the Dry Stone Walls association of Australia inc.

The Flag Stone

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History and heritage

Composite fence

It's been a busy couple of months! After a hectic trip over to the UK to take part in several trade events in Yorkshire, including Women's International Stone Alliance (WISA) traditional stone workshops at Shibden Hall:

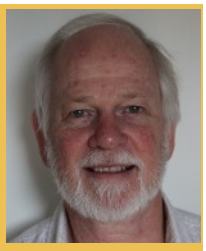
I've also been working in partnership with the DSWA UK towards hosting a significant event in the Australian traditional stone trades calendar, which is shaping up to be an extremely exciting opportunity:

More information will be made available shortly – it's a very exciting time to get involved!

Emma Knowles (President, DSWAA)

This issue

People in walls and walling - *David Moloney*



David Moloney is a professional historian and town planner who has worked in cultural heritage for thirty-eight years. In particular he has contributed to landmark studies of dry stone walls in the Victorian Cities of Melton and Whittelsea.

For this edition of TFS David sat down to be grilled by Jim Holdsworth.

JH: David, your interest in dry stone walls is, I think, personal as well as professional. How did you first become aware of the of dry stone walls and what instigated your interest?

Like most people I was always impressed by the size, intactness and sculptural qualities of the dry stone walls between Colac and Camperdown. And also by their settings - some forging powerfully across gullies, dramatising the stony rises contours.

At some point I discovered that a Scottish forebear, William Dalgliesh, had been a 'dyker', or a dry stone waller. In the early years he worked for the Henty family around Portland Bay, which may have included building dry stone walls. He settled in the Tyrendarra area, on the Mt Eccles Budj Bim lava flow. Half my Irish forebears were farmers, so they maybe had a few walls to their credit as well.

Perhaps this explains a feeling I have that, if I ever build 20 metres of dry stone wall, I'll have done something with my life.

Walls are old, grounded, substantial, natural, useful, and not as simple as they look. They are the fruit of many generations, but also of their builders' craft, hard labour and vision. Some have a beautiful structure, or texture, or a lattice of lichens, mosses and native flowers.

I like all these things. But my interest has developed mostly through my professional work.

In 1994 I identified a few dry stone walls in the Bulla (City of Hume) heritage study. In 2002 I undertook the Shire of Melton heritage study, whose brief made identification of dry stone walls obligatory, I think a first. Around this time I represented the National Trust at the Ballarat foundation meeting of the Dry Stone Walls Association of Australia. Raelene Marshall then asked me and Jim Holdsworth to work with her on the landmark City of Melton dry stone wall heritage study [TFS #35 Jan 2016]. The recent thematic study of Whittlesea walls was a journey back to the very beginnings of small scale farming in Victoria. In between times I prepared assessments of particular sites (all illuminating to me) and reviewed others' assessments.

Dry stone walls are a substantial presence in Victoria. But while they are not quite a *tabula rasa*, in my view their construction and history in Australia is still barely recorded and little understood. My interest piqued, I embraced opportunities to uncover more about them.

People in walls *(cont.)*

So walls have definitely been a part of both my personal and professional journeys. I may have taken a few too many photos of the superb dry stone walls on Korea's Jeju Island on our 2004 honeymoon. Josephine and I have since enjoyed DSWAA field days where we all wander off to contemplate walls and their landscapes, or confer about them in fluid little groups. I enjoy the earthy DSWAA images rotating daily on my wallpaper.

JH: Tell us a little about your professional background, including in areas other than dry stone walls.

I worked either full or half time with the National Trust for 25 years, as researcher, secretary to expert committees (mainly industrial history), advocate at Heritage Victoria, etc. I found that assessing vernacular places was my particular interest, and gathered expert committees and consultants to prepare typological studies, and consequent publications, including *Our Inter-War Houses*, and *Wooden Wonders: Victoria's Timber Bridges*.

As a consultant I have worked mostly for municipalities, preparing heritage studies and reviews, and also more specialised studies of humble domestic precincts and mining sites. I've also worked for state bodies, with major studies of the St Kilda Pier Kiosk and Museum Victoria's former ACI glassworks site at Spotswood, and for federal government and private clients. I am currently finishing a history of the small Truganina farming community, and doing a PhD on the history of the Young Christian Workers movement in Melbourne.

***JH:* You recently completed a comprehensive study of the City of Whittlesea's dry stone walls. How did you go about it, and what do you hope comes from that work and your recommendations?**

Informal discussions with Whittlesea regarding a dry stone wall study on the Melton model followed a Heritage Council hearing for the Tom Love *Clonard* property.

The City of Whittlesea is set apart from most dry stone wall districts in Victoria by its low stony rises geomorphology, and its very early history.

I think it was after a discussion with archaeologist Gary Vines that I realised that the mysterious markings around multiple occurrences of the word 'cultivation' on some very early historical plans, denoted dry stone walls partially enclosing a 'cultivation paddock'. The stony rises include patches of rich alluvium that the pioneering European farmers used as cultivation paddocks; as in ancient times our first walls were likely enclosures to keep stock out rather than in (native animals too).

Immediately the dry stone wall landform of the *Fenwick* property, visited by the DSWAA in its early years, made sense. It was typical of many properties in the district, where small cereal grain paddocks in the first years, and then dairy feed-crops especially from the 1860s, were protected from stock by dry stone walls, sometimes with lighter fencing on softer ground.

Built around the fringes of the stony rises, the organic plan of these walls is I think of more visual interest than the majority of Victoria's dry stone walls, which follow the surveyor's grid. Later these cultivation paddock walls were regularised into orthogonal patterns, some remarkably complex in response to intense farming on the mineral-rich stony rises.

A characteristic construction technique of these walls is also of interest. The Merri-Darebin stony rises provided flat stones from the weathering of horizontal tension fractures. These large 'platey' stones were often set on edge, in defiance of the UK textbooks, and the conventional Western District walls that first attracted the admiration of the DSWAA. The opinion that such 'traced' walls are essentially unsound in comparison to conventional interlocked construction is no doubt correct, especially where vesicular stones provide friction. However, many if not most of the Whittlesea 'cyclopean' walls that were built on the solid foundation of the Stony Rises are substantially intact some 150 - 170 years later.

People in walls *(cont.)*

The Westgarthtown Germans, who were among if not the first to build walls in this unconventional manner, also built bluestone homes and barns with large 'random' (uncoursed) stone facades. Architectural historian professor Miles Lewis called this style 'almost cyclopean', so that is the name I have used for the similar dry stone wall faces.

This unique local story exemplifies a much broader point: we have barely begun to interrogate our own vernacular dry stone wall construction. Perhaps we need to commission studies of specific aspects of local stone walls; no doubt some of this knowledge is already held by former and current practitioners.

At present the descriptions and analyses of construction in heritage assessments submitted by developers are based on outdated or irrelevant criteria. In my view many are deeply confused, and potentially obfuscating. But I think this problem is partly of our own making. We need to establish clear criteria by which the archaeological consultants can make assessments.

Closer examination and analysis of the actual fabric and construction of our walls would modify the conventions we have assumed under the influence of the Western District Stony Rises walls. Those walls, secured by vesicular stone, cannot be compared to the walls on Melbourne's northern and western fringes (and very many other Victorian walls) built with heavy, smooth 'potatoes', or more awkward angular forms. We should not presume that all or even most of these walls were classically interlocked with through-stones, smooth batters, regular coursing, uniform stone size, plugging etc as per the text-books from the British Enclosure Acts, perpetuated now in the check-lists of consultants. And of course, few are now intact as to height, coping, and hearting. Most walls near Melbourne where development pressure is intense would be condemned if such construction and condition measures were to remain as our normative standard. Other more appropriate measures are possible.

