Australian National Abandoned Vessel Database (ANAVD)

Volume 1:

Introduction
Database Specifications
Guide to Nomenclature
Reference List

First Edition

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Cover:

Abandoned boiler of unidentified watercraft, Mill Bay, West Strahan Tasmania

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Introduction to the First Edition

This volume is the first in a series of nine volumes of data collected over the period 1997 – 2002 pertaining to deliberately discarded watercraft in Australia and Australian waters. The sequence of the volumes following Volume 1 outlines each state of Australia alphabetically. Volume 9 represents abandoned watercraft where the state of discard could not be located during the study.

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This introduction refers to the work as the first edition as the data contained herein represents a provisional data source. For reasons outlined in the archaeology doctoral thesis accompanying these volumes by the author titled *Deep Structures: An Examination of Deliberate Watercraft Abandonment in Australia* (Flinders University, 2003) abandoned vessels are generally not as visible in the historical record as their catastrophically lost counterparts. This is also a reason for the inclusion of the ninth volume of vessels discarded in “an unknown state” – it is hoped that over time the vessels listed in this volume will be excluded or integrated into the other volumes. It is also expected that between editions more discarded watercraft will need to be added to these volumes, and that details pertaining to particular watercraft will need to be amended. In some cases candidates may need to be removed as more details regarding the circumstances of the discard and loss of watercraft come to light.

Following the completion of the aforementioned doctoral thesis, and at the time of the compiling of these volumes some amendment to the information of the ANAVD has occurred. In particular, work in Tasmania has seen candidates added and removed from the database, and has also caused some augmentation to existing data.
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Acknowledgements

Over the duration of this study (1998 – 2002) and previous related research (1997) I have had the pleasure to meet, work and be guided by a number of individuals and organizations that are owed my earnest gratitude and recognition.

In relation to research in the Northern Territory I would like to thank David Steinberg, Silvano Jung and Paul Clark. In northern Queensland, Brad Duncan, Grant Luckmann, Sherrin Hibbard, Ewen McPhee and Coleman Doyle, and in southern Queensland Warren Delaney and David Bell. In Victoria, thanks goes to Ross Anderson, Peter Harvey, Peter Taylor, John Hargreaves, Malcolm Venturoni and Julie Ford. In Sydney, David Nutley, Tim Smith, Stirling Smith, Janis Winn, and John Riley. In Western Australia, Dr. Michael McCarthy, Jeremy Green, Corioli Souter, and Patrick Baker. In Tasmania, Mike Nash and Harry McDermott. Additionally, I would like to thank Cosmos Coroneos, whose expertise and knowledge was not limited to New South Wales but veritably stretched the length and breadth of the nation.

In South Australia, my home state I would like to thank Bill Jeffery, Terry Arnott and Robyn Hartell of Heritage South Australia whose extensive knowledge, patience and expertise proved to be one of the major starting points for my foray into maritime archaeology. Thanks must also be directed to the staff and students of various maritime archaeology subjects and field excursions from first year to honours level at the Department of Archaeology, Flinders University whose work and perspectives provided much food for thought. Special thanks also to Lis Janssen. Additionally I would like to thank the hundreds of individuals, who over the years have helped in my fieldwork by trudging around in the mud and dealing with my continual musings and mutterings about the remains of “old boats”. I would especially like to thank my friends and regular field crew experts Cassandra Philippou, Aara Welz, Chris Lewczak, Susan Briggs, Tim Owen, Jody Steele, and Kirsten Brett. Holgar, Maggie and Niki Welz are also owed my gratitude for their assistance and hospitality during the Kangaroo Island phase of fieldwork. I would also like to acknowledge the assistance gained from the Port Adelaide Historical Society, the Society for Historical Research (SUHR), and the South Australian Maritime Museum. Special thanks also to Tony Arbon whose encyclopaedic mind, and extensive archives were never closed to me, and Daryl Metters of the National Tidal Facility, Flinders University. I would particularly like to thank Dr. Mark Staniforth for his many
years of unwavering patience, feedback and guidance. Thanks also to Paddy O’Toole, Dr. Mike McCarthy, Cass Philippou, Brad Duncan, and Corioli Souter for their opinions and editing skills. Additional people such as Sharyn Marshall, Adam Brumm, Michael “Mick” Matthews, Rhiannon Walker and Dr. Martin Gibbs are also owed my thanks. Without exception, all of these individuals mentioned above showed great enthusiasm, advice, and feedback during this research, while also providing me with much valued support and friendship over the years.

I would also like to thank the four authors of the material that has to a large degree formed the core of this research - Ronald Parsons, Geoff Plunkett, Graeme Broxam, and the late Jack Loney. Without their voluminous knowledge, and commitment to the publishing of maritime historical material this research would simply not have been possible.

Support for this thesis was provided by grants from two main sources. Most funding was obtained through a range of grants provided by the Flinders University of South Australia between 1997 and 2002 including Research Student Maintenance and University Research Budget funding. Other funding sources came from money provided by the Great Barrier Reef Marine Park Authority (GBRMPA) for components of the eastern coast aspects of research. It must also be acknowledged that in-kind support and financial assistance from many of the organizations already mentioned such as Heritage New South Wales, Heritage South Australia, Heritage Victoria, the Museum and Art Gallery of the Northern Territory, the Western Australian Maritime Museum, the Tasmanian Parks and Wildlife Service and the Port Arthur Historic Site Management Authority. The collected efforts of these organizations made the synthesis of this thesis and the accompanying Australian National Abandoned Vessel Database (ANAVD) possible. I would also like to extend special thanks to Ed Punchard and Rhi Skirving of Prospero productions for financial assistance in relation to Western Australian research.
Introduction

This first volume serves as the chief guide to data comprising the Australian National Abandoned Vessel Database (ANAVD). This data exists in two forms, as the Access 2000 database created by the author for analysis in his doctoral thesis completed in the Department of Archaeology, Flinders University (Adelaide, South Australia) in 2002 (available by contacting the author), and subsequently printed as nine volumes in 2003 (of which this volume is a part).

This particular volume is designed to serve as both data dictionary, outlining the specific explanations of the nomenclature used, and as the source of references for the information found in each subsequent volume.

The explanation of nomenclature in this volume represents the understanding of the literature at the time, which needed to be defined due to changing meanings of nautical terms between nations, and often across regions, for communicating assumptions, and for standardizing definitions. Additionally the classification of the data was required in order to show the logic behind the grouping of data together, and the interplay between linked sets of information.

The data sheets of abandoned watercraft following this volume have used a referencing system similar to that found in such works as East Coast Shipwrecks: A Thematic Historical Survey (Jordan 1995). This system comprises of a sequential number system within each specific record that is attached to a reference within the record itself, and also to a citation found in this volume. Hence a notation of “*1” against information in a vessel record, may refer to the notation “*1 Loney 1971: 56” in the reference list of the record and in turn will refer to a specific place in the work Victorian Shipwrecks: All Wrecks in Victorian Waters and Bass Strait, Including King Island and the Kent Group (Loney 1971). The sequence of numbered references is unique to each record, and reflects the initial discovery of the vessel in a text, and subsequent references to it.

What follows is a brief description of the database, the guide to nomenclature, and the reference list.
Database Specifications

The ANAVD is a fully relational-database originally established in Microsoft Access 1997, and is currently in Microsoft Access 2000. The vast amount of data that has been presented in the body of Volumes 2 through 9 is a product of a report function created within the database that was subsequently printed to file with Adobe Acrobat Writer and merged with other word files and maps created with ESRI Arcview.

The database itself is still being amended and added to by the author as a part of ongoing research. Researchers wanting access to the database itself should contact the author himself.
Guide to Nomenclature

Introduction

Below is the list of fields in the Australian National Abandoned Vessel Database (ANAVD). This outlines the fields used within the database, the historical definition of field attributes, and explains the reasoning behind the use of specific terminology and maritime nomenclature in the ANAVD. The list is separated into Sections, which groups categories of data. These sections were grouped according to seemingly related types of data, as well as constituting groupings in the actual database, which facilitated the easier entry of data from certain standardised forms of historical literature.

Some of these fields were included for future research, and do not include comprehensive data because they were not intended for use in the analyses carried out in this research. Additionally, some fields represent evolving classificatory schema. As a consequence of this, some fields may currently include terms that overlap with other terms. Every attempt has been made to acknowledge this.

