San Diego Ship Modelers' Guild

Volume 5 Number 4 April 12, 1981

Notes from the March Meeting

For many of us the meeting started at 5:00 pm when the chanel 10 news crew came down for a live news spot. Jack White informed the viewers that our contest would be held at Mission Bay so I imagine a number of folks were disappointed.

John Woodard gave his steam lecture in the engine room of the Berkeley which was good for the visual reference while discussing the Stevenson links, but extremely cramped with all those chairs. After John's talk we moved the rest of the meeting into the model yacht room. Fred Blaisdell, a new member, discused the unique engine of a riverboat he would one day like to build.

Albert L'heureux described the building of a large model hull, useing many of the lessons learned from Missouri as focul points.

S.D.S.M.G. Second Annual Static Display Model Contest

This years contest was an unqualified success. We had 27 models present and the public showed great interest with a number of requests for club membership applications. Many thanks to the three judges, Dave Brierley, John Woodard, and Fred Blaisdell who spent nearly three hours judging. The results were as follows:

1st place Sail	U.S.S. Constitution		Royce Privett
2nd place Sail	U.S.S. Franklin		John McDermott
3rd place Sail	H.M.S. Victory Section		Royce Privett
1st Place Civilian	Andiamo Now	(cabin cruiser)	Bill Benson
2nd Place Civilian	Island Soverien	(ocean tug)	Val Peterson
3rd Place Civilian	Medea	(Steam Yacht)	Stuart Fergason
1st Place Naval	U.S.S. Arizona (BB-39		Bob Crawford
2nd Place Naval	Balao Class Submarine		Phil Hadley
Best overall	Andiamo Now		Bill Benson

The Best overall Model was decided by .4 of a point. In all, the show was a lot of fun and very successful. Hope we see more member next year.

3 x 5 Card Catolog of Catologs

The Card Catolog will be available at the April meeting for $1.00. If you are unable to attend this meeting send me $1.25 and I will send on to you. There are 40 firms listed and these will be updated and added to when ever there is space in the news letter.

Modeler of the Month - by Bill Kelly-Flemming

This months Modeler of the Month is Bob Franka. Bob was interviewed by Bill Kelly-Flemming who has been doing an outstanding job of introducing us to our members. Thank you Bill.

The MAC Show (Model & Crafts Show)

Its time for the MAC Show at the Long Beach Convention Center, April 25 and 26. It is open to the public 10 am- 8pm Saturday and 11am- 6pm Sunday with all kinds of interesting exhibits and demonstrations. This year we are organizing transportation for models to be entered in their contest. If you are interested in sending up a model please contact John Woodard (/redacted/) or myself (/redacted/) for more information. There is no charge for entering.

New Members

David Baker
/redacted/

Bruce Thompson
/redacted/

Fred Blaisdell/
redacted/

San Diego Maritime Museum
Att: Dave Brierly
/redacted/

C.A. Stern
/redacted/

About this Months Articles

The article on page 4 on propellor pitch, RPM, and scale speeds is by our newest member, Fred Blaisdell. Fred hopes to have a magazine for the american model engineer soon and if this is an example of its quality I'm looking forward to being a subscriber.

The next artical is from the Shipcraft Guild of New York's newsletter "The Binnacle. Its been awhile since I've used anything from the other newsletter, but the last couple of S.D.S.M.G. newsletter have been of a quality that they may find articles of interest to use so I feel justified in borrowing. Thanks very much to the contributors that have made this possible.

Notes on the May Meeting

Next Months meeting will feature our semi-annual auction. If you find anything around the shop that you no longer feel you have a use for and someone else might, bring it to the May meeting. Already promised from Stan Mellor are spools of flat brass thread and a beautiful photo of an old windjammer.

Notes on the April Meeting

The April Meeting will be a general discusion with an extended show and tell. For these to work requires a great deal of cooperation from the members. Bring your problems, ideas, and especially your models in whatever state of completion so that everyone present can share in your knowledge. Lets see what everyone is working on.

