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## NEW LIGHT ON THE LAPSTONE CREEK EXCAVATION

#### Frederick D. McCarthy

When I received an invitation in December last year from Lampert to write a semi-popular article on the Lapstone creek and Captertee river cave excavations, setting out my personal feelings about the sites, amusing and not so amusing anecdotes, motivation for the projects and other reminiscences, I was both pleased and flattered to know that these early archaeological investigations of the prehistory of New South Wales had evoked the statement in his letter, after he had visited them with Rhys Jones and Ian Johnson that 'not only were we impressed by them as sites; we were also overtaken by a feeling of awe at being at the classic sites on which so much of Australian prehistory is founded'. Whenever I visit an Aboriginal site a similar feeling overtakes me concerning the Aborigines who painted, engraved, lived on or carried out a ceremony or other activity there; sentimental or otherwise, I have a feeling of a link with the people to whom these sites meant so much, and one of a common interest in them.

This paper deals with additional information about the nature of the Lapstone creek cave deposit and its interpretation, with a brief explanation of why the 1948 paper was published 12 years after the excavation in 1935-36. There is little to mention in regard to reminiscences as these excavations were straightforward investigations with no unusual incidents, especially Lapstone creek. The University of Sydney Rover Scout Crew members who formed the major part of the labour at Capertee proved to be exceptionally good workers with exceptionally good appetites; their favourite meal was a stew made from everything in the camp larder mixed with the magnificent vegetables that John Bland brought from his farm, plate after plate of which they ate with relish. On several nights they climbed a mountain behind the camp to settle down their gargantuan meal!

This was a strenuous project as we had a walk of over 4 km to and from the sites, morning and evening, in a rugged sandstone gorge. On one trip we carried our gear and food to a camp adjacent to the sites and on the first night a gale with heavy rain almost blew and washed us into the river.

The additional information about Lapstone creek came from notes made by the late C.C. Towle with whom I collaborated in the excavation. He graduated as a Bachelor of Arts at the University of Sydney in 1919. He ultimately became a senior clerk in the accounts branch of the Railways Department, remaining a single man all his life, dying at the age of 58 in 1946. He recorded in one of his letters that he had read widely in anthropology, an interest that probably sprang from his university studies, and began collecting stone implements in New South Wales in the 1920s, and this, together with music, became the absorbing interests of his life.

Towle was of medium height, proud of his university education and of his intellectual pursuits, genial and friendly as a rule and generous in many ways. I accompanied him on several of his field trips to far western New South Wales, on others to coastal middens and to sites of engravings and paintings. We spent many enjoyable evenings poring over stone implements at his home. He initiated the move to establish the Anthropological Society of New South Wales, and after the wheels were set in motion he, with W.W. Thorpe, Ethnologist, and Dr C. Anderson, Director, of the Australian Museum, became the co-founders of the Society. The reason for the long delay in the publication of the 1948 paper on the excavation was a disagreement between Towle and the Council of the Society, as a result of which he resigned from his position as honorary secretary and from the Society and requested the officers and members of Council not to seek contact with him in the future. As I was honorary treasurer at the time, his request meant that he and I could not go ahead with the Lapstone creek paper, and the results of the excavation were thus not published until after his death. One of his relatives has kindly made available to me some folders of Towle's notes which he inherited as part of the latter's library.

### The Lapstone creek excavation

Towle's interest in excavating, apart from collecting, undoubtedly sprang from his reading about such work in other countries, and also from the digs by the South Australian Museum at Devon Downs and Tartanga (Hale & Tindle 1930), Lake Burrill (Thorpe 1931-32), and Emu Plains (McCarthy 1934). The latter was a small rockshelter beside Wallaby creek on the eastern slope of the Blue Mountains, reported to me by Mr L.H. Preston and he, together with G. Nott and G.E. Bunyan, had dug out 'a great deal of the floor'. Miss E. Bramell and I excavated the remaining corner which contained the same sequence as the Lapstone creek cave.

