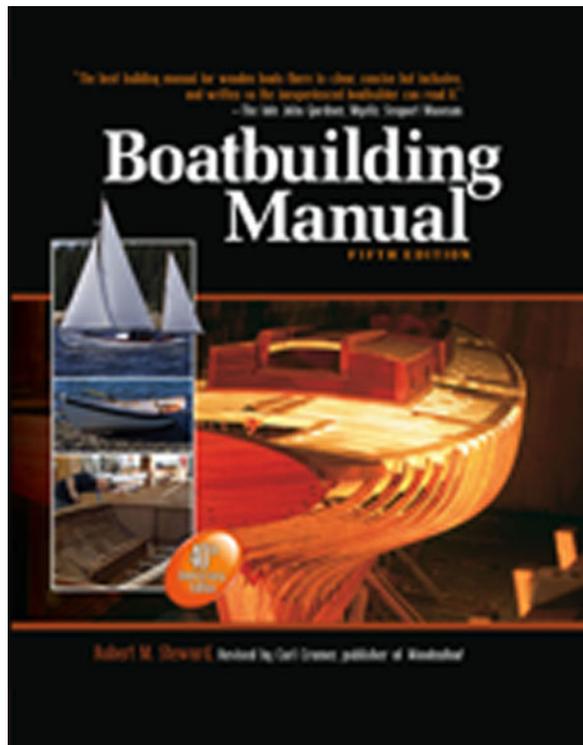


Boatbuilding Manual





The Beach Pea, a lapstrake-plywood boat. (*Doug Hylan*)

Boatbuilding Manual

FIFTH EDITION

Robert M. Steward
with Carl Cramer



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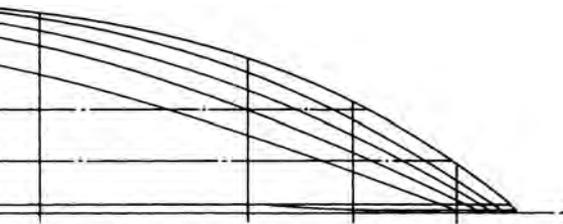
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PREFACE TO THE FIFTH EDITION

INTERNATIONAL MARINE PUBLISHED the first edition of Bob Steward's seminal *Boatbuilding Manual* in 1970. At that time, I was an avid reader of anything to do with boats, especially yacht design. Skene, Chapelle, L. Francis Herreshoff, *The Rudder*, and *Yachting* were my primary sources of inspiration, until that first edition of the *Boatbuilding Manual* appeared.

International Marine and Bob Steward continued this proud legacy through four editions, with the fourth edition being published in 1994. More than 75,000 copies have been purchased to date, making it the most popular and invaluable contribution to boatbuilders to date. Sadly, Bob died in 1996.

The genesis for this particular edition came from a simple question I asked Jon Eaton, editor at International Marine, in 2009: "Jon, will you have a new edition of Bob Steward's book any time soon?" Jon replied that there were no plans to, although there was a definite need for it. At some point in our conversation, I vaguely remember Jon asking if I'd like to take on this task.

I've never been particularly good at saying "no" when asked, and I did feel the update was and is past due.

I consider this contribution of Bob's to be "Boatbuilding 101–110," and seldom have such golden words (his) about this topic been in print. Please view it in that perspective. It's not going to teach you everything you need

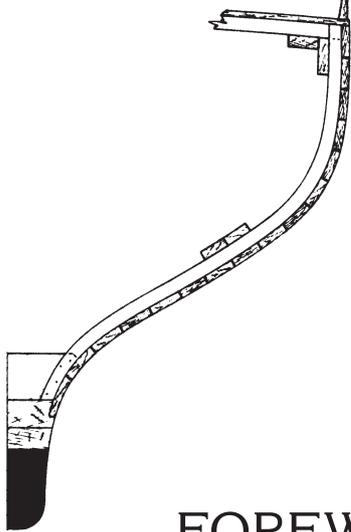
to know about boatbuilding, but it will teach you all the rudiments, both historical and—to a degree—current practices. Much is evolving right now. If you want to outfit a state-of-the-art, systems-heavy boat, you will need other, more-current sources. And evolution is what we must recognize, if not necessarily adopt for our own boats. That is our choice, and this is yours as well. More to the point, you just need to decide to do it. Roll up your sleeves and get to work. Build the boat of your dreams, and learn from and enjoy your accomplishments! And then build another, putting your experience to work for you. Now, you are a “boatbuilder”—congratulations to you, and welcome to the family.

