

Archaeological survey of the Arrow River and Macetown, Otago

Peter Petchey

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Cover photograph

The All Nations aerial cableway and return wheel. *Photo: P. Petchey.*

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ABSTRACT

The area around the Arrow River and Macetown in Otago, New Zealand, is archaeologically and historically rich and important. The present Macetown Historic Reserve protects some of the most important features of the area, namely the township site, Anderson's Battery and the Homeward Bound Battery, but a great deal lies outside the reserve boundaries. To fully interpret the gold mining history of the area, the whole archaeological landscape needs to be considered.

This report presents, in some detail, a record of the mining archaeological remains in the area. Maps of the site complexes have been prepared from purpose-flown, low-level aerial photographs, observations of ground controls and detailed ground checking and drawing. Some features will have inevitably been missed, but the overall coverage is good. The remains of numerous mining operations have been recorded, including battery sites, hut sites, tramway formations, aerial cableway remains, adits, shafts, mullock heaps and items of mining plant. Included in the survey is the site of New Zealand's highest goldmine, the Sunrise, at nearly a mile high.

It is hoped that the information presented here can fulfil a number of roles. It provides a permanent account of the archaeological record of Macetown; it can be used as a management tool for the conservation of the historic features presented, some of which will have a limited existence; and it can be used as a basis for further archaeological research.

Keywords: Colonial, nineteenth century, history, gold, industrial archaeology, Wakatipu, Macetown, Twelve Mile Creek, Rich Burn, mining technology, aerial cableway, stamper battery, cyanide process, Otago, New Zealand, pastoral lease, resource management, aerial photography.

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1. Introduction

The Arrow River flows out of the Harris Mountains to emerge into the Wakatipu Basin near Arrowtown. For some 60 years, there was a small isolated township on the banks of the river deep in the mountains. This township—Macetown—existed only to service the cluster of alluvial workings and hard-rock gold mines that had established on Advance Peak, the spurs of Vanguard Peak and along the Rich Burn (or Twelve Mile Creek) and the Arrow in the late 1800s and early 1900s. In 2000/01, the archaeological survey described in this account recorded the remains of Macetown and the mines that gave it its life, and whose ultimate failure sealed its fate.

Historically, much of the length of the Arrow River has been worked for gold, with the most extensive workings being near the confluence of the Arrow and the Rich Burn. This was the site of extensive alluvial working in 1862 and 1863, and later the upstream areas became an important quartz (hard-rock) mining locality. The area contains significant archaeological examples of both alluvial and hard-rock gold mining, as well as the well-known ‘ghost town’ of Macetown. Some of these remains, including the township site, are contained in the Macetown Historic Reserve.

The exact nature and extent of the mining archaeology around Macetown had not been documented and this survey was commissioned by the Department of Conservation to redress this situation, and to supply detailed information about the archaeological landscape for interpretation and management purposes. The survey was based on a combination of aerial photograph interpretation and ground inspection of sites. Some 30 days was spent in the field by two or three people at a time, camping at the site of Macetown. The main output of this work is a series of detailed maps of the Macetown and Rich Burn areas. This written report provides background and description for these maps. It should be noted that more archaeological evidence of gold mining exists both upstream and downstream of the surveyed area.

