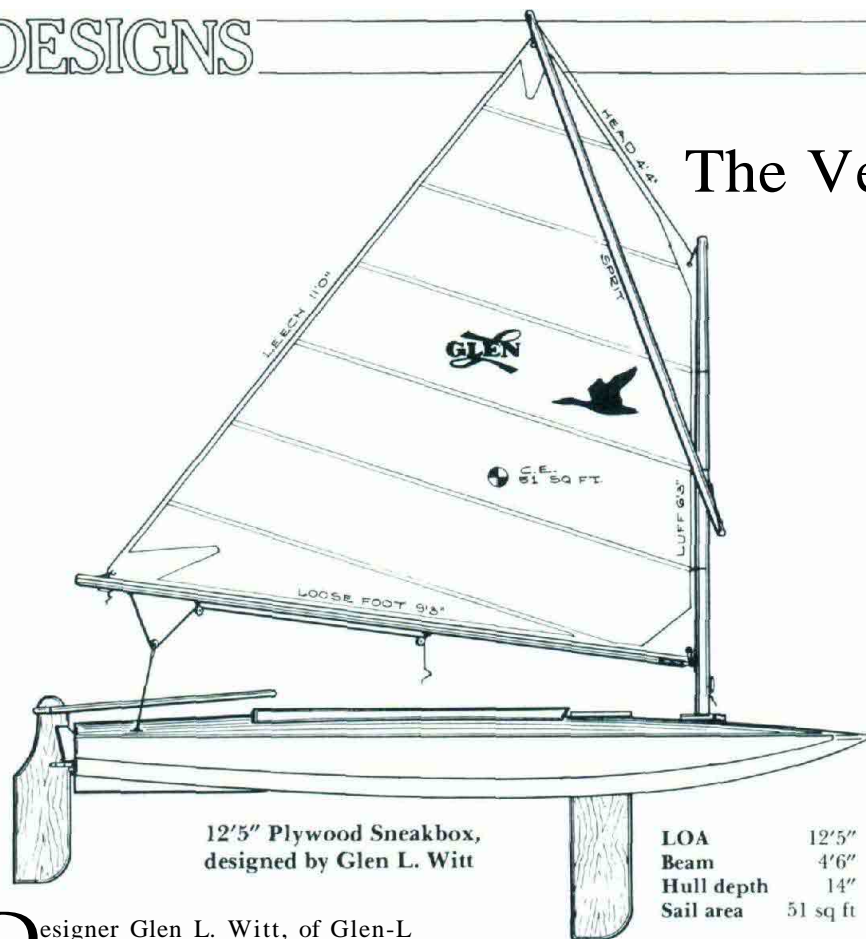


The Versatile Sneakbox

Comment by Steve Redmond



12'5" Plywood Sneakbox,
designed by Glen L. Witt

LOA	12'5"
Beam	4'6"
Hull depth	14"
Sail area	51 sq ft

Designer Glen L. Witt, of Glen-L Marine, recently sent in a set of prints for a nice plywood sneakbox, providing the perfect excuse for a brief exploration of this very interesting small-boat type.

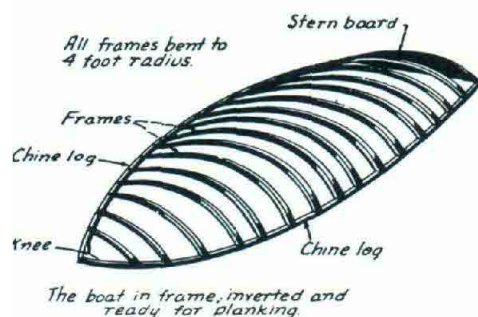
The Barnegat Bay sneakbox is a traditional American craft which can be traced back to at least the mid-1830s. The boats are low-sided and scow-like in form, with no real stem, an arc bottom (occasionally employing some deadrise forward), and a heavily cambered and slightly sheered or straight deckline. There are usually no proper topsides—the deck and bottom simply come together in a combination chine and sheer. The bow is somewhat blunted or, in later boats, spoon-shaped in plan view.

The most common size for the earlier boats was 12' overall by 4' of beam, with a hull weight of about 200 pounds. When rigged for sail they usually carried a spritsail, and either a daggerboard or centerboard was used to provide lateral resistance. The trunk for these boards was often located off-center, or far forward, in order to clear the cockpit for hunting. The hunters who used these boats sometimes spent several days aboard, sleeping overnight in the cockpit—and space to stretch out was essential. Forward-mounted daggerboards were often curved—scimitar shaped. I would guess that this served

to shift the center of lateral plane aft so the helm would balance in spite of the trunk's forward location.