Section 1: Identification & Build

The identification of vessels has proceeded in two ways in the database. First, a system of tagging records was required for the tracking and comparison of the data within the ANAVD. Second, fields were included that noted the traditional registration methods for the identification of the vessels.

Identification Tag:
In order to create a relational database that could be used in the analysis of vessel data, as well as link tables containing other information, a unique number was attached to each individual record contained within the ANAVD. This number is essentially an automatically generated number sequentially arranged in relation to the creation of new records of individual vessel entries. This enforces referential integrity between records, and also serves as the means for the linking of tables.

Name of vessel:
This field contains the last known name of the vessel, or the name given to the vessel as an unidentified entity. The naming of a vessel is important for historical purposes, as it provides a way into historical registers, in order to obtain additional elements of the vessel in question such as dimensions, origin and date of destruction/removal.

*Ex-name(s) of vessel:*  
This field contains all known previous names of a particular vessel. The ex-names of a vessel allow for its archaeological remains to be traced back through time. This allows for a greater understanding of the development of the vessel historically, through changes in geography and ownership while also exposing changes that might have been made to the structure of the vessel through amendments or upgrades.

*Official Number (O/N):*  
This field contains the official number of the vessel from its primary register. In most cases, this is a number from the *Lloyds Register of Shipping*, the primary register for merchant vessels trading in Australia, and is often also reflected in Customs House Register documentation after 1855 (Farr 1969: 10). In cases where an alternative shipping register is used, as in the case of certain American traders, a prefix is added (for example in the case of the *Dorothy H. Sterling* US200005).

The official number of a vessel was theoretically similar in type to the identification tag that was created for this database. It was intended to be a unique number that would last throughout the entirety of the life of a particular vessel registered within a particular register, irrespective of any changes to the name of that vessel. In this way, any discrepancies caused by the re-naming of a vessel through its use-life could be traced by its official number. Some cases have been noted of vessels changing register (and hence being assigned a new official number), being so substantially rebuilt as to qualify for re-registration under a different number, or re-numbered under dubious circumstances (for instance, in the case of theft). The official number is supposed to be, “cut or punched on to the main beam of the vessel, but when this is inaccessible it is customary to have the number stamped on the after end of the forward hatch coamings” (Stevens 1947: 82 see also Lloyd’s of London 1981: 501; 1991: 380).

*Date of Build:*
This field contains the year the vessel was manufactured. It is one of the most crucial in any analysis. Used in conjunction with aspects of original configuration, an analysis of technological preference and technological innovation can be attempted. When analysed in relation to the date of abandonment, an analysis of the trends in use-life can be undertaken. Lloyd’s of London (1959: 245 see also Lloyds of London 1965: 260) defines the date of build as:

The date of completion of the Special Survey during construction of ships built under the Society’s inspection will normally be taken as the date of build to be entered in the Register Book. If, however, the period between launching and completion or commissioning is, for any reason, unduly prolonged, the dates of launching and completion of commissioning may be separately indicated in the register Book.

**Place Built:**
This data concerns the location of the manufacture of the vessel. It is linked to a geographical location table, containing place, region, and nation. This field has been set up to allow for analysis on local, regional, statewide, national, and international levels.

**Builder:**
This field contains the name of the individual or company that manufactured the vessel. It is linked to a vessel/engine builder database that lists name, location, and whether the builder made vessels and/or engines.

**Status:**
This field contains data on the archaeological status of a particular vessel. It is used primarily for the choosing of vessels for study, and due to the large number of vessels served as a means for excluding vessels for active investigation. It is also included to show which vessels have been included in previous archaeological studies or investigations. The terms include:

1) *Definite Identification:* Where the located and surveyed archaeological remains of a vessel have been positively matched with an entry for a vessel in the ANAVD.
2) **Provisional Identification:** Where the located archaeological remains of a vessel have been provisionally matched with an entry for a vessel in the ANAVD.

3) **Unlocated:** Where a particular vessel in the ANAVD is not located.

4) **Unsurveyed:** Where a particular vessel in the ANAVD is located and believed to be matched with an entry for an ANAVD vessel, but has not been examined in this study.

### Section 2: Technology

**Propulsion:**

This field contains the last form of propulsion that a vessel had prior to its abandonment. The table of propulsion types is separated into two sections. The first section is the “type of propulsion” and describes the general category, or how a particular vessel is defined as being propelled. The second section is the “means of propulsion,” which describes the method by which the vessel is propelled. This is best illustrated in the descriptions below which have been amended from Coroneos and McKinnon (Coroneos 1997: 30, Coroneos and McKinnon 1997: 20).

#### Types of Propulsion

1) **Motor:** Paasch (1978:502) refers to a motor being any applied force acting upon a vessel, be it steam, sail, or hand power. In this study it refers to a motor ship or motor vessel that has a mechanical engine as its main motive power, usually in the form of an internal combustion engine running on a liquid fuel such as benzene, diesel, or petroleum (DeKerchove 1961: 523). There is some difference in motor engines across the board. These differences are mainly due to fuel sources and to some extent due to the type of ignition. Petrol or paraffin engines ignite through the electrical ignition of fuel and air vapour whereas diesel fuels require only an injection of air vapour in order to create ignition (Reed 1966: 87).

2) **None:** Where a vessel is not self-propelled, and is probably towed.

3) **Sail:** Where the main source of propulsion is force of the wind against a piece of, or assemblage of material unfurled and extended from a mast, boom, and yard (DeKerchove 1961: 673; Paasch 1978: 338; Kemp 1988a: 737-738).

4) **Steam:** Denotes where the vessel uses a type of engine that runs on steam power as its main form of propulsion, the main force being the rotary motion of shafts turning either screw or paddle (Paasch 1978: 7). As described by Embelton
(1966: 195), there are only really two truly distinct kinds of steam engine, the reciprocating engine and the steam turbine engine. All that steam engines really do is serve the conversion of heat energy (through an increase in temperature of water into steam) into mechanical energy (Embelton 1966: 250). The difference between the two types of steam engine chiefly concerns the motion of the shaft that serves as the main driving force of the engine. With a reciprocating engine the piston uses a static motion, which drives the shaft upwards and downwards whereas the turbine engine uses a dynamic rotary action. There are two types of turbine engine. They are classified as the “impulse” and the “reaction” turbine. A description of the engines can be seen in Embelton (1966: 250-256). It should be noted that turbine steam engines were a later development in steam technology, and as such, reflect a development that allowed for more efficient engines that extracted more work from heated steam than its counterpart. Furthermore, its thermal efficiency is drastically higher, its fuel consumption much reduced, as well as having negligible vibration, better balancing, less size necessities, less wear and less requirements for maintenance. Turbine engines, however, are non-reversible, and therefore, require a separate engine for moving astern (Embelton 1966: 258-260).

5) Unknown: Used for vessels where the means of propulsion is not described in historical sources.

Means of Propulsion

1) **Jet**: Refers to a vessel propelled by the intake of water and its expulsion through apertures in its stern (Paasch 1978: 8). This description refers to motor and steam vessels only.

2) **Paddle: Side Wheel**: Refers to two wheels being used as the main means of propulsive force mounted on the port and starboard sides of the vessel (Paasch 1978: 7). Only applies to motor or steam driven vessels.

3) **Paddle: Stern Wheel**: Refers to a wheel being used to propel a vessel that is mounted at the stern of the vessel (Paasch 1978: 8). Only applies to motor or steam driven vessels.

4) **Single Screw**: Used to describe a steam or motor driven vessel where there is one propeller and propeller shaft running down the centre of the vessel and leading to the engines (Paasch 1978: 7-8).
5) **Twin Screw**: Used to describe steam or motor driven vessels where there are two propellers being run off a single or multiple engines (Paasch 1978: 8).

6) **Triple Screw**: Used to describe steam or motor driven vessel where there are three propellers being run off of a single engine, or multiple engines.

7) **None**: Refers to where there is no means of propulsion. Refers only to towed vessels or sail vessels without auxiliary power sources.

8) **Auxiliary Steam**: Refers to sailing vessels only that have small steam engines driving a single screw as a secondary propulsive force. Usually the engines are only used in calm weather or imminent danger (Paasch 1978: 7)

9) **Auxiliary Motor**: Refers to sail vessels only that have small motor engines driving a single screw as a secondary propulsive force.