2. Geographical description of the survey area

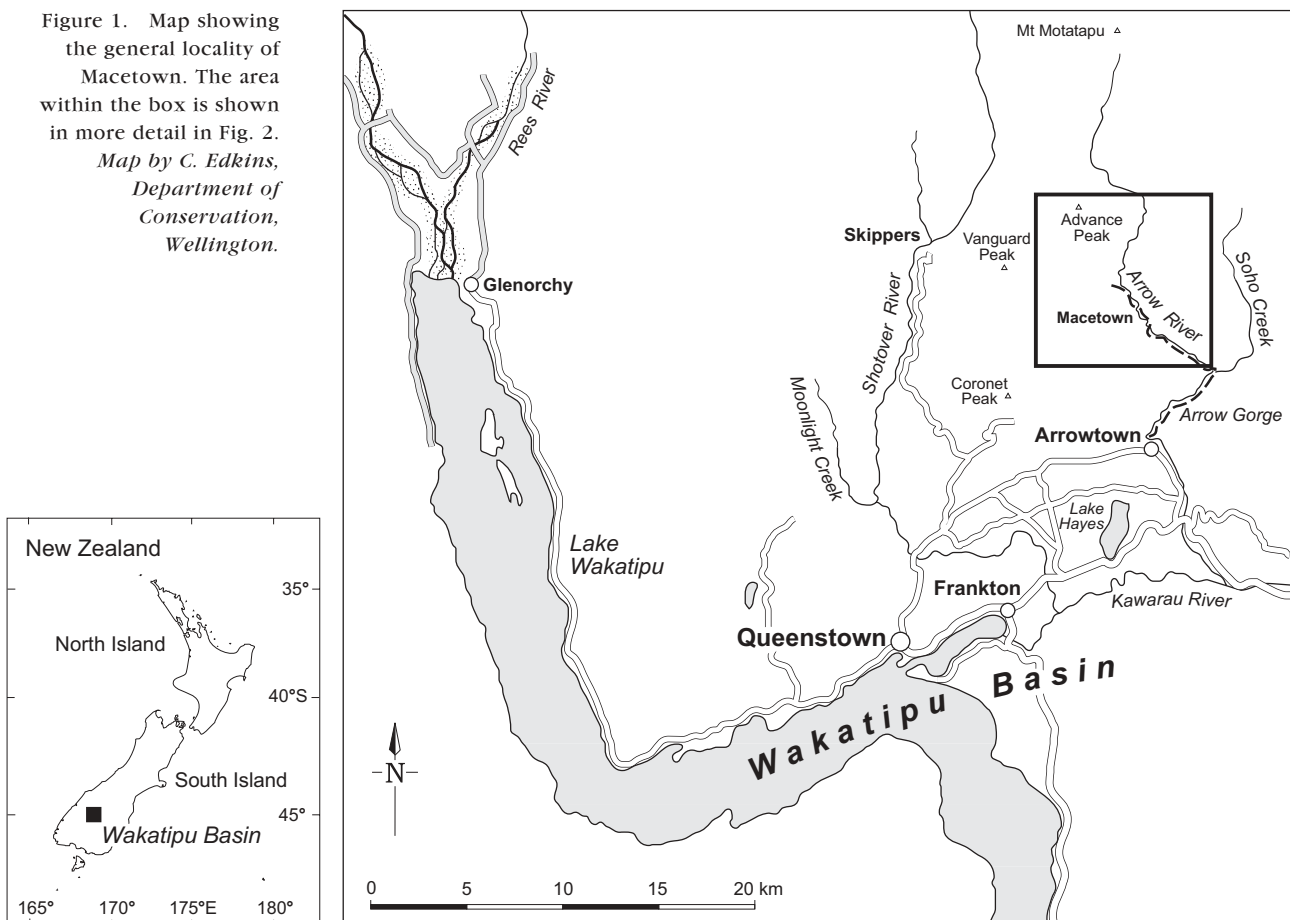
The Arrow River rises to the south of Mount Motatapu in the Harris Mountains, and runs generally south to emerge into the Wakatipu Basin at Arrowtown, before finally meeting the Kawarau River (Figs 1 and 2). It mainly flows through steep mountainous country, with numerous small- and medium-sized tributaries, of which the most notable are Soho Creek, the Eight Mile Creek and the Rich Burn.

An area of extensive natural river terraces at the confluence of the Arrow and the Rich Burn (also known as the Gold Burn or the Twelve Mile Creek) became the focus for alluvial gold mining operations as well as the site of the town of Macetown (Figs 3 and 4). Extensive alluvial workings were also located on the hillsides above the township, and in many places along the bed and banks of the river. The insides of many bends show evidence of small-scale alluvial mining.

To the northwest of the site of Macetown, Advance Peak rises to a height of 1749 m. On the summit and just below it are the Advance Peak mines, which were the highest in New Zealand when they were in operation. To the south of Advance Peak and the Rich Burn, on the spurs of Vanguard Peak, are the main Macetown reefs, running roughly northwest to southeast. Several streams cross

Figure 1. Map showing the general locality of Macetown. The area within the box is shown in more detail in Fig. 2.

Map by C. Edkins,
Department of
Conservation,
Wellington.