'Half-walls' – hybrid stone walls and post & rail or post & wire fences – are another case of the need to acknowledge and then investigate local construction styles. Anecdotally, these are virtually unknown in Europe, but in Victoria they were apparently being constructed quite widely from an early date, and should be of considerable historical significance for that reason. But by the early twentieth century many original all-stone walls had deteriorated, and were trimmed and topped up with post & wire, thereby also becoming half-walls; these are of less historical significance.

We need, firstly, historical investigation to more confidently compare Australia to international practice, and then to ascertain reasons for the original half-walls (availability of stone, pastoral versus farming requirements, etc). Secondly, we need systematic archaeological investigation to help distinguish between original and modified half-walls. We lack potentially helpful data, for example regarding the width of the base of original half-walls, or whether they were typically single or double wall construction, and methods of inserting timber posts.

I also hope that over time local history sources will shed more light on how many walls in a district were built by professional wallers and how many by farmers. Practical farmers, like the Whittlesea Germans, adapt theory to available resources.

The City of Whittlesea has embraced the historical approach to dry stone wall assessment, and has explored various technologies with a view to improving identification of its own and Victoria's walls. On the Melton model, it has commissioned experienced consultants to prepare reports for a selection of its walls with a view to heritage overlay controls. Until HO controls are introduced, its requirement that development applications provide more rigorous assessments of the construction and history of walls is exemplary, and essential if our significant dry stone walls are to be preserved.

People in walls *(cont.)*

JH: As a research historian what is it about your professional work that brings you the most pleasure and satisfaction?

Historical context, or links to larger stories, can be a key to understanding heritage places. An unprepossessing or even a tumble-down wall can be historically important – a relatively indelible and perhaps unique testimony to a significant person, an early event, or a former farming practice.

Coroner's Inquest. David looking for clues to the original construction and demise of a former Melton wall

First is the concrete, granular story of a particular wall, which might be linked to other local stories, adding to its interest. And often there is an overlooked link between that local story and a much bigger story. Such links, or narratives, can and regularly do completely change peoples' understandings of a place. That is certainly satisfying.

Just as we have plenty to learn about the fabric and construction of walls, we have barely scratched the surface in terms of the detailed history of walls. For example: their specific purpose or 'type'; their dates of construction; whether they were mostly built by professionals or farmer landowners in a particular district or era; the builder of a particular wall; documentary evidence in regard to different construction techniques; ethnic or regional European influences; broader historical impacts on their construction and subsequent modifications; comparison with other similar walls in Victoria and nationally.

Applying my knowledge of heritage sources to dry stone walls has been rewarding. While well-known sources such as Soldier Settlement files contain valuable information regarding walls, other sources were less used or known; for example: the full range of historical maps (including Put-Away plans) and aerial photography; PROV Torrens Application files; and surveyors' plans.

Ken Smith, nearly 30 years ago, alerted me to the existence of Torrens Application files (rather than just the summary reports in the Registrar Generals Office records). While these can be treasure troves for properties alienated prior to the introduction of Torrens titles in 1862, they still appear to be little used. They contain much valuable site history, but are particularly relevant to dry stone wall research, as they always including historical information about boundary fencing. Statutory declarations give a 'built by' date, which sometimes also enable a wall's builder to be identified.

Another valuable source is the 'surveyor's plan', part of an application for a title (mostly in the late nineteenth and early twentieth centuries), and now easily accessible on-line. These show the exact location and type of a fence (e.g. 'wall' or perhaps a composite 'stone wall post & wire fence') which can then be compared with present fabric, or the original wall if known.

However this detailed research is very time consuming. For the Melton heritage study I was gratified that this rigorous research was a factor in the planning panel's recommendation to approve the ground-breaking dry stone wall heritage amendment. The Burra Charter requires that all skills necessary are engaged to assess the significance of a place. Funding is required to employ historians as well as archaeologists in dry stone wall assessments.

People in walls *(cont.)*

JH: How do you put a value on a dry stone wall when it is external to the economy (which many people will say is the only thing really important)?

The value of heritage places is determined according to Australia's internationally renowned Burra Charter. It has two independent stages: firstly, assessment of heritage significance; and secondly management, which flows from the first stage (the Statement of Significance).

Heritage significance is identified by reference to any or all of the following values: 'aesthetic' (including a place's informal, non-architectural, aesthetic); 'historical' (its associations with significant people, events, ways of life, etc); 'social' (its present value to the community, or groups within it, and its educational value); 'scientific' (mostly taken to be its archaeological value or potential to provide new information); or 'spiritual' (to a particular group).

The level of these values, as well as qualifiers such as 'condition', 'intactness', 'integrity' and 'comparative significance' (including a place's 'representativeness') are used to attribute an overall level of significance to a place. In Victoria places can be of heritage significance at the local, state or national level.

If a place is formally protected by a statutory regulation, its management proceeds according to its level of significance, and permit application provisions . Following the Burra Charter, hearings will take into account economic factors such as costs and the financial viability of preservation. In Victoria at least, broader financial issues such as impediment to 'highest and best' use of a property is not relevant. On the other hand, studies of one type of heritage place (residential heritage precincts) show a direct correlation between heritage controls and higher property values.

JH: Anything else that you'd like to tell readers of The Flag Stone and visitors to the Association's website about you and your work?

Heritage Victoria once met with the Melton consultants to discuss possible planning scheme provisions to protect dry stone walls. Around this time there had been a spate of stories about walls in the media. I think the City of Melton's study itself contributed to the zeitgeist.

What eventuated was today's Clause 52.33 'blanket' protection of walls, which has been taken up by municipalities such as Whittlesea to provide a level of interim control prior to a full heritage study on the Melton model.

There is no doubt in my mind that the foundation of all this interest and concrete action was the emergence of the DSWAA as such a seasoned and credible body. Well done to those who have built and maintained it.

Dry stone fences 'augmented' with timber or steel posts for more height are intriguing. We are writing here about structures incorporated in the fence, not simple protective post and wire adjacent.

Both David Moloney and Laurie Atkins have commented on these 'composite' fences. Here are a couple more.

[L] Stub wall near Campbelltown (Tasmania) were built to confine sheep and at the same time exclude tigers, devils and rabbits

[R] Post appears to have been inserted after wall was built (Springton, SA)

Near Edithburgh (SA) stone walls were mainly the incidental product of stone clearance. Later they were 'enhanced' to confine draft horses used for salt harvesting.

The dry stone tourist – *Laurie Atkins*

Tall Tree Road dry stone fence

On the Midland Highway between Ballarat and Geelong, dry stone fences are intermittent reminders of the early history of agricultural life. In places, these structures run for "miles". At the speed limit they appear to be universally double walls with coping and variable in condition. A few years ago, when a DSWAA member who lives in the area remarked about the "interesting" walls in **Lethbridge**, I took a closer look. Since then, I have gone on the hunt for dry stone in the area, and it happens that the Lethbridge locality has quite lot of stone fences.

The township and surrounding area is on country of the Wadawurrung, part of the Kulin nation.

The township of Lethbridge is of historical significance as one of the earliest settlements established along the major trade route linking the port of Geelong to the interior of Victoria and the Ballarat goldfields. In 1854 a township was proclaimed and named Lethbridge from its previous name of Muddy Water Holes. Local bluestone (basalt) was quarried from 1860 and became a major industry for the supply of ballast for the railway line in 1862 and for prominent buildings in the area and elsewhere. The steps of Parliament House, Melbourne were sourced from Lethbridge.

There are many places on the Victorian Heritage Database associated with Lethbridge and Golden Plains Shire have created a heritage precinct planning overlay within the township. Golden Plains is one of the municipalities which has adopted Clause 52.27 of council planning schemes which requires a permit to demolish, remove or alter a dry-stone wall constructed before 1940.