Originally, sneakboxes were used as mobile gunning platforms for the Barnegat Bay market duck hunters. The boats were used in very shallow water, thus it was desirable to spread out the displacement in a beamy hull form. In addition, it was necessary that they be rowed, poled, and sometimes dragged through the mud and grass of the marshes by one man, so small size and a sled-like bottom contour was essential. They also had to present a low, easily disguised profile for hunting. Finally, they had to act as a stable shooting platform. The wide, flat, blunt hull was a logical solution to these varied requirements.

Coincidentally, this shape proves to



be a fast one for sailing in relatively smooth water. It is essentially the shape of a round-bilged, light-displacement scow—not far removed from the underwater hull form of racing scows, board boats, and sailboards. This hull form has the initial stability to carry a generous spread of sail. The low freeboard keeps the weight of construction relatively light. Light displacement, good stability, plenty of sail, and a shoal hull all work toward high potential boat speeds, and the traditional working sneakbox naturally had these qualities. It was their reputation for shoal-draft performance and capacity in a small handy size that gradually earned them more widespread popularity as a pleasure craft.

Certainly an additional factor in the wider popularity of sneakboxes was the publication in 1879 of Nathaniel Bishop's book *Four Months in a Sneakbox*. In it, Bishop described a voyage aboard his 12' sneakbox from Pennsylvania to Florida via the Ohio and Mississippi rivers and the Gulf of Mexico. Bishop was well known as a canoeist, having earlier published a popular account of a trip to Florida along Atlantic intercoastal waterways, entitled *Voyage of the Paper Canoe*. As a founder and first secretary of the American Canoe Association, and contributor to *Forest and Stream*, he exerted a strong influence on both the development of the sneakbox and recreational canoeing in America.

With the increase of interest in the sneakbox as a pleasure craft in the 1880s came the inevitable pressure to further improve the performance and capacity of the boats. Sneakboxes were eventually built longer and heavier, making them less suitable for hunting or hauling singlehanded through the marshes. Boat length increased steadily—H-footers, 15-footers, 17-footers, 20-footers appeared, carrying upwards of 600 square feet of canvas with crews of eight hardy individuals maniacally shifting sandbags to the high (windward) side on each new tack. The rigs followed all the nuances of racing fashion as gaff sail followed spritsail, jib-headed main replaced the gaff sail, and a jib made a cat into a sloop. In the end, the larger

from the Rudder Sail Boat Plan Book

racing sneakboxes succumbed to design decadence, producing some thoroughly unpleasant boats which carried vicious helm, and which had nasty propensities for capsize, broach, pitchpole, and mast-bust. Eventually the E-class inland scow proved more attractive as a racing class, and interest in the big sneakboxes faded.

Meanwhile, the original 12-footers and smaller racing-class sneakboxes continued to be built at a number of shops, both in New Jersey and out of state. J. Henry Rushton, the well-known Canton, New York, canoe builder, offered several lapstrake-planked models. As was the case with Rushton canoes, these boats were impeccably crafted and somewhat lighter in scantlings and weight than the boats of competitive builders. His 12-footer weighed an advertised 175 pounds.

The best-known builder of sneakboxes was J.H. Perrine of Barnegat, who produced several popular classes of smaller racing sneakboxes. The Perrine 15' sneakbox was built in quantity, with an estimated 3,000 of them having been constructed for the class. A 12 x 5' "Butterfly" class was also popular for junior racing.

Sneakbox construction seems to have varied somewhat from builder to builder, particularly outside of Barnegat Bay. As mentioned before, Rushton used lapstrake construction, while most builders preferred carvel. Planking of the smaller boats was 5/8" or 1/2"; Rushton doubled the usual number of frames, reduced their scantlings, and planked with 3/8" cedar. In general, the true Barnegat shooting boats were built with a harpin, or horizontal stem liner, running along the sheer for the first third of the hull. This timber backed up the hood ends of the decking and planking. The boats also employed a plank keel or "set-up plank." These are two of the more distinctive features of sneakbox construction. I cannot find a reference to indicate that the original builders employed any timber backing of the hull-to-deck joint aft of the harpin. The planking and decking simply seem to have been beveled to meet each other. This would seem to require fairly heavy plank and deck scantlings in order to

fasten together properly. I would guess that the Rushton boats with their lighter planking may have used a different method of deck attachment. In a few other sneakbox examples, a sheer timber runs the full length of the boat, backing the hull-to-deck joint and providing a good base for fastenings.

