out over the same ground in 1983 by Abignano Constructions P/L; this lapsed in January 1987. The three leases were forfeited in April 1989[51], and the ground has not since been taken up under any new mining tenements.

An inspection was made in March 1988 by staff of the Department of Mines. The adit at Kenny's Prospect, dug into the south bank of a tributary of Chimney Creek, was visited. North of the stream a clearing of 0.25 ha had been made, and in this area a portable compressor, a jaw crusher, and other machinery were noted. On the south side of the stream, above the adit, another clearing was found in which a shed, used as a store, housed a portable compressor and a case of AN60 cartridges, which were destroyed[52].

At the southern site (Cooney's) a timber-lined shaft, filled to within 3 m of the collar with water, was noted, together with a water-filled trench. No work had been done here for some time.

PROPOSED RESTORATION MEASURES

The possibility of filling in the trenches has been discussed by various Government agencies and this course of action was provisionally approved by the Mineral Exploration Working Group. The trenches are clearly visible on the latest (1985) air photos of the area, although these photos are now seven years old. However a field inspection by officers from the Department of Mines, Department of Parks, Wildlife and Heritage, and Department of Environment and Planning (January 1992) found that much of the area was revegetating naturally.

Transport of an excavator to the site was reckoned to take around 40 hours each way, a considerable expense for a relatively small amount of earthworks at the destination. Photographs of the area from a helicopter were kindly taken by the Survey Division of the Department of Environment and Planning while in the area on other business, and these clearly show the state of the ground. The southern lines (Cooney's) are quite overgrown and appear as lines of vegetation, rising slightly above the adjacent heathland. Parts of the northern lines are visible from the air, and the 0.25 ha clearing which housed the compressor, jig and jaw crusher is quite visible.

In the light of this new information the Mineral Exploration Working Group resolved to implement a programme of manual rehabilitation, involving the laying of ti-tree slash and fertiliser over the remaining bare ground. This programme will be implemented by officers of the Department of Parks, wildlife and Heritage and the Department of Mines.

LAND TENURE

The area of the old tungsten prospects is within the Arthur Pieman Protected Area, a land classification under the *Lands Act, 1976*. The Department responsible for this Act is the Department of Environment and Planning. However the on-ground management of such lands is the

responsibility of the Department of Parks, Wildlife and Heritage. The area is also within the Australian Heritage Commission Act Registered Entry 'Norfolk Range' on the Register of the National Estate.

AVAILABILITY OF LAND FOR OCCUPATION FOR MINING PURPOSES

The land is still under the auspices of the *Mining Act, 1929*. However, under current Government procedure any applications for a mining tenement and associated work programmes will be considered by the Mineral Exploration Working Group and a bond, commensurate with the scale of works proposed, will be imposed. Bonds are returnable upon satisfactory rehabilitation and reporting as required by relevant Government agencies.

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[17 October 1992]

Costeans over southern part of the area (Cooney's) — revegetating well.

Northern costeans and clearing for jig, jaw crusher etc. Partly revegetated; some lines still quite visible.

Interview River workings,
15 January 1992.

Overgrown costeans/open cuts on
Abignano lease area, looking southwest.

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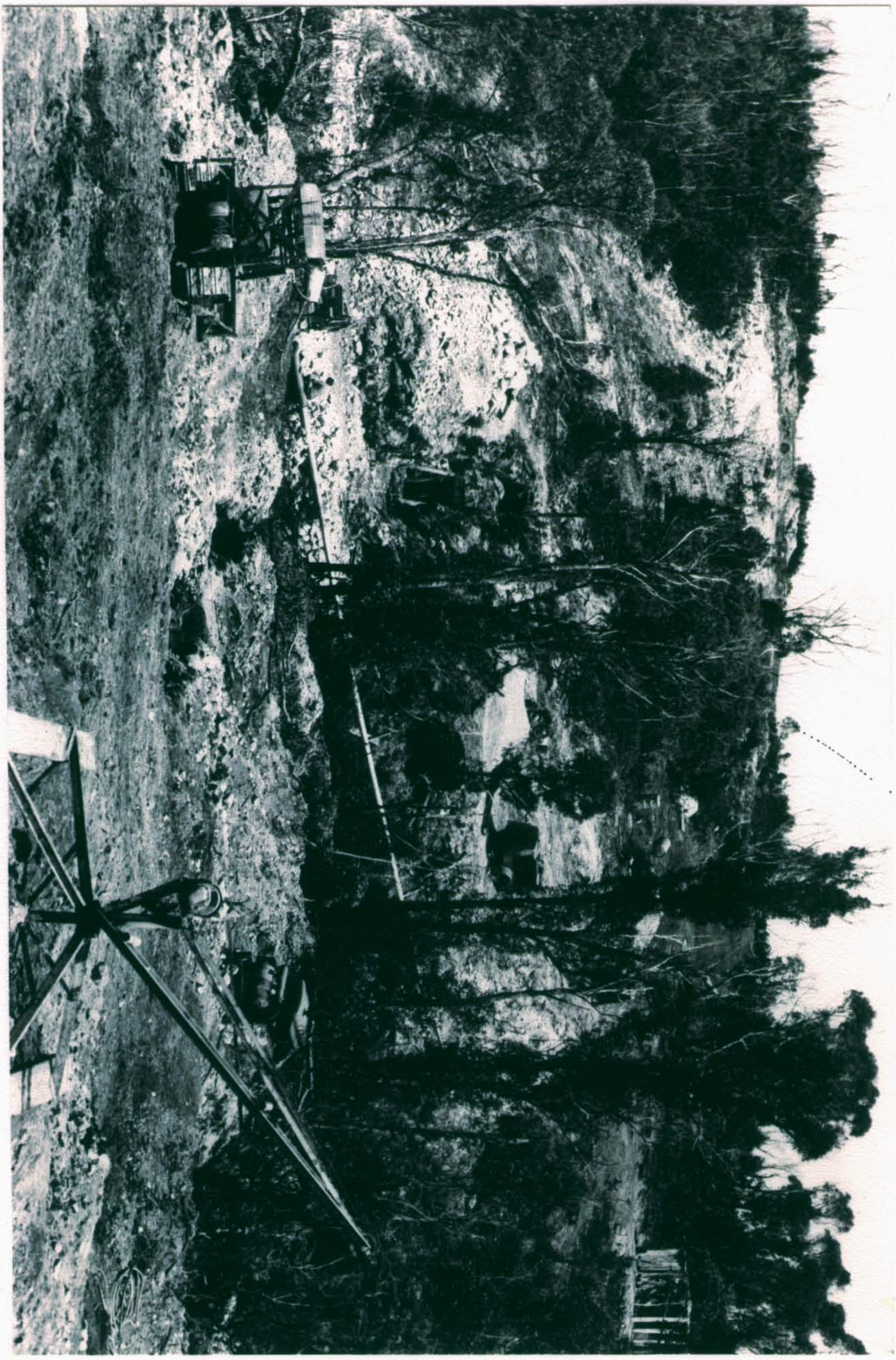
Interview River workings,
15 January 1992.

View from above the adit towards
overgrown costeans, looking due north.

Interview River workings, 15 January 1992. Trench on heathland.



Interview River workings, 9 January 1979 — south view.

Interview River workings, 9 January 1979 — north view.