The Case of The Lost Logo

Has anyone seen or have in their possesion a three foot plastic logo to the San Diego Ship Modelers Guild? When last seen, it was attached to the San Diego Argonauts trailer at the summer regatta. Al L'heureux put a lot of time in that sign and we would sure like to have it back. Thanks.

APRIL MODELER OF THE MONTH

- BOB PRANKA -

by Bill Kelly-Fleming

One of the first things our April Modeler of the Month ever saw of the outside world, as he was being brought home form the hospital, was San Pedro Harbor. On a visit back to that hospital a number of years ago he discovered that in the lobby there was a model of a full-rigged ship. Just last year, his model of the brigantime LEON won "Best of Show" in our static competition. In between those events, and continuing yet, Bob Pranka has been building ship models. Other interests have come and gone, but his admiration of ships and the waterfront have remained.

Bob, as a boy of 6 or 7 would carve a hull out of balsa wood, or put a couple of planks of wood together to create a crude boat and float it on the nearest body of water he could find. He made model ariplanes for a while, but they were soon set aside for ships. At the age of 8 or 9, now living here in San Diego, he often went by a certain National City junk store to gawk at a a model ship in the window, however he was never able to get the $10 to buy it. Still remembering that rigged ship, he bought his first kit at the age of 15-- the clipper ship SWORDFISH. It took 10 years to build, and was torn down two times and rebuilt in order to improve the quality. Bob still has that first model.

While in the service in France in 1954 he started on a model of a 42' Chris Craft, which is still not quite finished. After getting out of the service he got married and bought a home, and modeling took a back shelf for a while. In 1961 he resumed modeling, this time buying only the plans and building from scratch the tugboats JOHN (marine model) and DESPATCH No. 9 (model shipways). It took about six months to him to build each of these.

Then he got the kit for AMERICAN SCOUT, which he has totally fiberglassed, and which was in our recent contest. About that time he also started the WASA; but when the original was raised off the bottom, he decided to shelve the project until more accurate information could be obtained.

In early 1968, Bob was invited by Ron Cleveland to come up to Ventura for a meeting to start a Southern California Chapter of the Nautical Research Association. Built into the wall was a model case containing a 3/16 scale model of the LEON, a ship Bob had gotten materials together for building. As Bob tells it, "My eyes fell out when I saw that display," and by the next evening he was at work converting his 1/8" plans to 3/16" blueprints. After two months of work on the plans, he started building the LEON, completing his masterpiece 11 years later.

Like many of us, Bob Pranks has several projects "on the ways." His primary project is a 1200 ton purse seiner on which he is currently working on the fiberglass hull. The superstructure will be out of brass, it will be fitted out for R/C, although he is uncertain if it will be equiped for running. Also on the ways is the fishing boat EILENE, and on the drawing board, a T-2 tanker.

While his earlier models were made with hand tools, Bob now has a fairly complete shop. Some of the special things Bob does involve rigging. He had made a serving jig, and he will actually slice his lines using needles as Underhill shows. Perhaps in an up coming meeting we can get Bob to demonstrate some of these tricks.

I found the article on Calculating Scale Speeds by Doug Smay in the March newsletter quite interesting. His tables on speed conversion should be very useful to both competitors and judges at scale regattas. However, I found the thought of building a boat, [illegible] then seeing how fast it would go, and then modifying it to achieve the desired result a little uncomfortable. It then occurred to me that others might be interested in knowing that Froude's equation (plus some other information) can be helpful at the building stage to get the model closer to right the first time out.

To illustrate how to do this, let us assume we're going to build a model of the steam yacht MEDEA in $\frac{1}{2}$" = 1' scale (1/24). The information that I have on MEDEA is that she has a 101 ft. waterline length, the propellor is 6' dia, a propellor pitch estimated at 10', and displaces 136 tons. Also, her engines were 250 horsepower compound-condensing, with a nominal shaft speed of 100 RPM. MEDEA's speed approximately 10 knots.

Froude tells us that the speed of a ship varies in proportion to the square root of the length, all other items being in proportion. A modification of this is that for displacement hulls, the natural speed of the hull in knots is equal to the square root of the waterline length. in feet.

$$S_h = (L.W.L.)^{\frac{1}{2}}$$

Applying this to the full size MEDEA we arrive at a speed of 10.05 knots. I suspect that her designers intended for her to cruise at this speed with her engines linked-up for economy of fuel and if pressed flat out would have done closer to 12 knots in her prime.