Bunyan, a relative of Towle's, was a butcher at Emu Plains. He had gained an interest in Aboriginal implements and relics from Towle, and during his searches and excursions along the eastern slope of the Blue Mountains and in the Emu Plains area he found the Lapstone creek cave in 1935. He showed me some of the rock engravings, stencilled hands' cave and fish trap at Castlereagh, and also the great axe factory there on the Nepean river. Axes from this quarry were described by Cox in 1880, and by Thorpe and Stanley in 1928, the latter's attention having been drawn to it by axes sent in to the Australian Museum by three local orchardists named Broadbent, Chapman and Innes who had ploughed them up. Although early settlers in the area no doubt saw the engravings and stencils no record of them existed in the literature and to Bunyan must go the credit for reporting them and the fish trap to science. I recorded these sites to round out the archaeology of the area for the 1948 paper. A number of letters from Bunyan to Towle in the folders provide interesting information on Aboriginal relics in the Emu Plains and Blue Mountains region.

Bunyan, and several of his friends whose names are unrecorded, apparently anxious to know what was in the floor of the cave, dug up the western half, and also a shallow strip at the back of the eastern end from which seven axes were taken down to a depth of 30 cm, of the deposit. Finding that the site was rich in implements Bunyan reported his discovery to Towle. What happened to the implements Bunyan's party dug up I do not know. Bunyan had made a collection of axes, uniface pebble and other implements in the Emu Plains area, and I described 268 of them from the surface workshop at Castlereagh. His collection remained with his family after his death.

Towle, with his father, a nephew and Bunyan started work at the cave on Sunday, 8/12/35; I joined the party on 12/1/36, and Miss E. Bramell spent two working days at the cave which Towle called the Emu cave. In all nine days were spent on the excavation, as follows:-

Day	1	8/12/35	Trench	1
-	2	15/12/35		2
	3	29/12/35		3
	4	12/1/36		3A and inside of wall
	5	19/1/36		2A
	6	24/1/36		4 (outside cave)
	7	26/1/36		4A '' ''
	8	2/2/36		4, 3A, 3Ax
	9	3/5/36		1A

The following is an account of the work done on each of these days from Towle's notes and his comments on the results.

Day 1, trench 1. The bottom of the deposit, owing to the 45° slope of the cave wall and large rocks, was only 1.52 m long. Towle was impressed by the occurrence of 'chipped points' and better stone materials in the lower part, and by the greater quantity of quartz in the upper part, of the deposit. He recorded a band of yellow sandy soil, 5-7.62 cm thick, between 71.12 and 78.74 cm deep, lacking ash which he though had been washed out by seepage. Several pieces of coal, unburnt, were found at different depths, as deep as 91.44 cm.

Day 2, trench 2. He remarked that the 76.20 cm level marked 'the difference in the deposit' above which the chipped point abruptly disappeared, and this fact, together with the better class of material below, with chert predominating, seemed to indicate some break in the history of the deposit and the continuancy of occupation. Close examination of the wall of the trench not yet interfered with showed that a band of yellow sandy soil ran horizontally from the back of the cave to the entrance where it abruptly ceased. This band was over 91 cm long. He believed the rains had washed this band away outside the cave, and that it had grown inside undisturbed until the Aborigines returned to build up fresh deposits of ash and stone. The cave, he said, was therefore not occupied for a time and the Aborigines who re-occupied it no longer used the chipped point. The points found in the cave, he thought, were equal to the best found on the coastal middens. They and some of the elouera recovered suggested to him that there was at one time much intercourse between the people of Emu and the coastal tribes. He commented that the finest points came from the bottom of the deposit and from under the wall. A nut from a bush tree was found in layer 2. Day 3, trench 3. He stated that 'apparently the Aborigines built a wall of stones across the entrance of the cave, the eastern end of which was removed before we realised they had done so. The stones had been placed by them one upon another to form a wall 91.44 cm wide, 60.96 cm high and more than 1.82 m long - it appeared to me that the Aborigines built the wall after they had been in occupation for some time...when the stones were removed toward the eastern end points were found in large numbers'. The top of the wall was covered by 60.96 cm of deposit.

Day 4. This day was spent digging along the inside of the wall which, although not very regular, formed a continuous line of rocks put roughly into place. The Aborigines, Towle said, actually lived behind the wall, which shut the occupants off from the outside when the deposit began to form; as it built up it gradually covered up the wall, and before digging commenced the top of the wall only was showing. Trench 3A was also dug.

Day 5, trench 2A. A triangular shaped section at the eastern end of the cave.

