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‘They call ’im Crowie’: an investigation of the Aboriginal significance attributed to a wrecked River Murray barge in South Australia

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The Indigenous intangible heritage related to wrecked vessels has been poorly studied and documented. This article provides a counter to dominant maritime archaeology discourses via the investigation of the Aboriginal significance attributed to a wrecked and submerged River Murray barge (Crowie) in South Australia. There are numerous layers of Aboriginal significance that may be attributed to Crowie including the relationship of the community with their ‘underwater country’, Indigenous contributions to the riverboat industry, and the use of Aboriginal terms in vessel-naming practices. Geophysical data from multibeam and sidescan sonar surveys allowed for confirmation of the proposed location of the wreck and through comparison with historical descriptions and photographs provided evidence to substantiate the assignment of the wreck as the Crowie barge.

Key words: River Murray (South Australia), intangible heritage, Aboriginal, wreck, geophysical survey.

This research foregrounds the Indigenous intangible heritage that may be embedded in or intertwined with the tangible remains of wrecked vessels. While some researchers and institutions are beginning to consider and incorporate intangible perspectives, maritime archaeology as a sub-discipline generally ‘has lagged far behind its Indigenous archaeology counterparts in terms of engaging a broader community in cultural heritage management’ (Roberts et al., 2013: 78). Thus, through the Crowie case study explored in this paper, we seek to detail how such perspectives, and their attendant meanings and complexity, may be investigated.

The Crowie case study arose out of a broader collaborative project between Flinders University researchers and the River Murray and Mallee Aboriginal Corporation (RMMAC), which was designed to explore the past and present Indigenous connections to Calperum Station, near Renmark in South Australia (Fig. 1). It was during an oral history interview for the project with Aboriginal elder Edward Harry Lindsay, in September 2015, that a rare narrative emerged relating to the River Murray barge Crowie. We begin the paper with this narrative as well as descriptions of the barge and its history. Methods used to record the oral history and the geophysical methods used to image the wrecked and submerged vessel are then outlined. The article concludes with a consideration of the value of the geophysical data as well as a detailed outline of the Aboriginal significance attached to Crowie.

Background

Edward Lindsay was born on the banks of the River Murray at Swan Reach Aboriginal Mission on the 29 May 1930 ‘like Moses in the rushes’ (Int. with Amy Roberts and Jenny Grace 30/9/15). His early life was primarily spent in and around the mission (Int. with Amy Roberts and Jenny Grace 30/9/15) (Fig. 2). Edward Lindsay’s Crowie story begins on the cliffs near the Swan Reach Mission where, on the ‘Chinaman Track’ (cf Hemming and Cook, nd: 63), as a young boy aged about eight or nine, he watched two Aboriginal men from the mission community work to navigate a barge through the Murray River gorge (Int. with Amy Roberts and Jenny Grace 30/9/15; Int. with Amy Roberts and Jenny Grace 14/4/16).

Given the year of the event Edward Lindsay witnessed, c.1938–1939, the men to whom he refers are likely to be Fred Murray, who married one of the apical ancestors of the RMMAC community Winnie Reed (Int. with Amy Roberts and Jenny Grace 30/9/15), and William Malcolm (Bill) Cook (b. 3/1/1913 at Manunka), who was the husband of Dorothy Beatrice Nattoon and a descendant of the RMMAC apical ancestors John and Nelly Perry (Int. with Amy Roberts and Jenny Grace 14/4/16; Tindale, 1938–1939: 104b and 104f) (Figs 3 and 4). Edward Lindsay recounts that Fred Murray and Bill Cook were employed because of their detailed knowledge of the river:

Crowie, the name of the boat . . . towed all the way up the river from Morgan to New South Wales, some port there . . . There was two navigators one on each side [of the barge] . . . Bill Cook and Fred Murray . . . They had them

employed for that job and that . . . cause they know the river, they had to know the river to navigate it . . . They were employed there for quite a few years! (Int. with Amy Roberts and Jenny Grace 14/4/16)

Barge-men were regularly employed to navigate barges. In two historic images from the Kingston-on-Murray Collection (Fig. 5), taken sometime before 1925 in the years preceding Lock Three's completion (Arnold, 1989: 133), two men can just be made out employed thus. Barges were an integral part of river trade 'and the handling of a barge was a craft all on its own' (Drage and Page, 1976: 38).

A good bargemaster could almost read the steamboat skipper's mind, and made sure that barge and steamer acted as one unit . . . The more the bargemaster knew about the rivers, so that he could anticipate the steamer's actions,

As Phillips (1972: 56–60; cf Drage, 2014) points out, however, 'the life of a barge-man was a tough and lonely one' with '[r]ough mateship and heavy drinking . . . often the only consolation':

For the two or three crew men of the barge, there was a small cabin in the forecabin. The only entrance to this was a small hole three feet square in the deck . . . Barge crews disliked sleeping in them; there was no ventilation, bilge water slapped to and fro beneath them and the stifling air was thick with mosquitoes. If the barge was snagged and sank, then the crew were trapped; the bales would shift and close over the hatchway. The crew therefore in most cases slept on deck, or on the bales . . . Barges on the Darling were towed by a short line—50 feet—to cope with the turns in the river. On the Murray, the tow lines were longer—100 feet or more. The steerman of the barge stood on a shaky wooden platform high on top of the wool, where an enormous iron helm was set up and connected to the rudder by ropes and chains. Coming down stream presented problems to the barge crew when the towing steamer tied up for the night. As the barge drifted past the paddle boat, a line was thrown to the bargemaster, who had to catch it and whip it around a bollard on the barge. If the bargemaster failed to catch the rope, then it would be a case of no supper—if he was clumsy winding the rope around the bollard, then it might be a case of no fingers . . . (Phillips, 1972: 56–60)