In relation to the “Means of Propulsion,” if an entry is listed as belonging to categories of 1-6 and there is an entry in the rigging field, this denotes that the sail was a secondary source of motive power. If the entry is listed as being in either category 8 or 9, an entry in the rigging field denotes that sail is the primary form of motive power. In this way, certain elements of the “Type of Propulsion” field can never be association with the “Means of Propulsion” field. As described by Moore (1970: 83), vessels were only ever rigged with distinct primary and secondary variations of motive power for three reasons (that is where steamers were rigged with sails). First, to be used in cases of emergency or to ease the engines, second, on vessels with weak engines and a large sail area, and third, auxiliary powered vessels using engines in time of emergency or when there are light winds or calms. Generally it is accepted that there was a transition from vessels of the first type to vessels of the second type. With the development in the marine steam engine, by the 1920s vessels of the first type became extinct.

Turbine steamers, described by Paasch (1978: 8-9) as being of a separate category have not been defined separately here, as turbine engines have the same propulsion type (steam) and means (screw) as other screw steamers. They are therefore considered simply another engine variation.

By having these as distinct lists, which can be married, it allows an analysis to be done on both the source, and the technique of propulsion.
Engine Type:
This field contains a description of the engines used in steam and motor vessels. While currently a list, in future versions it will be a linked table with standardised data outlining number of engines, type of engine, horsepower rating, type of horsepower, number of cylinders, type of boilers, and fuel type (see Sennett 1885: 26, Crawford 1939: 18, Guthrie 1971: 69-70, 171, McCarthy 1996: 392-394 for more information). The analysis of engines alone is worthwhile, as the type and aspects of each model are likely to be the most scrutinised aspects any prospective shipowner was to make in relation to a new purchase. The analysis done here could show the interlinked effects of reliability, cost, and even the marketing skills of engine builders.

Engine Builder:
This field is linked to the same table as the vessel builder field and shows the name of the builder of the last engine used in a particular vessel.

Masts:
This field simply contains numeric data on the number of masts that a particular vessel had.

Rig:
This field contains the last known rig of a particular vessel prior to its abandonment, and is used for the same reasons as described with the number of masts. Where information pertaining to the number of masts is not found, the mention of a specific kind of rig informs us of the number of masts on the vessel (not in all cases). Rigging present on steam vessels in an auxiliary manner is an indicator of the technology and effectiveness of the steam engines used in its propulsion. One other important consideration in the use of rig as a meaningful descriptive field is outlined in Moore (1970: 51) who states, “generally … it is the ocean-going ship that is square-rigged and the coaster that is fore-and-after.” Rig also often denotes speed, manoeuvrability, stopping ability, stability, and the capacity of a vessel. Although rig is not generally seen as an indication of carrying capacity (O’Reilly 1999: 56), larger vessels more often carried square rigging. The descriptions, as outlined below, are descriptions of a range of vessels, which due to the diversity of their number of masts and the type of sail upon those masts, can be distinguished from one another. A vessel is considered “square rigged” if any of the
vessel’s main sails are square-rigged. This means that a barquentine, for instance, is square rigged although only one of its masts has square sail and rigging (Moore 1970: 39). The list of types of rig presented below is an unashamedly general description of rigging types which is subject to interpretation, augmentation and constant amendment and expansion, as Moore (1970: 80) asserts, “It is not wonderful that nomenclature is inexact,” and as Jones (n.d.: xiii) says, “The differences are easily found, but the reasons are more difficult to understand.”

1) **Barque:** “Barque” generally refers to a vessel of three masts, with a four masted barque being called a “four masted barque” (Moore 1970: 62). The term “barque” is distinguished from the term “barquentine” according to Moore (1970: 26) due to the fact that it is square rigged on two of its masts, rather than only one.  

2) **Barquentine:** The term “barquentine” is distinguished from the term “barque” according to Moore (1970: 26) due to the fact that it is square rigged on only one of its two masts. Barquentines can also belong to the subcategories of “incomplete barque,” also known as a “jackass barque” (Moore 1970: 61). Another quote from Moore (1970: 60) confuses the matter further, “Eighty years or so ago [around 1865] barquentines were called three-masted schooners … it is not always easy to distinguish between a three masted schooner and a barquentine.”

3) **Brigantine:** Moore (1970: 25) explains that the terms “brig” and “brigantine” were often interchangeable although historically there was some difference attributed to each type. The term “brig” normally was attributed to a fully square rigged vessel, and a “brigantine to a vessel that was partially square rigged. While this description appears in the case of the difference between barque and barquentine the term brigantine has only been used here. Moore (1970: 47) further explains that brigantines, as opposed to brigs appear to have gone through a more drastic transformation through time. While both terms are interchangeable, “Brig” became the word for the more evolved version of the rig. Another matter is that Brigantine, as a form of Brig has also been called a Hermaphrodite Brig “which is a brigantine that has lain aside all after square canvas and, is therefore square forward and fore and aft rigged at the main” (Moore 1970: 49).
4) **Cutter:** Often confused with “Sloop,” a cutter rig refers to “a one-mast rig with gaff mainsail, stay foresail, stay foresail, job and topsail, running or reefing bowsprit, and long housing topmast” (DeKerchove 1961: 193-194). The term is also used in relation to a clinker-built rowing or sailing boat attached to a vessel, a sailing yacht, and steam vessels in the United States Navy of around 2,000 tons (DeKechove 1961: 194, Kemp 1988a: 221-222).

5) **Dandy:** The term “dandy” has been used by British fishermen to describe any vessel of a ketch or yawl rig (Blackburn 1978: 117). Information from Moore (1970: 187) supports this view that Dandy refers to occupation rather than rig, but instead explains that dandies were traditionally cutter rigged fishing vessels.

6) **Ketch:** The term “ketch” has exhibited much variation in description according to its region of use. References to variations in rigging in the state of Maine, USA, illustrate that the description of this type of vessel pertained more to offshore fishing vessels that had two masts, and was rigged square on both rather than fore-and-aft (Paine 2000: 86). In Tasmania, Australia trading ketches were known as “barges.” It is believed that the term carried over from the description of English flat-bottomed trading sail vessels (Parsons 1983d: 2, Kerr 1993: 22). This is supported by a quote from Moore (1970: 25) which states, “Any flat-bottomed coaster, with a square bilge is commonly called a barge, whatever her rig; but since the barges that are most numerous are rigged in a particular way, with a sprit mainsail, that rig is often called a barge rig,” he also ascertains that a barge (or more specifically a Thames Barge or “Hoy”) refers to two essential elements, a flat bottom and sharp chines (Moore 1970: 148). Other variations include the “Nipcat Barge” (Thames barge with a pointed stern), “Topsail Barge” (Thames Barge with a topsail), and “Stumpy Barge” (Thames Barge without a Topsail) (Moore 1970: 149-150). Kerr (1998: 3, 6, 8) discounts that Tasmanian barges were adapted Thames barges and stipulates that in Tasmania the term barge refers to a ketch or cutter rigged vessel, with flat bottom, shallow draft, centreboard or leeboard with a slight rise of floor in the mid sections of four to five degrees, and trading exclusively out of Hobart. On the use of the term “ketch” specifically Moore (1970: 188-189) maintains that the term was applied exclusively to any two-masted trading vessel. The ANAVD, and analysis contained within the accompanying thesis (Richards 2002), however has not used this term at all in relation to rig and has preferred to use the actual rig type (that
is, either “ketch” or “cutter”) when describing the vessel to avoid confusion. This has been another problem in relation to the identification of rigging in the ANAVD, as the term “barge” implies a dumb vessel (which has no rig), as described below.

7) None: Where a vessel is not rigged. In some cases, a vessel may have an unrigged mast (a derrick). This seen in the combination of a number in the mast field with no rig specified.

8) Schooner: Paine (2000: 87) describes the regional definition of schooner in Maine, USA, by citing that the name “tern schooner” referred to vessels of schooner rig, but watercraft with three masts instead of two. While there were some references to “Schooner (fore and aft)” in the historical literature, such vessels were classified as “Schooners”.

9) Ship: Ship, in the context of rig refers to a three-masted vessel with square sails on all of its masts (Dana 1970: 10; Moore 1970: 63). “Ship,” in the post-sail era, and in the present day has been applied to many other things and has become one of the most general terms in relation to watercraft. In particular it has been defined as “a vessel of any description used in navigation and not propelled by oars whether completed or in the course of completion” (Stevens 1947: 81). Stevens also notes that this definition is defined by Section 742 of the British Merchant Shipping Act 1894 (see Hamilton 1903: 756).