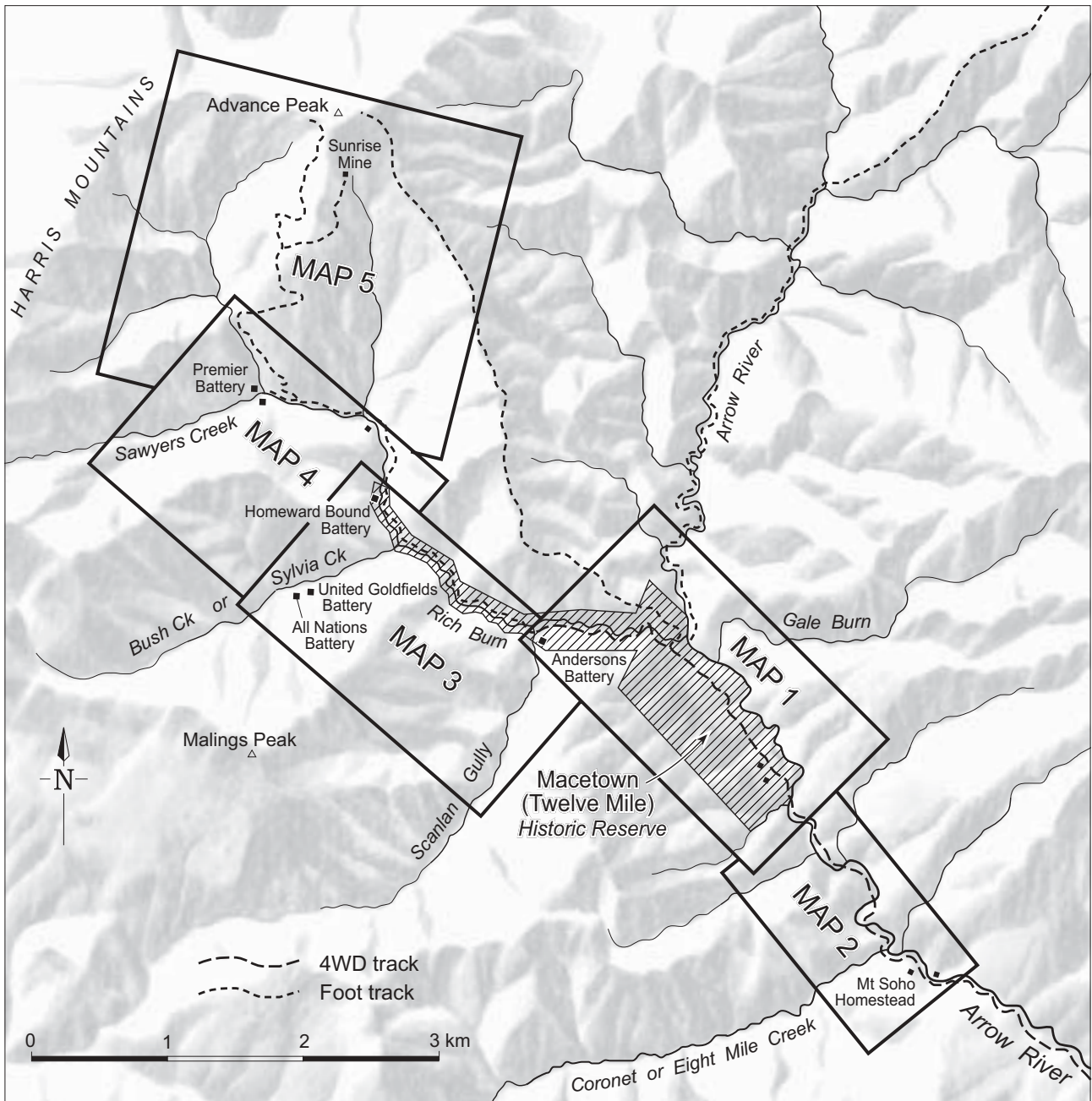


Figure 2. Map showing main geographical features of Macetown. Overlays show areas covered in the survey maps presented in this report.
 Map by C. Edkins, Department of Conservation, Wellington.

this area (Sawyers or Sawyer’s Creek or Gully, Sylvia Creek and Scanlan’s or Scanlan Gully), and both their banks and their intervening ridges contain extensive archaeological evidence of hard-rock mining systems. These streams feed into the Rich Burn, along the valley of which the main access road to the mines ran.

The country is generally open, with tussock and scattered speargrass being the usual vegetative covering. Matagouri and sweet briar are common in places, while broom is present but is being controlled within the area of the Historic Reserve. The area of the Macetown settlement is well known for its cultural plantings of exotic trees, with daffodils and bluebells appearing in the spring. While a number of fruit trees still bear fruit, it is noticeable that many of them are becoming old and dying, and are being replaced by more vigorous exotic species such as sycamores.