As Edward Lindsay watched the Swan Reach men work on the barge it became stuck in the water—an event attributed by the Swan Reach Aboriginal community to the actions of a spirit being called Muldjewangk:

His boat was goin' up [and the] Bunyip, Muldjewangk . . . he held the boat, a big boat. The Captain was gonna jump over in the water . . . He towed a big hundreds, bales of wool . . . they call 'im Crowie . . . one of the barges . . . The name Crowie! . . . He couldn't make out what was goin' on. He struggled . . . the barge had to pull one way and pull back the other way . . . (Int. with Amy Roberts and Jenny Grace 30/9/15)

In a follow-up interview in April 2016 Edward Lindsay further explained the community's reasoning for this cultural interpretation. Indeed, while barges and other river vessels regularly encountered difficulties navigating the various reaches of the river, it was the location of the Crowie event that influenced its meaning. The river below the cliffs where Edward Lindsay witnessed the event was known to the community as deep and unobstructed water (Int. with Amy Roberts and Jenny Grace 14/4/2016). The latter fact, combined with the knowledge that a Muldjewangk lived in a nearby location at a 'hole' in the river near the Swan Reach Mission (as well as further downstream at Ranginj) (Tindale, c.1931–c.1991; Hemming and Cook, nd: 82b and 115), thus led community members to their interpretation of the barge's trapped state.

. . . They got stuck on the river there . . . they couldn't make it out . . . in deep water . . . It happened where that Bunyip live . . . in the deep water . . . at Swan Reach, eight miles up the river yeah . . . It was in the river towing these bales of wool when that happened . . . the Bunyip was by where he lived . . . He must have been in the deep water when the steamer come . . . In the main channel. It shouldn't get stuck in the main channel . . . The Bunyip must've been hiding out there . . . It got stuck. The captain didn't know what was goin' on—he was going to jump over, but he let go of it . . . Oh he let the boat go . . . With a powerful engine they couldn't work out what happened. It was right on the channel where the Bunyip lived. (Int. with Amy Roberts and Jenny Grace 14/4/16)

Muldjewangk₁ belong to a class of spirits who live in the natural Murray River environs (and possibly beyond) 'contemporaneously with human beings' and make 'occasional appearances for the express purpose of causing harm or at least some trouble' (Berndt and Berndt, 1993: 203). They are generally feared and people attempt to avoid their homes—for example, at the 'Muldjewangk Hole' near Swan Reach 'when passing this spot by boat people would always move to the far side of the river near the cliffs' (oral history recorded from Agnes Rigney in Hemming and Cook, nd: 115). Europeans often refer to these spirits as Bunyips, as may community members when talking to non-Aboriginal people (Amy Roberts pers. obs.). The name 'Bunyip', according to Robert (Tarby) Mason (one of the primary Aboriginal 'informants' for ethnographers working in the region c.1930s–1960s), was a term used by Aboriginal people further 'up river'

(Tindale, 1930–1952: 313; cf Bell, 1998: 350 and Brough Smythe, 1878: 435 ff., see also Clarke 2007 who locates it to western Victoria).

Muldjewangk are variously described by current community members (Amy Roberts pers. obs.) and in ethno-historical sources. Hemming and Cook (nd: 115), for example, describe them as ‘human-shape[d]’ and ‘covered with weed’, while Tindale (c.1931–c.1991: card 32) recorded the following from Robert (Tarby) Mason: ‘creature in river; bunyip-like; duck-billed platypus’ (see also Tindale, 1930–1952: 319). Figure 6 includes additional information about the Muldjewangk as recorded by Tindale (c.1931–c.1991: card 31), including evidence of their actions, for example: ‘ripples in water’. Other evidence of their existence was similarly relayed by Edward Lindsay including the presence of weeds/reeds floating on the water in summer when it cleaned out its home:

Swan Reach yeah, that’s where the Bunyip lives. Hemust’ve been doin’ a bit of fishin’ there . . . Yeah—he cleared it out—there was an Aborigine that used to dive down there, but they [other Aboriginal people] was too scared . . . Some said he was a giant . . . animal . . . they mustn’t have told the steamer! [The Muldjewangk] pulled up the weeds to clean out where he lived . . . that’s when you’d see it floatin’. I think it was through summer he did that. Aborigines were frightened to go near that place! . . . They told us to keep clear, don’t go near the river that Bunyip there, they say that to kids, that he lived there. But nobody found out where he is! I know the place where he live at Swan Reach, you know that Muldjewangk . . . (Int. with Amy Roberts and Jenny Grace 14/4/16)