An example of this construction can be found in *The Rudder Sail Boat Plan Book*, published in 1948 and reprinted from an earlier magazine issue. The boat illustrated is a gunning-type sneakbox with typical 12 x 4' dimensions. A double-rabbeted chine log has replaced the harpin, and runs from stem to stern.

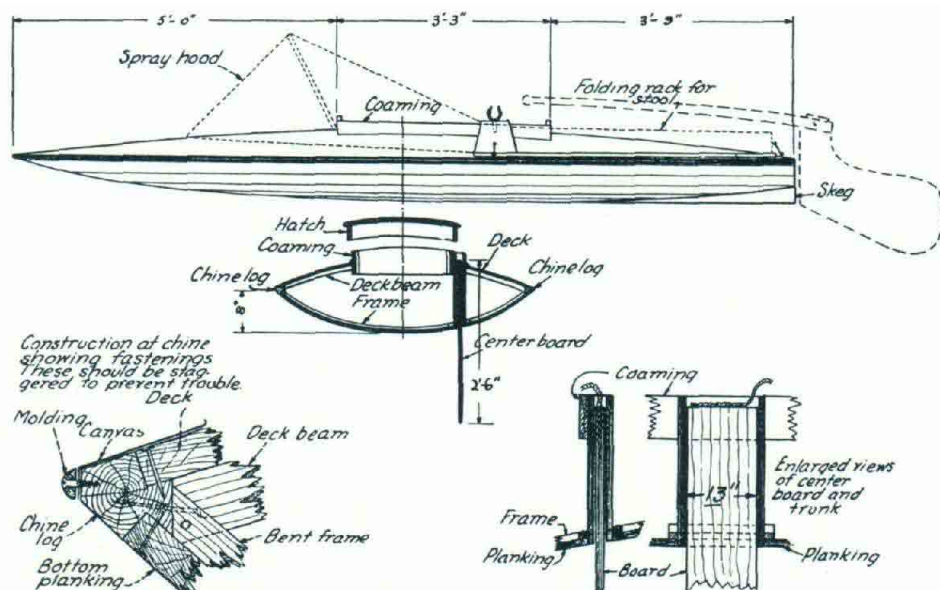
It looks as if the anonymous designer of this particular sneakbox attempted to improve on the usual construction method in the interest of simplicity. The chine log, which is straight in profile, together with the transom and breasthook, forms the building base on which the boat is constructed upside down. The frames, which are one-piece steam-bent circular arcs, are set up on the chines, and planking commences. The true Barnegat construction technique requires that the set-up plank be bent on a form to the required rocker first, and then the frames (two-piece sawn futtocks), transom, and harpin are added to the set-up plank.

A very interesting feature of the *Rudder* sneakbox is the circular sec-

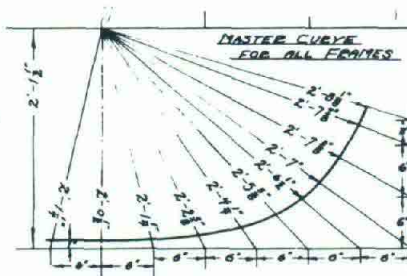
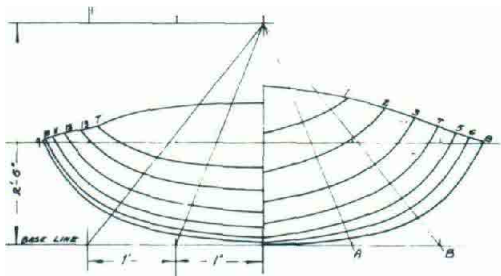
tional shape. In this case, the frames are all arcs of a 4'-radius circle. As a result, they can all be bent on a single form. The hull is constructed very much like a deck of constant camber. Like a deck's crown in profile, the boat's rocker is actually determined by the outline of the deck in plan view interacting with the constant radius of the frames. A set-up plank is not necessary to establish the rocker.

Although a more sophisticated hull shape would yield more stability, I'd guess that for the purposes of the design—an easily built boat with moderate capabilities used primarily for hunting—stability would be adequate. The design does not require lofting, or the construction of a building form and molds. Framing is easily made up. I think the chine log could be improved in terms of simplicity by splitting it into two pieces, as is commonly seen in stem construction, yielding a beveled inner log and a cap. This would eliminate the double rabbet and make bending the chine log easier. The log as shown looks too small inside the rabbet for the fastenings that have to be driven into it, while the outboard section is overly heavy.