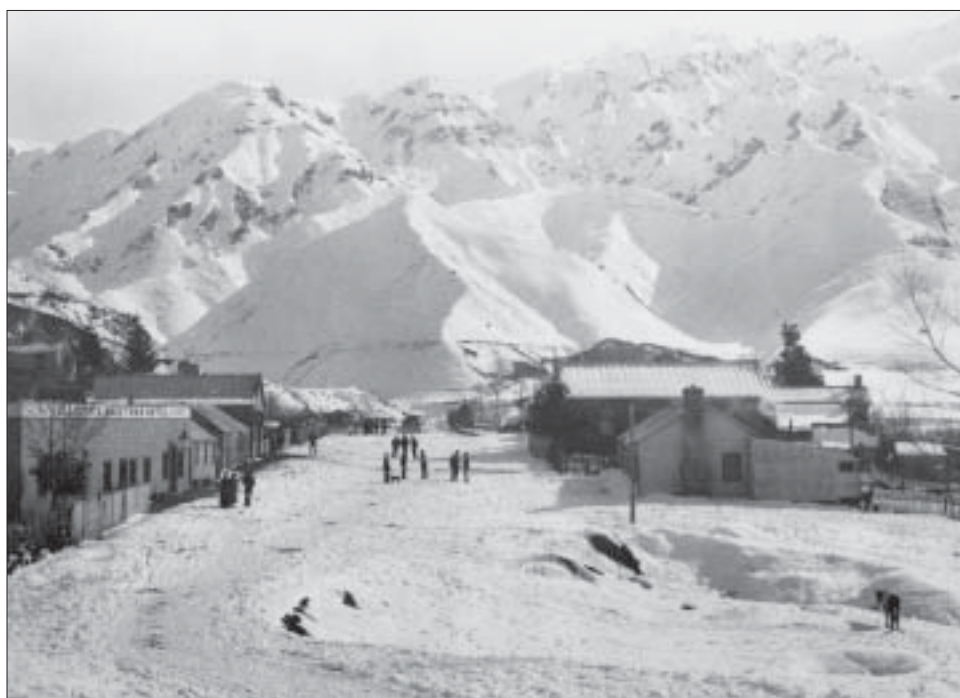
3. General history of Macetown and the Arrow River goldfields

A number of published and unpublished accounts of the history of Macetown and the Arrow River goldfields exist. Brief specific histories have been published by Beaton (1971) and the Department of Lands and Survey (n.d., since re-issued by the Department of Conservation). Detailed accounts of the history of mining in the area have been prepared by Powell (1976) and Veitch (1972), although both of these are unpublished. Numerous general histories also contain various amounts of information on Macetown, such as Miller (1966) and Hamel (2001). Because of the amount of information that is already available, only a brief general history of the area is presented here in order to set the archaeological remains in an historical context. More detailed specific information is presented below in the discussion of each individual site.

Macetown was established on a river terrace on the Arrow River upstream from Arrowtown after gold was found there in late 1862. It is commonly recounted that two independent parties—the Mace brothers working up the Arrow River and the Beale brothers working over from Skippers Hill—converged on the spot almost simultaneously. In January 1863 miners overflowing from the Shotover and the Arrow goldfields moved into the area, and a settlement soon established, with alluvial mining in the river and stream beds and banks as its economic base. The higher river terraces were also worked once races were constructed to bring water to the claims. Macetown (Figs 3 and 4) was initially named ‘the Twelve Mile’, this being the estimated distance of the location from Arrowtown (actually about 9 miles).

Figure 3. Macetown in the snow (late 1800s). On the left is Elliott’s Macetown Hotel, and on the right is the Alpine Hotel. Located on a river terrace deep in the mountains, Macetown could experience bitterly cold winters and very hot summers.

Photo: Lakes District Museum, Arrowtown.



By the 1870s the easily won alluvial gold was becoming worked out, and the miners' attention turned to the local quartz reefs. These had been known for some time, but it was not until 1875 that any real prospecting work was carried out. The Government offered a pound-for-pound subsidy to prospect the area, and cut tracks to improve access. The first company to register was the Homeward Bound, the mine being opened up in 1876 by Messrs Raven and Barclay, who also erected the first crushing battery in the area. There were high expectations of the reefs:

‘There is very little doubt of the permanency of the Macetown reefs. They are almost an absolute certainty, and when once opened out can be worked very cheaply, consequent on water power being almost everywhere available, and the steepness of the hills obviating the necessity for hoisting of ore or water, while the facility for self-acting tramways is all that could reasonably be desired.’ (A.J.H.R. 1878 H4: 19)¹

However, from the earliest days it was recognised that the lack of access to the area was a serious hindrance to mining, as there was no road up the Arrow Gorge from the outside world. All supplies had to be packed in, at a cost of £5 per ton, or £10 per ton for heavy timber delivered to the mines (A.J.H.R. 1878 H4: 19). This increased the cost of mining, and severely limited the machinery that could be used. Nevertheless, the mines were opened, and equipment brought in, all at great expense.

