

Excavations, Surveys and Heritage Management in Victoria

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Christine
Williamson
Heritage
Consultants



Excavations, Surveys and Heritage Management in Victoria
Volume 10, 2021

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Front cover:

Participants at the zoom webinar panel discussion by Traditional Owners at the 2021 Colloquium. Top row: Darren Griffin, Liz Foley, Dave Wandin—Wurundjeri Woiwurrung; bottom row: Racquel Kerr—Dja Dja Wurrung, Tammy Gilson—Wadawurrung, Ben Muir—Wotjobaluk and Jardwadjali. (Screenshot by Caroline Spry)^e

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Editorial note

The papers included in this 10th issue of *Excavations, Surveys and Heritage Management in Victoria* were presented at the annual Victorian Archaeology Colloquium held on-line via zoom webinar between 1 and 4 February 2021. This allowed even more than our usual number of people to register as participants, including some from interstate and overseas: their commitment and involvement testifies to the importance of this fixture within the local archaeological calendar. Many were fortunate to be able to meet in person, under appropriate protocols, for an outdoor boxed lunch at La Trobe University on 5 February.

We have taken the opportunity of celebrating our 10th anniversary by looking back over the last decade, both through a more formal analysis and through a less formal panel discussion of the history of the Colloquium and this publication. Another panel discussion transcript allows space for some Traditional Owners to reflect on particular examples that they feel have been of value in the complex process of cultural revival through a form of experimental (perhaps better experiential) archaeology.

The other papers published here deal with a variety of topics and approaches that span Victoria's Aboriginal and European past. While some papers report on the results of specific research projects others focus on aspects of method, approach, education and the social context of our work and approach. These all demonstrate how our Colloquium continues to be an important opportunity for consultants, academics, managers and Aboriginal community groups to share their common interests in the archaeology and heritage of Victoria.

In addition to the more developed papers, we have continued our practice of publishing the abstracts of other papers presented at the Colloquium, illustrated by a selection of the slides taken from the PowerPoint presentations prepared by participants. These demonstrate the range of work being carried out in Victoria, and we hope that many of these will also form the basis of more complete studies in the future. Previous volumes of *Excavations, Surveys and*

Heritage Management in Victoria are freely available through La Trobe University's institutional repository, Research Online <www.arrow.latrobe.edu.au:8080/vital/access/manager/Repository/latrobe:41999> and through Open at La Trobe (OPAL) <<https://doi.org/10.26181/601a321a11c0d>>. We hope that this will encourage the dissemination of ideas and information in the broader community, both within Australia and internationally. We have also now set up a website for the Colloquium <<https://victorianarchaeologycolloquium.com>>

For the first time we have included an obituary to mark the passing of a member of our community: David Rhodes of Heritage Insight, a long-time supporter of our activities. Here we should also mention that we have also lost Ron Vanderwal who made important contributions to archaeology and the curation of heritage, although he was unable to participate in the Colloquia.

Once again we have been fortunate in the support given to the Colloquium by many sponsors: ACHM, Ochre Imprints, Heritage Insight, Biosis, ArchLink, Christine Williamson Heritage Consultants and Extent, while La Trobe University continued to provide facilities and a home for our activities, even if this year it was a virtual one. We would like to thank them, and all others involved for their generous contributions towards hosting both the event and this publication. Yafit Dahary of 12 Ovens was, as always, responsible for the catering, despite the limitations on her usual spread.

All papers were refereed by the editorial team. This year Deb Kelly managed this process and the sub-editing of this volume. Layout was again undertaken by David Frankel. Preparation of this volume was, like so much else in the last year, undertaken during the severe restrictions imposed because of the COVID-19 pandemic. We hope that 2022 will be a better year for all.

The presenters, editors and authors acknowledge the Traditional Owners of the lands and heritage discussed at the Colloquium and in this volume, and pay their respects to their Elders, past, present and emerging.

Coghill's Boiling Down Works, Bulla

Gary Vines^{1,2}, Zachary Carter², and Kim White²

Abstract

A continuing program of archaeological investigations sponsored by Australia Pacific Airports (APAC 2010) across the Melbourne Airport Estate has revealed a number of early pastoral and agricultural sites, several of which have previously been discussed by the author in connection to a group of Scottish farming families (Vines 2015). This paper addresses the history and analysis of one of these sites in the context of the development of agricultural industry in the earliest years of the Port Phillip colony.

The Coghill family of Roxburghshire Scotland were prominent among the early pastoral and farming ventures in the Tullamarine and Bulla areas. In investigating Coghill's Glencairn property near the Bulla Road, we have uncovered archaeological remains of what is almost certainly a unique late 1840s boiling down works. Analysis of this site has demonstrated an important phase in the development of rural industry and specifically animal by-product processing technology in Victoria in the 1840s.

Introduction

Biosis Pty Ltd was engaged over the last few years in assessing heritage values for the proposed development of Melbourne Airport. Among the archaeological sites identified was a stone and brick ruin initially presumed to be a homestead. Further archaeological investigations have been undertaken to establish the true function of this site.

Melbourne Airport was established in the 1960s when Essendon Airport became inadequate for the new generation of jetliners (Chandu 2012; Vines 1995:38). The land was acquired in 1959 by the Commonwealth Government (*The Age* 2 May 1959: 1) and construction commenced in 1962 (Australia Pacific Airports Commission 2010). Melbourne Airport opened to international operations on 1 July 1970 (Eames 1998). All the existing buildings within the airport land were demolished to ground level, sealing the archaeological record and preserving several archaeological sites for us to examine.

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During a 1995 survey of the Grey Box Woodland located within the Melbourne Airport estate (Vines 1995), a ruinous bluestone and brick structure was noted on the southwestern edge of the forest near a small stock dam. Historical records of the sale of the property (*The Melbourne Argus*, 30 Jun. 1887: 3) indicated that this was on the parcel of land purchased by George Coghill, and which contained his Glencairn homestead. George Coghill was one of a number of early settlers in the Tullamarine area and although he had pastoral ventures elsewhere in the colony, from at least 1848 he appears to have resided in Tullamarine.