10) Sloop: Refers to a single masted, fore-and-aft rigged vessel similar to a “cutter” (DeKerchove 1961: 747; Kemp 1988a: 809-810). Also refers to a class of naval vessels used from the seventeenth to the nineteenth centuries, and the smaller classes of anti-submarine vessels used during World War 2.


12) Snow: DeKerchove (1961: 753) refers to “snow” as rig which, “differed from the brig by having a trysail mast abaft the main lower mast, to which the boom mainsail was hooped” (see also Kemp 1988a: 814).

13) Unknown: Where the rig (of vessel definitely defined with primary or secondary sailing capacity) is unknown.
14) **Yawl:** The term yawl appears to apply mainly to sub-categories of yacht, and are not often used in the description of trading vessels (Moore 1970: 189). Nevertheless they are present within the ANAVD.

15) **Lugger:** Lugger is an anomalous term, used after the Seven Years War that refers to the use of lug sails (a combination of square and lateen sail) on two or more of their masts (Moore 1970: 206-211).

**Hull Details:**

This field contains the last known hull type and framework material of a particular vessel before abandonment. Some problems in the classification of hull types were expected, due to the occurrence of vernacular or obscure hull types. For example, the paddle vessels *Gemini* (also known as the “Siamese Twins”) which was constructed at Mannum, South Australia in 1855 of two hulls (one new, the other the lengthened hull of the *Mary Ann*), joined by a common deck, and propelled with a central paddle (see Mudie 1965: 64) was difficult to define quantitatively due to its unique construction. The types of build are listed below:

1) **Composite Hull, Iron Framework:** Used for vessels noted as being composite and having iron framing. Although the term composite implies a wooden outer hull, for the purposes of analysis hull material and framework material are separate, but linked entries. This allows for analysis by hull and by framework. Composite vessels were first used in the China trade between 1860 and 1870, but never became common. Many ships were classed as composite, but by proper definition were not. This is because the rules for composite ships were not laid down until 1867. All vessels of both iron and wood construction before this were classed as composite and experimental, and consequently subject to biennial survey requirements (McCarthy 1983b: 361).

2) **Composite Hull, Iron and Steel Framework:** Refers to vessels of wooden hull material with both iron and steel material used in their framing. Only one vessel the Murray River barge *Emerald* (1899 – unknown), built at Morgan, South Australia is noted as having this kind of construction in the ANAVD, although it is likely that many more did.

3) **Composite Hull, Steel Framework:** Refers to vessels where the historical records suggest a wooden outer hull was supported by a steel framework.
4) *Composite Hull, Unknown Framework:* Used for vessels described as composite, but not describing the material of the framework. In this way, an analysis of all composite vessels can still be made, although the material of the vessel’s framework may be historically invisible. Some variation in the definition of composite exists. For instance, vessels of wooden construction, but with elements such as cross bracing and knees are still considered wooden vessels. Furthermore, paddle steamers that were iron hulled below the bilges were also considered wooden. The term “composite” then only refers to the ferrous nature of the frames in relation to the wooden hull outer hull. The term composite in the past has also been used to describe vessels built with a combination of traverse and longitudinal framing, although this is not used in this study (DeKerchove 1961: 171-172, Kemp 1988a: 191).

5) *Ferro-Concrete Hull and Framework:* A rarity in the ANAVD, ferro-concrete vessels are quite new, first being constructed by Professor Luigi Nervi in Italy in 1943, and based on the concrete ships of World War 1. Although not necessarily having a ferro-concrete framework (the vessel is usually moulded), the term ferro-concrete framework is used to denote that the inner structural members are the same as the outer hull lining. Ferro-concrete hull construction is only reflected in two candidates in the ANAVD, the sailing vessels *Aroonee* (unknown date of build - 1991) and *Solace* (unknown date of build – 1984). This technique involves the used of ferrous mesh which is welded to steel and covered in a liquid cement mix. This is also known as ferrocement, cement-mesh or ferrocrete (Kemp 1988a: 299).

6) *Iron Hull and Framework:* Refers to vessels of total iron construction.

7) *Steel Hull and Framework:* Refers to vessels of total steel construction

8) *Unknown, Unknown:* Refers to vessels where there is no mention in historical documents of the hull type.

9) *Wood hull and framework:* Is used for vessels of total wooden construction. This includes vessels with iron or steel knees.
Timber Species:

This field contains the timber species for wooden vessels. Notations regarding the species of the timber used in a vessel's construction were not common. Nevertheless, this field was added to the database so that timber species identification could be used to correlate vessels in the database with unidentified archaeological remains. A list of timber species adapted from Paasch (1978: 31-32, 1997: 35-36) and supplemented with data from historical sources on particular wrecks is included below:

1) Angelly 30) Jarrab timber 59) Red Gum
2) Ash 31) Juniper 60) Rose wood
3) Banaba 32) Karri 61) Brazilian Rose wood
4) Batitinan 33) Kauri 62) Sabicu
5) Beech 34) Larch 63) Satin-wood
6) Betis 35) Lignum-vitae 64) Spruce
7) Birch 36) Locust 65) Stringy Bark
8) Black Birch 37) Mahogany 66) Tallow wood
9) Black Butt 38) Mangachapuy 67) Tamarac
10) Blue Gum 39) Maple 68) Teak
11) Box 40) Rock Maple 69) Thingam
12) Cedar 41) Molave 70) Tropical hardwood
13) Chestnut 42) Morra 71) Tulip-wood
14) Cuba Sabicu 43) Morning Saul 72) Turpentine
15) Dungon 44) Mulberry 73) Vanatica
16) Ebony 45) Oak 74) Walnut
17) Elm 46) Live-Oak 75) Black Walnut
18) Grey Elm 47) White-Oak 76) Yacal
19) Rock Elm 48) Olive 77) Yew
20) Fir 49) Palomaria de Playa 78) Hard-wood
21) Greenheart 50) Pine 79) Seasoned Wood
22) Guijo 51) Huon Pine 80) Soft-wood
23) Gum 52) Oregon Pine 81) Unknown
24) Hackmatack 53) Pitch Pine 82) N/A
25) Hemlock 54) Red Pine 83) Jarrab
26) Hickory 55) White Pine
27) Horn Beam 56) Yellow Pine
28) Iril 57) Plane-tree
29) Iron Bark 58) Pohutukawa
Section 3: Dimensions

The data on dimension in the ANAVD is mainly historical data. In some cases archaeological data has been used due to secondary source historical information citing metric dimensions for certain vessels (such as seized refugee and fishing vessels in the Northern Territory).

Length, breadth and depth fields are set up with a required imperial measurement to be inputted. Each measurement is then used in the calculation of metric values. This metric conversion was then used for the comparison of historically defined vessel dimensions with unidentified archaeological remains.

Length (Feet):
This field contains numeric data on the length (feet and tenths of a foot) of a particular vessel.

Breadth (Feet):
This field contains numeric data on the breadth (feet and tenths of a foot) of a particular vessel.

Depth (Feet):
This field contains numeric data on the depth (feet & tenths of a foot) of a particular vessel.

Gross Tonnage:
This field contains numeric data on the gross tonnage of a particular vessel. Gross tonnage (often abbreviated as g.r.t) is defined as a vessel’s permanently enclosed internal space below the tonnage deck (the upper deck of ships with less than three decks, and the second deck from below in other kinds of vessel) with the addition of all enclosed spaces above the tonnage deck, but excluding the space dedicated to a double bottom, measured in increments of one hundred cubic feet (Stevens 1947: 47; Pursey 1952: 5; 1959: 199; Lloyd’s of London 1959: 256; 1973: 426; 1981: 496; 1991: 377; Stokoe 1968: 116, 121; Palmer 1971: 67; Baty 1984: 11).

Net Tonnage:
This field contains numeric data on the net tonnage of a particular vessel. Net Register Tonnage (often abbreviated as n.r.t.) is a calculated tonnage measurement taken as one hundred cubic feet per ton of any space that is enclosed in a vessel minus any space dedicated to the engines, propulsion, navigation, and crew living spaces (which are subtracted from a vessel’s gross tonnage) (Stevens 1947: 65; Pursey 1952: 5; 1959: 199-200; Lloyd’s of London 1959: 256; 1973: 427; 1981: 500; 1991: 380; Stokoe 1968: 116, 121; Palmer 1971: 67).