Bob, I hoist a glass to you—for all your knowledge, inspiration, and passion. I’ve tried to keep your spirit intact wherever I can. And to my wife Laura, for her forbearance throughout this ordeal of editing and updating. And to my extensive family: we devote major parts of our lives to boating, and to the enjoyment of what I consider an important endeavor. And, without fail, to my other family, WoodenBoat Publications, Inc. for their tolerance of me. They haven’t caught me yet, even after 22-plus years of employment and fulfillment. (As I’m fond of saying, “Jon Wilson picked me up out of the gutter and gave me a career.”) It’s become much more than that, and I am eternally grateful.

Bob set me on the path that became my career, and I am so thankful for that. I suspect there are many others on whom he had the same effect. May Bob rest in peace, knowing that he has inspired so many of us. Thank you for all that you’ve done, now and in the future.

Let’s just boat, and build boats. I hope to see you out there, using the boats we build from this tome. I will be, and I look forward to seeing you there.





FOREWORD TO THE SECOND EDITION

THE LIGHTS OFTEN SHOWED BRIGHT late in the evening at the Mizzentop in Huntington, New York, and continue to do so at Anchordown here in Darien. I have enjoyed a lifetime influenced by the talk of small boats—their design, their building, and their use. Most rewarding of all aspects, perhaps, are the letters that come along—letters extolling the grand experience encountered in the building of a boat!

There has always been great satisfaction—a justified feeling of accomplishment—related to making things with one's own hands. In this age of specialization I believe boatbuilding can offer even more satisfaction—as well as relaxation and a challenge to individual ability and ingenuity. Few things involve the many skills required in building a boat, each essential for its successful completion. Possibly nothing else is as rewarding.

Further, nicely fashioned, well-built boats are growing more and more expensive. To build your own may well be a practical solution—as well as rewarding. Surely the joys of being afloat are manifold, and those experienced aboard a boat you have built with your own hands are immeasurable.

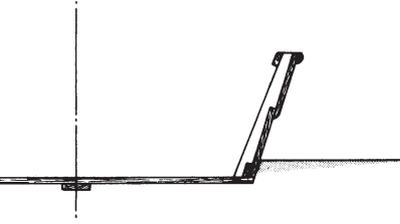
Bob Steward, being exceptionally well qualified by his long experience in the “world of small ships,” has produced a clearly written text of merit and great worth. After years as an apprentice he worked in several small

boatyards before joining the highly respected office of naval architect Philip L. Rhodes, where he spent many years engaged in designing and planning numerous power and sailing yachts, as well as commercial boats. The period of World War II found him in an engineering capacity working between various yards and design offices. Far more pleasant work was resumed at war's end involving yachts—and Bob accepted a position with a West Coast firm as superintendent of yacht repair and construction. Some time later he returned to the East Coast where a number of yacht designs were produced, ranging from 22 to 86 feet, which required his experienced supervision of lofting and construction. The warmer climate beckoned, with its slower pace and easier living, and Bob moved to Florida to continue his work involving the designing and supervision of numerous yachts. Presently he is semiretired, but is still called upon to design small boats or to make half models.

Bob Steward's classic work has been heartily received from the time it was first published in 1950. In this latest edition, Bob has made numerous revisions relating to new materials and present regulations and standards in addition to providing more of his wonderfully clear drawings. Surely this comprehensive and practical material, so well presented, will provide the amateur boatbuilder and the professional with a world of valued and valid information. Indeed, scarcely a week passes when, in writing letters to boatbuilders all over the world, I do not suggest *Boatbuilding Manual* as a source of knowledge.

JOHN ATKIN, S.N.A. & M.E.