The ruins were therefore presumed by Vines to be Coghill's bluestone and brick homestead of at least four rooms (Vines 1995:38). The site had been partly disturbed by bulldozing and probable clearance of materials. The stonework had a mud mortar and a high proportion of unworked natural surface stone, which are often indications of an early structure predating the availability of competent quarrymen and stonemasons, where the surface rock was initially used for most construction. It was therefore estimated to date to the 1840s. The outlines of at least two rooms could be seen, with possible doorways and brick fireplaces. The site was recorded following the survey as the Glencairn Homestead. However, this turned out to be a mistake.

Historical and aerial photograph analysis revealed another bluestone ruin about 400 metres to the northwest, still on Coghill's Allotment 7A, but on a prominent rise outside of the Melbourne Airport estate overlooking a gully leading down to Deep Creek. This was clearly an alternative and a more likely candidate for the Glencairn homestead (**Figure 1**) (Heritage Victoria 2021a).

Another site was also located to the southwest, in the bottom of this gully, which had been tentatively identified as the boiling down works on the basis of remnants of a ships tank, a small dam with cobbled spillway and scattered metal fragments. This now is thought to have been a dam and sheep wash ('Coghill's Dam' on **Figure 1**), probably dating from the 1860s (Heritage Victoria 2021b).

Therefore, it was seen as desirable to confirm the identification of the various structures through archaeological excavation. Initial excavation of the

site initially thought to be Glencairn undertaken by Biosis Pty Ltd in 2020 indicated that while there were substantial stone and brick structural components, it did not fit with the expected pattern of a bluestone residence. Also, the lack of domestic artefacts such as glass bottles and printed ceramic fragments raised suspicions this was a different type of site.

Boiling down

pastoralists' products (Fry 1973:1-18) creating a severe price slump for export products such as wool, leather and salted meat (Howard 2010:126).

Boiling down is the process of rendering or melting the fat from animal carcasses to produce tallow, which could then be used for a variety of manufactured goods including soap and candles.

Boiling down has been described as the saviour of the Australian pastoralists in the rural recession of the 1840s (Peel 1974:33; Linge 1979; Farrer 1980). Western District pastoralist George Russell claimed that 'melting down the stock has been the salvation of the colonies' (Brown 1958:519)

Henry O'Brien a pastoralist at Yass, undertook experiments with boiling down sheep in large cauldrons in early 1843, publicising his experiments in the local newspaper in June 1843 (*The Sydney Morning Herald* 20 Jun. 1843: 1). This article was widely reprinted resulting in the method being known and adopted in many other areas. The method was probably not unfamiliar to squatters, as most pioneers were already making their own soap, and it was similar to the process for rendering whale and seal blubber (Lawrence 2002). For example, Toby Ryan noted that:

[Hamilton] bought up a quantity of four hundred gallon iron ship tanks, and rigged them out so simply

that the *modus operandi* astonished the people. Hamilton had seen a good deal of whaling operations and thus understood the matter. The establishment was in close proximity to wood and water, and could therefore dispose of one thousand bullocks per week, and the rush for boiling down became so general that he purchased or rented a large soap factory at Johnston's Bay, Annandale, where he also carried on a wonderful trade, the stock still increasing. Tallow and hides—being then a good price, it returned to the squatter for good cattle 40s. to 50s. per head, and some extra good have even realised 70s. each, but that seldom occurred (Ryan 1982:157–9).

However, the costings O'Brien prepared demonstrated the economic value, and led to boiling down works becoming an established industry, which helped to maintain a minimum value for livestock (around five shillings per head for sheep) (Parsonson 2002).

Production grew from as little as 50 tons of tallow in 1843, to 430 tons in 1844, and over 4500 tons worth £130,000 in 1850, in Victoria alone (Annear 2005:158). Alan Gross notes that locally:

Sheep which might have cost guineas per head had to be sold for pence, often 1/- to 1/6. Boiled down, an old ewe could yield up to 30 lbs., and tallow sold at 3d. per lb. It was a desperate expedient described as destroying the principal but the reasoning was clear, especially as the wool, skin and bones could also be converted to cash. There were seasons when boiling down was resorted to at Glenara (Gross 1968).

The innovation that O'Brien and others probably came up with was to employ steam to separate the direct heat from the rendering pot, which improved the quality of the tallow and reduced the cost of fuel. The 'Old system' involved directly heating a sealed vessel filled with the chopped up fattier parts of the animal, but by separating the furnace from the melting vats, a greater control of the process could be achieved. James Bonwick provided a description of the process as follows:

Under the old boiling-down system, the boilers were supplied with furnaces, and, in skippers' lingo, 'when the cargo was duly stowed away in the hold, and the hatchways were battened down,' or, in other words, the manhole at the top was closed, the fires were lighted. The boilers being heated made their own steam by separating the fat and oil from the other parts of the carcasses. This was the old process. But by the new mode the steam was generated by means of two other boilers fixed at some distance from the carcase boilers, the steam being conveyed by pipes from the former to the latter. The carcasses were then allowed to steam in the two boilers for about five hours, at a pressure of from 25 lbs. to 30 lbs. When the steaming process was completed, cold water was poured on the sodden and seething mass of sheep's flesh, to 'settle' the dirt, which was thus precipitated, by the cold water, to the bottom of the boiler. This operation effected a twofold purpose, for it served also to raise the fat, or tallow and oil, to a level with the 'fat-cock,' or tap, which was fixed about half-way up the boilers. The tallow and oil issuing from this tap were then conveyed, by means of spouting, and made to pass through strainers, to

a large cooler. This copper is first prepared by water being placed in it; the fat is then allowed to run into it, and more water poured upon the fat. And, finally, when in the cask, the entire mass of fluid matter is well stirred up, to mix the oil with the tallow, and at the same time to allow the remaining steam to escape (Bonwick 1887).

