



# AMATEUR BOAT BUILDERS' ASSOCIATION

December January 2013/14

## TRUE NOSTALGIA — A REAL TIMBER BOAT BUILDER'S SHED

Our December Toolbox was a visit to the Freshwater Bay Museum at Claremont, primarily to see the old boatshed that had been donated to the museum by Chris Mews, whose family home is several hundred metres along the bay near Claremont Yacht Club.



Members gathered in the pleasant surroundings of the heritage museum buildings on Victoria Avenue. The afternoon commenced with a welcome and short presentation from the museum staff on the history of the buildings.

Around 1850, the Claremont Park adjacent to the Council Chambers was set up as accommodation for convicts no longer required in other Australian colonies and who were starting to arrive in the West. Convicts were overseen by Pensioner Guards who were provided with accommodation on the foreshore at Freshwater Bay. In due course, there was a need for teachers and schools for their children. The museum premises were originally built as a school in 1862 from limestone, but it has not been possible to establish beyond doubt that it was actually built by convicts. One of the settlers, Mrs Herbert after whom the adjacent park is now named, was the first teacher. It was also a place of worship with church services for the convicts being held on Sunday afternoons.

The school closed in 1879 and the place became a Boarding House and then in 1898 it became Police Quarters in which capacity it remained until 1973. During the 1920's it was a Police Station for a short period. Following the closure by Police, it became an arts and crafts museum and since that time has slowly been developed into what it is today.

In 1996, Chris Mews donated his family's boatshed located at the bottom of his yard adjacent to the river's edge to the museum and the shed was relocated piece by piece into the larger shed which houses and protects it at the museum.

Following this introduction, we walked down the hill to the shed located closer to the waters edge where we found Chris Mews ready to capture our attention with his valuable knowledge of the past.



Chris introduced himself and observed that 'every boy has a shed' – and he had his too. This is the shed that he grew up in and which he remembers his father working in when he was a boy.

In the early days of the Swan River settlement, the river was a major transport route and water power was greatly in demand. Hence, boatbuilding was a big industry along the river, feeding the transport requirements of the community.

The Mews boat shed was built in 1900 and had a slipway running into the bay. It had no wall sheeting on one side where it adjoined another larger shed built in 1910 and demolished in the 1960's. This larger shed was used to build luggers for the pearling industry, there being many luggers regularly lost due to the lack of weather forecasting in those days. There was also a third shed to the west of the Mews boatshed which remains in place today. Until about 1960, this third shed was the residence of a survivor of the Titanic disaster who was known in the locality as Eric the Iceberg.

The Mews boat shed was originally built by George Cooper who used it for his boat building business. It was later used by Ken and Frank Saukins who built custom built wooden boats until the 1960's. As fibreglass started to take over the market, the demand for these custom built boats died out and this was the last working boat shed on the river to close its doors.



Chris Mews' great great grandfather came out to Australia on the ship Rockingham and brought many of the tools that are now on display in their working environment. Chris moved around the boat shed describing the origins and purpose of many of the items on display including the old tools in the collection.

He started with the large winch which had originally been mounted outside the end wall of the shed and was used to winch vessels up the slipway and into the shed. There was also a large hand operated stone wheel with a water bath for grinding tools prior to sharpening on an oil stone. The 'office' was a small desk in the corner of the shed complete with an original typewriter.



There was a 110 volt drill press which Chris's father had obtained from the American sailors during WWII in exchange for a bottle of Whiskey, augers for every boat building purpose including boring through deadwood for keel bolts or propeller shafts.

A particularly interesting piece was a pitch ladle used for melting pitch crystals and pouring them into deck seams before the advent of silastic and the like. Then there was a shipwrights adze used to shape the larger timber components to fine dimensions when in the hands of experienced operators. A large collection of copper nails was also on the bench and Chris pointed out that square copper nails were used so that they would remain tight in the round drilled hole – the origin of the saying 'a square peg in a round hole'.



The major space within the boat shed was taken up by a clinker planked timber tender of the type that would have been built by the original boat building Cooper family and which Chris explained were used universally to access boats that were all on moorings prior to the time that jetties and marinas became the norm. There was also a late 1950's Fisherman model Seagull outboard that had reliably served the Mews family but still looked in remarkably good condition.



Overhead there were a number of spars and oars stored in the timber roof truss. Also stored here was a large pole with a blade on the end something like a flensing knife. Chris explained that his family established their first boatshed at Bathers Beach at Fremantle in the mid 1800's. This boatshed was adjacent to the first whaling station established in WA. The implement referred above was used during the 1840's to kill sharks that followed the whales in to the beach at the whaling station. Also associated with the whaling of that era was a pair of whale boat oars, also stored in the roof truss.