Stevens (1947: 47) has suggested that although there is no scientific way to determine the relationship between gross and net tonnage, there is a general rule that the approximate proportions of gross to net tonnage is about 3:2.

Other Tonnage Measurements
There are many other tonnage terms and measurements used. Lightweight tonnage refers to the tonnage of the ship itself, machinery such as the engines, boiler, and boiler water. Displacement tonnage refers to the weight of the water displaced by a particular waterborne hull when loaded to its load draught (line of maximum allowed immersion). Deadweight tonnage refers to the number of tons a vessel can have loaded before she reaches her load draught (Pursey 1952: 5, Lloyd’s of London 1959: 256; 1973: 425; 1981: 493; 1991: 373, 374, Eyres 1980: 4). Under deck tonnage refers to the volume (cubic capacity) of space enclosed below the tonnage deck (Lloyd’s of London 1981: 507; 1991: 385). Modified tonnage refers to vessels designed to “run in service at a load draught which is much less than that allowed by the Load Line Rules,” and upon classification becomes known as Alternative tonnage (Stokoe 1968: 121-122). It should also be noted that while tonnage is a useful measurement, the institution of load lines, which vary according to a range of variables, such as water salinity and season, of which there is now an international convention (1966) on came to be the more accurate and widely used standards in the proper loading of materials on vessels (Cockcroft 1983: 333, 337-343). Eyres (1980: 308-311) also refers to “British tonnage.”

McCarthy (1996: 137 footnote 1) has also noted that while “tonnage” is often cited in historical records, which one of the specific types of tonnage that this represents is not often specified.
Section 4: Design

Decks:
This field contains the number of decks recorded on a particular vessel and besides having historical interest was recorded for possible identification aspects.

Stern:
This field contains the type of stern (aft or back section) configuration of a particular vessel. Once again, this was seen as an aid in the identification of remains suspected as abandoned and a source for the marrying of historical details to archaeological remains. The list of stern types is listed below and is adapted from descriptions of stern types seen in Australian Customs House Records and supplemented with information from other sources.

1) Counter: Refers to a stern where the portion between the knuckle and the waterline overhangs the rudder. Also known as a fantail stern type (DeKerchove 1961: 180; Kemp 1988a: 208)

2) Cruiser: Refers to a stern type where the underwater surface close to the stern is broad and nearly flat, leading to a conical surface which inclines forwards towards the vessel's bow. The cruiser stern gives certain advantages in buoyancy, stability, deck room, propeller efficiency, and better protection to propellers when berthed. A variation of the cruiser stern is known as the spoon stern or canoe stern (DeKerchove 1961: 188, 767). Pursey (1959: 118) considers the cruiser stern a “continuation of the main part of the hull” and adds that they are defined by their extension “below the load water line, but above the light water line” (supported by Stokoe 1968: 85). Cruiser stern type is found mainly on ocean-going vessels (Eyres 1980: 224).

3) Elliptic: Described as almost an opposite to the cruiser stern with a conical shape emerging from the knuckle of the stern upwards and outwards, away from the bow. Some sources cite elliptic sterns as the same as the round stern type (see DeKerchove 1961: 258), although Paasch (1978: 97) includes separate entries for both. Pursey (1959: 116) also relates the term “elliptical stern” to the term “ordinary stern.” Vessels in the ANAVD have been found described as both round and elliptic. Elliptic and round sterns have been noted as the preference...
of build in sailing vessels because they avoid the snagging of aft sheets and therefore, avoids tearing and damage occurring to sails (O'Reilly 1999: 53). Rounded stern vessels were also better on deep-sea routes, and are more often found on schooner-rigged vessels (O'Reilly 1999: 134-135).

4) *Half-round:* A stern configuration not reflected in descriptive treatises on ship design and construction. One candidate described in its Australian Custom House Register (Sydney: 81/1886), that of the iron paddle steamer *Barwon* (1886 – 1938) built at Moama, New South Wales, Australia has been recorded.

5) *Oval:* A stern configuration only noted in reference to Australian Customs House Registers (Fremantle: 7/1874 and 12/1874) of the wooden cutter *Scud* (1874 – 1878) built at Fremantle, Western Australia, Australia and the wooden cutter *Dania* (1874 – 1886) built at Vasse, Western Australia, Australia. This description appears to be a discrepancy attributable to a variation in recording ship construction details in Western Australia.

6) *Round:* see Elliptic.

7) *Round-Counter:* Apparently a hybrid of both the round and counter stern types. This type is only seen in the Australian Customs House Register (Adelaide: 9/1913 and Melbourne: 3/1921) of the iron barque *Moe* (1876 – 1931) built at Liverpool, England, United Kingdom.

8) *Semi-elliptic:* This type of stern is only described in the Australian Customs House Register (Newcastle: 12/1874) of the wooden brigantine *Transport* (1865 – 1888) built at Pt. George, Annapolis, Nova Scotia, Canada.

9) *Sharp:* Refers to a “pointer” stern of triangular cross-section. The sharp stern has certain advantages in its cheapness to build, best longitudinal balance at sea and greater comfort in bad weather, although it does not provide good buoyancy, deck space, or room below deck. Also called a lifeboat stern or whaleboat stern (DeKerchove 1961: 714)

10) *Square:* Is used to describe a stern where all sides of the stern’s counter runs perpendicular to the longitudinal axis of the vessel. Also known as a flat stern or square transom stern (DeKerchove 1961: 291, 771, and see Paasch 1978: 59). O'Reilly (1999: 53) has written that this type of stern was sometime built because of advantages that it provided in relation to buoyancy. It is also noted that in wooden sailing vessels, square sterns were sometimes a problem because aft sheets could sometimes snag.
Straight: This type of stern is only noted in reference to the composite paddlesteamer *Arcadia* (1903 – date unknown) built at Goolwa, South Australia, Australia. Although possibly an error in the description of the vessel (it is also noted as having a straight stem), it is equally possible that as the vessel is a paddle steamer, that both ends were straight.

Unknown: Applies to vessels were the configuration of the vessel is not known, or has not been recorded.

Budget: Kerr (1998: 8) uses the term in relation to vessels designed like Thames barges in Tasmania. No reference to this term was found during research into the ANAVD.

Tuck: Kerr (1998: 8) uses the term in relation to vessels designed like Thames barges in Tasmania. No reference to this term was found during research into the ANAVD.

Build:

This field contains the build type of a particular vessel, where “build” generally can be defined as the method of planking in wooden vessels or the shift of butts in ferrous-hulled vessels. The type of build in the configuration of plates and planks is a major distinction where vessel design is concerned, and affects the efficiency and longitudinal strength of a vessel (Stokoe 1968: 49-50).

1) Carvel: A system of hull build where plates or planks are flush-laid where the landing edges touch each other and do not overlap so as to create a smooth finish to the outer hull. The space between strakes is then usually caulked (often with oakum or cotton) to make it watertight. An advantage of this method is in the cleaning of the hull of marine organisms, which can more easily be scraped off due to the smoothness of the hull (see Hornell 1948: 238; DeKerchove 1961: 129-130; Palmer 1971: 6; Paasch 1978: 48; Kemp 1988a: 143; Kerr 1993: 146). O’Reilly (1999: 53) has also noted that carvel built wooden sailing vessels were easier to repair, and were stronger. In the case of welded ferrous hulls, it is often referred to as “flush welded” (Stokoe 1968: 51).

2) Clincher: Also known as clinch planking, clench planking, lap planking, clinker construction and lapstrake construction. A clincher built vessel is one where each plank or plate (besides the lowest, or garboard strake) overlaps the highest
edge of the strake below it. Traditionally, clincher construction is seen to predominate in traditions of small boat building. This can be attributed to the increased friction brought about by the greater wetted area, which creates resistance to the opening of seams along planks in summer (see Hornell 1948: 238; DeKerchove 1961: 152-153; Palmer 1971: 6; Paasch 1978:51; Kemp 1988a: 172; Kerr 1993: 146). Additionally O'Reilly (1999: 19) notes that clincher construction was employed to support the wide breadth of a vessel. This technique is cited as not used often in ferrous-shelled vessels (Stokoe 1968: 50). Marsden, in his analysis of ancient vessel remains in the United Kingdom, has noted that there are examples of “reverse clinker” construction in which the sequence of overlapping strakes is reversed (lower strakes overlap the upper) citing archaeological evidence from a late sixteenth century vessel from Morgan’s Lane (Marsden 1996: 18, 31). While this is significant because it may indicate that a vessel is built “upside-down” (from gunwale to keel) it has not been included in the ANAVD because it has not been found in any archaeological investigation or historical research carried out.