Day 6, trench 4. Outside the cave. 'The question to be decided', Towle wrote, 'is whether the accumulation outside the cave has grown with the deposit inside. There is no doubt that the Aborigines commenced to build up the deposit inside from a deposit of 1.37 m (maximum), and the question is whether the cave at the time of occupation was hidden behind the accumulation outside or whether they had grown together. On the whole, I think there is reason to believe that the accumulation outside the cave has grown with the deposit inside. I believe that when the wall which runs along the floor of the cave had been removed we shall find implements. In other words, I think the aborigines were in occupation of the cave before the wall came into being. When the extreme eastern end of the wall was removed we found the best points underneath'. The total length of the wall proved to be 7.92 m and it extended almost right across the cave front.

Day 7, trench 4A. Here we found a floor or large rocks up to  $1.52 \text{ m} \times 91.44 \times 60.96 \text{ cm}$  in size piled on top of one another outside the cave, which did not permit of methodical excavation, and perhaps it is not right to attempt to correlate the deposits inside and outside the cave. These rocks were the residue of larger rocks broken up by weathering processes and were not piled up by the Aborigines.

Day 8, trench 4. This trench outside the cave was taken down to bedrock (between the boulders) at a depth of 1.73 m. The implements from this trench, Towle recorded, 'cannot have much value as indicating order of deposition so irregularly and it is impossible to distinguish the earlier from the latter'. Trench 3AX, the upper part of which has been disturbed by Bunyan's party, was also dug and yielded the usual sequence – a ground-edge knife of Bulga-type found at a depth of 40.66 cm, and a ground-edge axe at 55.88 cm, occurred with in a few centimetres of trench 3, also dug, and were added to its series of implements.

Day 9, trench 1A. A small platform of ash and rocks at the eastern end of the wall, and 60.96 cm above the floor, yielded used and unused flakes.

It is very fortunate that Towle's notes were saved as they reveal some important results of the excavation not mentioned in the 1948 paper. My own notes were lost during the re-arrangement, really upheaval, of the anthropology collection of the Australian Museum during World War II, and I had to rely on the brief manuscript written by Towle incorporating my amendments, and my own deductions from the excavated specimens in preparing the paper. Although he and I constantly discussed the various aspects of the excavation he recorded his own observations only in his notes on each day's work at the site.

I was invited by Towle to collaborate with him on this excavation during the week after he had dug trench 1. My participation was delayed until the fourth day because he insisted on being in charge whilst I thought collaboration would be preferable. Actually this matter was not raised after I joined in the work and we both worked thereafter on the basis of collaboration. I therefore took part in completing portions of trenches 1-3 near the wall, and in excavating trench 2A which was 2.43 m wide and 1.01 m deep, and trenches 3A-4A, and also 1A. Trench 2A was half the length of our total excavation.

The most important matter recorded in his notes to which he did not refer in his manuscript paper was the occurrence of the band of yellow sandy soil 5-7.6 cm thick, lying between 71.12 and 78.74 cm deep, and lacking ash. It covered part of the lower or Bondaian portion of the deposit. His notes are confusing about this band as he recorded that it was 91.44 cm in length but also that it extended to the entrance of the cave and had probably been washed away outside. Perhaps his term length meant width of this band as trenches 1 and 2 were 3.65 and 2.89 m long respectively. It is probable that this band was built up by erosion of the cave walls and wind-blown grit and never contained ash as Towle believed. Radiocarbon dates above and below this band would have been invaluable in dating such an important culture change and perhaps other rock shelters could be found along the mountain slopes and creeks which would provide these dates. I did not see this band which had been dug out when I joined . Professor D.J. Mulvaney will be pleased to hear of its the party. existence as he expressed surprise that the deposit was unstratified It is now evident that the change from the Bondaian to the (1964). Eloueran or Post-Bondaian at this site was a clear cut one after a break in the occupation, and possibly with a different generation of Aborigines, and not a gradual one during an unbroken occupation as the 1948 paper implied.





A second interesting problem of the excavation concerns the wall Towle recorded the important fact that the best points of stones. were found under the eastern end of the wall when the stones were removed, indicating that the Aborigines were in occupation before they built the wall. He did not mention the occurrence of these particular points in his manuscript paper. On the other hand, it is obvious that both ash and points, and also small flakes, would have fallen down between the rocks in the wall as the deposit gradually built up. The problem of whether the wall was constructed before, at the beginning or after the occupation began could probably be solved by a careful excavation of the remainder of the wall, or part of it, and this would possibly yield charcoal for dating the maximum age of the deposit. The wall would have been made by the Aborigines moving rocks in their way, mainly from inside and some from outside the cave, to form it and so improve the site for daily use either at the beginning or subsequently to their occupation.