Lethbridge style walls

Turn off the highway, cross the train line and you will encounter the "interesting" walls as the front fences of several house blocks on Tall Tree and English Roads. These fences are strikingly different in appearance to the usual basalt walls seen elsewhere. The stone is aggressively angular with many shapes and sizes. A pronounced pattern is shown along the fences with small stones at the base, a line of massive stones in the middle and medium sized stones arranged on top. Virtually all the stone appears quarried and drill marks are evident along the split faces of some stones.

A closer examination of the lower section reveals a tightly laid double wall of small angular stone. The very large middle stones bridge across the lower section and sit proud of both the lower and upper sections on both sides of the structure. These stones are often laid so that the longer dimension is vertical. The upper section is laid in a random, tending to be upright, pattern on top of one another with the rectangular and triangular outlines complementary.

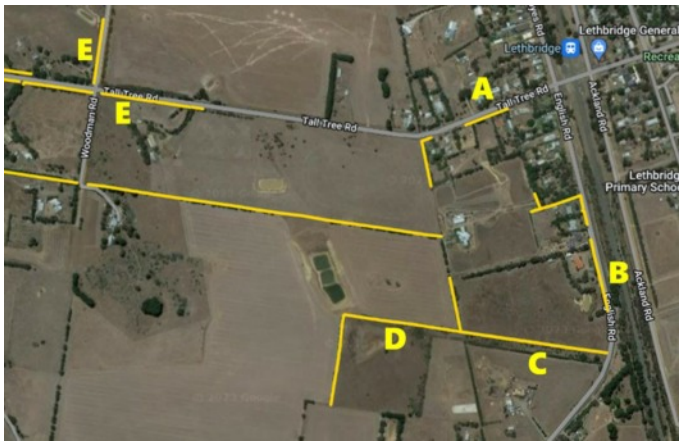
Fence detail English Road. Owner has decorated the fence with fairy lights.

The closer examination of these fences reveals that in basic respects they follow the Galloway or half-dyke style described in Brooks & Adcock (B&A) in that they have a lower double wall, a coverband and single wall stonework above the coverband. B&A define a coverband as a layer of through-stones placed on top of the double dyking to anchor it and form a base for the coping. In the Galloway context, the coverband forms a base for the single wall.

Dry stone tourist *(cont.)*

B&A comment (in relation to Great Britain) that the Galloway or half-dyke is a style found only in Scotland and was developed to use a variety of medium and large stones with little hearting. Rainsford-Hannay, quoted in B&A, states that the true Galloway dyke has a finished height of between 1.6 and 1.8m and specifies throughs at 530 mm. B&A comment that in practice, Galloway dykes vary in dimension and detail from area to area.
So if the Lethbridge walls are not a "true" Galloway wall, how widespread is this style in the area and how does it compare to other walls in Victoria.

The following map shows the locations of dry stone fences close to the township of Lethbridge and the sites referred to in the text.



Dry stone fences in Lethbridge

English Rd – Location B

In English Road (Location B) moving away from town, the ground is more uneven, the double wall base is variable in height to level the coverband. Hearting is scarce. The coverband stones can sometimes be wider apart with the gaps filled with small stone. Some of the coverband appears to be fieldstone and irregular in outline. The upper layer stones are laid on one another as single wall. The condition varies along its length with possible re-placement or rebuilding in places.

Unused road – Location C (Scale board 0.5m)

Location C is on an unused road shown on Parish Plans in the mid-1850s. The structure looks like the township fences but with the upper section generally upright as single wall and levelled. Fences in D and E are similar.

Height and line of fence at Unused road – Location C

Woodmans Road – Location E

Dry stone tourist *(cont.)*

Woodmans Road (E) shows predominantly fieldstone making up a stone and timber post and double wire fence. The posts are drilled for the wires and appear integral to the stone work. The fence has a coarse double wall base that makes up nearly half the overall height of stone work, hearting scarce. The through-stones bridging the double wall are sometimes spaced with small stones filling those gaps. The throughs are generally closely spaced to warrant recognition as a coverband. One layer of round fieldstone is placed on top of the coverband.

The fences on Tall Tree Road beyond Woodman's Road are rubble and double post and wire, the post being a star picket integral to the stone work. It is very stony country and possibly they were rebuilt with the new post and wire.

As a matter of interest, further out along Tall Tree Road, the fences are double walls with coping, rabbit wire mesh (originally held out on timber) pinned down by the coping and with through-stones – a relatively rare occurrence in basalt farm fences.

The conclusion therefore is that this construction type of wall appears localised to a small area near Lethbridge with surrounding areas containing either rubble or double walls. It is also evident that the style of this type of wall is varied to suit the available stone. So does the style of this type of wall also vary from area to area? I have only a couple of examples of this wall type from localities in the Western District.

Derinallum walls

In examples of Galloway walls near Derinallum, the double wall contributes around half the overall height. The first row of stones above the double wall are fitted tightly against one another, bridge between the faces, and protrude beyond the wall face. This fits the definition of a coverband. Like the Lethbridge walls, many of the stones are upright. The stones above the coverband form the single wall and are similar in size to that of the coverband.

Galloway wall, south of Derinallum; two-stone high single wall above coverband.

Galloway wall at the Corangamite Dry Stone Wall Site near Derinallum. Single stone above coverband.

Lake Wongan (Scaleboard 0.5 m)

At Lake Wongan, a substantial double wall forms three quarters of the overall height, the large stones form a coverband and sit proud of the lower faces and a single layer of singles sits on top, securing rabbit wire mesh.

In conclusion

The final reflection is that while none of the walls satisfy the definition of a "true" Galloway wall by dimensions, the examples studied meet the definition of Galloway wall by construction technique: double wall-coverband-single wall. Examples from different areas show differences in their relative dimensions, no doubt demonstrating how the wallers dealt with the stone available.

Construction style, dimensions and relative dimensions could provide a higher level of granularity to differentiate between types of walls found in different areas and should be considered in the design of data collections aimed at documenting dry stone walls.

Reference

Brooks, A. and Adcock, S. 2004 *Dry Stone Walling, a practical handbook*, edited by E. Agate, BTCV.

Strangways (Mound) Springs SA – *Bruce Munday*

Old yards at Strangways

When I first visited the Mound Springs in the mid-1990s I recalled the words of John McDouall Stuart in 1859: 'This is another strange feature of the mysterious interior of Australia'.

Discovered (independently) in 1858 by Major Peter Warburton and B Herschell Babbage and explored by Stuart, these springs appeared as an oasis in what was mostly forbidding territory. Unsurprisingly these spontaneous and perpetual sources of water were important to the Aboriginal people of the area and had so been 'forever'. Yet it was no time at all before Stuart's dubious sponsor, James Chambers, had 1700 cattle on the springs. Author John Bailey, albeit with some hubris, paints a sad picture of what confronted Governor Sir Richard MacDonnell when he visited Hergott Springs in November 1859:

> *The clear pools Stuart had described in his journal were now a morass of mud. So it was that unique plants, invertebrate and fish which had adapted to the mineralised waters of Herrgott Springs [near Marree] over thousands of years were annihilated one afternoon in a cattle stampede. The Kuyani and Thirrari peoples, who regarded the springs as an unending source of drinking water and sacred to their beliefs, saw their most valuable possession destroyed.*

Of the 20-or-so mound springs complexes (consisting of some thousands of individual springs), Strangways Springs has the most elaborate and intact remnant dry stone walls. Warburton named these springs after prominent South Australian political figure Henry Bull Templars Strangways, later to become Premier of the State.