As Edward Lindsay conveys, community members continue to tell the stories of Muldjewangk to warn children of dangerous environments such as strong currents (Hemming and Cook, nd: 63, see also Bell, 1998: 345). As Berndt and Berndt (1993: 209) noted, Muldjewangk ‘were especially dangerous to children’, as they were ‘interested in recruiting human children and transforming them’ into Muldjewangk. But we must be cautious of simply interpreting Muldjewangk stories as quaint tales ‘the sole purpose of which is to terrorise children’ for, as Bell (1998: 346) notes in relation to the lower Murray River and lakes, Muldjewangk may be ‘interwoven with other knowledge’ including initiation, specific rights and interests in relation to fishing places and other rituals/ceremonies. Muldjewangk may also interact with ‘Dreaming’ ancestors or creation beings such as Ngurunderi (see Tindale and Pretty, 1980: 50), thus affording them a role in ‘founding drama’ (Bell, 1998: 349), and provide a distinctive and regionally specific Aboriginal cultural identity for people on the Murray (Clarke, 2007: 150). Edward Lindsay’s Crowie narrative also prompted us to explore the origin of the vessel’s name. Indeed, when Edward Lindsay began talking about Crowie in the 2015 oral history interview there was some initial confusion because the word *krawi* in the Ngarrindjeri language means ‘big’ (Nathan and Fang, 2014: 51) and as a result we were unsure if he was referring to a big barge or a barge of the same sounding name. The Ngarrindjeri language belongs ‘to the people of the Lower Murray, Lakes and Coorong region of South Australia’ (Gale and Sparrow, 2010: 387), but many Ngarrindjeri words are also well-known and used by Aboriginal people from the Mid Murray and Riverland region and may be used in conjunction with words originating from Mid Murray and Riverland languages/dialects (Amy Roberts pers. obs.). Subsequent newspaper searches clarified the issue:

MURRAY BRIDGE, November 30.—The barge Crowie, built by Captain J. G. Arnold, of Mannum, arrived several days ago. The Crowie, which is the native name for native companion, or ‘big ‘un’ is 30 ft. longer than any other barge on the river. Her length is 150 ft., beam, 30 ft.; and depth of hold, 8 ft. 6 in. She will carry 700 tons, and her width of beam makes her buoyant. Mr. D. Milne, of Goolwa, is the builder. The Crowie loaded with 300 or 400 tons of super and general goods, will leave to-morrow evening. Captain Arnold having engaged the Rothbury from Mr. M. Anderson to tow her up stream. (Anon., 1911: 13)

No similar word for ‘native companion’ (a term used to refer to a bird now more commonly called *broлга* [*Grus rubicunda*]) has yet been located in Lower Murray, Mid Murray or Riverland languages/dialects, although more research on this issue would be beneficial. The Ngarrindjeri meaning of the name of the barge takes on added significance given its reported size. According to Parsons (2005: 63) Crowie is ‘[c]laimed to have been the largest barge built for the Murray’ (Fig. 7). The men who worked on Crowie considered the barge to be ‘a monster’ that could be difficult to load in areas of low water (Drage and Page, 1976: 118). Despite this Crowie achieved records relating to loads it could carry (see Linn, 1997: 157). For example, in 1917 the following was reported:

The s.s. “Wilcannia” (Capt. A. Thamm) with barge “Crowie,” of the Arnold line, in tow arrived at Murray Bridge on Monday morning with what may be claimed to be a record cargo of wheat, vis. 7,300 bags. (Anon., 1917: 4)

Similarly, in 1918:

The Wilcannia and barge Crowie, owned by Capt. J. P. Arnold, and in charge Capt. Jack Thamm, also arrived [at Morgan] on Friday with 2,300 bales of wool and skins—the largest load which has ever reached here on a single barge. (Anon., 1918: 7)

In 1925 the following was reported:

During the last Darling wool season the s.s. Decoy loaded 2,493 bales of wool at Wentworth. The cargo was insured for £100,000. This is said to be the biggest load of wool ever shipped at the junction town. Captain Merrett was master of the Decoy at the time and the barge Crowie was in tow. (Anon., 1925: 6)

As noted above, barges and other river vessels regularly encountered difficulties navigating the various reaches of the river and Crowie features in a number of newspaper reports in this regard. For example, in 1922:

The barge Crowie, whilst being towed up stream by the steamer J. G. Arnold last week struck a snag when passing through Higgins' cutting, a short distance beyond the South Australian border, and had to be beached. The Crowie was loaded with 400 tons of cargo, 300 tons of which was cement, mostly for delivery at No. 9 lock site arid Lake Victoria storage works. The snag ripped a hole a foot long in one of the vessel's planks three feet below the water line, and the water rushed into the vessel at a great rate. No time was lost in getting the pumps to work, and every effort was made to save the cargo from damage. The water, however, rose to a height of three or four feet in the forward hold and up to a few inches in the after hold, and some of the cement and chaff were damaged. The steamer Renmark with two empty barges arrived on the scene after the mishap and the undamaged cargo was hurriedly transhipped. About 60 bags of cement for No. 9 lock [sic] were left on the bank as worthless, and also a quantity of chaff. It is estimated that the damage to the cargo amounted to £1,000. The loss was not covered by insurance. The disabled barge has since been sent to Morgan to undergo repairs. (Anon., 1922: 15)

And again in 1939 (possibly during the period when the barge was being worked by Fred Murray and Bill Cook):

RENMARK, Saturday.—While going upstream, through Lock 5, the barge Crowie, struck the lock. The barge was being towed by the steamer Murrumbit [sic], and after passing through the dead water of the lock the strong current swung the heavily laden barge back against the lock, broadside on. The steamer carried a load of 100 tons, and the barge was heavily laden with 420 tons of steel plates, consigned from Goolwa to Echuca. The barge was moved by two steamers pulling on long ropes. (Anon., 1939: 33)

Parsons (2005: 62–63) also records the following additional information regarding Crowie's construction, history and ultimate demise:

CROWIE ON122736 C bge, 290t, 151.7Å~29.9Å~7.9 B: 1911 David Milne, Goolwa, SA Owners: Johann George Arnold, reg Pt Adelaide; 1913 Arnold's Line of River Steamers; 1919 Murray Shipping Ltd. Register closed December 1961 'Wrecked at Morgan'. Acquired by A.E. Moritz, Goolwa, 1965 and later transferred to his sons R & S. Moritz.