George Russell managed the Clyde Company's, Golf Hill property near Geelong and evidently followed the New South Wales reports (Brown 1958). In August 1843 he experimented by boiling down two ewe carcasses and reported his results: 'The current price for tallow from fat sheep would be from 7 shillings (s) to 9s per head after paying the expenses of the process of boiling down (while) the butchers were giving 45s to 55s for fat sheep with little or no demand for them' (*Geelong Advertiser* 21 Jun. 1843). Thomas Fulton was trialling the boiling-down technique in 1843–44 at Langlands and Fulton iron foundry at 131 Flinders St West (Cashman 1967). One of the first large scale boiling down works in Victoria was established by Joseph Raleigh on the Maribyrnong River near the Stoney Creek Backwash, possibly at least by 1844, where a thousand sheep a day were rendered (*Sunshine Advocate* 14 Apr. 1927: 6). William Wentworth, of Vacluse House, Sydney was rendering sheep in 1843. He was followed by John Campbell and John Smith, who created the self-contained village of Town Marie around his works (Nissen 1999). Robert King operated a boiling down works in the Bremer River area of Ipswich, Queensland in 1847 (Grub 2018).

George Coghill's boiling down works of 1844–1845, was therefore among the first wave of a new industry, and from the evidence of the archaeological remains discussed in the following section, we can surmise that it followed the new mode described by Bonwick and developed by O'Brien, Fulton and others. It was also one of several precursors (along with the contemporary works of Joseph Raleigh) to an animal bioproducts industry that was to grow into a major exporter for Victoria (Vines 1993).

George Coghill's Glencairn

William Coghill was born in Scotland in 1774, arrived in NSW in 1824 and overlanded to the Port Phillip District from New South Wales with partner John Stewart Hepburn in 1837 (Pentreath 2004:6). William initially settled at Glendonald and Glendaruel Stations near Coghill's Creek, but in 1844, he obtained a run at Tullamarine on Moonee Ponds Creek, which he called Cumberland and built a large bluestone homestead (Spreadborough and Anderson 1983). In 1846 William was part of a group including A. M. Campbell and G. C. Curlewis who formed the Immigration Society to encourage labourers to the area (*The Melbourne Argus* 16 Nov. 1847: 2).

William's son George Coghill had also become a very

large pastoralist in his own right, establishing the Pine Hill run in 1845–56, Pannebonawar run in 1851–54, and, with his brother-in-law, H. M. Simpson, Terrick Terrick run in 1854–56 (Spreadborough and Anderson 1983). George and his brother David also had pastoral interests in unsold crown land adjacent to Cumberland from 1844, concurrently with the Glendonald run (Spreadborough and Anderson 1983). George Coghill purchased the 448-acre Section 17B Parish of Tullamarine on 16 December 1848 under Pre-emptive Right purchase, indicating he had an established homestead and most likely had been living there for some years (Woods 1856). George called the property Glencairn (or sometimes Glencairne) (PROV VPRS 8168).

In November 1847, when George married Joan Waldie, he was noted as living at Glencairn, which was then described as being at 'Moonee Ponds' (*The Melbourne Argus* 16 Nov. 1847: 2). In 1848 he was living at Tullamarine, most likely at the same site (Symonds 1985:3). By September 1852 Coghill was giving his address as 'Glencairn, in the Parish of Tullamarine'. An 1851 mortgage on Section 17B included a requirement to insure all buildings to the amount of £1000. This was not a condition on his 1849 mortgage on the site, suggesting that he had made substantial improvements by this time (PROV VPRS 460).

Jane Lennon cites a letter from their cousin Donald dated 1850, which mentions that George was living about two miles south of his parents' Cumberland property and had a boiling down establishment (Lennon 1993:52–53; Coghill Family 1940). An article from much later, but relating to a similar period also indicates that Coghill had boiling down facilities on his Glencairn property located 'just above the Glenara dam', which could suggest the dam on the deep gully southwest edge of the grey box woodland, or the smaller dam on the edge of the woodland where the stone ruins remain (*The Sunbury News* 4 Jun. 1910: 2). George was credited in an article in 1864 as having commenced one of the colony's first boiling down works during the rural recession of the 1840s (*The Age* 4 Jul. 1864: 2; 6 July 1864: 2).

George Coghill also entered into a partnership with John Pascoe Fawcner in the Freehold Land and Investment Co, for which they jointly purchased crown allotment 13A on 10 December 1850, extending south to Mansfields Road. They subdivided the property in September 1852, with the northern 246 acres becoming part of Coghill's Glencairn and the southern 246 acres allocated to Fawcner's co-op. members. By this time Coghill also occupied his father's 880-acre Cumberland property on the east side of Moonee Ponds Creek (Itellya 2017).

Fawcner also bought land in the parish of Jika Jika on behalf of members of his land co-operatives at what is today Hadfield and East Keilor. He also purchased crown allotment 10 on Tullamarine Island, allotment 13B south

of Mansfields Rd, 13A north of Mansfield's Rd (Mansfield 1999) with George Coghill, and section 7 Tullamarine with the part east of Bulla Rd being swapped with John Carre Riddell for the part of section 6 west of Bulla Road (Itellya 2018).

George Coghill of Glencairn died in 1864 (*The Melbourne Argus* 22 Mar. 1864: 4). The property was sold following his death. The sale notice is fairly comprehensive, stating as follows:

TUESDAY, SEPTEMBER 6. At Twelve O'clock.
Immediately after the Crown Lands Sale.

800 ACRES.

Valuable Farming and Grazing Property.

GLENCAIRN.

With Substantial Bluestone Dwelling house, Boiling Down Establishment, Plant, &c. Situate on the Deep Creek, Within 12 Miles of Melbourne.