We now need to verify propellor pitch and shaft RPM.

$$\text{Pitch} = (\text{speed})(6076)/(\text{RPM})(60 \text{ min/hr})((100-\%\text{slip})/100)$$
$$= (10)(6076)/(100)(60)(1-.2)$$
$$= 12.65 \text{ ft.} \quad \text{assuming a } 20\% \text{ slip}$$

Here I have a choice of taking the pitch to be 12' which would not be unreasonable as steam propellors often had pitch to diameter ratios of 2:1, or I can take the quoted pitch of 10' and increase the RPM to compensate. If I calculate the shaft speed using the 10' pitch and 10 knot speed I arrive at 101 RPM with 0% slip - so something has to give.

We now need to arrive at the shaft RPM for our model.

$$\text{Model Speed (scale 10 knots)} = V/(S)^{\frac{1}{2}} \qquad S=\text{scale factor}$$
$$= 10/(24)^{\frac{1}{2}}$$
$$= 2.04 \text{ knots}$$

or:

$$S_h = (L.W.L.)^{\frac{1}{2}} \qquad \text{L.W.L. for model} = (101')(\tfrac{1}{2}"/')/12"/'$$
$$= (4.208)^{\frac{1}{2}} \qquad = 4.208 \text{ ft.}$$
$$= 2.05 \text{ knots}$$

Shaft Speed = (speed)(6076)(12)/(Pitch)(60 min/hr)((100-%slip)/100)
= (2.04)(6076)(12)/(6.325)(60)(.8)
= 489.92 RPM Assuming 20% slip

The 6.325 is scale for the 12.65 ft pitch propellor and the 12 is for converting feet to inches.

We could have arrived at the 489.92 RPM by a more direct application of Froude's ingenuity and simply multiplied the prototype RPM by the square root of the scale factor:

Shaft Speed = $100(24)^{\frac{1}{2}}$
= 489.89 RPM Slip unknown, but same for prototype and model.

The same approach applies to paddle wheels. If the prototype paddles rotated at 21 RPM, the model paddles must rotate at 145 RPM if the scale is ½"=1' (21 times the square root of 48).

We now know that for our scale model to operate at the correct speed with a scale prop our shaft speed has to be 490 RPM. It's highly unlikely that we're going to be able to find a propellor that has a scale pitch in the diameter that we need. Knowing the scale RPM does give us a starting point for matching an available prop to the motor.

Applying what we know on the hypothetical model of MEDEA, consider that we have a neat John Woodard prop of 3.5" pitch that we want to use. The shaft RPM becomes the ratio of 6.325/3.5 times the calculated RPM of 490 or a result of 885 RPM. As we do not know the slip at scale speed, we'll have to modify the resulting RPM by working over a slip range of 20% to 40%. This gives us a shaft speed of from 885 to 1180 RPM.

We have also picked an electric motor like the Astro Flite 10 Marine for MEDEA which has a no load speed (advertised) of 9000 RPM. Because of the effeciency and horsepower curves of a DC motor, we will probably want to operate the motor at 60% to 70% of the no-load speed or 5400 to 6300 RPM. A table of gear ratios can now be developed for operating over the range of variables established.

6300/885 = 7.12:1
6300/1180 = 5.34:1
5400/885 = 6.10:1
5400/1180 = 4.58:1

If the gears or timing belt pulleys are carefully selected such that arious reductions can be interchangeable in the hull, we can arm ourselves with a couple of gear sets and an ammeter and head for the pond. What we're after is a minimum current draw (low motor heat) at the speed of our model (2.05 knots).

With little information provided to us, we should be in the ball park for the correct scale speed, a cool running motor, and the maximum running time on the batteries.