While the register was not closed until 1961, Crowie likely sank on its moorings sometime between 1946 and 1950, as it appears for sale in the Riverine Herald as late as 11 April 1946 but is said to 'lie' at Morgan by 1950 (Anon., 1950: 8). The latter conclusion is corroborated by local heritage pamphlets (Anon., nd: 6). Given the above it would seem that Fred Murray and Bill Cook likely worked on the barge in the latter years of its life, and certainly toward the end of the 'steamer and barge days', which were eventually concluded due to the advent of rail and motor transport (Phillips, 1972: 122–127).

Later in its history Crowie appears on various inventories such as The Australian Heritage Places Inventory (No. 19180), The Australian Heritage Database (No. 19180) and the Register of the National Estate (non-statutory archive—registered 25/03/1986) (see also Kenderdine's [1993: 197] compilation of wreck-sites on the River Murray). Much of the information in these registers repeats the information from the newspaper accounts regarding its dimensions. The Australian Heritage Database includes the following additional information relating to construction, location and site conditions:

The vessel comprised one deck with a sharp stern, carvel built, straight stem, composite construction consisting of iron frames and topsides. It had nine internal bulkheads . . . The barge Crowie is representative of particular maritime design or development and as the largest barge ever built on the River Murray the wreck site may provide constructional details that reveal aspects of the later vessel building stage. As workhorses of the river trade these vessels were seldom documented in great detail. The site has the potential to help in the development of a typology and chronology of vessels on the River Murray. The barge Crowie is located just downstream from the PS Corowa and extends below the water line to a depth of several metres. The wreck is affected by both current and boatwash. The nil visibility water of the Murray affects a thorough assessment but

the barge would appear to be intact below the deck level for its entire length. The port side of the vessel is visible above the water line during normal pool level. The frames of the vessel are intact and easily identifiable. Any iron topsides that were on the vessel at the time of wrecking have corroded away. The iron deck plating lies 15cm below the surface of the water.

Given that the Crowie wreck was registered in 1986 it is likely that the abovementioned conditions relate to that time. The recent geophysical surveys assessed in this project are outlined below and provide current site data.

Methods

Multiple methods were employed in this project including oral history recording, archival research, a multibeam survey and a sidescan sonar survey. The oral history methods used in this work are described below, although the results are outlined above in the introductory materials. The article is organized in this way not only to present the information in a logical manner, but also to foreground Aboriginal perspectives and knowledge.

Subsequent to the oral history collection, concomitant research was undertaken to provide context to the story via an investigation of relevant ethnographic records—this information is also provided in the introductory materials. Historical research revealed that the Crowie barge likely existed as a wreck near the Morgan wharf. As such, geophysical data was sought in order to: 1) clarify the location of the wreck; 2) confirm that the reported dimensions and features of Crowie match the wreck; and 3) to consider the site condition over time. In this regard, we assess the results from a multibeam survey (conducted in 2012) that was provided courtesy of SA Water (a government entity that manages water services in South Australia). In addition, an original sidescan sonar survey was conducted for this project.

Oral history recording

The use of ‘oral memory in archaeological research offers us rich potential’ as it can provide ‘a means to understand how people in the past and the present experienced historical landscapes, and to see how meaning is created and negotiated’ (Jones and Russell, 2012: 27—see also Gazin-Schwartz and Holtorf, 1999: 15; Myrberg, 2004). The deep cultural meaning inherent in the Crowie story, when explored in conjunction with archaeological methods, allows us to more appropriately consider the ‘intricate mechanisms’ inherent between the ‘symbolic and material world’ (after Symonds, 1999: 113). Edward Lindsay’s oral history interviews, excerpts of which are presented above, were conducted using a semi-structured interview style to allow for flexibility in wording and the ordering of questions (Minichiello, 2008: 51). Such flexibility, which is integral to this style of interviewing, was essential for the recording of the Crowie story, which was not otherwise a focus of the planned interview.

An initial interview was conducted on 30 September 2015 followed by a second recording on 4 April 2016 (both took place at the Gerard Aboriginal community township). The interviews were conducted with the RMMAC community member, Jenny Grace. Jenny’s active participation as an interviewer was pivotal to the cultural and linguistic contextualization of information gathered.

The interviews were recorded using two digital recording devices—a ZOOMH4n HandyRecorder and an iRiver S10 Digital Audio Player. The former device is a portable high-resolution solid-state WAV digital recorder that produces the sound quality required for oral history recordings, while the second device was used to provide a back-up file. Transcripts were produced according to the principles outlined in Robertson (2013: 78–82).

Multibeam survey

A multibeam survey was conducted on 19 March 2012 by Gareth Carpenter of SA Water. This type of sonar survey ‘uses dynamically focused beams to collect extremely detailed bathymetric data over relatively long ranges (as compared to optical systems); when operated to hydrographic standards and combined with state-of-the-art visualization tools, a quantitative 3-D image of the targets and the surrounding . . . floor can be generated at a resolution that addresses many of the key questions posed in an archaeological study’ (Mayer et al., 2003: 7). It is used less frequently for archaeological investigations than sidescan sonar, presumably because of the higher purchase price, however it has extensive application both in the location of material culture (Plets et al., 2011) and mapping palaeo-landscapes (Westley et al., 2011).