The Property of the late George Coghill, Esq. To Farmers, Graziers, Speculators, and Others, GEMMELL, M'CAUL, and Co. have received instructions from the executors of the late George Coghill, Esq., to SELL by AUCTION, at their rooms, 30 Collins-street west, 6th September, at twelve o'clock, that valuable property, situate on the Deep Creek, known as GLENCAIRN, and comprising 800 acres fine AGRICULTURAL AND GRAZING LAND, Securely fenced, and subdivided into paddocks.

The property has a frontage of 64 chains 80 links to The Main Government Road, and also a frontage to the DEEP CREEK, from which there is a never-failing supply of water.

The Dwelling house is built of bluestone, and contains six rooms, kitchen, servants-room, men's hut. Also, very commodious bluestone stables, cart sheds, storehouse, and salting-room. The Garden is well stocked with choice fruit-trees, and securely fenced by a stone wall.

There is also erected on the property a boiling-down house and stockyard, within one mile of the dwelling house Though Boiling-down Plant, in complete working order, consisting of steam boilers, iron steam vats, force pump, coolers, wooden vats, weights, and scales.

The auctioneers, in calling attention to this valuable property, would remind intending purchasers that as grazing-paddock for stock such an opportunity as the present is seldom met with. The distance from town is only 12 miles, and the property is well timbered, and has a never failing supply of water. There is also abundance of splendid bluestone and granite, and valuable deposits of kaolin. Title perfect.

Terms-cash.

Orders for Inspecting the property can be had from the auctioneers (*The Melbourne Argus* 27 Aug. 1864:2).

The land sale was preceded by a clearing sale that indicates the boiling down was evidently still underway at the time of Coghill's death, by the fact that manure waste from the process was to be sold.

THURSDAY, JULY 7.

Important Sale of Stock. Farming Implements, &c.

DALMAHOY CAMPBELL and Co. have received Instructions from the executors of the late George Coghill, Esq., to SELL by PUBLIC AUCTION, at Glencairn, Bulla Bulla, 14 miles from Melbourne, on

the Deep Creek Road, on Thursday, the 7th July, at twelve o'clock.

Without reserve, the whole of the livestock, farming Implements, &c., consisting of 12 well-bred milking cows, 17 well-bred heifers, 6 calves, and 1 pure bull (by Buckingham), 26 horses, broken and unbroken; 150 pigs, 40 of which are superior breeding sows, drays, ploughs, harrows, rollers, scarifier, bullock yokes, bows and chains, weights, scales, about 1 ton salt beef and 15 tons salt, &c., and a large lot of valuable manure (boiling-down refuse), and sundries too numerous to mention.

Terms at Sale (*The Melbourne Argus* 4 Jul. 1864:2).

The land was sold to Walter Clark who had established the Glenara property immediately west of Glencairn in 1857, after arriving in Sydney from Scotland in 1837 (Vines 1995; Rundle 1981). The Glencairn Cottage was listed as part of Alister Clark's Glenara Estate in a later sale advertisement from 1887 (Rundle 1981). Also listed about a mile distant, was 'a spacious woolshed and eight-roomed stone Cottage, situated in the Glencairn paddock, which is famed throughout the district for its fattening qualities.' A dam on the deep gully to the west of the boiling down works was described as a sheep wash (*The Melbourne Argus* 30 Jun. 1887: 3).

It does not appear that the boiling down plant operated again after Clarke's purchase of the property, but it was referred to as the boiling down works on Glenara many years later (*The Sunbury News*, 4 Jun. 1910: 2).

Methods

Archaeological investigations were undertaken over two separate phases, commencing with a small test excavation in the most prominent stone and brick feature. This was subsequently expanded to clear the adjacent linear features and trace the extent of the brick and stone footings. A five-ton mechanical excavator was also

employed to strip the layer of soil and clay that had been pushed over the part of the site to the west, with follow up cleaning by shovel. As well as exposing the main brick structure on the south side of the site, three areas along the perimeter linear feature to the east, northeast and north were then carefully hand excavated to determine their structural form and dimensions. These revealed the northern and eastern boundary of a walled enclosure and comprised a north gateway, the northeast corner, and an eastern gateway respectively.

Artefacts were catalogued using Heritage Victoria's cataloguing template, while Zachary Carter undertook further bone analysis, primarily to identify genus and bone type.

Results of excavation

Overall site

A survey of the Coghill's Boiling Down Works site identified a large area of stone and brick demolition rubble scattered over a roughly rectangular area measuring 10 by 15 metres with an earth dam located about 20 metres to the east. This area was still heavily overgrown during initial survey, which reduced the ability to determine overall size and layout to the site, or the connection between the various sections of the remains such as the brick and bluestone features.

The northern and eastern boundaries of the site were found to have footings and a single course of stone from a freestanding rubble bluestone wall about 500–600 millimetres wide. This wall has partly-dressed facing stones and vertical sides so is unlikely to be remains of a dry-stone wall. Little mortar was evident, but it is likely the original mud mortar had washed away. However, near the base of some of the more intact sections, there was some evidence of mud mortar.