The radiocarbon dates for the site, which were not published until 1966, are as follows:

- ANU 011. Charcoal from trench 3, 50.80 cm below surface: 2300  $\pm$  100 BP (350 BC). The actual error of the physical measurement was only  $\pm$  60 years but this was enlarged to allow for the uncertainty of sample  $C^{14}$  activity at the time of death.
- ANU 010. Charcoal from trench 3, 91.44 cm below surface: 3650 ± 100 BP (1700 BC). The actual error was ± 90 enlarged to 100 years as above.

The charcoal was obtained from three small samples of the ashy soil deposit that were taken from the front end of trench 3, near the wall. This action was promulgated by work on pollens in England, and from discussions we had in the party excavating the deposit about the possible foods eaten by the occupants of the cave. I had the samples processed when the ANU laboratory was set up in Canberra, and the dates were thus obtained 30 years after the excavation.

The diagrams that Towle drew up from measurements that we made in the cave form a third important record of the excavation preserved in the folders. The only two of which I had copies before he severed our friendship were reproduced in the 1948 paper, in Figure 3 where the change from the Bondaian to the Eloueran phase is shown I added the two cultural terms to this diagram. Otherwise he did not record this change in any of the vertical sections that he drew apart from a vague indication in Figure 1 of the present paper, nor did he draw any of them to scale on graph paper. I believe he considered the occurrence of bondi points in the lower part of the deposit, which rendered them prehistoric, to be the most important result of the excavation although he was, of course, very impressed by the discovery of two culture periods. He was fascinated by the chipped points, and collected many hundreds of them on New South Wales coastal sites. These new diagrams, published as he drew them, provide data on the dimensions of the trenches, the position and slope of the cave wall, line of excavation along the front of the cave, correct the positions of trenches 4 and 4A outside the cave, and show the relative levels of ground-edge axes and bondi points.

Owing to the steep slope of the cave wall which formed the bedrock floor, only one trench, No.2, went down to the full depth of 1.37 m; trenches 1 and 3 were 1.21 m deep, 2A and 3AX 1.0 m, and 3A 99.06 cm. The layers excavated in the trenches are as follows:

<u>Trench 1</u>	Trench 2				
2-7 in (5.08-17.7 cm) 7-14 in (17.7-35.5 cm) 14-24 in (35.5-60.9 cm) 24.26 in (46.0.0 cm)	2-7 in $(5.08-17.7$ cm) 7-18 in $(17.7-45.5$ cm) 18-30 in $(45.7-76.2$ cm)				
24-36 in (60.9-91.44 cm) 36-48 in (91.44-121 cm)	30-39 in (76.2-99 cm) 39-48 in (99-121 cm) 48-54 in (121-137 cm)				

Trench 2A			Trench 3								
1-7	in	(2.54-17.7	cm)			1-7	in	(2.5	4-17.	. 7	cm)
7-18	in	(17.7-45.5	cm)			7-18	in	(17.	7-45.	5	cm)
18-23	in	(45.7-57.4	cm)			18-28	in	(45.	5-71.	1	cm)
23-38	in	(57.4-71.1	cm)			28 <del>-</del> 39	in	(71.	1-99	сπ	ı)
28-30	in	(71.1-76.2	cm)								
30-35	in	(76.2-88.9	cm)								
35-40	in	(88.9 cm -	1.01	m)							

Trench 3A	Trench 3AX					
1-7 in (2.54-17.7 cm)	Disturbed					
7-18 in (17.7-45.4 cm)	н					
18-30 in (45.5-76.2 cm)	11					
30-39 in (76.2-99 cm)	28-40 in (71.1 cm - 1.01 m)					

A similar range of layers was taken out of trenches 4 and 4A but the details were not recorded as above.

Towle compiled a table of the implements recovered, as follows:

84	(84)
45	(46)
175	(188 points, 3 microliths)
296	(301)
12	(14)
9	(2)
5	(9)
	84 45 175 296 12 9 5

His total numbers of the various types of implements differ slightly from mine (in brackets), due mainly to variation in classification, and his nomenclature differs more markedly in his terms of button flakes for fabricators, chipped points for bondi points, and groundedge axes for axe-heads. The above seven categories are the only ones he defined, as he omitted cores, re-directing flakes, slices, knives, saws, use-polished edges, piercers and burins, and he included a microlithic segment, oblique trimmed blade and bimarginal point with his chipped points; also, he did not distinguish the various categories of cores, scrapers and other implements nor separate the microlithic from the normal flake and blade implements. His main distinction is of (1) conventionalised (elouera, button flakes, chipped points including crescents) and (2) unconventionalised (scrapers) implements in the flake and blade group, but he did not describe them in detail. The delay in the publication of my paper in 1948 enabled me to base my description of the implements on the classification of the 1946 Memoir. Towle, of course, belonged to the Victorian school who considered material to be the determining factor in the form of flaked implements.