The survey employed a R2sonic 2022 @ 400 kHz multibeam sounder to image subsurface features within

the survey area. The multibeam sounder was integrated with a Trimble 332 differential GPS system. Sound velocity corrections were made using AML Minox SVP. Heading and motion measurements were recorded using Hemisphere VS330 and aDMS05 motion sensor. Data was processed using Hypack/Hysweep software.

Sidescan survey

A sidescan survey was conducted on 3 May 2016 to provide comparative imaging to complement the multibeam data. Sidescan sonar, summarized for archaeological applications by Klein (2002), is a widely used marine geophysical technique that images under water but unburied archaeological and geological features. The unit emits sound toward the water bottom at a high angle from a central tow fish, which reflect back to the unit highlighting areas with different material properties or that are elevated from the river bed. While quantifying the resolution of sidescan data is complicated (Quinn et al., 2005) this technique is capable of providing sufficient resolution to make detailed observations of the features of underwater objects. Sidescan is particularly useful in situations, such as the Murray River, where visibility but not acoustic properties are restricted by turbidity.

The survey employed an Imagenex SportScan sidescan sonar to image subsurface features within the survey area. The sidescan sonar was integrated with a Garmin GPSMAP 76 and both devices were operated from a dedicated laptop using proprietary Imagenex data collection and analysis software. The SportScan was operated at both 30 m and 15 m ranges and at 330 kHz and 800 kHz frequencies (transmitting at a 20° angle on both sides of the tow fish). Tow cable lengths of 0.5 m and 1.5 m were selected based on the shallow depth of the river and the possibility of underwater obstructions. Data was processed using Hypack/Hysweep software.

Results

As noted above, the results of the oral history interviews are presented in prior sections of this paper. However, the geophysical data collected from the multibeam and sidescan sonar surveys are detailed below.

Multibeam data

The multibeam data shows the well-preserved remains of the Crowie wreck. The vessel sits upright and its construction features appear in considerable detail (Fig. 8). The data particularly highlights the shape of the vessel's hull and a number of construction features including a prominent keelson, a number of deck beams in the areas where bulkheads once partitioned the hold in sections, partially preserved hatch combing, regularly spaced floors, and deck beams in the stern. The stern is still standing and better preserved than the bow—its shape is visible from a bird's-eye view. Here, a bit still stands upright and is located directly aft of the centre of the afterdeck. The multibeam image also shows how Crowie's bow section has collapsed and is associated with a small debris field—a likely result of post-depositional processes due to the impacts of other river vessels and anchors. The Murray River flows from Crowie's stern to bow.

Sidescan data

The sidescan data also highlights the principal construction features of Crowie, although the results are considerably less detailed than those obtained from the multibeam. The keelson, regularly spaced floors, shape of the bow, deck beams in the stern, partially preserved hatch combing, remains of its bulkheads, and its bow and stern section are visible (Fig. 9).

Summary of geophysical data

As noted previously, the aims of the assessment of the geophysical data were to: 1) clarify the location of the wreck; 2) confirm that the reported dimensions and features of Crowie match the wreck; and 3) to consider the site condition over time. The location of the wreck was confirmed via the use of integrated GPS systems with the multibeam and sidescan surveys (see georeferencing in Figs 8 and 9). To provide survey grade positioning for the wreck we also conducted a combined static GPS/total station survey in which static GPS points were collected using a CHC90+ GPS with occupations of one hour and post-processed using the Auspos service to provide positions with 0.05 m horizontal and vertical accuracy. These points were used via a resection to provide spatial co-ordinates to the total station survey, which was then used to survey a point on the apex of the bow. The combined total station/static GPS survey provides more spatially accurate positions than the multibeam and sidescan data and so absolutely defines the location of the wreck for future research.

The reported dimensions versus the wreck dimensions are summarized in Table 1. The greater uncertainty associated with the sidescan data reflects the semi-quantitative nature of this technique (Quinn et al., 2005). Despite this greater uncertainty and the decreased resolution, the sidescan still provides a high-quality image of the vessel that would have been sufficient to confirm it as the Crowie without the use of multibeam data.

The wreck's size and aforementioned construction features evident in the geophysical data are consistent with historical descriptions and photographs of the barge. Crowie was a cargo box with a flat bottom and straight sides—the turn of the bilge would have had a hard chine. The barge had a straight sternpost and stem, and a sharp stern. The vessel's hull shape is, however, different when compared to a sketch plan (produced c.1970s) of Crowie (Drage and Page, 1976: 44; Kenderdine, 1993: 172, fig. 73). In the latter plan, Crowie has a double-ended hull, whereas the multibeam image clearly shows that the bow was much fuller than the stern, which is also consistent with historic photographs.