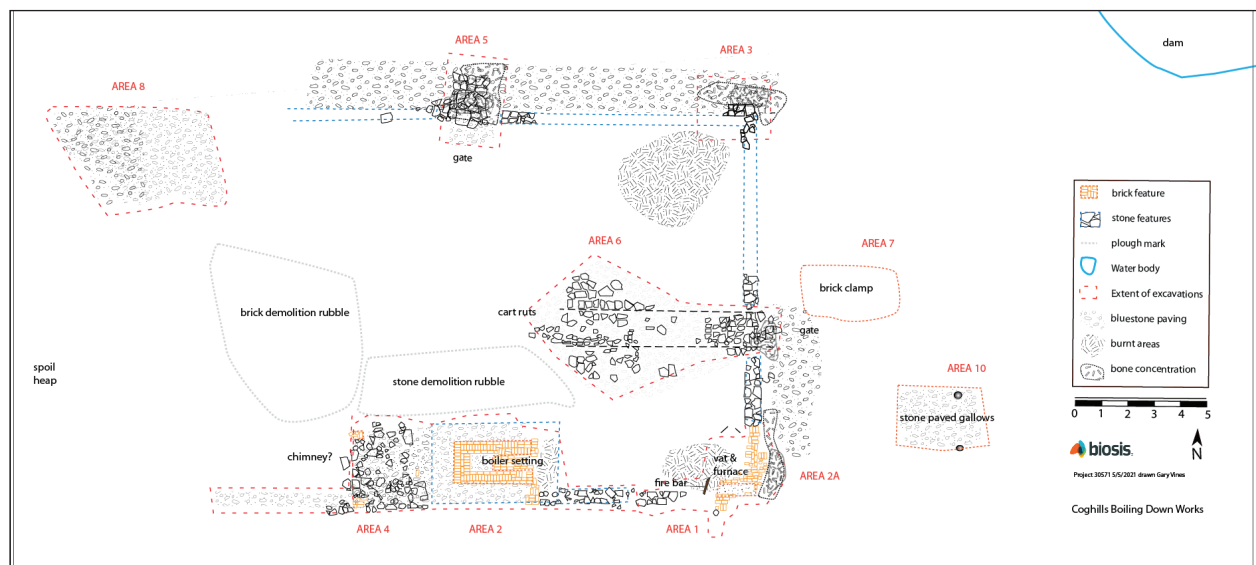


Figure 2. Plan of excavation (drawn by Gary Vines, 2020)

Two openings were identified, one in the northern wall, and one in the eastern wall, both about two metres wide and with stone paving. The northern opening has paving only on the outside of the wall, which is part of a continuous shallow table drain running along the northern edge of the site. The excavation found a dense layer of butchered bone, buried beneath a thin layer of soil across this drain. The eastern opening has stone paving extending through the opening with cart ruts extending for about eight metres west of the opening.

The perimeter wall extends around the south of the enclosure forming the outer wall of two brick structures. Extensive stone paving is located in the southeast and the northwest of the enclosure, but the perimeter wall could not be traced along the western edge. This area had been extensively disturbed by bulldozing in 2010 and it is thought all features had been removed. Aerial photographs suggest that the enclosure did not extend much further than the paving.

Boiler setting and chimney

Along the southern boundary of the site, a brick and stone structure was uncovered comprising the main flue of a three-pass Cornish boiler. Handmade bricks form the footings and sides of the flue measuring one and a half metres by three metres, with an additional half metre of stonework around three sides. Some 'Cartcraig' firebricks were noted, including examples with a taper indicating their use in an archway. An extensive burnt area immediately east of the structure indicates the position of the fire hole.

Immediately west of the boiler setting is an area of rubble stonework measuring two metres by three metres which is assumed to be the base of the chimney. This has brickworks in the corners suggesting it had brick quoins, a common method of squaring up structures when builders had limited stone masonry skills or suitable material.

Steam heated melting vat

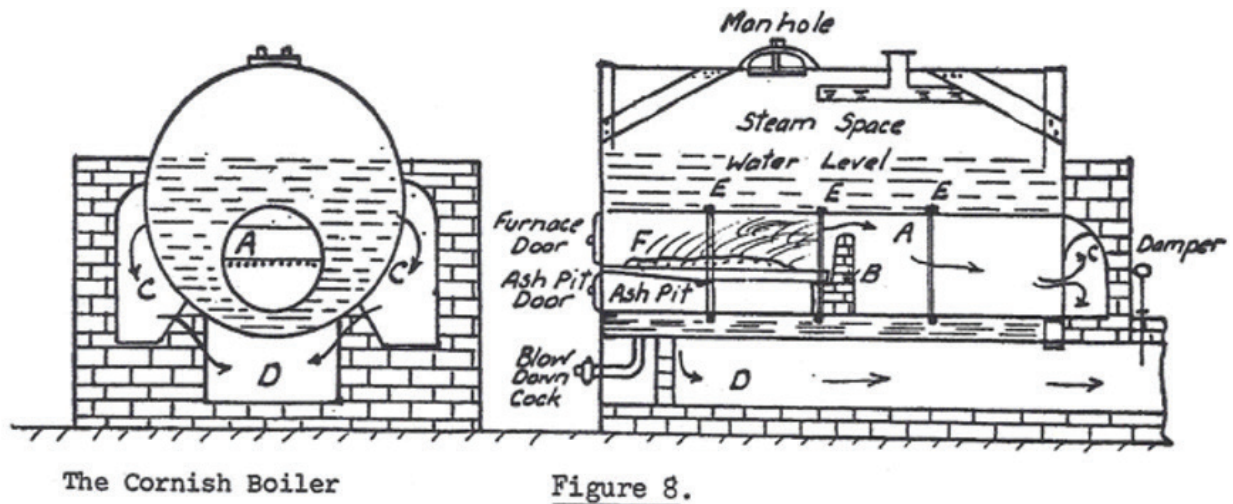
A few metres to the east of the boiler setting is another



Figure 3. a. Cart gateways in perimeter wall, paving outside northern gateway. b. Paving and cart ruts of eastern gateway of perimeter wall (photographs by Gary Vines)



Figure 4. a. Brick boiler setting; b. Chimney foundations (photographs by Gary Vines)



2751:2

Figure 5. Example of a three pass Cornish Boiler (Smith 2016).