Just off the Oodnadatta Track, south of William Creek, Strangways Springs was a pastoral run from 1862, the home station having a homestead, stock yards, a woolshed, a wool wash, a cemetery and later a huge stone water tank. No sooner was it stocked than half perished in the mid-60s drought. From 1872 through to 1896 the home station site was used as a repeater station on the Overland Telegraph Line, the pastoral station progressively relocating to Anna Creek station.

The ruins of many buildings, some partially restored or at least stabilised, tell the story, the stone for the complex being local material quarried nearby. The dry stone stock yards are quite unique as they can be reliably dated back to the early 1860s, whereas for many outback relics we can only guess. The Mound Springs Heritage Survey records: 'The dry stone walls used in the stockyard construction is a superb example of this technique and remains in relatively good condition'. That their overall structure has been reasonably preserved, probably re-

flects their relatively limited use after pastoral activities transferred to Anna Creek.

Colin Harris, President of Friends of Mound Springs, commented that each of the repeater stations along the line was a little village of up to a dozen or so people and typically they kept on site horses, donkeys, camels, ration sheep and goats – the latter for fresh milk. The goats would have been yarded at night against the dingoes and shepherded out to grazing during the day by Arabana women. Large dung heaps, accumulated from that nightly confinement, are still visible in the yards, as is a bale for milking the goats.

That the walls of the stockyards have endured so well reflects also that after the Overland Telegraph repeater station was transferred to William Creek the area was largely left alone – it offers little in the way of stock feed, even after rains. Additionally, the stones used are relatively flat pieces of what is called *springs limestone* – a product of evaporation of the carbonate waters of the springs and very hard (almost crystalline). This durability, flatish profile and high degree of friction produced sound, easily constructed walls.

Detail of wall showing the unique springs limestone

Fortunately this larger area, not just the springs, has been securely fenced since the mid-1990s by then-lessees S Kidman & Co. and interpretative signage and walking trails are maintained by the Friends.

Discharge from the springs has diminished following European settlement, largely on account of reduced pressure in the aquifer due to uncapped bores and mining operations. Many pages have been written (including The Flag Stone) about the Rabbit Wall built by the Manifold brothers at Purrumbete in the 1880s. But how could we not repeat it in the 'history edition' as it is such a monument. The following is taken from my book *Those Wild Rabbits – How they shaped Australia.*

The Rabbit Wall – early days – *Bruce Munday*

Rabbit wall, Pomborneit North. Timber slats under copes were to prevent rabbits climbing over

Dry stone walling in Victoria's Western District commenced in the 1850s, spurred on by the departure of shepherds and other farm hands for the gold fields. The whole thing took on a grander scale in the 1860s when the focus shifted from keeping livestock in to keeping rabbits out.

Thomas Austin had introduced rabbits to the colony in December 1859. By 1864 Austin could boast to the Acclimatisation Society that 'the English wild rabbit I have in thousands'. Four years later his neighbour, Wm Robertson, had '148 men employed filling these [rabbit] holes and otherwise destroying rabbits'. Over the next decade rabbits were elevated from being a problem for a few to a dire threat to almost every pastoralist south of the Tropic of Capricorn.

The following article is taken from my book *Those Wild Rabbits – How they shaped Australia.* Letters are from the Manifold family papers and reproduced again here with kind permission of Louise and Robert Manifold.

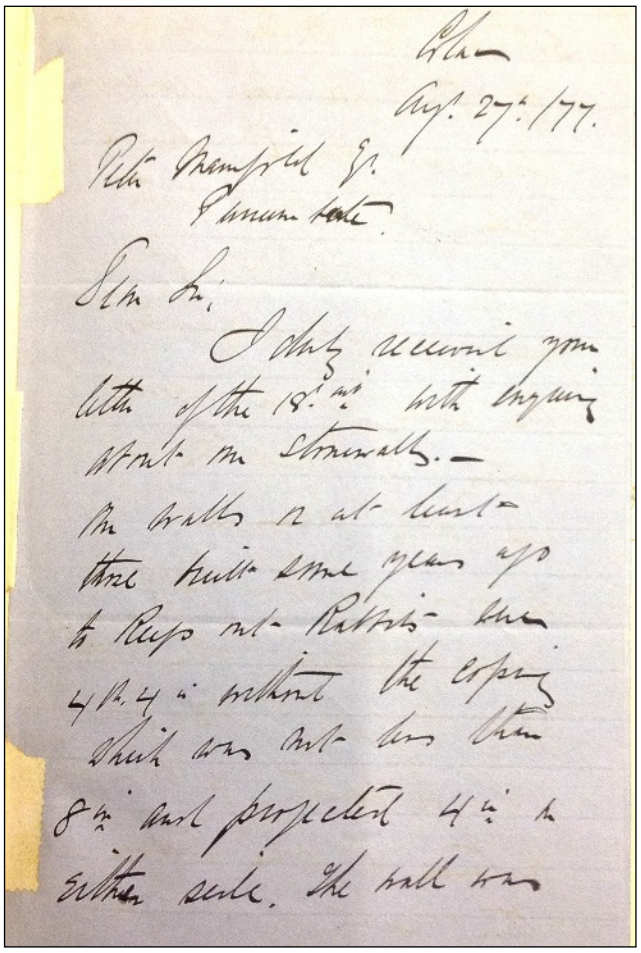
Rabbit-proof fencing on private land was never so grand as on the Stony Rises, part of the basalt plains near Camperdown in western Victoria. Settlers had built dry stone fences following the departure of shepherds for the goldfields and then the *Land Act* of 1862 encouraging closer settlement and property development. Aside from containing the livestock, this also cleared the fertile land. By the 1870s they were more motivated than ever to build walls, now to keep out rabbits from neighbouring properties while exterminating them at home.

These walls were built as tight as possible to prevent penetration; dug sometimes a couple of feet into the ground to prevent burrowing; and topped with wire netting, wooden slats or overhanging coping stones to prevent rabbits climbing over. Some walls even had stiles on the inner side to allow rabbits to escape the paddock, but a sheer face on the outside.

The Rabbit Wall built by the Manifold brothers at Purrumbete in the 1880s is a truly wonderful piece of hand-built civil engineering. Standing up to two metres high it ran continuously for 15 miles from Lake Corangamite to Lake Purrumbete. In a letter to the shire council, Peter Manifold wrote: 'We are now almost in despair for the rabbits are coming down the main road, notwithstanding that it is enclosed on either side with Rabbit Proof walls for a long distance. … we hope and beg that you will allow us to protect ourselves from this inroad of Rabbits by placing a Rabbit proof gate upon the Colac Road, and we will place a gate Keeper there, whose duty it will be to open the gate to all travellers'.

The Manifolds' wall was by no means the only stone wall built to control rabbits, it was simply the greatest. And yet it was not great enough.

Rabbit walls *(cont.)*



Glen
Aug. 27th 1877.