Chris closed by showing us a set of 100 year old Marples caulking irons and a caulking mallet which belonged to his grandfather. Apart from their sentimental value and the difficulty in procuring them if required, Chris has not donated them to the museum as he is currently restoring a Sambraillo timber launch and expects that he may need to use them again from time to time.

We thank the Freshwater Bay Museum Manager & Curator, Mona Numann and her staff for making the arrangements with Chris Mews and a special thank you to Chris for taking time out of his weekend to talk us through so much of the hidden history of the boatshed which he is so uniquely positioned to do. His knowledge of boat building times long past was most appreciated.

## December Technical Meeting—Practical Basic Boat Electrics

Our speaker for our last meeting for 2013 was member and committee man Rob Bingham who addressed us on 'Practical Basic Boat Electrics'.

Rob commenced by asking "Where shall we start?" – a signal that the subject is clearly wide in its scope and the results of 'getting it wrong' are substantial.

So Rob started with an explanation of Ohms Law which is basic but very important theory that provides the fundamental guidance for amateurs.

Ohms Law  $V = I \times R$  and  $P = V \times I = I^2 \times R$

where  $V$  is the voltage in volts       $P$  is the power consumed in watts  
 $I$  is the current in amps       $R$  is the resistance of the conducting circuit in ohms

The most important outcome of Ohms Law in wiring our boats is to size the wire so that the resistance does not result in undue heat buildup in the wire for a fixed voltage (12 or 24 in our case). Rob drew a parallel between what happens to the current in electrical circuits where wire size is too small and what happens to the water flow when you stand on the hose. In the electrical case, this will also be impacted by the voltage selected for the electrical system. A 24 volt system has the advantage of limiting the volt drop between the batteries and the powered device for a given wire size but may need a 24 to 12 volt converter as the availability of common pleasure craft marine equipment in 24 volt is somewhat limited. Alternatively, an inverter may be used to convert the 12 or 24 volt supply to 240v alternating current. In this case, a check on the output wave form of the inverter is recommended. A smooth wave form is required to operate 240 volt equipment satisfactorily.

Rob then described the approach to boat wiring as summarized in the following key points;

- develop an inventory of all the electrical equipment on the boat
- list the rated power of each and calculate the current using Ohms Law - you know the voltage of the battery supply (V-volts) and the power from the appliance nameplate (P-watts), so calculate the current (I-amps).
- add a 50% safety margin to the current
- as a rule of thumb and to check the calculations, for current up to about 16 amps, the required wire cross section in square millimeters ( $\text{mm}^2$ ) will be about 10% of the current in amps.
- for this purpose Rob provided members with a selection table of available wire cross sections
- in selecting the correct wire, consideration also needs to be given to others factors which affect the condition of wiring over time – type of insulation and fatigue
- all wiring in the marine environment should use tinned copper wire to avoid corrosion
- the most appropriate insulation is PVC which will withstand up to 120<sup>o</sup> C but silicon insulated wire may be used for higher temperature applications. Rob also made note of Kapton wire used in some aircraft (Editor note - a Google search to check the spelling of Kapton reveals that there are major issues in the aircraft industry regarding the use of Kapton)
- wire should be selected in a range of colours to assist circuit identification or if similar colours are used, wiring can be labeled using Dymo labels or paper labels under clear heat shrink sleeves
- wire is available from normal marine suppliers or specialist suppliers such as Jacar Electronics <http://www.jaycar.com.au> or Altronics <http://www.altronics.com.au>

- when running the wiring, it is important to avoid stress points that may promote fatigue and to ensure that wiring is not subject to damage due to rubbing on other surfaces. Wire can be run using spiral wrap plastic or similar split down the middle and supported with cable ties or by use of mini cable duct with adhesive backing.
- once the wire is run, it is important to use the correct terminal for connection to switchboards and powered equipment. The most commonly used are the crimp type and the rollover type which are soldered and crimped (F Crimp type). Both these tend to allow moisture ingress. An alternative is to use heat shrink type where the adhesive seals the joints. In all cases, it is recommended that the correct crimping tools be used for the terminals selected. Rob provided a selection of his tools on the night for members to examine

Strand Dia. (mm)	No. of Strands	Conductor Area (mm <sup>2</sup> )	Rated Current (Amps)
0.12	10	0.11	1.1
0.16	7	0.14	1.4
0.14	1	0.02	2
0.14	14	0.22	2.2
0.2	7	0.22	2.2
0.6	1	0.28	2.8
0.7	1	0.38	3.8
0.2	14	0.44	4.4
0.25	10	0.49	4.9
0.12	50	0.57	5
0.12	60	0.68	6.8
0.1	89	0.70	7
0.2	24	0.75	7.5
0.2	30	0.94	9.4
1.13	1	1.00	10
0.2	32	1.01	10
0.05	512	1.01	10
0.5	7	1.37	14
0.25	30	1.47	15
0.25	37	1.82	17
0.3	26	1.84	17
0.32	26	2.09	19
0.25	50	2.45	22
0.67	7	2.47	22
1.78	1	2.49	22
0.127	252	3.19	29
0.32	41	3.30	30
0.12	315	3.56	30
0.12	630	7.13	61
0.12	1666	18.84	110
0.3	364	25.73	200
0.32	170	13.67	116.228864
0.4	38	4.78	40.59464

Rob's presentation then moved on to other elements that need to be considered in designing and installing electrical systems in boats.

