



MacGregor-designed eight foot rowing and sailing plywood prams

Plywood for Boats

By CHARLES G. MacGREGOR

First of a Series on Waterproof Plywood and How to Use it

THE comparatively recent development of resinous glues has made available to the boat and shipbuilding industry a most valuable product—"Waterproof Plywood." The advent of this remarkable material is instrumental in bringing about one of the most surprising and rapid evolutions in boat building.

For hundreds of years boats have been built in what we now call the conventional manner with keel, ribs and narrow strips of wood known as planking, laid lengthwise and fastened to the ribs. We are all more or less familiar with this construction and its variations, such as double or triple planking, striving to attain what seemed to be the impossible—a homogeneous skin. These variations or refinements have proven to be either too costly to become popular or the wood substitutes sometimes used lacked the necessary strength and water tightness.

Plywood as developed about twenty-five years ago seemed to point the way towards this "ideal," but the only glues available then were made from vegetable starch, albumen, casein, blood, etc., and were subject to deterioration on exposure to moisture and mold, thus allowing the plywood to disintegrate.

The successful development of a satisfactory type of phenol-formaldehyde resin adapted to plywood after years of painstaking research now gives us a real waterproof plywood with other valuable qualities in addition to its resistance to moisture.

WHAT IS RESIN-BONDED PLYWOOD?

Plywood is a combination of several thin plies or layers of wood glued or bonded together, so that the grain of each crosses the grain of the adjacent plies at right angles. Thus, the inherent defects of wood—expansion, contraction, warping and checking—are counteracted or corrected.

The glue or bonding agent is a phenolic resin in the form of a dry, thin sheet placed between the thin wood plies or layers and the whole subjected simultaneously to heat of about 285° F., and pressures of around 200 pounds per square inch. This results in a fusing together of the layers with the glue, producing an extremely durable joint stronger than the wood itself.

Plywood for boats is manufactured in panels. Suitable material available may be either Douglas fir or African mahogany. Many other kinds are manufactured but these two are recommended—fir for its low cost, and African mahogany for a finer quality and finish.

The advantages of using Resin-Bonded Plywood are: 1. better distribution of strength, 2. non-splitting, 3. flexibility and toughness, 4. greater strength, 5. swelling and shrinking practically eliminated, 6. greater economy in manufacturing, 7. durability, 8. water-proofness, 9. decay-proofness, 10. heat resistance.

Panels are obtainable in standard sizes as listed below and consist of three or five plies, depending on the thickness of the material.

The following are recommended for boat use:

3 Ply	5 Ply
1/8"	1/2"
1/4"	5/8"
3/8"	3/4"

These can be obtained from stock in the following sizes: 48" x 96", 48" x 120" and 48" x 144". Larger panels can be secured but generally require several weeks for delivery.

In succeeding issues it is intended to describe on this page the material and its manufacture in greater detail and advise on its application to the construction of small boats.

An effort will be made to assist and guide the amateur boat builder in the use of this new material, so that he will avoid the disappointments, pitfalls and resulting expense incurred by those who plunge into using it without a knowledge of its limitations.

QUESTIONS AND ANSWERS

Question. (F. P. B., Detroit, Michigan). Enclosed is a sketch of my idea of a 27 foot sloop. Would you advise building this of plywood?

Answer. Yes—provided you use Resin-Bonded Plywood, have the boat properly designed and be sure to follow the designer's plans and instructions.

Q. (T. W., Hopedale, Massachusetts). My present 8 foot dinghy is too heavy and large to stow on the deck of my sloop. What I need is one about 6 feet long and not more than 43 inches wide, built like your 8 foot plywood pram. Is this practical and where can I buy one?

A. If you cannot use the 8 foot plywood pram I will put you in touch with the manufacturer of a new 6½ foot plywood pram now being built. It is small but equivalent in carrying capacity to the conventional 7 foot straight stem dinghy, is very much lighter and tows very well, as all prams do.

Q. (W. E., Glen Cove, Long Island). What treatment does Weldwood need to keep it in water?

A. The only special treatment any resin-bonded plywood needs is the use of waterproof glue on seams and edges, and the usual painting or varnishing given to bare wood.

Q. (T. B., Medford, Massachusetts). I have one of your 8 foot Plywood Pram Dinghies rescued during the recent hurricane. It shows signs of having been subjected to severe punishment. The seams are tight, but there is a hole in the top-

(Continued on opposite page)

Melody and Chuckle Star at Havana

By WILLIAM H. TAYLOR

Paul H. Smart's Melody and Harold Halsted's Chuckle came home from Havana with the principal prizes of the annual Mid-winter Star class championships after two of the most closely-contested series in the annals of the class. In both the Bacardi Cup and the Cuba Trophy series two boats finished in a tie for first place on points and victory went to Melody and Chuckle under the class's rule whereby when two boats are tied the one that has finished ahead of the other the greatest number of times wins.