Peter Manifold Esq.
Strathmore Station

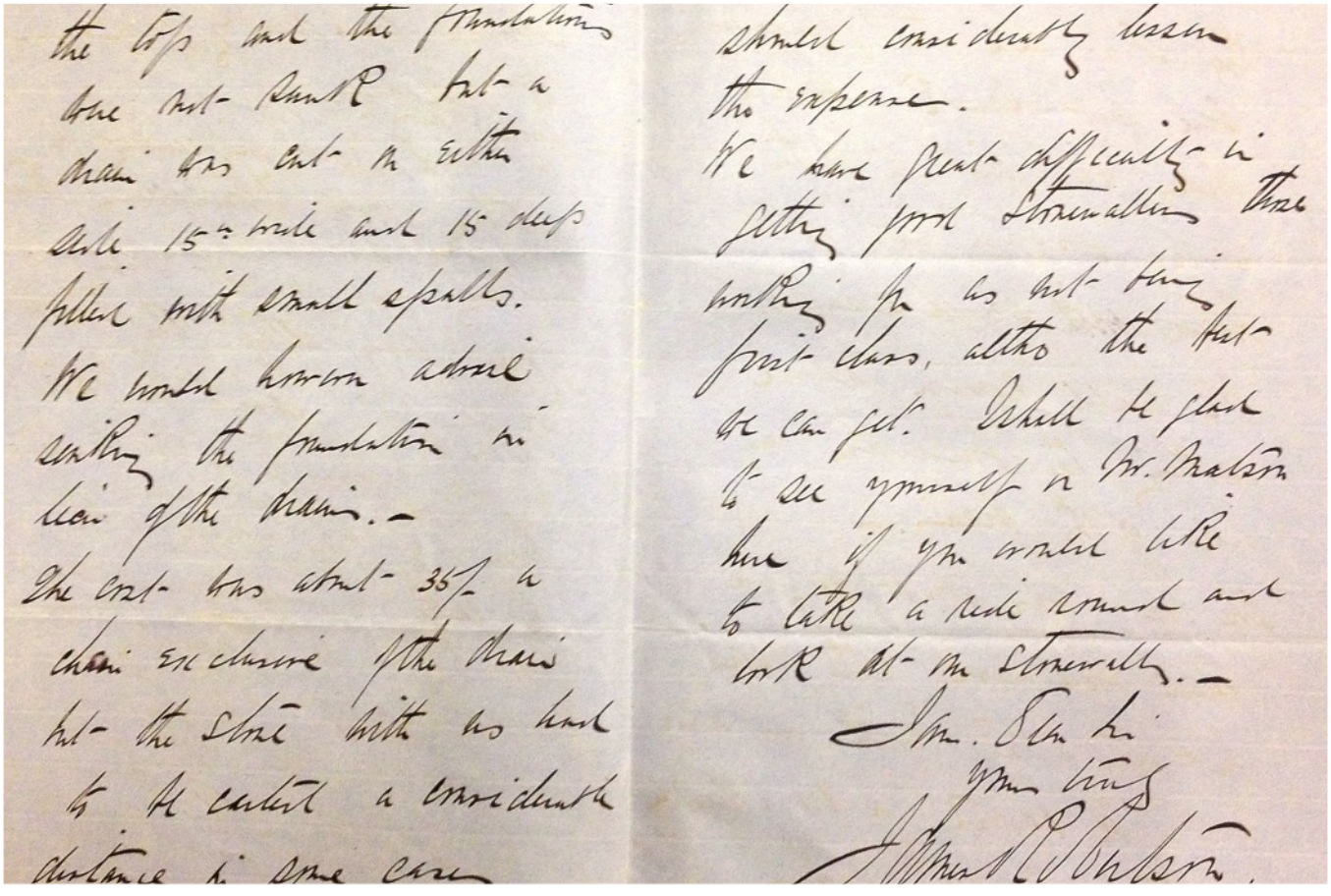
Dear Sir,

I duly received your letter of the 18th inst with enquiry about the Stonewalls.—
The walls I at first built some years ago to keep out Rabbits have 4ft 4 in without the coping which was not then 8in and projected 4in on either side. The wall was

1877 letter from Wm. Robertson to neighbour Peter Manifold outlining his design for a rabbit-proof stone wall.

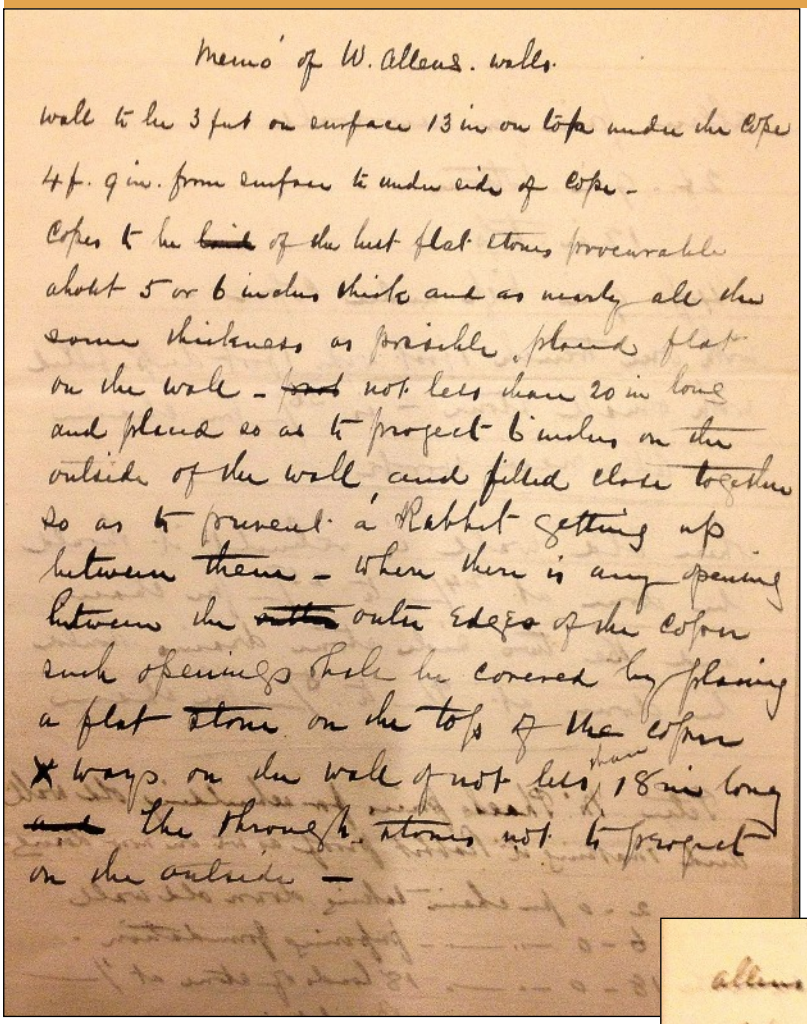
Pastoralists would frequently exchange 'notes' on how to control rabbits, including recipes for poisoned baths and gas for warren fumigation. Whilst these doubtless killed many rabbits they had little impact on their total numbers or their spread.

1839-1988, Australian Manuscripts Collection, State Library of Victoria



the top and the foundation
base not 4ft but a
drain has cost in either
side 15in wide and 15 deep
filled with small spalls.
We would however advise
making the foundation in
lieu of the drain.—
The cost has about 35/- a
chain exclusive of the drain
but the stone with us have
to be carted a considerable
distance in some case
should considerably lessen
the expense.
We have great difficulty in
getting good Stonemasons those
working for us not having
first class, altho the best
we can get. I shall be glad
to see you with Mr Watson
here if you would like
to take a ride round and
look at the Stonewalls.—
Yours Sincerely
Wm. Robertson

Rabbit walls (cont.)