### Circuit Protection

Installation of circuit breakers in preference to fuses is recommended. Rob noted that allowance needs to be made for short but high current draws at startup of electric motors. By way of example, a 20 watt motor may have a short term draw of up to 100 amps at startup. For this reason it is recommended that electric motor driven equipment be mounted as close as possible to the battery power source.

### Switches and Relays

High current devices (20 to 30 amp draws) cannot be switched via simple toggle type switches which will not accommodate these size currents. In these situations, there will be a need to use a relay device wherein a small current run via the toggle switch will activate a magnetic coil 'relay' that switches the larger current into circuit.

## Batteries

It is important to select the correct type of battery for marine use – usually lead acid and can be of the maintenance free type which will withstand the pounding and vibration common in boats and are even tolerant of a sinking. The normal auto battery or ‘float discharge ‘ battery is generally not most suitable for marine applications as it is designed for quick starts which result in small discharges and then immediate recovery to full charge. The most suitable battery for marine applications is the deep cycle type which is designed to maintain close to full voltage for a drawdown of up to 80%. However, charging of batteries must be maintained as leaving batteries in a flat state is one of the major factors in shortening battery life.

In selecting a battery size, reference needs to be made to the maximum current draw available from the battery and the length of time the battery will perform before needing a recharge. These parameters are specified by the CCA (Cold Cranking Amps) or the amount of current draw that a battery will deliver at  $-18^{\circ}\text{C}$  for 30 seconds whilst maintaining a voltage of at least 7.2 volts (for a 12 volt battery); and the Ah (Amp hours) of the battery, being the number of hours the battery will deliver a 20 amp current before being fully discharged.

Batteries can be charged using mains power, engine generator/alternators, aero (wind) generators or solar panels. Mains power chargers used to be of the transformer/rectifier type but have now been replaced by ‘smart chargers’ with built in microprocessors that monitor and adjust the charging process as the battery advances towards full charge. In this case, it is recommended that a thermistor protective attachment be plugged into the charger and onto the negative terminal of the battery to protect against overheating which may be caused by a defective battery cell.

## Lighting

The preferred option for lighting on boats should be LED’s which consume only 25% of the power for the same light levels. These are available most economically via mail order (Rob noted the LED Shop in Queensland [www.ledshoponline.com](http://www.ledshoponline.com) as one source of supply). Fluorescent fittings are also an option as they use only 50% of the current of a similar incandescent fitting.

## Protection of Equipment

For most boating applications there is a need for equipment to have a ‘protection of equipment against harmful ingress of water’ rating of IP\_6 in accordance with Australian Standard AS 1939. The ‘6’ denotes ‘protection against heavy seas or a strong jet of water from all practicable directions’.

In closing, Rob recommended the purchase of a cheap multi meter, available for around \$10, for inclusion in the boating toolkit.

As anticipated, Rob’s sharing of his engineering knowledge and practical experience was once again very much enjoyed and appreciated by members who had plenty of questions on the night. Thanks Rob for a very enlightening presentation on practical basic boat electrics.

---

## ADMINISTRATION NOTES

### ABBA COMMITTEE

President/Editor	Chris Davis	9387 5042
Sec/Treasurer	Bruce Cadee	9259 0844
General Committee	Rob Bingham	9246 0202
	Alun Dufty	9272 8905
	Harry Speight	9295 4518
Library	Rosemary Nayler	9455 1470

### FEBRUARY TECHNICAL MEETING

The next technical meeting of ABBA will be held at the South of Perth Yacht Club as usual, 7.30pm for an 8.00pm start on Wednesday, February 5th, 2014.

Our first Technical Meeting for 2014 will be a presentation from Dean Coxon from Jotun paints. Dean's presentation will have a primary focus on antifouling from a Jotun perspective. However, we have also asked if he can give us some insight into Jotun solutions for some of the items that require preparation before application of antifouling such as etch primers etc for metal components below the waterline. This would include propellers, skin fittings, stainless steel strapping on timber rudders and the like. Dean may also have time to touch on above waterline issues such as brushable two packs for topsides and decks and paint systems for aluminium masts.