The foregoing also illustrates the trap of trying to direct couple a propellor to a high speed electric motor, in a scale displacement hull. For example, suppose we used a DUMAS 2" pitch prop and direct coupled it to the Astro Flite motor. The motor RPM would now be 1550 to 2066 for scale speed and we would be working on the wrong portion of the horsepower effeciency curves. If the motor is not horsepower limited for the hull at these speeds and our controller has sufficient amperage capacity, we can get away with the combination. But, we have limited the running time on our batteries. If the motor is horsepower limited, we will burn out the motor or controller (depending on which is the weak link); or if we have been careful and fused the circuit correctly - we keep blowing fuses. In either case the motor will have a tendency to run hot.

There is, of course, more to matching components to achieve scale speed, But, without more information from the manufacturers of the components, the foregoing shows that with a little arithmetic and some thought you can arrive at a combination that is close. Experimenting at the pond will get you the rest of the way.

TIMBERS FOR SHIP MODEL MAKERS.
(Part II)

By Ewart C. Freeston.

Continuing my remarks on the choice of woods for various uses in making ship models, having very briefly enumerated the qualities to be looked for in timber, I propose to say a few words on some particular varieties with their advantages and disadvantages.

Let us then divide the kinds of timbers into three classes. Firstly, those to reject. Secondly, those to avoid. Thirdly, those to accept. In the first class there is one timber which should never be used by any serious worker. It is BALSA. It has no virtue whatsoever, it is like a sponge and is far too soft to keep its shape or to hold nails or screws and the least said about it the better. Another timber which must be used with caution is OBECHE. There is so much variation in this timber that it must be carefully graded. Some pieces are hard whilst others are as soft as Balsa The hard pieces, if carefully selected, may be found of some use, but I would class it as not much better than Balsa and on the whole not use it under any circumstances.

Man-made timbers, i.e. hard board or artificial timber, may be used with advantage as templates or for patterns, but never as an integral part of a model, because they are far too susceptible to temperature and humidity changes. They warp. buckle, shrink or swell on the slightest provocation.

Plywood, on the other hand, is of far greater value. Though many model makers are prejudiced against it and point scornfully at a model incorporating it, if it is of good quality and waterproof resin bonded, it will remain stable and flat and may be used with advantage as bulkheads or formers for carcasses. It should be remembered, however, that difficulty may arise when fastenings have to be made into the end grain, since nails or screws may not hold, and as a further point take care that the edges of plywood do not show - they can always be concealed by careful planning.

The second section is very large and contains many well-known timbers, all of which may, and can, often be used if no better material is available, but they must be selected with care and fore-knowledge of their disadvantages. These can be further sub-divided into timbers having pronounced characteristics which make them suitable only for specific branches of ship model building. For instance, avoid timbers of an excessively resinous

nature, such as Baltic Firs and Pines, sold under the names of RED or YELLOW DEAL. They have large areas containing knots which weaken the planks and exude the natural gums giving paintwork a precarious finish, though for the construction of a solid matrix on which to build a hull of tin plate or gummed paper strip, these timbers are quite suitable, since they will be used only as temporary moulds and not as permanent parts of the finished structure.

Avoid also timbers having a pronounced colour (except where they will be painted). As an example, I must refer to BOX, which though a lovely, hard, close-grained timber, taking a beautiful finish and very suitable for small turned pillars, balusters or decorative carved work, and much used by many very fine model makers, has a violent yellow colour when naturally finished, which I feel is a great objection and shows it up to its disadvantage against softer colours. Use it sparingly, except where it can be stained black to resemble Ebony, or otherwise disguised.

TEAK, MAHOGANY and WALNUT are all splendid woods but are, unfortunately, too open in the grain for extensive use except in specific cases. When the grain is filled and the wood varnished, both MAHOGANY and WALNUT make beautiful and smart racing yachts or cabin cruisers if built up on frames - provided of course the weight of the hull is kept within the designer's limits. TEAK, on the other hand, contains a large amount of natural oils which makes it difficult to glue satisfactorily and painting or polishing precarious. This, allied with the openness of its grain, unfortunately limits its use. These three timbers, therefore, should be used with discretion.