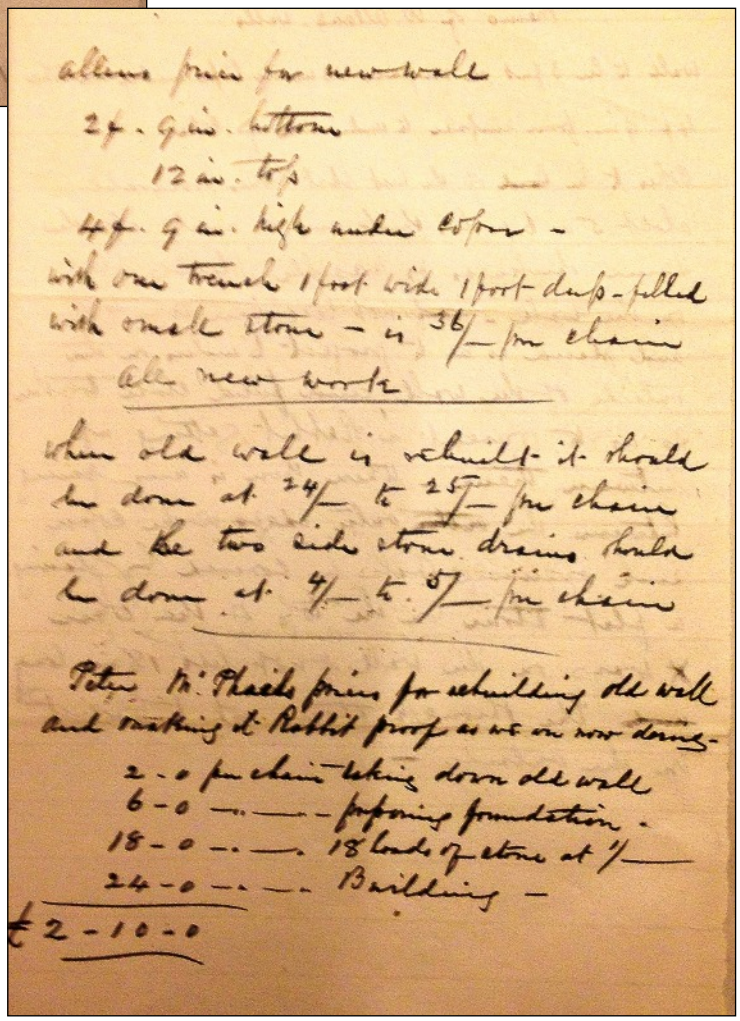


Memo' of W. Allens. walls.

Walls to be 3 feet on surface 13 in on tops under the Copes 4 f. 9 ins. from surface to under side of Copes -

Copes to be ~~kind~~ of the best flat stones procurable about 5 or 6 inches thick and as nearly all the same thickness as possible, placed flat on the wall - ~~and~~ not less than 20 in long and placed so as to project 6 inches on the outside of the wall and filled close together so as to prevent a Rabbit getting up between them - When there is any opening between the ~~outer~~ outer edges of the Copes such openings shall be covered by placing a flat stone on the tops of the Copes

* ways on the wall of not less than 18 ins long ~~and~~ the through stones not to project on the outside -



Allens price for new wall

2 f. 9 ins. bottom

12 ins. tops

4 f. 9 ins. high under Copes -

with one trench 1 foot wide 1 foot deep - filled with small stone - is 36/- per chain

All new work

When old wall is rebuilt it should be done at 24/- to 25/- per chain and the two side stone drains should be done at 4/- to 5/- per chain

Peter McPhails price for rebuilding old wall and making it Rabbit proof as we are now doing -

2-0 per chain taking down old wall
6-0 ... - preparing foundation -
18-0 ... 18 loads of stone at 1/-
24-0 ... Building -

£2-10-0

Notes by Peter Manifold with specification for a rabbit-proof dry stone wall marking his boundary with W Allen. Notes refer to copes, hearting and foundation trenching, all designed to thwart the rabbit.

Manifold also describes the cost and procedure for renovating an old wall to make it rabbit-proof.

1839-1988, Australian Manuscripts Collection, State Library of Victoria

Technology & heritage in Tas – *Andrew Garner*

St Patricks homestead – c.1960

St Patricks Plains sits on the southern end of the Central Plateau within the Tasmanian Highlands. Post glaciation (c. 12,000 years ago) it was occupied seasonally by the Big River and Western Tiers tribes. Threatened Cider gums (Eucalyptus gunnii) are endemic to the area and are especially cold and frost tolerant. They were valued by the local aboriginals who would cut holes through the bark to tap the sweet sap which had an apple cider like taste and effect!

At an elevation of approximately 1000 m, with thin soils over bedrock and harsh winter conditions it presented early European settlers few options other than sheep and cattle. The earliest reference to European presence seems to be about 1821, the place names (e.g. St Patricks and Shannon River) suggesting an Irish presence, however the first settler was one Thomas Hewitt, granted title to 2560 acres in 1829. By 1861 when St Patricks homestead was built the property had doubled its original size.

The B & W photo from Jack Thwaites Collection (1968) show part of the St Patricks homestead with rustic dry stone walls in the foreground and mature cider gums in the background.

The detail shows that the walls have made clever use of large boulders in the first course, with smaller stone built up around and over.

The main stone type of the area is dolerite, a hard, dense, blue-grey igneous rock with crystalline nature like a fine granite. The photo shows boulders of dolerite pushing through the thin alpine soil.

Times change, and 47 wind turbines are planned across a number of rural properties in the Central Highlands of Tasmania. The site takes in St Patricks and is adjacent to the main north-south transmission corridor between Hobart and Launceston, and ideally located with strong and consistent wind speeds, powerline capacity on site, and distance to nearby dwellings.

Proponents state that 'key considerations for the project include impacts to neighbours and sensitive species around the site, including appropriate buffer distances from nearby eagle nests and other sensitive species.'

We hope that remnant dry stone walls will also be suitably protected.

Fish traps and pens – *Bruce Munday*

Aboriginal fish traps; Lake Alexandrina

Some of the earliest man-made dry-stone structures in Australia were not on land but under water. Rivers and coastlines in pre-European times were important sources of food for Aboriginal communities. The systems of traps and channels at Brewarrina (Baiame Ngunnhu) in NSW and Budj Bim Cultural Landscape in Victoria are well known and celebrated previously in these pages (*TFS #36 May 2016*). In 1848 the NSW Commissioner of Crown Lands (WC Mayne) wrote with a degree of understatement:

> *To form these must have been a work of no trifling labour, and no slight degree of ingenuity and skill must be exercised in their construction, as I was informed by men who had passed several years in the vicinity, that not even the heaviest floods displace the stones from the enclosures.*

Less well known are similar structures in South Australia, partly as a result of the River Murray now so little resembling a natural water system. However, prior to European settlement, along the River Murray to the Coorong was relatively densely populated, largely due to an ample and nutritious food supply. Along with netting and spearing the Aboriginal people often built traps of wood or stone, firstly to catch the fish but also to hold them 'in store'.

Stone fish traps were often built in a V-formation, one arm of the V connected to the bank, and oriented to trap the fish on the receding tide. Fish were ultimately funnelled into a reed net or basket at the throat of the V. Other traps took on the shape of a horseshoe, the fish trapped by closing over the entrance behind them with a temporary section of stone wall.

Across estuaries the Aboriginal people sometimes built stone weirs several centimetres below water level so that they could more easily spear the fish as it passed over.

The Coorong was a particularly important area for fish traps for the Ngarrindjeri peoples, partly because the prolific waterweed made spearing difficult. These traps, sometimes up to thirty metres long, were along the mainland side of the Coorong where there is shallow water over a limestone shelf. The Coorong and Lake Alexandrina do not experience diurnal tides, but there can be significant wind tides which could perhaps 'drive' the traps. Today most stone traps are silted over, or, particularly along the Murray and Lake Alexandrina, were demolished as a result of paddle-steamer traffic.

Stone fish traps have also been found elsewhere along the South Australian coastline, most notably around Cowell, Port Lincoln and Coffin Bay on Eyre Peninsula. In 1939 an old-timer recounted the methods employed in driving the fish into these enclosures:

> *When the fish were sighted the natives waded into the sea until they were on the outside of the school, and by raising and lowering a branch, held in either hand, imitated the shadow of seagulls on the surface of the water. By this means the mean [sic] were able to drive the fish in any required direction.*

First find the stone – *Bruce Munday*

A fine limestone property boundary wall near Edithburgh

Instinctively, Yorke Peninsula (or YP as it is commonly known South Australia) is not where one might go looking for great stone walls. Partly because it is so flat and arable – at least most of it. But if one had to, one would probably head for the mining towns of Moonta and Wallaroo. In fact it is in the south-east of the peninsula that we find many kilometres of dry-stone walls and they are indeed unique.