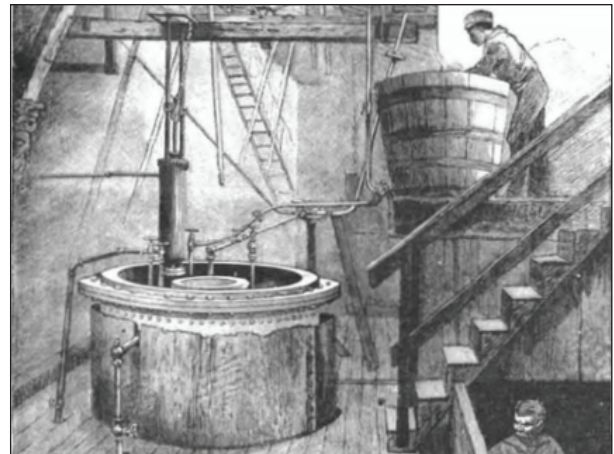


Figure 6. a. Brick structure from melting vat (photograph by Gary Vines). b. Example of tallow melting vats (Scientific American 1881)

substantial brick structure measuring about two metres square. This has about six courses of handmade bricks laid in a tightly interlocking pattern, with a section of hard cement along one side. The brickwork splays out to form wide footings. An area of heavily burnt ground and debris, including a dense deposit of butchered bone, was located immediately northwest of the feature. The brickwork is interpreted as part of the supporting structure for at least one melting vat, possibly two.

Brick clamp kiln and gallows paving

East of the main structures are two other features, a possible clamp kiln and paving thought to be the location of the butchering gallows. The former comprises a slight mound measuring two and a half metres by two of compact brick rubble. The feature was only partly excavated to expose the bricks, but some sections of very crumbly bricks appeared to be closely stacked on their edges. Charcoal and burnt soil were also noted. Further

excavation may confirm the interpretation of this as a clamp kiln for firing bricks.

A little south of this was another slight mound paved with tightly packed, small, rounded basalt cobbles. Two fairly large post holes about 250 mm diameter were positioned on either side of the paved mound. This feature has been tentatively interpreted as gallows, or timber frame and pulley for hoisting animal carcasses in order to drain the blood and butcher them.

Analysis

The structural components of the site are straightforward. Handmade sandstock bricks and local bluestone rock were used for foundations, walls, and boiler settings. In addition to the soft sandstock bricks on the site, there were also fire bricks marked 'A BALD ALLOA'. These were from the Alloa Brick and Tile Works, Alloa, Clackmannanshire, Scotland and comprised both



Figure 7. a. Possible brick clamp kiln. b. Gallows paving (photographs by Gary Vines)

standard and tapered shapes for the construction of arches. The Alloa brickworks was a long-lived brick maker that exported around the world for most of the nineteenth century (Cranston 2021).

A large proportion of the stone was in the form of uncut weathered boulders, similar to the surface stone still to be found scattered over the basalt plains. This is likely to be an indication that professional stonemasons and quarry-sourced stone were both unavailable at the time.

The layout of the site can be interpreted as a large stone-walled holding and storage yard and a processing area with the industrial plant located in a small part of the southeast corner of the site. The partial stone paving suggests that these areas were heavily trafficked, possibly where the processes of killing, and loading and unloading the boiling vats occurred and may have been wet areas from butchering and discharging the tallow. Burnt areas correspond with the likely position of the furnace. The widespread distribution of butchered bone suggests either a haphazard approach to disposing of waste, or more likely, that pigs were kept on-site to consume the waste product.

The cart ruts (or possibly intentional tracks to keep carts in position), through the eastern opening in the perimeter wall, may indicate the loading-out area. The distribution of brick rubble northwest of the possible chimney base may represent where the chimney was toppled. Similarly, a concentration of stone rubble just north of the boiler suggests a fairly substantial structure in this area.

The boiling down works was one of several sites investigated as part of the wider Melbourne Airport project. **Table 1** provides a summary of all artefacts excavated for the various sites. It should be noted that where large amounts of brick and stone building material was excavated only a sample were recorded.

The total artefact counts from the excavated areas at Coghill's boiling down works comprised of 1464 items.

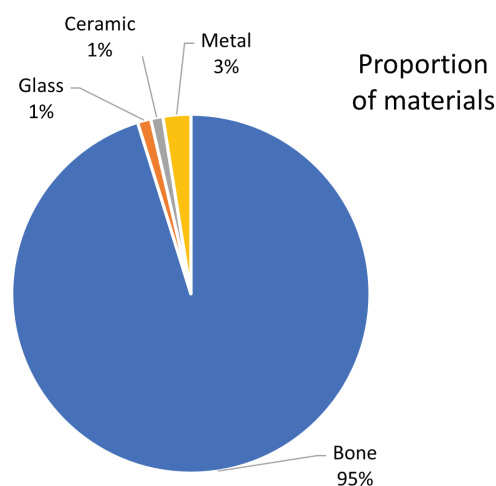


Figure 8. Proportion of artefact materials (Carter 2020)

However, there were very few small artefacts other than building material and bone, with only a handful of fragments of pottery and glass and a slightly larger number of nails. Bone made up the greatest proportion of recovered artefacts with over a thousand fragments collected and catalogued from the sample excavation areas. The excavated area, apart from removing rubble from on top of the identified structures, comprised only about 15% of the total area of the enclosure.

A preliminary zooarchaeological analysis of part of the assemblage was carried out by Zachary Carter in March 2020. The faunal remains retrieved from Glencairn currently totals 928 individual fragments. *Bos taurus* (Cow) and *Ovis aries* (Sheep) were the dominant species identified, with minor instances of *Sus scrofa* (Pig). The majority of the findings are fragmented rib as well as metapodials and phalanges, with minimal signs of long bones (only three epiphyses). No consistent breakage patterns were identified, indicating the probable smashing of green and dry bones. There were no clear indications of butchery and/or burning modifications related to human dietary practices.