OAK or ASH are also too open in the grain for extensive use. They are inferior to the three aforesaid timbers by reason of the fact that we find large areas of a spongey nature and, consequently, the timber cannot be reduced to very small scantlings and be dependable, for there is the risk of fracture and collapse when being bent or, at the very least, a region of weakness. BEECH is prone to distort, split or crack if not very carefully and properly seasoned. It is hard and difficult to work and the spindle flecks in the grain make it a timber to avoid if possible. HOLLY, too, is a choice open to suspicion for even if thoroughly seasoned, it has the unfortunate propensity to split at some future date without warning and for no apparent reason.

PARANA PINE, available in wide boards, must be carefully and thoroughly seasoned; JELUTONG, a relatively new timber to many people and the tried favourite YELLOW PINE (if available) can all be profitably used for solid matrices, to be planked over subsequently or used on the bread and butter system. YELLOW PINE is the best for these purposes, though

PARANA PINE makes a good substitute, whilst JELUTONG, if carefully selected so as to avoid the latex passages and cells found in it, makes an admirable choice. It is easy to work, is stable, nails, screws and glues well and takes stain and paint satisfactorily.

We now come to the timbers which are the best for ship model makers to use and undoubtedly the finest of all is LIME (TILIA VULGARIS). This timber has all the good points which I have enumerated. It has a pleasant colour, accepts paint or stain easily, will finish to a smooth surface and retain sharp edges. The grain is unobtrusive and, though of hard texture, is easily worked with sharp tools. It can be reduced to very small scantlings and will accept and keep sharp bends without risk of failure. It is definitely the best all round timber and if obtained from a tree felled at a mature age of about 60 to 80 years, has no equal. Avoid, if possible, the sap wood or wood cut from an immature tree as it will not, then, justify the praise I have given it, and, furthermore, do not confuse it with the Lime TILIA GLABRA sold as LIME or BASSWOOD, which is a much softer wood and of a woolly texture. This, however, is excellent for a baseboard or for use when carving and painting to represent sea.

Another timber of great value to the ship model maker is APPLE wood. As a timber for bending it has no superior though HORNBEAM approaches it for this quality. APPLE is of a pinky cream colour; HORNBEAM is almost white. Neither has very pronounced grain and both can be reduced to extremely small scantlings; even as small as 5 thousandths of an inch square , which is 1/4 inch at a scale of 1/4 inch = 1 foot. The heart-wood of APPLE is of a dark brown colour and would be a suitable choice as an imitation of Teak at a small scale. HORNBEAM is also of great use for solid hull miniatures, being absolutely stable (in this respect superior to Holly) and for the making of small items of turnery, blocks or deadeyes. It can be stained any shade of colour, including black, quite satisfactorily and accepts paint with equal facility. Both these timbers are hard and dense and require sharp tools to work them.

For the specific purpose of making masts and spars, LANCEWOOD is the sine qua non. Unfortunately, this timber is virtually unobtainable, but the substitute, DEGAME, is to all intents and purposes its equal. So much so, that much of the Lancewood, imported, sold and used as such is actually Degame. It is entirely satisfactory for the uses named if the sapwood is used in preference to the heart-wood.

Lastly, a beautiful timber for colour is PEAR wood if used with discretion. It makes an excellent imitation of

Mahogany at small scales and was also used extensively in the 17th and 18th centuries for the making of the Navy Board models of contemporary ships. Other timbers which may be used with advantage are SYCAMORE, MAPLE, PLANE, YELLOW POPLAR and WESTERN RED CEDAR; all good, stable and reliable woods.

Of course, it should be remembered that in this article I have mentioned only a very few of the many timbers in existence and that there is quite a large number of others which can be used quite satisfactorily in the construction of ship models if an intelligent analysis of their characteristics, as detailed previously, and experiment and reference to the expert information easily obtainable, is made. You may then rest assured that the material is being used to its best advantage.