Despite repeated calls for the construction of a road, it was not until 1884 that one was completed from Arrowtown to Macetown, at a cost of £9,570 (A.J.H.R. 1885 C2: 3). There was an immediate drop in the cost of supplies, particularly the timber essential for shoring up mine tunnels. However, the improved access came too late to save many of the original companies and their mines, of which only the Premier and Tipperary mines were still working.

Figure 4. A similar view (late 1800s) of Macetown without the snow.
Photo: Lakes District Museum, Arrowtown.



¹. A.J.H.R. is an abbreviation for the New Zealand Parliament Appendices to the Journal of the House of Representatives.

The lack of access was not the sole reason for the failure of most of the Macetown mines. Work was interrupted by the harsh winters typical of the area which brought snow and frozen water supplies, and by occasional flooding in the steep gullies. These events increased costs, but mismanagement and misrepresentation of claims' worth to attract capital also took their toll. The 1876 Warden's Report commented that:

'A good deal of criticism has from time to time appeared in the public papers animadverting on the mismanagement, want of management, or excessive management, of the various companies...' (A.J.H.R. 1876 H11: 25).

Most of the mines were held by a succession of owners, and were opened and closed on several occasions. Numerous efforts, some successful, were made to attract overseas investment, and many of the mines eventually ended up in the hands of a few large companies. But by the early twentieth century most of the mines were played out. The erection of the massive Homeward Bound Battery in 1910 was something of a swan song, to be followed only by the brief resurgence of Government-sponsored mining during the 1930s Depression.

As mining was the single economic base of Macetown, the township did not long survive the closure of the mines. Many buildings that survived until the end of the Second World War were stripped in the post-war shortages of building materials. The first hanger for Southern Scenic Airways was built of Macetown iron in 1947 (Beaton 1971: 62). The Macetown Historic Reserve was surrendered from the Coronet Peak Pastoral Lease and gazetted as an historic reserve in 1980 (New Zealand Gazette, 1980, p. 912). Today, Macetown is a picturesque deserted ghost town that has become a popular tourist attraction (Fig. 5).

Figure 5. A general view of the site of Macetown at the confluence of the Rich Burn and the Arrow River: taken looking southeast from the ridge track to Advance Peak.
Photo: P. Petchey.



4. The archaeological survey

The archaeological survey involved three visits to the area, each of ten days duration. A base camp was established at the site of Macetown, and daily trips were made on foot to survey archaeological features. Existing walking tracks were used for access, while the map of the Macetown mines by D.J. Beck (available as a tourist map from the Arrowtown Museum) proved to be a useful general field guide.

The detailed survey was based on a series of low-level aerial photographs flown by Kevin Jones (Department of Conservation) on 24 May 1999. Older commercial high-altitude aerial photographs of the area were used to fill in a few gaps in the coverage of Jones' photographs. Archaeological features were mapped in the field by drawing on permatrace overlays over the aerial photographs. Problems of scale, distance and distortion were dealt with in a number of ways.

In the area of the main Macetown township, a survey was carried out using a Wild optical theodolite, traversing down the Rich Burn from Anderson's Battery to the Cemetery Reserve, and then down the township flats to the timber building at the southern end of the town. This traverse was tied into a series of identifiable points on the aerial photographs. The aerial overlays were then scaled (using a scanner) and adjusted (by hand and eye) to fit onto the accurate base plan, to a scale of 1:5000. This was then checked against an enlargement of the NZMS 260 topographical map of the area (F41 Arrowtown), which generally agreed well, and the NZ map grid was added from this source. At this time also, a ground photographic record of the main features of the town was made. (Photographs are held at Science & Research, Department of Conservation, Wellington.)

The sites up the Rich Burn and downstream from Macetown were plotted onto base maps generated by enlarging the NZMS 260 F41 topographical map to 1:5000, with detail of topographic features (such as river and stream beds) checked against an enlargement of a high-altitude aerial photograph (Survey No. 8436, E/4, December 1984), taking care to use only the central part of the image. The archaeological features as plotted on Jones' low-level aerial photographs were again scaled and adjusted to fit onto these base maps. Some ground checks were carried out by using a hip-chain to measure distances over several hundred metres in the field, and checking these measured distances against the calculated distance on the scaled plans. While this method was not as accurate as that used for the survey of the township area (based initially on the theodolite traverse), a check of the method in the township suggested that the results are tolerably accurate. The main source of error is in the extreme enlargement of the 1:50 000 NZMS 260 topographical map (1000%), which forms the ultimate base for the whole survey and the source of the map grid as shown on the finished archaeological maps. These maps have been reduced in scale for publication.