The landscape at the 'heel' of YP bears little resemblance today to what must have greeted the early settlers in the 1860s. Prior to that, government surveyors had declared the area unsuitable for agriculture – too much stone, too little water. In fact, stone long before had played a role in discouraging settlement. The notorious Troubridge shoal, a lump of limestone some six kilometres off Edithburgh, has claimed thirty-three ships according to Government records, but locals say hundreds more. This, despite accurate mapping by Matthew Flinders in 1802.

In 1851 the *Marion*, after 128 days at sea (witnessing nine births and six deaths), was another to strike the reef. The 350 immigrants, within hours of their supposed destination, immediately took to the life craft. One of the longboats and a lifeboat which abandoned the stricken vessel inexplicably finished up at Cape Jervis, some seventy kilometres to the east across Gulf St Vincent (and about 300 km from Edithburgh if returning overland). Not done with rocks, a wave pushed the ill-directed longboat into one, holing it. A second wave threw the boat onto the rocks and a third overturned it — two boat wrecks in twenty-four hours. And yet the only fatality in this Antipodean welcome was a young mother who perished when her dray struck a rock and overturned near Second Valley. The other 250 souls took the easy route direct to Edithburgh.

It was the discovery of suitable groundwater that eventually encouraged settlers to do something about the stone on the land. They also did something about the vegetation. In 1867 James Oldland wrote: 'The scrub was so thick that we had to stop every now and then and climb a tree and sight the lighthouse to get our bearings.' Today this is some of the most cleared land in South Australia.

Some of the earliest fences near Honiton were brush or log, partly explaining where the vegetation has gone. In many cases, as the land was cleared, stone walls were built straight over these brush fences, to be later unearthed when walls were demolished. A few years ago a stone wall 'caught fire' when crop stubble was being burned. The timber entombed in the wall burned for two weeks before it was finally extinguished, and only after a section of the stone wall was pushed over to create a 'fire break'.

Find the stone *(cont.)*

Stone picking by hand

As for the stones, at first they were collected manually and used for buildings and for stone walls. And every pass of the plough brought up a fresh supply. Labour was cheap – very cheap – as it was not uncommon for sailors to jump ship at Edithburgh and readily find work picking stone. But there was always more stone and by the 1880s the likes of Clarence H. Smith Ltd and Tucker & Grundy had developed stone pickers, necessity again the mother of invention.

These walls tell us everything about just how stony this region was. There are still many kilometres of unusually wide stone walls standing, despite the District Council of Yorke removing the more dilapidated walls and crushing the stone for road material. Still on the theme of recycling stone walls, the lime used for concrete in the Port Giles silos in the 1960s came from crushed stone walls. And not just any old walls, but perhaps the heftiest wall in SA. Some, according to old-timers, 'at least seven to eight feet high, built out of the back of the dray'.

Locals will tell you that you could drive a car along the top. But walls of this dimension, built of rounded (agonic) stone, are inherently unstable. Without through-stones, coping, or even just flat faces there is no structure to stabilise the wall when a few stones near the bottom move. To add to the ignominy, the quality of the lime from this amazing wall would fail to meet today's building standards.

Random rubble limestone is seldom the waller's stone of choice. These are essentially two battered walls of football-size rocks enclosing a stew of smaller rubble. In the absence of suitable material for through-stones and coping stones, many of the walls are quite low with posts or droppers adding a further half metre or so to the overall height. Having said that, some of the more enduring walls are actually quite high and wide, but even these often had wooden posts embedded, presumably supporting at least a single barbed wire at the top.

Perhaps the standout wall is on the New Honiton Road running west from Edithburgh and within a breath of the Wattle Point Wind Farm. One section of about a kilometre is well over a metre high and a metre and a half across the top. This, too, is a consumption wall on a grand scale, there being clearly a vast amount of stone available in the paddocks and looking for a home. Apparently many of these walls were built in two stages, lower walls needing an added storey or post and wire to contain the teams of horses that took salt from Lake Fowler to Edithburgh – in those days the third largest port in SA after Port Adelaide and Port Lincoln. A twenty-seven-metre-long stone water trough near the lake is a reminder of what was once a huge industry.

Massive consumption wall on New Honiton Road

The best walls are unique to this area and in 2012, with fewer sheep in the district, there were prospects of halting the decline, at least for boundary fences. On the other hand, for farmers continuously cropping with ever bigger machinery, the sub-divisional fences were a nuisance and many were being removed and crushed.

Find the stone *(cont.)*

In 1907 the government offered a £100 prize and the Advisory Board of Agriculture invited inventors to demonstrate their stone gathering machines. After several unimpressive trials, inventors were urged to concentrate on gathering stones into heaps or rows, *rather than inefficient and cumbersome gathering machines that were too expensive for most farmers. In 1910 the winning entry was the stone rower entered by J&R Forgen*

The Grundy stone picker, patented in 1914, was the first to combine raking up stone with elevating it into a bin. It was worked with three horses and later with tractors

The task of repairing the boundary fences would appear to be less technically challenging than some others elsewhere in the state. But it would still be time consuming, and if any walls were to be heritage-listed for public benefit it would be totally unrealistic to expect the farmers to undertake the work unassisted.

Compared with other parts of SA there is less use of dry stone constructionfor building. On 20 November 2019, a seemingly small grass fire was reported at Yorketown. The following day 5000 hectares had burned almost to Edithburgh, taking in its path eight dwellings, eleven sheds and many hectares of crop.

One might have expected that the dry-stone walls would survive the fire, even impede its advance. But such were the weather conditions, and with heavy crops in the paddocks, that simply didn't happen. Instead many of the stone walls began to collapse as the limestone deteriorated.

Fortunately some of these old walls remain to remind us of the heroic effort involved in building them, stone by stone. This will never happen again. In contrast, the new post-and-wire fences went up in the blink of an eye, thanks in no small measure to the Blazeaid volunteers.

Dry stone walls around two old stone dwellings, near Port Vincent

Rock structures in Australia's NE – *Stuart Read*

I recently had the fortune to visit Northeast Queensland, including Cooktown. In the Botanic Gardens, dating from 1878, are granite stone-lined drains (some covered, some open), pools, wells and culverts, perhaps built by Chinese-Australian men. These are needed to deal with both surface stormwater flow and erosion during downpours, subsurface seepage and water-logging in the wet season – and rapid movement of the water table on what is essentially a granite outcrop.

Gold was found in the nearby Palmer River in 1873, the year Cooktown was established as the port for the goldfields. By 1876 some 15,000 white men and 20,000 Chinese had landed, on their way to seek gold, Cooktown becoming the third most significant port on Queensland's coast. Its *Botanic Reserve* was established in 1878, after 2 years' debate on how best to use prison labour. At the time, the Hop Kee Company was landing around a thousand Chinese miners a month, market gardeners and charcoal burners establishing themselves in the proposed gardens area.

In 1885 Cooktown Town Council employed botanist Anthony Pereih to lay out a nursery for the gardens, on the reserve closest to town. The gardens' granite stone pitched waterways date to the 1880s, a busy period in their first development.