Anchordown
Darien, Connecticut



PREFACE TO THE SECOND EDITION

IT IS INDEED DIFFICULT TO REALIZE that 23 years have passed since International Marine Publishing Company went into business and acquired the copyright to *Boatbuilding Manual*, which was to become the first IM publication. It has been a happy marriage, but there have been two sad occurrences during that time: Boris Lauer-Leonardi, the small boatbuilder's staunch friend and longtime editor of *The Rudder* magazine when it was beloved and respected by true boatlovers worldwide, and Phil Rhodes, one of the greatest and most versatile naval architects, have both sailed over the horizon and are missed by countless friends.

I have met many more readers since the 1987 revision of *Boatbuilding Manual*, and it has been gratifying to hear from so many who have learned from the book. In addition, the Westlawn School of Yacht Design, located in Stamford, Connecticut, reprints portions of the book as two of its course lessons.

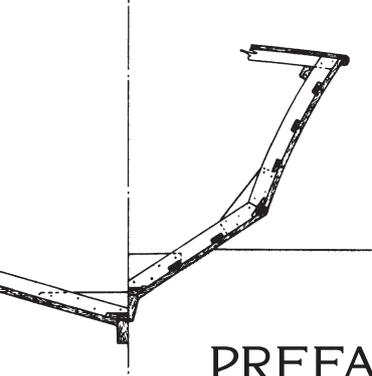
Throughout this book, and in the Appendix, you will find the names and addresses of firms that carry tools and materials or firms that provide services of value to boatbuilders. Such mention is not to be construed as advertising for the products or services offered. Rather, I believe that the reader will benefit from my research of the sources, possibly saving time in finding suitable boatbuilding materials. Contact the firms directly and tell them what you need.

In addition to the photo and illustration credits given in the earlier edition, I wish to thank the numerous individuals and firms that have furnished photos or drawings as illustrations in this expanded edition.

I cannot close without mentioning the small-craft designers and both amateur and professional boatbuilders for the enthusiasm that encourages me to continue extending the scope of this book. Thank you all, near and overseas.

ROBERT M. STEWARD
Jacksonville, Florida





PREFACE TO THE FIRST EDITION

DURING A MEETING A NUMBER OF YEARS AGO with Boris Lauer-Leonardi and the late Andy Patterson, Editor and Business Manager, respectively, of the fine old *The Rudder* magazine, it was decided that I should write some articles about boat construction aimed at the amateur and, hopefully, of some value to the beginning professional. This decision resulted in a series of 20 consecutive monthly pieces that were so well received they were made into a book. The reception of this, too, was enthusiastic, and soon after it was introduced, the book was published abroad in French. Letters of approval were received from afar. One that lingers in my mind was from a Turkish naval officer who not only bought the book, but also built a boat from my plans. Then again Olin Stephens, famed yacht designer, told me how the French edition was of value to him on an inspection trip in Europe when the book illustrations served to break a language barrier between him and a builder. Things like this are heartfelt, because in so small a field the monetary reward must, unfortunately, be secondary.

As time went on, the number of requests for the book showed that a revision was in order. So now we have *Boatbuilding Manual*, again done with the enthusiasm of Boris as a prime mover, although there have been times, when the midnight oil was burning low, that I was not so happy with his prodding, since he charmed me with his silver tongue to sandwich a number of how-to-build plans and articles into the program at the same time. The new book

has been rewritten, but includes a little of the old, as well as techniques I have picked up in the interim and new materials that have been accepted.

Do not think that this or any other book can teach all there is to know about boatbuilding. The best I can hope for is to give some guidance to those with the urge to build a boat—an urge that usually is very rewarding. I trust that this book, plus a good set of plans from an understanding and experienced designer, will lead to the realization of a dream for many who otherwise could not enjoy boating and the sea.

Assuming he has the ability with woodworking tools and is armed with plans and the elements of boatbuilding set forth in this book, there is no reason why an amateur cannot turn out a creditable boat, but he is cautioned not to be too pretentious at first. Better to start with something small, like a dinghy, to acquire the feel of boat construction, and then go on to a larger craft.

The author wishes to thank Philip L. Rhodes for the use of some photographs; Fred Bates for telling of his experience with strip planking; Joe Schabo of Fort Lauderdale for tracking down the remarkable photo of the Gulfstream 42 in frame; William G. Hobbs for the use of the same photo; and my family for patience on days when I was drawing or writing when we should have been fishing or sailing.



ROBERT M. STEWARD

Jacksonville, Florida