Throughout the survey, GPS locations of some features were taken using a Garmin 12 hand-held GPS receiver. However, as the random error was removed from the GPS system in May 2000, part of the way through the survey, only those points recorded after that date were considered. These generally agreed well with the results of the above methods, but were not used as a survey base.

5. Macetown township (Map 1)

The township of Macetown grew up on a large terrace near the confluence of the Rich Burn (then known as the Twelve Mile Creek) and the Arrow River. The settlement site is, today, the focus of the Macetown Historic Reserve. Map 1 (pp. 10-11) shows the township and the archaeological features mapped during this survey.

5.1 MACETOWN HISTORY

Gold was first discovered in the Arrow River in 1862, probably by Jack Tewa ('Maori Jack'), although it was the movements of William Fox in late 1862 that caused the rush to the river and, ultimately, led to the establishment of Fox's (now Arrowtown) at the mouth of the gorge. The river and its tributaries were quickly prospected, and it is often said that either the Mace brothers or the Beale brothers were the first at the site of what was to become Macetown, although this is impossible to now verify (Veitch 1972).

The population of the settlement initially consisted of miners moving up the Arrow River or over the hills from the Shotover (Veitch 1972). The peak population of the new settlement was estimated at about 300 in January 1863 (Powell 1976: 15), although estimates of up to 500 have also been made (Veitch 1972). With this large influx of miners, a canvas town quickly formed (Miller 1966: 164; Veitch 1972).

Commercial operations were soon established at the Twelve Mile. The Mace brothers erected a large store in September 1863, which apparently joined a number of other similar establishments (Veitch 1972). The name change to 'Macetown' probably occurred gradually, its first public use being in February 1865, although the post office which opened in March 1865 was still called 'Twelve Mile Creek' (Veitch 1972). The West Coast gold rush of 1865 led to an outflow of people, including the Mace Brothers, and a subsequent decline in the population, but enough people remained to keep the town alive.

The Macetown School was opened in 1870 with a roll of 12 boys and 9 girls (Miller 1966: 171), but the population was in decline in the early 1870s, and in 1876 the government withdrew the subsidy for the teacher's salary, although it was later reinstated. The development of the Macetown reefs in the late 1870s saw a gradual rise in the population again, and a peak was reached in 1896 when 206 people were recorded in census figures, including 10 men and 4 women in Sawyer's Gully and 15 men and 6 women in Scanlan's Gully (Veitch 1972).

There were also Chinese miners at Macetown, and there may have been a Chinese market gardener (Ng 1993: 339). An area of Chinese huts was located on the flat just east of Smith's Store and bakehouse, where a photograph was taken of G.H. McNeur standing outside a hut with three Chinese men (Fig. 6).

Figure 6. Chinese miners and G.H. McNeur at Macetown.
Photo: McNeur collection, Alexander Turnbull Library, F19150½.