3) **Clincher (in and out):** A rare form of build, often used on riveted ferrous-hulled ships (Stokoe 1968: 50). This type is not often listed on historical records, and is only discernible from the archaeological remains of fairly intact vessels. This form of clincher build entails the overlapping of planks or plates in an alternate fashion with one plate being located inside of both the plates on each of its sides, rather than overlapping on one side and being overlapped on the other. This type of build for instance is noticed on the remains of the steel barque *Garthnèll* (1895 – 1935) built at Glasgow, Scotland, United Kingdom.

4) **Clincher and Carvel:** A rare form of build, but one listed in the Australian Customs House Registers is a combination of the two main forms of build type. In the database it is only represented by two vessels – the wooden sailing ketch *Wild Duck* (1851 – 1888) built at Brisbane Water, New South Wales, Australia, and the *Red Wing* (1850 – 1892) built at D'Entrecasteaux Channel, Tasmania, Australia. Where each type of building technique has been actually used (i.e. in the upper or lower portions of the hull) is unknown from the historical record. While this technique stretches back as far as the “Bremen Cog” and Henry V’s *Grace Dieu* (1418 – 1434) it is also recorded as having been used in fishing vessels from
Spencer Gulf, South Australia in the early to mid twentieth century (Johnstone 1974: 130, Kerr 1993: 146).

5) *Unknown*: Where the form of build is not listed, or is not discernible.

**Gallery:**

Kemp (1988a: 335) describes a gallery as a “walk built out from the admiral’s or captain’s cabin in the larger sailing warships” similar to a sternwalk, while DeKerchove (1961: 322) describes galleries as obsolete structures constructed like “[b]alconies over the stern of ships with access from the stern windows.” This field contains data that relates to gallery descriptions noted in Australian Customs House Registers:

1) *Bridge*
2) *False*
3) *None*
4) *Sham/Mock*
5) *Quarter*

No reference to these descriptions were found during research, and are currently unidentified. For this reason this list cannot be expected to be comprehensive. Indeed, it is expected that the terms “Sham/Mock” and “False” belong to the same category.

**Head:**

This field contains the head type at the bow of a particular vessel (for an expanded history see de L. Marshall 1994). A list and description of head types is included below:

1) *Bluff Bowed:* Kerr (1998: 8) noted this term in relation to Tasmanian vessels designed along British lines. The term does not seem to be used often and seems to be a general description of the bow’s shape.

2) *Billet:* Refers to a vessel with no figurehead, and where the end of the head forms a fiddle-shaped scroll, which turns inward and aft. Sometimes referred to as billethead fiddle-figure head or fiddlehead, and often-used in reference to the termination of a clipper bow (see below) (DeKerchove 1961: 64; Kemp 1988a: 300 and see Paasch 1978: 18).
3) **Clipper Bow:** Refers to where the bow of a vessel makes a concave slant out of the water, as in the sharp rake of a clipper ship, which often terminates in a billethead. Also called a clipper stem, fiddle bow, cutwater bow, knee bow and overhanging bow (DeKerchove 1968: 153; Paasch 1978: 437; Kemp 1988a: 172).

4) **Common:** While no description to this type of stem-head has been seen in an archaeological context it has been found to describe the configuration of the wooden schooner *Crinoline* (1863 – unknown).

5) **Convex Elliptical:** Despite this term being used to describe the steel hulled single screw motor vessels *H.A. Lamb* (1943 – 1994) and *Karoola* (1947 – 1974), no description has currently been located.

6) **Curved Stem:** This term was used to describe the steel hulled screw steamer *Koi 2* (1929 – 1974) and the wooden sailing vessel *Violet* (1881 – unknown). No definition has been found so far.

7) **Cutter:** Used to describe the Thai-built vessel *Kate* (1871 – 1906), this term apparently has no official definition.

8) **Cutwater:** The term “cutwater” refers to “A term used in modern parlance to denote the forward edge of the stem, at or near the waterline. Also called the false stem. In wooden ships it referred to a timber of the knees of the head fayed to the stem above the gripe” (DeKerchove 1961: 194). This term has only been found in one example, the wooden ketch *Fleetwing* (1867 – 1915).

9) **Double Ended:** A “double-ender,” or “double bowed” vessel refers to a boat with a sharp stem and similar lines either end, or a vessel where both ends are the same so as to facilitate motion in both directions (DeKerchove 1961: 234-235). Because of this, the term may refer to a range of configurations described above where both ends are the same, usually where the stem and stern of the vessel are straight (Graeme-Evans and Wilson 1996: 14).

10) **Fiddle:** Referred to as a “substitute for the traditional figurehead in the form of a scroll. It is generally called a fiddle head when the scroll turns outward (evolute) and billet head when it turns inward (involute)” (DeKerchove 1961: 279).

11) **Figure Head:** Refers to the ornamental carved, and often-painted figure traditionally placed adjacent to the head of a vessel, usually underneath the bowsprit (DeKerchove 1961: 279-280; Paasch 1978: 18, Plate 9; Kemp 1988a: 302-304). A figurehead is probably the most obvious denotation of the symbolic meaning imbued in watercraft, with the figurehead most usually associated with
the name of a vessel or associated with some desired function or ability. The advent of steam and the changes in vessel design that accompanied it meant the end of the figurehead. Common figureheads include gendered busts (full or three-quarter length) and animal busts.

12) **Flare Bows:** Flare bows refer to where the sides of a vessel towards the front and in the upper strakes flare out giving the vessel increased breadth, allowing the water to be thrown away from the ship rather than coming over the bow. Also known as “flare out bows” (DeKerchove 1961: 290; Kemp 1988a: 314).

13) **Medallion:** A type of figure head, generally a “small, medal – like representation on the vessel’s bow of a person or design” (de L. Marshall 1994: 6, Matthews 1998: 112).

14) **None:** According to some Australian Customs House registers there were certain vessel with no head. This does not, of course mean that the vessel lacked a stem, but rather that the vessel did not carry figure head, or any ornate work and did not have a racking, clipper type stem configuration. It is not sure whether this means that such vessels were swim-headed, or simply lacked an ornate aspect to its bow.

15) **Overhanging Bows:** An unknown description used to classify a number of diverse types of vessel included in the ANAVD.

16) **Plain:** An unknown designation for a number of sail and steam vessels in the ANAVD. May refer to vessels with undecorated, straight or swim-heads.

17) **Punt:** A title used for the steel twin screw motor vessel *Norwhale* (1943 – 1968), but not described in any found source.

18) **Raked/Raking Stem:** Defined as, “A straight stem having a forward rake or extending beyond the forward perpendicular” (DeKerchove 1961: 633). This type of stem is noted for reducing damage underwater if there is a collision, while also providing additional streamlining to the vessel, increasing buoyancy, and seaworthiness.

19) **Schooner Bow:** Moore (1970: 252) describes “schooner bow” as, “an overhanging bow with a curved raking stem, concave forwards, such as is usual in schooner yachts.”

20) **Scow Bow:** No description to this type of bow was found during research. However, this type of bow was mentioned in relation to two wooden screw

21) **Scroll**: Often described as the opposite of a billethead, a scroll (or scroll head) is an ornately curved piece of timber attached to the head in the place of a figurehead. It is distinguished from a billethead by the outward turn of the scrollwork (DeKerchove 1961: 692).

22) **Scroll and Shield**: As definition of “Scroll” with the addition of an ornate shield. A common designation (De L. Marshall 1994: 8).

23) **Sharp bow**: The only reference to a vessel having a sharp bow is in the case of the wooden paddle steamer *Britannia* (1902 – 1961) built at Moama, New South Wales, Australia. The term “sharp bow” has not been found in any other historic literature pertaining to ship design.

24) **Shield**: An ornate figure that resembles a shield.

25) **Spoon/Shovel Bow** – While not reflected in the ANAVD a spoon or shovel bow refers to “A bow, with full round sections, the shape which bears a general resemblance to the bowl of a spoon. It is mostly found on yachts, and on stern-wheel steamers designed for shallow river travel” (see DeKerchove 1961: 767).