The Bacardi Cup series, with nine American and eight Cuban starters, was held first and the veteran Star Trophy gatherer, Adrian Iselin, racing his new Ace II for the first time, led them all home. The second race went to Harry Nye's Gale, from Chicago, one of the outstanding boats in the class's international events last year, and going into the final race Nye had a 3-point lead over Ace, 32-29, with Melody and Johnny White's Shucks tied at 28 points. Then half way through the race Nye, under-estimating the set of the Gulf Stream current, got into a foul and tangled up with the mark boat, putting him out just when he seemed to have the series in the bag. Chuckle led the fleet home that day with Melody and Ace astern of her.

The order gave Melody and Ace 44 points each, while Shucks and Charles deCardenas' Kurush, of Havana, were tied with 38 points for third place. It was sheer consistency that won for Smart and his crew, Lou Parsons. Their series record was a sixth, a third and a second place, and as Ace finished behind them on the last two days the Bacardi Cup went to the Noroton (Connecticut) boat.

The Cuba Trophy series opened with eight American, two Cuban and a French boat involved, Enrique Conill of the Paris fleet having deserted the committee to sail a chartered Star. Harold Halsted and his crew, Carl Pflug, who take nobody's back-wind when it comes to sailing to windward in a breeze, won the first race, with Ace and Kurush next in order. The second day Gale came through with a win in the only moderate air of the series, and Chuckle finished down in sixth place. That night Ace was on top of the point score, with 20 points against 19 for Nye and 17 for Halsted.

In the final race misfortune caught up with Iselin when he looked—as Nye had the series before—like a sure winner. A spreader fitting gave way and Ace had to quit. Halsted fought his way into a long lead, but until the very finish Harry Nye had second place, which would have given him the series by a point. Then Nye, again forgetting to allow for the Gulf Stream set, overstood the mark, Bill Piken, of the Great South Bay fleet, slipped into second place, and again the series finished in a tie, with 28 points each for Nye and Halsted, which gave Halsted the Cuba Trophy for the second consecutive year, as he had finished first twice. Kurush again took third place.

The weather was fine throughout. Strong breezes from the south and east gave the Stars plenty of hard, wet going, and resulted in a number of breakdowns which included such heavy-weather boats as Chuckle and Piken's FoFo. The races were well run by a committee headed by Rafael Posso, and entertainment at the Havana Yacht Club and elsewhere kept the visitors happy ashore as well as afloat. The series wound up with a team race which the Americans won, 21 to 15. The Cuban fleet includes some good boats and skippers, but with the exception of Cardenas none of them is consistently a real match for the top-ranking American Star men yet.

Final point scores:

Bacardi Trophy—Melody, Paul H. Smart, Central L. I. Sound, 44; Ace II, Adrian Iselin, Western L.I.S., 44; Shucks, J. H. and E. S. White, Western L.I.S., 38; Kurush, Charles deCardenas, Havana, 38; Chuckle, Harold Halsted, Moriches Bay, 33; Gale, Harry G. Nye, Chicago, 32; Santoy, Edmund Smith, Havana, 31; FoFo II, Wm. Piken, Jr., Great South Bay, 30; Delfin, Stanley Ogilvy (charter), Western L.I.S., 25; Lia III, R. Karman, Havana, 21; Carmita II, L. R. Miranda, Havana, 21; Jibaro, Cesar Fuentes, Havana, 20; Patsy Lyn, F. Rivero, Havana, 13; Zoa, Miss Elizabeth Miller, New Orleans, 12; Margarita, F. S. Bru, Havana, 13; Delilah, Sampson Smith, Otsego Lake, 8.

Cuba Trophy—Chuckle, 28; Gale, 28; Kurush, 23; Shucks, 21; Ace II, 20; Delilah, 19; Melody, 18; FoFo II, 15; Carmita II, E. J. Conill (charter), Paris, 7; Zoa, 7; Jibaro, 6.

PLYWOOD (Continued)



side planking big enough to put my hand through. How should this be repaired? Is it feasible to remove the whole side plank?

A. Generally it is not necessary to remove the whole plank unless it is smashed beyond all hope of repair. Simply cut off the ragged splinters around the hole, fill this hole with a piece of the same material of equal thickness and place a piece on the inside slightly larger than the hole. Glue them together and fasten with bronze screws. Use waterproof glue. Be sure to scrape the paint off down to bare wood where glue is applied.

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