Many barges were built in Goolwa's shipyards without detailed naval architectural plans (Kenderdine, 1993: 159–160). The size and design of vessels was discussed with the builder and agreed upon by the owner. Crowie was a composite barge built using a bottom-based construction technique, in an attempt to build as large a cargo box as possible. Generally, after the boatbuilders laid the keel or 'king plank' and erected the stem and sternpost, they assembled the bottom planking. This construction method entailed the assembly of the ship's wooden bottom planking first, before angle-iron floors were inserted. Once the bottom was assembled, the shipbuilders erected the sides of the hull. They through-bolted iron futtocks on to the floors to set up the vessel's frames. When the framework was erected, they planked up the sides in a plank-on-frame fashion with wooden planks below the waterline and iron plating above it. The latter was hot-riveted to the frames. On top of the floor a heavy timber keelson was then fastened with keel bolts. From the geophysical data, however, it is difficult to confirm this construction technique for Crowie. The keelson and the angle-iron floors are diagnostic features in the geophysical imagery. The nine iron bulkheads reported in the Australian Heritage Database entry would have been placed in position and well braced within the hull. Although it should be noted that it cannot be confirmed from the geophysical imagery whether the vessel had nine bulkheads. Only visible are the remains of the iron deck beams and related debris that provided a partition amidships and halfway between midships and the foremost and aftermost bulkheads of the cargo hold. Crowie's iron-plate stern deck that projected beyond the hull itself, the exterior iron gussets that supported it, and its barn-door rudder (Fig. 10), no longer exist—they are all clearly absent from geophysical imagery.

Above the deck, Crowie had only a raised hatch coaming running around the hold and two bits to which tow ropes would be tied (Figs 7d and 10). One of those bits was placed on its foredeck, and the other on its afterdeck. Only the latter is clearly visible and still standing today. The shape of the iron hatch coaming in the multibeam imagery is consistent to that seen in historic photographs of Crowie (Fig. 7d). The steering wheel and its stage were moveable and could be placed in the most convenient place on the deck depending on the height of the cargo. In historic photographs, the steering wheel can be seen in different places on the deck; that is, on the afterdeck or on the decking at or after the quarterdeck (Figs 7d and 10). The barge's steering wheel and stage are, however, absent from the wreck-site—they may have been salvaged, deteriorated, or lie in the river silt around the wreckage.

When the multibeam and sidescan images are compared there appears to be minimal change in overall site condition; that is within a four-year period there have been no major impacts on the wreck. Further, the vessel continues to lie near the bank in river-bed sediment, likely more so on the starboard side of the vessel.

Discussion and conclusions

Given the results above, and because the dimensions of Crowie can be considered diagnostic, we can confirm that via a comparison of historically reported dimensions with the geophysical data that the wrecked vessel surveyed for this project is definitely the Crowie barge. This is further confirmed by a comparison of vessel features.

Geophysical techniques have historically been used in archaeological investigations for archaeological prospection. This usually involves locating a subsurface or underwater archaeological site and defining its broad spatial characteristics, such as size and depth. As geophysical and spatial technology improves geophysical techniques are increasingly providing more detailed data that allows the nuanced interpretation of archaeological sites. The surveys of the Crowie barge similarly move beyond simply locating the site to visualizing key diagnostic features of the wreck so that it can be definitively identified. Such identification

would have been extremely difficult using conventional archaeological techniques as, despite the shallow depth and easy access to this site, the turbidity of the Murray River completely obscures it from visual inspection.

There are numerous layers of Aboriginal significance that may be attributed to the Crowie barge that would otherwise not be known or privileged without the type of collaborative research undertaken in this study. Such layers include the relationship of the Aboriginal community with the vessel and their ‘country’, including ‘underwater country’ (after Bradley, 1998), as a result of the Muldjewangk event, the foregrounding of Indigenous contributions to and involvement with the riverboat industry, and the significance of the use of Aboriginal terms in vessel naming practices in this region. These items are dealt with separately below.

The Muldjewangk narrative provides insights into the ongoing connections that Aboriginal peoples maintain with their traditional land and waters. The narrative reminds us that the spiritual world of Aboriginal people of the River Murray intersects not only with spirits and their natural environs, but also with aspects of the physical world introduced by Europeans. Indeed, River Murray ‘country’ (including ‘underwater country’) is ‘animated’ and is a realm where spirits, living people and material culture coexist (after Bradley, 1977: 177; Kearney, 2009: 171–172). Thus, spiritual and human interactions with material culture, such as river vessels, highlights the ‘enduring yet shifting’ relationships that Aboriginal people of the River Murray have with their land and waters and all that they contain (after Kearney, 2009: 171). The nature of such coexistence, as argued by Kearney (2009: 172), ‘involves a process of negotiation that can be seen to link the contemporary lived experience of the landscape to locales, landscapes, events and times in the past’—a list to which we would also add material culture. Indeed, in addition to the Muldjewangk narrative explored in this paper we would note that riverboats, according to Colin Cook, a well-respected deceased elder of the community, were implicated in the spirit domain in other ways, such as when the paddle steamers would dump rubbish into the ‘Muldjewangk Hole’ (Hemming and Cook, nd: 115). As will be evident below, the multiple relationships between Aboriginal people and the riverboat industry remain to be more fully explored.

The Indigenous intangible heritage related to wrecks, and indeed seascapes and riverscapes more generally, is often overlooked. This is at odds with research focusing on Indigenous heritage values associated with terrestrial sites seen to be primarily of significance to non-Indigenous people, such as Christian mission settlements and World War Two plane wrecks (for example Greer et al., 2002; McIntyre-Tamwoy, 2004, 2010), and with wider arguments for understanding significance in general. Broader studies of ‘inspired places’ argue for ways of understanding that transcend the relatively narrow strictures of listing schemas or significance criteria (Read, 2003). Even Australia’s Burra Charter, the predominant national framework for assessing significance that deliberately identifies social and spiritual values, in practice is rarely applied to understanding such values (Byrne et al., 2001) because such dimensions are routinely regarded as subjective, political and not amenable to rational argument, much less detailed assessment (Read, 2003: 244–246). As Read has argued, however, ‘inspired places’—those with definable spiritual values—are core aspects of human experience that bind everyday people routinely to place and enable them to cope with both change and continuity at a local level: ‘[A study of] inspired place has become a study also of the value and meaning of locality. Locality with which we are physically, emotionally and spiritually familiar offers alternatives to the polarities of encroaching global uniformity and the eroding sovereign national state’ (Read, 2003: 255).