There was no discussion between us regarding the naming of the two industries and there is no reference in Towle's manuscript to it. I wrote a note to him on 13/7/36, which is in the folders, suggesting that the upper industry be called Emu and the lower one Nepean.

One puzzling aspect of the excavation that we discussed at the site is the lack of bones of animals from the area and of mussel shells from the Nepean river, as an indication of the foods eaten by the occupants of the cave. The area was rich in animals of all kinds, and the Nepean river is nearby with its perch, eels and other freshwater fish. Perhaps a sampling of the deposit for pollens would provide some useful information on plant foods but it is notable that no mortars for crushing nuts and seeds occurred among the implements.

Each working day I used to walk a mile from my home to Stanmore station and catch a train to Eastwood where Towle lived; we then travelled in Towle's car to Bunyan's house at Emu Plains, from where we walked about a mile or so to the cave carrying our spades, trowels, sieve and other equipment, and our lunches; on the way back we carried the implements. They were hard but enjoyable days. Each day's collection was taken home in the car by Towle although it was understood prior to the excavation that it would all be deposited in the Australian Museum because of its importance.

Between 1934 and 1942 Towle presented to the Australian Museum four small batches of stone implements from western New South Wales sites - Lakes Peery, Narran and Woytchugga - while he was collecting on his annual holiday trips. He also forwarded 97 flaked implements from these sites to me for display at the Third Congress of Prehistorians of the Far East held in Singapore in January 1938. In thanking him for this gift, Dr C. Anderson, Director of the Museum, commented on the great interest the exhibit had created, many of the delegates expressing surprise at the high quality of the workmanship. I disposed of the collection by exchange with the Raffles Museum in Singapore, Hanoi Museum in Indo-China, Amoy Museum in China, and with Dr R.G. von Koenigswald from Java.

Towle bequeathed his collection of implements to the Australian Museum. It consists of 84 trays of flaked and pebble implements, ground-edge axes and knives, and fish hook files in addition to a large series of percussion and grinding stones. He collected on many of the coastal middens from Morna Point to Shellharbour, securing large series of implements from Lake Illawarra, Bellambi and Murramurang in particular on the south coast; they include a superb Windang-type axe head, and a bone point abrading stone, from Murramurang, the largest known pecked axe from the coastal sites from Port Kembla, and extensive series of ground-edge axes, uniface pebble implements, elouera, fabricators, bondi points and fish hook files. The whitish-grey chert implements collected at Anna Bay, Morna Point, Glenrock Lagoon, Toowoon Bay and Redhead in the Newcastle-Port Stephens area include a fine series of elouera, some of which are of unusually large size, and worimi choppers. He did not collect north of this area on the coast. He obtained a collection of pebble implements and ground-edge axes from Castlereagh on the Nepean river, and axes from Dubbo, Bathurst, Orange, Lake Cargellico, Condobolin, Narromine, Lake Bathurst and other localities in the midwest, including blanks from an axe quarry at Arthurville.

In the far west most of his collecting was in the region north and west of the Darling river. In the far northwest he collected on Yancannia and Murtee stations, and near Milparinka; in the Wilcannia district on Tillenbury, Old Mt Murchison and Lake Woytchugga stations and further south at Lake Menindee; to the east along the Paroo river on Gourimpa, Momba and Lake Tongo stations, at Lake Peery and in the Wanaaring district; in the central north at Brewarrina, Burren Junction (Tareela station), and Lake Narran; and at scattered localities such as Louth, White Cliffs, Coolalie, Byrock and Lake Cobham. On these western sites he collected a fine series of grooved quartzite and other types of ground-edge axes, horsehoof cores and large choppers in addition to tula, pirri, flake and blade implements. There is a tray of axe blanks from a quarry on Mt Foster, millstones in various stages of preparation from a quarry on Old Mt Murchison station, and grindstones, mortars and hammerstones from various localities, and a fine series of cylcons. He collected on some Victorian and southeast South Australian sites, and obtained New Zealand, Tasmanian and North American implements by exchange. Finally, there are some excellent specimens of the large, slab-like axes from the Cairns district in Queensland. In the folders there are brief descriptions of all of the sites on which he collected, and of the effects of moving sand and storms on them.