Unfortunately, owing to import restrictions, some of the timbers I have named may be difficult to obtain. Therefore, it is a good policy for any ship model maker to build up his own stock of wood by acquiring at each and every opporunity, any rare timber that offers, even if the likelihood of its being used seems remote - the other members of your ship model Society, at least, will bless you for it and even you may find it just the thing at some future date. For instance, I purchased a fascia board from a shop front, about 14 feet long by 12 inches wide of Yellow Poplar, and on another occasion, a table top about 3 feet 6 inches long by 2 feet wide of Honduras Mahogany 1/2 inch thick,in one piece, for 3 shillings. Yellow pine, as an example, was used to a far greater extent a number of years ago in the construction of furniture, particularly drawers, so may be discovered there. It is also sent across the Atlantic in the form of packing cases containing machinery, even in this year of grace!

There are other sources of supply for the keen searcher, for instance in the Government surplus shops there are obtainable at the present time tapered spars about 1/2 inch diameter of SITKA SPRUCE - ideal for masts - at the princely price of 2d. each. There are also tool boxes to be purchased quite cheqply made of such timbers as Mahogany, Teak or Makore. Of course, this type of acquisition postulates an ability to recognise at sight many species of timber, but since the "Sheet Anchor" exists for the benefit of ship model makers and has no financial interest in any commercial undertaking, here are the names of three firms who specialise in the rarer timbers and who may be able to supply your demands. The writer has purchased Lime, Hornbeam, Jelutong and Parana Pine from Mr. McGrath, The Chetham Timber Co., 229, High Street, London, E.15, also Degame, Box and Sycamore from M.W. Brine & Sons, Ltd.,Arlington Avenue, London, N.1. The third firm lists amongst other woods, Apple, Walnut and Beech and is Messrs Beautywoods, Sawmill Lane, Thornbury, Glos., but I have had no business dealings with

this firm so far. The advertisement columns of the publication "The Woodworker" may reveal other suppliers.

The important point is that we should be on the look-out all the time and let no opportunity slip through our fingers when, for a few shillings, timber of great value may be acquired.

When converting timber for use, it is as well to remember that the best way in which to cut it is to saw it on the full quarter. Though this method is relatively wasteful of material, the foregoing point regarding selection of only the best of a plank and the small quantity actually used, should be borne in mind.

Perhaps I should go further and explain briefly the reasons for this. When a tree is felled, the annular rings may be seen as more or less concentric circles on the base. It is then usually sawn into planks when the annular rings appear on the ends of most of them as arcs of circles, but the plank which comes from the middle shows the rings almost as straight lines at right angles to the face. As the timber seasons, shrinkage takes place lengthwise to a very small degree, about 1 %; radially to an average of about 5% and tangentially to about 15%. Consequently, the planks tend to curve as if the rings were trying to straighten out. But the middle plank will remain flat though shrinking to a thinner and narrower section until fully seasoned. This plank is actually quarter sawn, as it is called, and so is any piece of timber where the rings are at right angles to the face. Thus it is clear that if any further movement takes place it will do so uniformly, whereas a plank sawn with the rings passing diagonally will shrink to a rhomboidal section.

This, very shortly, is the reason for converting timber on the full quarter. To cover the subject in greater detail, methods of so doing and of using the timber so converted, could well form the basis of a further article if the Editor and readers wish it.

Finally, may I add that here I have offered a policy of perfection which is not easy to reach. Some may consider it not worth the trouble, but those who do exercise care will, I am sure, benefit greatly in the results obtained. In any case, everyone must admit that to know what perfection is, is to realize how far short of it one invariably falls.

San Diego Ship Modelers Guild
Bob Crawford - Logkeeper
/redacted/

TO: Fred Frass
/redacted/

San Diego Ship Modelers Guild
Officers for 1981

Master:	John Woodard	Point Loma	/redacted/
Mate:	Doug McFarland	Mira Mesa	/redacted/
Logkeeper:	Bob Crawford	State College	/redacted/
Stearing Committee:	Bill Kelly-Flemming	Hill Crest	/redacted/
	Al L'heureux	Poway	/redacted/
	George Oliver	Santee	/redacted/
	Bob Ross	Chula Vista	

Meetings: 3rd Friday of each month, 8:00 pm aboard the Bark Star of India, on the Orlop Deck.

Membership: Dues for Members of the San Diego Maritime Museum and anyone living outside San Diego County -$7.50 Non-Museum Members - $15.00. After July 31, 1981 dues are ½ for the remainder of the year.