Artefact types	Oakbank	Victoria Bank	Seafield Farm	Seafield cistern	Barbiston Farm	Bellno farmhouse	Coghill's Boiling Down Works	Kennedy's Hut	Coghill's Dam & Sheepwash	Aucholzie	Total for all sites
bottles or parts (MNI)	2	20	1	50	1	20	8	33	12	5	152
other glass	30	90	20	120	50	30	15	79	34	14	482
plain ceramics	20	80	25	30	30	40	11	12	7	5	260
transfer print ceramics	10	80	50	20	20	30	3	22	3	2	240
personal items	3	20	2	10	2	20	1	10	0	1	69
metal fasteners	50	30	20	10	120	20	22	40	21	4	347
machinery metal	8	20	4	30	3	2	13	10	2	1	93
brick	40	40	10	5	10	20	200	5	1	11	342
stone	120	400	100	140	40	200	200	300	11	11	1522
building timber	5	10	5	10	10	3	10	5	4	1	63
bone		65	2	12	12	22	981	11	2	1	1108
Totals for all types	288	855	239	437	298	407	1464	527	197	56	4668

Table 1. Total numbers of artefacts from all Melbourne Airport project excavations

In short, the current assemblage of Glencairn is mostly comprised of cow and sheep fragmented offcuts, with no instances of higher-end valued meat cuts. This sample is consistent with the interpretation of the site as a boiling down works, however further excavation of the site will better aid in understanding the assemblage.

Conclusion

The excavation has corrected a previous misidentification of the site and confirmed that it is the boiling down works

established by George Coghill in the 1840s. The site conforms with historical descriptions that distinguish sheep tallow melting works from the better-documented whaling tryworks, in that the furnace and melting vats were separated, and melting was carried out by steam heating rather than direct fire (Pearson 1983).

This site is currently thought to be the only known example of a mid-nineteenth century livestock boiling-down works, either to have been subject to archaeological

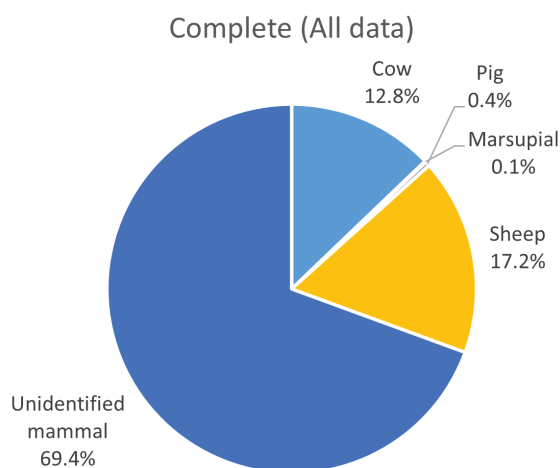


Figure 9. Proportions of all animal bones (Carter 2020)

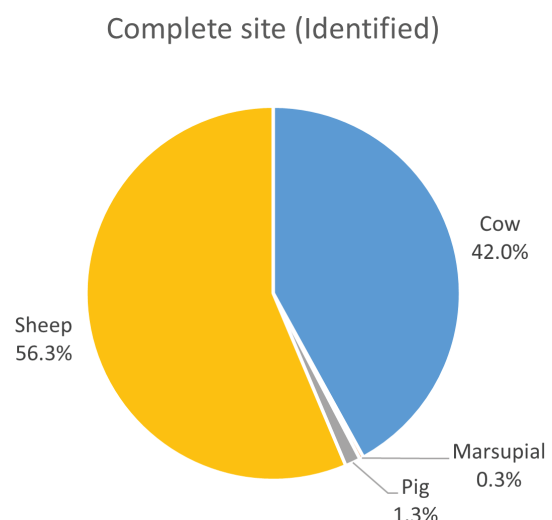


Figure 10. Proportions of identifiable animal bones (Carter 2020)

investigation or to have substantial extant fabric. While there are a few large try pots and other cast-iron vessels, which may be related to boiling down works, in various locations around Australia, they are removed from their original context.

The site provides insight into the technology employed in this important phase of Australia's history, and evidence of the adaptation of a relatively well-known process to a distinctly local need. In turn, it paved the way for a range of animal by-product processes that saw the rapid expansion of one aspect of Australian industry in the nineteenth century.