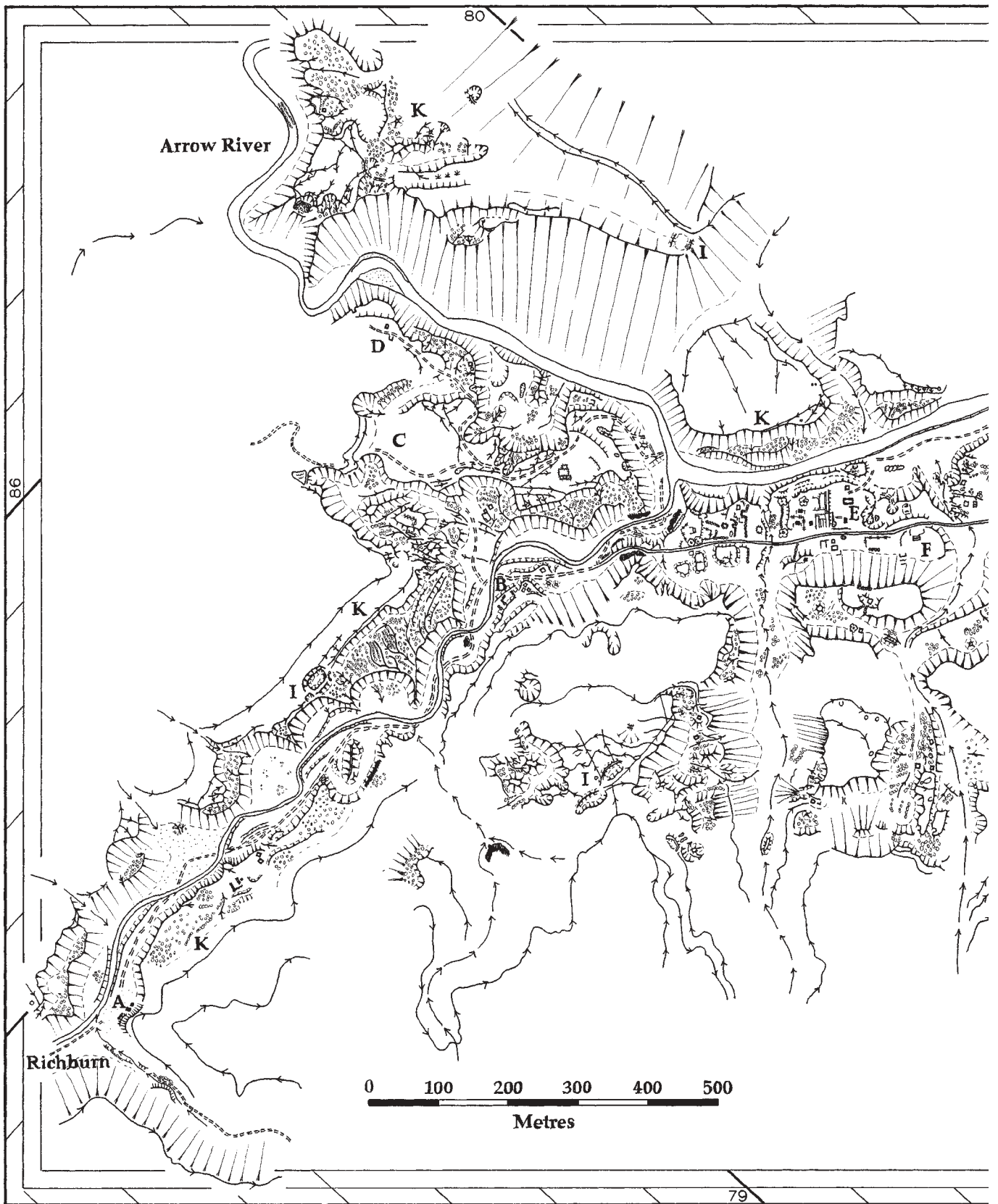


Chinese miners were engaged in both alluvial mining (see the account of the Tipperary Mine below), and quartz mining. The merchant Choie Sew Hoy had an interest in a quartz claim in Sawyer's Gully adjacent to the Premier mine (Ng 1993: 315).

A problem for both the settlement and the mines was the lack of good road access to the outside world. The options available were either the Big Hill track or the Gorge track, and all goods and equipment had to be laboriously packed in. There was repeated agitation over many years by residents and miners for the Government and the Lake County Council to construct a road, but by the time one was completed in 1884 many of the mines had already closed down.