While some researchers in maritime archaeology are beginning to incorporate intangible perspectives (for example see the Western Australian Museum’s shipwreck database entry for Sunbeam [1892/03/28]) the sub-discipline generally has fallen behind other sub-disciplines such as Indigenous archaeology in its engagement with descendant and other relevant communities (see Roberts et al., 2013: 78). If intangible heritage is considered in a maritime context it is usually in relation to traditional boatbuilding and seafaring practices (Bender, 2014; Jansen Van Rensburg, 2015) rather than to broader issues of social or spiritual meanings. The 2001 UNESCO Convention on the Protection of the Underwater Cultural Heritage does not specifically refer to or include the intangible aspects of submerged cultural heritage (UNESCO, 2001). The organization makes a clear distinction between underwater and intangible cultural heritage and has a separate convention for the latter (UNESCO, 2003). In 2015, the European Union’s largest research and innovation programme, Horizon 2020, acknowledged for the first time the importance of intangible heritage. In its funding call for the topic ‘cultural heritage of European coastal and maritime regions’ (European Commission, 2015), it specifically states that: ‘tangible heritage is intimately embedded into the multiple layers of intangible heritage, from myths to daily practices, languages, traditions and crafts of local cultures of communities of sailors, fishermen, boat builders, merchants, etc.’. This statement is important as it stresses that tangible and intangible cultural heritage are intertwined in the maritime domain and that more multi-layered meanings can be gleaned from considering different perspectives. Thus, the

publication of this research is timely.

Without detailed oral history contributions, such as those provided by Edward Lindsay, wrecks such as the Crowie barge would otherwise likely be recorded and interpreted through lenses that accord them value for their economic contribution to the colonies (for example see Kenderdine, 1993). Such interpretations of course belie the fact that not only were such vessels absorbed into the ‘animated’ realm as experienced by Aboriginal people, but also that they existed in a riverscape that was, and continues to be, owned, named and cared for. Further, given the context of this paper, we must remember that all parts of ‘country’ may be named, including underwater places such as the ‘Muldjewangk Hole’. The ‘scale and complexity’ of Aboriginal riverscapes may be understood, therefore, as reflective of the ‘scale and complexity of spiritual engagements’ Aboriginal people had and have with their riverine environment (after McNiven, 2003: 329).

The detail provided by Edward Lindsay locates the Muldjewangk narrative in time and place and furnishes us with details of the agents in this story, Fred Murray and Bill Cook. These rich descriptions enable us to open up the ‘discursive space’, thereby bringing to the fore otherwise unacknowledged connections and relationships between people, place and physical objects, allowing for the telling of a more ‘complicated story’ (after Reynolds, 2000: 9 and Roberts et al., 2014: 29). The only analogous story for the Murray Darling Basin found during this research, however, was largely impersonal:

The aborigines told a strange story about this vessel [Wandering Jew]. It seems that when she was steaming up one of the branches of the Darling, she came to the deep hole where the enormous Rainbow Snake lurked. The native people believed that any creature who swam in the hole was drawn down to the depths in a swirl of dark water and was never seen again. Anyway, when the Wandering Jew reached the middle of the hole she stopped, and although her paddle wheels thrashed the water to foam, she would not budge. She was freed only when one of the old men of the tribe dived beneath her, and released her from the spell that had been holding her. Well that was the story the aborigines told. (Phillips, 1972: 121)

Contrasting the Muldjewangk narrative in this article with that of the Wandering Jew, we can immediately identify as a key issue the anonymization of Aboriginal people and places that often occurs in such accounts. Many, particularly earlier, treatments of Aboriginal spiritual beliefs adhere to paternalistic perspectives, providing no Aboriginal language names for beings or places and a less richly textured account of the meanings behind actions and beliefs. Such descriptions can trivialize Aboriginal people’s spiritual beliefs and fail to recognize embedded connections between heritage values and specific features of country. The account of the Wandering Jew event, however, remains important because, along with the Crowie narrative, it reveals the likely existence of other Indigenous intangible heritage relating to river vessels. Further, while not exhaustively investigated as part of this research, it would be of value to know whether the narrative as told by Phillips (1972) plays a role in any of the official register entries relating to the Wandering Jew wreck, which is located in Brewarrina, New South Wales. The Australian National Shipwreck Database (Id No. 2026) makes no mention of its Aboriginal significance. Indeed, the general omission of Aboriginal narratives from such registers highlights maritime archaeology’s lack of engagement with Indigenous peoples in comparison to other sub-disciplines (see Roberts et al., 2013: 78).