26) **Square**: A head configuration used to describe the wooden side wheel paddle steamer *Barangaroo* (1889 – 1932) but not defined in historical documentation.

27) **Square Scow**: Designation used to describe the wooden stern wheel paddle steamer *Waterlily* (1880 – 1908), but not found in historical documentation.

28) **Stem**: A reference to the wooden upright post in a vessel. In reference to head configuration, true meaning could not be located, but was a common designation. The term may instead refer to “straight stem” (see below).

29) **Straight Stem**: Refers to a stem that is wedge shaped and raked in a straight line or is perfectly perpendicular to the waterline. Also called a “straight bow” (DeKerchove 1961: 796).

30) **Swim**: A swim-headed vessel refers to a vessel with no stem, similar to the front of a punt where the front of the vessel whether purely vertical or raking towards the stern is totally flat and quite broad (see Moore 1970: 148; Kerr 1998: 8). Effectively, all of the other categories with the exception of “none” can be termed “stem-headed.”

31) **Unknown**: Used in conjunction with vessels of no registration documentation, or where the documentation neglects to note the configuration of the head.
**Bulkheads:**
This field contains numeric data on the number of bulkheads of a particular vessel. Bulkheads are best described as internal vertical structural elements that extend either longitudinally or athwartships, effectively compartmentalising the vessel for the purposes of strength and safety. Major bulkheads extend the length or breadth of the vessel but are made watertight by extending from floors to weather deck, sometimes with access doors. A collision bulkhead is often placed in the fore part of a vessel in order to seal a vessel in the case of a collision (DeKerchove 1961: 103, Paasch 1978: 44, Kemp 1988a: 117). As the vessels in this study are often greatly salvaged, the number of bulkheads is a major diagnostic element used in the marrying of surveyed archaeological remains and historical sources.

**Water Ballast Tanks:**
This field contains numeric data on the number of water ballast tanks of a particular vessel. The evidence of ballast tanks upon a vessel can be seen as a diagnostic tool for the identification of watercraft remains. The use of water as ballast means that ballast tanks that can be filled and emptied according to load requirements. This dates from 1884 when the French introduced water ballast tanks (Weski 1998: 22). Before this solid ballast of a range of types was carried in order to weigh and balance the vessel by way of adjusting its trim and making it ready for a voyage (DeKerchove 1961: 36-37, Paasch 1978: 415, Kemp 1988a: 55-56).

**Section 5: Function**

**Function:**
The intended purpose of vessels indicates to some degree the commencement and health of particular economic niches and trades. For the purposes of this study, a list of functional purposes was adapted from Coroneos and McKinnon (Coroneos 1997: 31, Coroneos and McKinnon 1997: 21). This system allows for analysis of the data by thematic category, larger purpose, or specific type.

Defining vessels for the purposes of quantitative analysis is dangerous, because while a vessel may predominantly fulfil on function, it may have also fulfilled a range of ancilliary
functions that are not likely to be reflected in the available histories of that vessel. Nevertheless, there are a few general categorisations that can be used in looking at function. Stokoe (1968: 1), for instance defines passenger ships as “one which may accommodate more than twelve passengers.”

**Working Environment:**
The environment in which the vessel was intended to be operated in is of great relevance as it dictates the suitability of a design of vessel to a particular place (ie/- at sea or on inland waterways).

**Section 6: Modification**

**Date of Modification:**
This field contains the year of a previous modification of a vessel. A modification will occur to a vessel if that modification makes it more suitable to a trade, and if the owner sees that vessel making more money in that new function. Modification, often seen in the lengthening, deepening, or broadening of the vessel, and sometimes in a reduction to dimension is of a major expense and is therefore, an important indicator of economic status and climate.

**Propulsion:**
This field contains the previous propulsive means of a particular vessel. This field is linked to a table containing the same data as is seen in the propulsion field. Additionally, the term N/A (not applicable) is used to describe vessels that have not been modified.

**Masts:**
This field contains the previous number of masts of a particular vessel. If the number is 0 and not referenced it refers to a vessel that was not modified. If 0 and referenced, then the vessel previously did not have a mast.

**Hull Type:**
This field contains the previous hull type of a particular vessel. This field is linked to a table containing the same data as is seen in the hull type field. Additionally the term N/A (not applicable) is used to describe vessels that have not been modified.
Gross Tonnage:
This field contains numeric data on the previous gross tonnage of a particular vessel. If the number is 0 and not referenced it means that it was not modified. If 0 and referenced, then the vessel previously did not have a mast.

Net Tonnage:
This field contains numeric data on the previous net tonnage of a particular vessel. If the number is 0 and not referenced it means that it was not modified. If 0 and referenced, then the vessel previously did not have a mast.

Length:
This field contains numeric data on the previous length dimension of a particular vessel. If the number is 0 and not referenced it means that it was not modified. If 0 and referenced, then the vessel previously did not have a mast.

Breadth:
This field contains numeric data on the previous breadth dimension of a particular vessel. If the number is 0 and not referenced it means that it was not modified. If 0 and referenced, then the vessel previously did not have a mast.

Depth:
This field contains numeric data on the previous depth dimension of a particular vessel. If the number is 0 and not referenced it means that it was not modified. If 0 and referenced, then the vessel previously did not have a mast.

Section 7: Secondary Use

The term “hulk” for the purposes of this thesis refers generally to any vessel traditionally known as a “dumb vessel.” The definition of a “dumb vessel” is any vessel that has never had propulsion, or was converted so that it has no means of propulsion (Blackburn 1978: 132, 205). However, within a descriptive list of “hulk types,” the term has its own specific meaning (see below).
Was Vessel Hulked?:
This field contains data on whether a vessel was hulked or not.

Hulk Type(s): (2 fields)
These fields contain data on the types of hulk or the specialised purposes as hulks that a particular vessel fulfilled. It is linked to a table containing the following fields (interim data): There are five major classification descriptions where this field is concerned:

1) Barge: Barge is a term of many diverse descriptions. Originally, it is believed to denote the rig of a ship similar to that of the “Barque”. It has also been known to be used in relation to ceremonial vessels (such as “state barge”), the second vessel of a British warship and a range of regional vessel types such as the British Thames Barge, Hay Barge, Topsail Barge and the Dutch Barge (Blackburn 1978: 31-34, Kemp 1988a: 59-60). A further complication, as already mentioned arises in that the classification for the rig “ketch” in Tasmanian registration systems was traditionally “barge.” For the purposes of this study, a barge is considered a “dumb vessel” and seen characteristically as a square planned, single decked, and often hard-chined vessel used in the transportation of goods or materials around port. In such a function barges are most commonly identified as the vessels towed behind river steamers on the Murray-Darling River system (Parsons 1983d: 5). For the purpose of marine insurance, a “dumb barge” is listed as referring to any barge without any means of motive power (Stevens 1947: 36, Lloyd’s of London 1981: 494; 1991: 374, Parsons 1983d: 5). There is one case of a vessel, the iron motor vessel Pelican (1880 – 1971) being described as a “motor driven barge” in the ANAVD, which does not fit any normal system of classification. In the case of all vessels listed as a barge and being obviously unrigged, the term “dumb barge” or “general barge” has been used in the ANAVD.

2) Hulk: The term hulk has traditionally meant many things. Originally, it was used to denote a large cargo ship similar to a carrack. Later, it was used to describe a large awkward vessel with a round stern and in the eighteenth century, and used as a general means of describing the hull of any ship (Blackburn 1978: 174; Kemp 1988a: 406). For the purposes of this study, a hulk is a vessel, no longer insured for or engaged in an active trade, but instead fulfilling a secondary, support
function. This function sees it as a stationary vessel, either afloat or beached and used in either the storage or transportation around port of goods. Another term traditionally used in the place of “hulk” is that of “receiving ship” where a vessel became a barrack in a navy port (Blackburn 1978: 281).