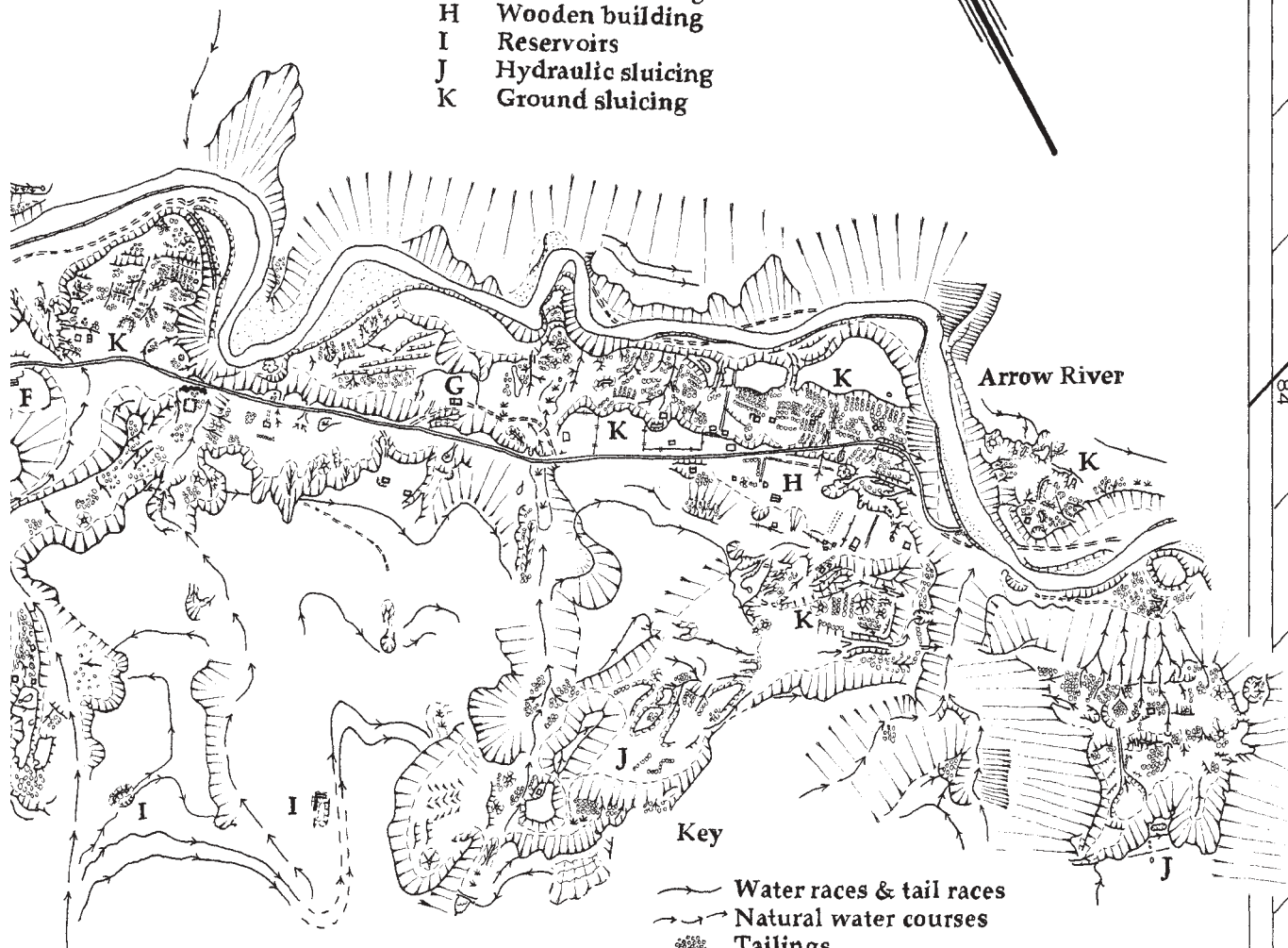
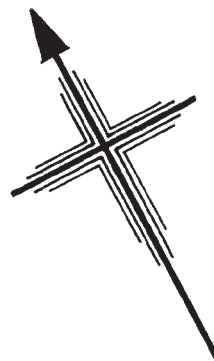
The final decline of Macetown began with the closure of the Premier Mine in 1905. This was the last large-scale quartz mine that provided employment in the community, and the remaining small quartz mines and alluvial claims could not provide reliable work (Veitch 1972). Various schemes would have provided periods of optimism, such as the large-scale work carried out at the Homeward Bound Mine in 1909–10, but a slow decline was inevitable in the face of mine failures. The school closed in 1916 because of the reduced roll, and the Post Office and the telephone office closed within days of each other in 1916, although the latter was reopened from 1917 to 1921. After this, the town was abandoned except for William Jenkins ('Billy Jenks'), whose mother had run the Alpine Hotel.

During the 1930s Depression, a number of people moved back to Macetown, mining on Government subsidies. There were still a number of habitable buildings standing, together with plenty of firewood from the trees that had grown up in the area, and the road was again being maintained by the Lake County Council. As the Depression eased, miners and their families left, and the last resident was again William Jenkins.



Note that the two parts of Map 1 overlap at the centre.

- A Anderson's Battery
- B Twelve Apostle's huts
- C Cemetery Flat
- D Granny Barker's house
- E Stables ruin
- F Bakehouse
- G Needham's cottage
- H Wooden building
- I Reservoirs
- J Hydraulic sluicing
- K Ground sluicing



Arrow River

84

Key

- Water races & tail races
- Natural water courses
- Tailings
- Stacked stone/revetment
- Hut sites/structures
- Old fencelines
- Roads/tracks
- Slope

Map 1
Macetown