Just as Edward Lindsay’s account provides us with a detailed narrative regarding the intersection of the spiritual domain with the riverboat industry, so too does it provide us with an insight into the otherwise largely ‘invisible life’ of Aboriginal workers in the riverboat industry (Hemming, 2002: 55, Fowler et al., 2016). Few accounts of Aboriginal riverboat workers were encountered during the research for this paper, beyond the mention of three ‘Wellington Aborigines’ who worked as crew on the ‘maiden voyage’ of Lady Augusta, one of the first paddle steamers in South Australia (Kerr and Kerr, 1975: 26; Tucker 1985: 25). This issue warrants a separate area of enquiry so that we can attempt to expose ‘the silences that obscure Indigenous people serving as laborers in colonial settlement’ (Silliman, 2010: 50) and to more fully understand how Aboriginal people engaged with Europeans in a niche riverboat workforce (see Russell, 2012). Occasional descriptions may be found relating to Aboriginal men servicing the boats with firewood. For example Sub-Protector Mason’s reports from Wellington in 1853 (SA Government Gazette 1853aa, b, 1854), may refer to the same ‘Wellington Aborigines’ mentioned above, of whom only one is named, Kolthomaldthe, (see also Drage and Page’s [1976: 198] account which takes place near SwanReach, and Hemming and Cook’s [nd] oral histories about ‘woodcutting’). Thus, the naming of Fred Murray and Bill Cook, and their roles as barge-men, in Edward Lindsay’s narrative may be viewed as a contribution to the necessary process of ‘extending personal histories into public histories’ (Gill et al., 2005: 136), which serves to foreground Indigenous contributions in maritime and riverboat industries (Fowler et al., 2016).

As Fowler (2013: 73) has also argued, more work is generally required to ‘investigate the “hidden histories” of Indigenous peoples in relation to the lacustrine, riverine and coastal waterways of the late 19th and early 20th centuries’ via maritime archaeology. She points to the case study of Etona, a mission boat that stopped at Manunka (Fowler, 2013: 82). To this we would add for texture Edward Lindsay’s story of the tourist boat Merle (see Phillips [1972: 94] for a history of this vessel) that would stop off at Swan Reach Mission and allow non-Aboriginal people to disembark. Tourists likely watched demonstrations of boomerang and spear throwing, Aboriginal ‘tracking’ or purchased baskets and mats made by the Swan Reach Aboriginal community on these visits (see Hemming and Cook, nd: 109 and Int. with Amy Roberts and Jenny Grace 14/4/2016). On one of these occasions when Edward Lindsay was a young boy, his mother having no nice ‘boy clothes’ to dress him in instead dressed him as a girl. When one of the tourists called him ‘Tootsie’ the name stuck and he continues to be affectionately referred to as ‘Uncle Toot’ by community members today (Int. with Amy Roberts and Jenny Grace 14/4/2016). This riverboat interaction of course reveals the extent of under privilege experienced by mission families and the often strange cross-cultural engagements between Indigenous and non-Indigenous peoples in this period and beyond. There are undoubtedly many other stories relating to riverboat interactions that deserve exploration and documentation.

The final point to explore relates to the use of Aboriginal terms in vessel naming on the Murray River. A number of instances in the literature may be found—be they spiritual beings, Aboriginal place names or adjectives, as in the case of Crowie. Of note in this regard, after a limited search, we would argue that the following vessels and the history of their naming deserves additional research: Moolgewankie/Moolgewornkie/Moolgewanke (Christopher, 2011: 12; Parsons, 2005: 20, 26, 91 and 106; Phillips, 1972: 102; Kerr and Kerr, 1975: 53), Bunyip (Christopher, 2011: 13; Phillips, 1972: 103; Kenderdine, 1993: 189; Kerr and Kerr, 1975: 52), Murrundi (Kenderdine 1993:231; Parsons, 1987: 99) and Nalta Yuki (Parsons, 2005: 110–111), although there are likely to be numerous others. What are we to make of the use of Aboriginal terms by European boatbuilders/owners? Are they indicative of crosscultural engagements? Or do these naming practices simply reflect the taking and imposition of Aboriginal words on to European material culture in ‘positivistic style as neutral markers’ (after Plumwood, 2003: 74)? Were Aboriginal people fascinated or offended when a vessel was named after a feared and significant spirit being—or did it accord the vessel with added significance? Without recorded perspectives we may never know. However, as Plumwood (2003: 68) has argued ‘the significance of names and naming is often underestimated in the modern West’. Indeed, while the name Crowie has probably meant little to those researchers who have catalogued it in various vessel lists and heritage databases, its significance lives on among members of the River Murray and Mallee Aboriginal community. The words of Edward Lindsay are expressive and evocative: ‘they call ’im Crowie . . .one of the barges . . .The name Crowie!’

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Notes

1. Cf Muldewangk, Mulduwanke, Mulgewanke, Mulgewangk, Moolyewongk, Moolgewauk and Mulyewongk (Berndt and Berndt, 1993: 203; Fry, nd; Hemming, 1985; Hemming and Cook, nd: 63 and 115; Taplin, 1879: 38—see also Eyre’s (1845: 362) ‘spirit of the waters, called ngook-wonga’.
2. The term ‘country’ may be used in different ways in Aboriginal Australia and in Australian Aboriginal studies, but its usage in both cases always has a meaning much broader than its use in a Western sense. A popular definition of ‘country’ is supplied by Bird Rose (1996: 7–8): ‘Country in Aboriginal English is not only a common noun but also a proper noun. People talk about country in the same way that they would talk about a person: they speak to country, sing to country, visit country, worry about country, feel sorry for country, and long for country. People say that country knows, hears, smells, takes notice, takes care, is sorry or happy. Country is not a generalized or undifferentiated type of place, such as one might

indicate with erms like ‘spending a day in the country’ or ‘going up the country’. Rather, country is a living entity with a yesterday, today and tomorrow, with a consciousness, and a will toward life. Because of this richness, country is home, and peace; nourishment for body, mind, and spirit; heart’s ease . . . Aboriginal people own (according to their own law) both the land and surroundings waters. The creative beings traverse the whole area . . .’.

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