Towle wrote five papers on stone implements, described several quarries for axes and other implements, six stone arrangements, two sites of cave paintings and one rock engraving. In typescript are two papers on engravings and the manuscript of a book on 'The Aborigines of the Western Road from Nepean to Wellington'. Most of his papers from 1942 to 1946 were published in the *Victorian Naturalist*. He must be regarded as one of the pioneers in New South Wales prehistory for his contribution in the Lapstone creek excavation, his bequest to the Australian Museum, his writings and field notes, and as a co-founder of the Anthropological Society of New South Wales.

#### References

- Cox, J.C. 1880 Stone axe heads from Castlereagh. Proceedings of the Linnean Society of NSW, I:271-72
- Hale, H.M. and N.B. Tindale 1930 Notes on some human remains in the lower Murray Valley, South Australia. *Records South Australian Museum* IV:145-218
- McCarthy, F.D. 1934 A rock shelter near Emu Plains. Mankind 1: 240-41

1948 The Lapstone creek cave - two culture periods revealed in eastern Australia. *Records Australian Museum* XXII:11-34

E. Bramell and H.V.V. Noone 1946 The stone implements of Australia. *Memoir, Australian Museum* IX

- Mulvaney, D.J. 1964 Australian archaeology 1929-64: problems and policies. Australian Journal of Science 27:39-43
- Thorpe, W.W. 1931 A rock shelter at Lake Burrill, N.S. Wales. Mankind 1:53-5

1932a Lake Burrill rock shelter. Mankind 1:78-9

1932b Lake Burrill rock shelter faunal remains. Mankind 1:109-10

and M.S. Stanley 1928 Aboriginal axes. Australian Museum Magazine III:210-11

Towle, C.C. 1930 Certain stone implements of the scraper family found along the coast of New South Wales. Sydney. Privately printed

> 1932 Oval arrangement of stones, Endrick Mountain. Oceania III:40-45

1929 Aboriginal remains: camping grounds and workshops. Sydney Morning Herald, January 19

1933 Aboriginal drawings near Glenbrook, N.S.Wales. Victorian Naturalist L:191-93

1933 A Bora-Nore near Uloola Falls, National Park of N.S.Wales. Typescript. 3 pp.

1935 Stone scrapers: an inquiry concerning a certain conventionalised type found along the coast of New South Wales. Journal & Proceedings of the Royal Society of N.S.Wales LXVIII:117-43 Towle, C.C. 1939 A bibliography of stone arrangements found in Australia. Mankind II:216-21

1934 Trip to far western New South Wales. Typescript. 5 pp.

1936 Excavation of cave deposit at Emu, N.S.Wales. Typescript. 7 pp. (Lapstone creek cave - first draft 9/3/36; revised and final draft 22/6/36, with list of amendments by F.D. McCarthy, also table of implements and four diagrams)

1939 Stone arrangements and other relics of the aborigines found on the lower Macquarie river, N.S.Wales, at and near Mt Foster and Mt Harris. *Mankind* II:200-9

1940 Rock carvings near Woodford, N.S.Wales. Mankind II:288

1940 The rock carvings of the Sydney and Hawkesbury districts. Typescript. 9 pp.

1942 An arrangement of stones and some rock engravings. Victorian Naturalist LVIII:172-74

1942 A bibliography of the cylcons. In R.L. Black, Mystery Stones of the Darling River Valley. Leeton. Privately printed

1942 Bora ground near Ruby creek, N.S.Wales. Victorian Naturalist LIX:80-83

1944 Quarries used by the Aborigines of the Paroo river, N.S.Wales. Victorian Naturalist LX:73-75

1944 Small stone slab showing grooves made by the aborigines. Victorian Naturalist LX:189-90

1946 Stone artifacts from Woodstock, Molong and Caloola, N.S.Wales. Victorian Naturalist LXII:206-07

n.d. Tasmanian aboriginals: our coastal artifacts. Sydney Morning Herald, July 10

and others 1938 Symposium on the archaeology and material culture of N.S.Wales. *Mankind* II:136-37

n.d. The Aborigines of the Western Road: a brief survey - historical and archaeological - of the Aborigines who occupied the territories from the Nepean river to the Bathurst plains and Wellington valley. Typescript. 112 pp.