Dean is well qualified, particularly on the practical aspects of specialist paints and their application, having amongst other things worked with Rod Busher of Exclusive Coatings for a period of time. (see the ABBA Newsletter March April 2012). He also has very ready access to senior Jotun technical staff and will seek responses to any questions not able to be addressed on the night after the meeting.

### FEBRUARY TOOLBOX VISIT

Our first toolbox visit for 2014 will be on Saturday February 22nd, 2014, between 2.00pm and 4.00pm.

This will be a visit to the Legend Boat Builders premises at 393 Frederic St, Naval Base (corner of Henry St) to inspect the 15 metre Schionning cruising cat being built by Craig Wilson. This cat is now in the final stages of construction and fit out. Some members will remember that Craig addressed us on the subject of winter maintenance in May 2007 and those that visited these same premises in October 2010 to see Brian Philips building a new H28 will remember Craig's cat in a much earlier stage of construction – the hulls and bridge deck were basically complete. And some may remember that the hulls had been cut short to allow the whole boat to be turned over in the confines of the (albeit large) workshop. We'll look forward to seeing everything in one piece this time.

**REMINDER — VOLUNTEERS NEEDED to write up the meeting & toolbox visits for the next month.**  
Please email me if you are available to assist. Remember, this helps keep the 'boat' afloat.



## **ABBA LOGO**

Members are reminded that Bruce Cadee has made arrangements with Shaun Luong of Image Embroidery at 26 Tulloch Way, Canning Vale (Phone 9456 2324 Mobile 0403 250 389) for an embroidered ABBA logo. Bruce can show you examples of the logo at Technical and Toolbox meetings. The logo can be applied to your own clothing (assuming it can be accommodated in their equipment) or to shirts, caps or hats purchased through Image Embroidery. Feel free to call in on Shaun to look at the limited range of clothing he has on site or visit the following web sites to choose your preferred style, size and colours. The weblinks below are only examples of the wide range available. Half chest measurements are included on the web sites to help ensure you select the correct size. Ladies styles are also available.

### **Clothing (excluding Logos)**

**Style 1300** – Aussie Pacific Mens Murray Polo, Navy/White/Ashe or White/Navy/Ashe - **\$20.00 + GST each**

**Weblink:** [http://www.aussiepacific.com.au/the-murray-polo-navy-white-s?color=Navy%2FWhite%2FAshe&primary\\_color=Navy&secondary\\_color=White](http://www.aussiepacific.com.au/the-murray-polo-navy-white-s?color=Navy%2FWhite%2FAshe&primary_color=Navy&secondary_color=White)

**Style 1304** – Aussie Pacific Mens Eureka Polo, Navy/White/Ashe or White/Navy/Ashe - **\$21.00 + GST each**

**Weblink:** [http://www.aussiepacific.com.au/mens/polos/eureka-polo-sky-navy-s?color=Sky%2FNavy%2FAshe&primary\\_color=Sky&secondary\\_color=Navy](http://www.aussiepacific.com.au/mens/polos/eureka-polo-sky-navy-s?color=Sky%2FNavy%2FAshe&primary_color=Sky&secondary_color=Navy)

### **Hats/Caps (excluding Logos)**

**Style 4199** – Headwear Brushed Heavy Cotton Cap, White/Navy (many other colours available too) - **\$6.50 + GST each** **Weblink:** <http://au.headwear.com.au/productDetails.cfm?&prodID=53&prodCatID=2&pageNumber=1>

(Also refer poly/cotton legionnaires hats Styles 4057 or 4126 for maximum sun protection under website sub heading 'Hats, Visor & Beanies' <http://au.headwear.com.au/productList.cfm?&pCategoryID=7>)

**Style 4199** – Headwear Brushed Heavy Cotton Cap, White/Navy (many other colours available too) - **\$6.50 + GST each (includes poly/cotton legionnaires hats for maximum sun protection under website sub heading 'Hats, Visor & Beanies')**

**Weblink:**

**Style 4223** – Brushed Sports Twill Bucket Hat, White/Navy (many other colours available too) - **\$8.00 + GST each**

**Weblink:** <http://au.headwear.com.au/productList.cfm?&pCategoryID=7&page=2>

To make your annual membership even more value for money, ABBA will pay for up to 2 logos per financial year to be applied to your items of clothing. The current cost to ABBA is \$7.15 per logo. There is no intention for this to be an ABBA uniform so the choice of style and colour is totally yours. If you are seen wearing the logo while building, working on or using your boat or anywhere for that matter it might get people asking questions and wanting to join our association. You are free to deal direct with Image Embroidery but please ensure you get an itemised invoice showing a separate price for the logo and present this to Bruce Cadee for reimbursement. Bruce Cadee is happy to take orders and liaise with Image Embroidery if you so wish.