3) **Lighter**: A lighter is generally considered a vessel with no means of propulsion that is used to carry cargo from ship to shore and vice versa (Blackburn 1978: 205; Kemp 1988a: 482). For the purposes of this study, a lighter is a vessel no longer insured for or engaged in an active trade, but instead fulfilling a secondary, support function. This function sees it as a floating vessel used similar to a barge where it is towed behind another vessel. A lighter can be distinguished from a barge because its hull shape is often more suited to offshore activity and it may have multiple decks, as well as deck space that can be used. There are some exceptions to this rule. For instance, vessels described as “hoppers” which are towed and used in the transportation and dispersal of dredged silt (Blackburn 1978: 170) have not been categorised as lighters, but fully functional (primary support) vessels. Other complications within the database arise through the listing of vessels such as the wooden steamer *Nirimba* (1895 – 1945) and the wooden screw steamer *Myall River* (1912 – date unknown) as “steam lighters,” and the steel screw steamer *Centipede* (1913 – 1990), the iron paddle steamer *Samson* (1865 – 1915) and the iron screw steamer *Alexandra* (1863-1906) as “motor driven lighters.”

4) **Pontoon**: A pontoon is a vessel with only one deck and no hold, often used as a platform of some sort or within the same general function as a barge. There are many adapted functions of a pontoon, although every variation is somewhat similar, and usually entails a flat bottomed, platform like vessel used in a support function (see Blackburn 1978: 263; Kemp 1988a: 659).

5) **Specialised**: A vessel, not fitting into any of the above categories, but seen as fulfilling a unique secondary role such as use as a bridge, or bathhouse.

*Was the vessel a customised hulk?*

This field concerns whether a vessel was built for a purpose akin to that which vessels are hulked for.

*Date Hulked:*
This is the date in which a particular vessel was “hulked” or converted for secondary support function. In the case of a vessel built for hulk like purposes, the hulking date equals the build date.

_Hulk Tonnage:_
This field contains numeric data on the recorded tonnage of the vessel as hulk. This indicates whether there was substantial amendment made to the hull that caused a reclassification of its tonnage according to an increase or decrease in overall capacity.

**Section 8: Time and Location**

_Graveyard Name:_
This field contains the name of an accumulation of abandoned vessels that a particular vessel may be a part of (i.e. a ships’ graveyard name). This field is linked to a table containing the ships’ graveyards in Australian waters defined before, or during this study.

_Location:_
This field contains the geographical naming details of the location of a particular vessel. It is linked to a table that contains the place of abandonment, and Australian state of abandonment, giving the abandonment location and/or the location of a particular ships’ graveyard.

_Environment:_
This field contains whether a vessel was abandoned in a riverine or marine environment. In this way, an analysis of the cross-section of the types of vessels operating in a given region can be established.

_Port of Departure:_
This field is linked to a table that has within it the major port from which the vessel travelled from in order to be abandoned.

_Year Abandoned:_
This field contains numeric data of the year that a particular vessel was abandoned.
**Date Min./Date Max.:**
This field contains two sets of dates outlining the period within which a particular vessel was abandoned. This is required because although the year of abandonment is often known, unlike most shipwrecks, the specific time, date and month may not be known.

**Section 9: Abandonment Method**

**Salvaged:**
This field contains data concerning whether a particular vessel is recorded as being salvaged at some stage for scrap and fittings.

**Dates of Salvage:**
This field contains data concerning the dates when material was salvaged off a particular vessel.

**Reason for Discard:**
In order to assess the pressures that lead to the abandonment of a particular vessel, a tentative reason list has been created. There are five “themes” within this list.

1) **Technological:** The innovation and wholesale adoption of new technologies on a range of levels has demonstrable effects on vessels representing old methods. This normally makes a vessel obsolete.
2) **Condition:** The effect of age and wear and tear may culminate in the decision to abandon a vessel.
3) **Economic:** Historic events such as the Great Depression or the failure and economic downturn of particular trades and industries disappearing.
4) **Unknown:** Where there is no historically mentioned reason.
5) **Crime:** The abandonment of vessels as a criminal act, either from a mutinous crew, or as an attempt as marine insurance fraud.

**Use (post-discard):**
The abandonment of a vessel for a particular purpose appears to be common behaviour and is shared between many candidates. There are a number of themes pertaining to this:
1) **Structural**: In many cases vessels have been sunk for use as underwater, intertidal or dry structures such as artificial reefs (underwater), breakwaters (underwater and intertidal), piers, and mooring markers. Often vessels have also been used as a means of beginning, speeding up, or increasing reclamation efforts in order to fill in waterways that are to be used for other purposes.

2) **Storage**: A variation of the structural theme, often vessels have been abandoned to be used as storehouses in order to allow easy storage and transportation of goods of a particular type (such as explosives) to and from water borne transport.

3) **Other**: In certain isolated cases, vessels have been abandoned for special reasons, such as movie props and dive training facilities.

4) **Unknown**: Used for vessels of unknown post-abandoned use.

5) **Military**: Often vessels have been chosen for the explicit purpose of providing the military with a target upon which to test its crews or weapons.

6) **Salvage Only**: In a large number of cases vessels have been beached in order to obtain raw materials from them.

**Means Abandoned:**

The place of abandonment can be communicated in many ways. As well as spatial co-ordinates, another important factor is where the vessel was placed in relation to tidal height. In many cases, this is done according to the intended purpose of the vessel after its abandonment, such as in the case of requiring access to the hull to salvage materials, or it is done in relation to the costs associated with the transportation of a vessel to deep enough water in order to sink it. There are only really two forms of abandonment from the perspective of disposal; where the vessel has been run aground before being modified in order to make it unable to displace water and float, and the opening of a vessel at sea in order to sink. The later method describes here is generally known as “scuttling a vessel” which is defined as “To let water into a ship for the purpose of sinking” (Stevens 1947: 78), although it seems to be popularly understood as using explosives on a vessel at sea in order to purposefully sink it in deep water. The choices in this field are as follows:

1) **Shallow Water**: Where the vessel was abandoned in an intertidal area where it is only exposed for a portion of any given day, or can only be seen from the surface in a given season. The remains of this vessel may pose a navigation hazard.
2) **Deep Water**: Where the vessel is submerged one hundred percent of the time and is in no way a threat to navigation. It can only be impacted upon by forces acting upon it from under the water.

3) **Beached**: Where the vessel was placed so that it was highly accessible and any substantial portion would have been visible all of the time.

4) **Demolished**: Where the vessel was so impacted upon by salvage and hull minimisation that no visible archaeological remains are believed to still exist

5) **Unknown**: Where there is no historical documentation pertaining to where the vessel was placed.

One problematic aspect of this categorisation is that over time changes to surrounding land, waterway depth, or sea level will have affected the status of the vessel in relation to the tides, especially where vessels once in shallow water are now dry and where beached vessels become inundated.

**Signatures:**

This field refers to a number of placement assurance and abandonment processes.

1) **Opened**: Where there is an historical reference to the vessel having its sea cocks opened in order to facilitate sinking.

2) **Gunfire**: Where the vessel has been used in a military training exercise that meant gunfire (large calibre) was used as a primary source of it being sunk.

3) **Bombed**: Where the vessel has been used in a military training exercise where airborne bombing practice facilitated sinking.

4) **Filled**: Where there is historical or archaeological evidence that the vessel was filled with material in order to assure that it sank or was beached permanently

5) **Burnt**: Where there is historical or archaeological evidence that a vessel was burnt in order to assure its abandonment.

**Section 10: Registration & Ownership**

There are two fields specifically related to customs house registers in the ANAVD.
**End Customs Register:** This is the last date of registration in any customs house register for a particular vessel. If a vessel should happen to transfer to another registry notification is usually given of that transferral.

**Registration History:** Contains the full history of registration in particular customs house registers including name of port, number in year of registration (i.e. 13/1872 means it was the 13th vessel registered at a particular port in 1872) and the registered name of the vessel. Through the inclusion of the official number of a vessel on most records, it is then easy to track changes in registered name through the years and across ports of registry.

**Ownership:**
Mainly for historical interest and for problematic identification of similarly named candidates, the ownership section of the ANAVD lists all known owners of a particular vessel. This may shed some light on the pattern of purchase for large and small companies engaged in trade in Australia and may show the decline or rise of particular companies according to their purchases in particular vessels and particular technologies.

Section 11 Notes

**Historical Notes:**
This field contains extended discussion and historical miscellany concerning a particular vessel and relates each point to the source reference list.

Section 12: References

**Source Reference List:**
This field contains a list of sources for primary, secondary, and tertiary sources written on or referring to a particular vessel. It refers to a central reference list, contained in the references of this thesis (see Appendix 1 and Reference List)

**Photographic Reference List:**
This field contains a list of sources for historical and site photographs of a particular vessel.
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**Personal Communications**

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