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References

- Annear, R. 2005 *Bearbrass: Imagining Early Melbourne*. Melbourne: Black Inc.
- Australia Pacific Airports Corporation Ltd 2010 Annual Report. Unpublished report prepared for the Australia Pacific Airports Corporation Ltd: Melbourne.
- Bonwick, J. 1887 'The Romance of the Wool Trade,' quoted in 'BOILING DOWN.' *The Worker* Wagga, 6 July 1910 p.4. Retrieved 20 April 2021 <<http://nla.gov.au/nla.news-article145735371>>.
- Brown, P. L. 1958 *Clyde Company Papers, 1841-45 Vol III*. London: Oxford University Press.
- Cashman, R. I. 1967 Langlands, Henry (1794-1863), *Australian Dictionary of Biography*, National Centre of Biography. Retrieved 22 April 2021 from <<https://adb.anu.edu.au/biography/langlands-henry-2328/text3027>>.
- Chandu, A. 2012 *Wait For Train to Tullamarine Now 55 Years*, Sydney Morning Herald, Retrieved 1 May 2021 from <<https://www.smh.com.au/politics/federal/wait-for-train-to-tullamarine-now-55-years-20121230-2c1c1.html>>
- Cranston, Mark 2021, *Scotland's Brick and Tile Manufacturing Industry*, Mark Cranston. Retrieved 1 May 2021 from <<https://www.scottishbrickhistory.co.uk/alloy-brick-and-tile-works-alloy-clackmannanshire/>>.
- Eames, J. 1998 *Reshaping Australia's Aviation Landscape: The Federal Airports Corporation 1986-1998*. Edgecliff: Focus Publishing.
- Farrer KTH. 1980 *A Settlement Amply Supplied Food Technology in nineteenth century Australia*. Melbourne: Melbourne University Press.
- Fry, K. L. 1973 Boiling down in the 1840s: A grimy Means to a solvent end, *Labour History* 25:1-18.
- GROSS, A. 1968 *History of the Shire of Bulla, 1862-1962*. Sunbury: Shire Council.
- Grubb, K. 2018 *Richard Joseph Smith and Town Marie*, Ken Grubb. Retrieved 1 May 2021 from <<https://www.townmarie.com/richard-joseph-smith-and-town-marie/>>.
- Heritage Victoria 2021a *Glencairn Homestead Site H7822-0200*, Victorian Heritage Database. Retrieved 1 May 2021 from <<https://vhd.heritagecouncil.vic.gov.au/places/207016/download-report>>.
- Heritage Victoria 2021b *Glenara Sheep Dam H7822-0202*, Victorian Heritage Database. Retrieved 1 May 2021 from <<https://vhd.heritagecouncil.vic.gov.au/places/8845/download-report>>.
- Howard, M. 2010 The export trade in tallow, 1843-1851. *Investigator- Geelong Historical Society* 45(4):126.
- Itellya, R.G. 2017 *Details of Some Port Phillip Electors in 1847 Vic Aust*, Family Tree Circles. Retrieved 20 June 2020 from <<https://www.familytreecircles.com/details-of-some-port-philip-electors-in-1847-vic-aust-54182.html>>.
- Itellya, R.G. 2018, *1892 Farms and their Owners in and Around the Parish of Tullamarine, Victoria, Australia*, Family Tree Circles. Retrieved 2 June 2020 from <<https://www.familytreecircles.com/tullamarine-before-the-jetport-49962.html>>.
- Lawrence, S. 2002 Whaling in the South Seas: Archaeological evidence of Australia's first industry. *Mains'l Haul*, 37(3):4-11.
- Lennon, J. and Victoria. Department of Conservation Natural Resources 1993 *Red gums and Riders: A History of Gellibrand Hill Park*. East Melbourne: Dept. of Conservation and Natural Resources.
- Linge, G J R. 1979 *Industrial Awakening, A Geography of Manufacturing in Australia 1788-1890*. Canberra: Australian National University Press.
- Mansfield, N.H. 1999 *The David Mansfield story: A Genealogical History of his Descendants in Australia*. Longford: Mansfield N.H.
- Nissen J.A. 1999 Creating the landscape: A history of settlement and land use in Mt Crosby. Unpublished M.A. thesis, School of History, Philosophy, Religion and Classics, University of Queensland, St Lucia.
- Parsonson, I. 2002 Innovations and inventions in the Australian sheep industry, 1. Boiling down. *Australian Veterinary History Record* 35:18-24.
- Pearson, M. 1983 The technology of whaling in Australian waters in the 19th Century. *Australian Historical Archaeology* 1:40-54.
- Peel, L.J. 1974 *Rural Industry in the Port Phillip Region 1835-1880*. Carlton: Melbourne University Press.
- Pentreath, S. 2004 William Coghill. *Mallee Roots- Swan*

- Hill Genealogical & Historical Society Inc. November 2004
- PROV VPRS 460 Torrens Application file, Unit 491, TA 5518 <<http://access.prov.vic.gov.au/public/component/daPublicBaseContainer?component=daViewSeries&entityId=460>>
- PROV, VA538 Department of Crown Lands and Survey, VPRS 8168/P0002 Tullamarine Allotments, M/DEF111, Historical Plan Collection 1888 <<https://prov.vic.gov.au/archive/C5597E54-F841-11E9-AE98-CBFE9F147559/content?image=1>>
- Rundle, H. E. 1981 Clarke, Alister (1864–1949), *Australian Dictionary of Biography*, National Centre of Biography. Retrieved 1 May 2021 from <<https://adb.anu.edu.au/biography/clark-alister-5659/text9553>>.
- Ryan, J. T. 1982 *Reminiscences of Australia: Containing 70 Years of his Own Knowledge and 35 years of His Ancestors / by James T. Ryan under the cognomen of Toby*. South Penrith, N.S.W: Nepean Family History Society.
- Scientific American, 1881 American industries No.79. The manufacture of candles. *Scientific American* 45(25):383–388.
- Smith, D. 2016 *Cornish Boiler*, Napoleon Reef, Walang and Glanmire, Residents Association. Retrieved 1 May 2021 from <<https://nrwgra.com/history/the-cornish-boiler/>>.
- Spreadborough, R. and H. Anderson 1983 *Victorian Squatters*. Ascot Vale: Red Rooster Press.
- SUNSHINE ADVOCATE
- Symonds, I.W. 1985 *Bulla Bulla: An Illustrated History of the Shire of Bulla*. Melbourne: Spectrum Publications.
- THE AGE
- The Coghill Family, 1940 Statement by Mr Henry Holmes of Essendon 13–9–40 Coghill Family records, Documents—History of the Coghill Family, Federation University Australia Historical Collection (Geoffrey Blainey Research Centre). Retrieved 1 May 2021 <<https://victoriancollections.net.au/items/5b06149d21ea670cb464b751>>
- THE MELBOURNE ARGUS
- THE SUNBURY NEWS
- THE SYDNEY MORNING HERALD
- Vines, G. 1993 Meat and by-products the meat industry and animal by-product works of Melbourne's West, Victoria. Unpublished report prepared for the Department of Planning and Development, Highpoint City, Vic: Melbourne's Living Museum of the West
- Vines, G. 1995 Grey Box Forest Study. Unpublished report prepared for the Grey Box Forest Ecological & Cultural Heritage Project. Cultural Heritage Study & Management Proposal, Melbourne's Living Museum of the West Inc.
- Vines, G. 2015 The Scottish pastoral landscape in Tullamarine. *Excavations, Surveys and Heritage Management in Victoria* 4:59–68.
- Woods, G.A. 1856 Tullamarine (cartographic material), G.A.W. Melbourne: Surveyor General's Office.