Granite outcrops make rapid runoff and water management a site issue, needing pools and drains, along with wells for irrigation in dry spells. There are no definitive records of dates or makers of these features, however Cornish mason Tom Pascoe built many of Cooktown's other stone-lined drains around this time. The main drain (originally covered with granite top-stones) was approximately 1.75m wide and 106m long, when dismantled by in 1986 (due to partial collapse) and later rebuilt, but as an open drain. A series of stepped rock pools from the 1880s runs north-south downslope with interconnecting channels. These are open dry-pitched granite lined pools, covered at intervals with granite top stones or divided by low-set granite and earth are a feature of the gardens. In 1886 John Welsh dug over the area and trees and shrubs were ordered from the *Acclimatisation Society of Queensland.*

Charles Watson was appointed Gardener in 1890, holding this job until 1902. Wells, a pump, tank and pipe reticulation were installed and a cottage built. Stone-lined paths, stone-pitched pools and stone-work footbridges were built along a creek descending from the hills behind Cherry Tree Bay. In 1893 the site's name was changed to *Queen's Park.*

Cyclones, neglect and dwindling funds led to a near century of slumber, but efforts to revive the gardens saw them re-opened in 1980. Later, under the guidance of Paul Burkitt and Jeff Waldeck, rock pools and stone drains were rebuilt, most with original stone, with some realignment. Repairs were made to stone crossings over the drainage system, and an early well converted into a pump house with recent stonework.

Cooktown Botanic Garden, within the *Gallop Botanic Reserve* (a larger bushland and mountain around Finch Bay) expanded in the 2010s with a new exotic section, palmetum, native plant section, and 'Solander's Garden'. The 1999 'Nature's Power House' interpretative centre/art gallery displays Joseph Banks', Daniel Solander's and Sydney Parkinson's botanical collections and artwork, and local Vera Scarth-Johnson's botanical paintings. These are listed on the Queensland State Heritage Register, a major local tourist magnet and likely Australia's only botanic garden with its own cricket pitch (from 1888). They are in fine hands with current curator, Peter Symes, and interpretation to visitors includes their stone-lined drains, ponds and features, and layered cultural history, pleasingly.

Sources: Lavender, S. and Murray, A., 1998, *Cooktown Botanic Gardens Gallop Botanic Reserve and Grassy Hill Management Plan,* University of Queensland, quoted in *CBG Master Plan 2018-2028*, Cook Shire Council.

Part of the stone-pitched rockpools and cascades, Cooktown Botanic Garden

Another part of the rockpools and cascades (1880s, restored in the 1980s),

Section of the main stone pitched drainage channel (now open topped)

Aix-en-Provence – *Andrew Miller*

Walking the land-scape, special vistas often open up. This borrie was a wonderful find and we sat inside for some time imagining the life of the early workers of the land.

Karin and I recently had the opportunity to visit our friend Henri in Goult, a small town north of Aix-en-Provence, France. Walks with Henri through the regional park we pass some fine dry stone walls (murs en pierre sèche), these all the more engaging given Karin's fluent French. Some of the walls are shared here. All of the stone in the structures are of sedimentary origin (mostly sandstones and limestones).

The walls in this image are basic and functional, hidden away in bush land. The land is heavily partitioned with basic walls to separate the different land-uses of the time. This image captures a dry stone lined passage through the former agricultural land.

A close-up of the borrie (top of page) captures the fine dry stone construction in the doorway.

Aix-en-Provence *(cont.)*

Inside the borrie

We spent many hours with Henri, generously sharing the dry stone walls in the landscapes in and around his village.

The area around Goult, and the wider region contains many fine examples of construction in traditional dry stone wall format. The size of the walls varies from less than a metre high to over three metres in height.

As noted in The Flag Stone #57, the commune of Goult and the International Society for the Multidisciplinary Study of Drystone (SPS) are hosting the 18th International Congress on Drystone from 2-8 October 2023.

The program can be seen here.

An old stone waller

In 1950 the *Angaston Leader* carried an obituary to William Lane who had passed away, age 86. Shortly before, William had told his story as the last surviving member of the team that constructed the road up the (notorious) Sedan Hill (SA) in 1878.

For years the locals had implored the Council to build a safe all-weather road and finally in 1877 a grant from the State Government made it all possible. Where cuttings were required, and that was along just about the full length of the ascending road, a four-man drill was brought into service. As William described it, 'Building the road … took two years and was hard going. The boring through the rock was done by one man turning the drill while another sat on it; two others in turn belted it down with hammers when the drill failed to grip.'

The best of the stone won this way went towards the magnificent dry stone walls that line both sides, the character changing with the ascent from mainly slaty at the lower end merging into schist further up the hill. The rubble was used as road fill. An adjacent land owner, Joseph Keynes, offered the Council additional stone from his property at 'six pence per rod, not more, if too much less'.

William commented that the steepness of the Sedan Hill road presented challenges for traffic both up and down. Teamsters encouraging their horses up the road often encountered wagons on their way down dragging heavy logs as ballast to slow their descent. The racket and general out-of-control nature of this operation precipitated enough accidents that the District Council gazetted a local by-law prohibiting the practice of trailing any speed restrictive device behind any vehicle when descending. Ascent was a different matter, teamsters spelling bullocks or horses halfway up would take stones from the wall to chock the wagon wheels.

the Dry Stone Walls association

The Association's vision is that dry stone walls and dry stone structures (dsw&dss) are widely accepted for their unique place in the history, and culture of the nation and for the legacy they represent.

Our goals are:

- *To inform and educate the nation about the cultural significance of dsw&dss in Australia and their associations and meanings for past, present and future generations.*
- *To document dsw&dss and draw on historical records in order to encourage appreciation, conservation, maintenance, repair and interpretation of those of cultural significance.*
- *To establish disciplines and certification systems that can contribute to the care and construction of dsw&dss.*
- *To assist in ensuring that new construction, demolition, intrusions and other changes do not adversely affect the cultural significance of dsw&dss and that modern uses of them are compatible.*
- *To respect Indigenous heritage places and cultural values, and, in particular, to assist in the conservation of those associated with dsw&dss.*

From the Editor

An interesting (fanciful?) piece appeared in *The Guardian* (6 August 2023) under the heading: **Back to the stone age: the sustainable building material we've all been waiting for…**

> *Imagine a building material that is beautiful, strong, plentiful, durable and fireproof, whose use requires low levels of energy and low emissions of greenhouse gases. It is one of the most ancient known to humanity, the stuff of dolmens and temples and cathedrals and Cotswolds cottages, but also one whose sustainability makes it well-suited to the future. Such a material, according to a growing body of opinion in the world of construction, is among us. It's called stone.*

In the interview a couple of engineers and an architect comment that:

> *Stone has been supplanted in the industrial era by steel, concrete and mass-produced bricks, and is used (if at all) mostly as a thin cosmetic facing, while the hard work of holding up a building is done by the upstart alternatives. They argue that solid stone can once again form the walls and structure of building, with benefits for the environment and for the beauty of architecture. Any form of the material – limestone, sandstone, basalt, granite – can, depending on its properties, be used.*
>
> *Who could look at the solid stone structure of, for example, the Mallorcan social housing, where the forces of nature and the work of humans is evident in the fabric, and prefer the processed surfaces and plasticised finishes of their British equivalents? And the great thing about stone is that, having been used for millennia, it's well tested. It's conceivable, indeed, that the era of concrete will prove only an interlude in the far longer history of stone. Such a shift won't happen easily, but it's an outcome worth striving for.*

Letters always welcome

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Membership

Annual membership fee

Single	$30 ($80 for 3 years)
Couple	$50 ($130 for 3 years)

Cheque: DSWAA Inc. and posted to DSWAA Membership, 87 Esplanade West, Port Melbourne 3207; **or**

Bank Deposit at any branch of the ANZ Bank **or EFT:** BSB 013 373, Ac. no. 4997 47356

Clearly indicate membership identity of payer

New members

Complete the online membership form on our website: Alternatively email or post name, address, phone number/s, and area of interest (eg waller, farmer, heritage, etc) to the membership secretary (above).

Renewals

Annual fees are due May 31 after the first full year of membership. We send renewal notices prior to this.

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