Surprisingly, this is not a unique example of the use of a single sectional curve for framing up a sneakbox. More recently, designer John Gardner drew



from the *Rudder Sail Boat Plan Book*



from John Gardner's *Building Classic Small Craft*

up lines (somewhat after W.P. Stephens's Barnegat Cruiser) for a modern sneakbox that used a different, but related, sectional "master curve" method of determining hull shape. Unlike the previous boat's arc, the Gardner master curve is noncircular. Different length segments located at various positions along the master curve become the frame outlines. These segments are canted at a changing angle from stem to stern. This system offers an advantage in that the hull form is much more freely determined by the designer. In this case, the strong sheer profile and V-shaped sections forward have undoubtedly produced a boat with better rough-water sailing capability, and greater stability. A single bending form can still be used for making the frames, which in this case are laminated rather than steam-bent.

Planking and decking of the Gardner boat are $\frac{1}{4}$ " marine plywood with a synthetic, reinforced plastic covering. A set-up plank is required, as is a building form to achieve the necessary rocker (and sheer). Simple lofting (similar to that required for a flat-bottomed boat) is required. This more complex hull form requires a slightly more complex building procedure, and, as a result, is somewhat closer to the construction process of the original sneakboxes, despite the use of modern materials.

The Glen Witt design departs from traditional sneakbox construction in that it is a V-bottomed boat with separate topsides and a true chine and sheer. While separate topsides were a feature of a few earlier boats (there are lines for one in Chapelle's *American Small Sailing Craft*), the V-bottom is unusual. Construction is of $\frac{1}{4}$ " plywood planking over sawn frames and bulkheads. The bottom panels stand clear of the frames, supported by 1 x 2" bottom battens. Though the number of transverse frames has been reduced by half in this boat, extensive longitudinal framing takes its place.

The boat has a true beveled keel, two beveled chine logs, two beveled sheer clamps, four bottom battens, six deck battens, two carlings, and a strong-back to support the deck. There is no harpin, but a large breasthook is used to reinforce the bow. In all, I would guess that the weight and complexity of framing is close to that of a boat constructed by other methods.

Mr. Witt claims a weight of 115 pounds for the finished boat, which seems light. The savings due to glassed $\frac{1}{4}$ " plywood planking over 58' white cedar would normally be expected to amount to about 50 pounds on a sneakbox of this boat's 12 $\frac{1}{4}$ x 4 $\frac{1}{2}$ ' proportions. A traditional sneakbox of that size would in all probability exceed 200 pounds, all up. One factor which may account for the discrepancy is the fact that traditional boats would be ceiled with W stock. Another is a carvel boat's plank soakage. At any rate, a builder of this newer boat should not be disappointed if his vessel exceeds the designer's weight estimate by a reasonable amount, particularly if he installs a partial ceiling to keep his pants dry during chill autumn hunts—it's still very light for the type.

The V-bottomed sneakbox should show very good stability—there's plenty of reserve buoyancy in her vertical topsides, and she's a bit longer and wider than the traditional hunting model. The flat sheer is not as well suited to rough water as the Gardner boat's well-lifted forward sections, but is in keeping with many of the earlier sneakboxes.

The rudder is large and deep and quite unorthodox for a sneakbox. Its effects will be to give very positive steering, and to mitigate somewhat the forward concentration of lateral plane due to the location of the daggerboard on this boat. However, it is a very unsatisfactory arrangement, inviting damage on grounding, particularly if the daggerboard is raised a bit or pops up on contacting the bottom, leaving the

rudder vulnerable as the deepest part of the boat.

Such a rudder will not allow running up to a beach or marsh shoal, as it must be unshipped before it strikes the bottom, whereupon sailing control will be lost. Since this boat is intended as a duckboat, this would seem to be a major drawback over the traditional shoal rudder and protective skeg. In addition, this rudder cannot be shipped unless there is a sufficient depth of water. Anyone who has shared the maddening experience of hanging out over the stern of a boat while trying to ship a rudder in even a slight chop, out of control, with the windage of the mast and furled sail blowing the boat around, will appreciate the more traditional sneakbox arrangement. Added to this is the danger of tearing off the rudder or (worse) the transom on grounding.

Luckily, it would be a relatively simple matter for a builder to slightly enlarge the skeg and hang a more typical sneakbox rudder. Helm pressure will increase, but it seems a worthwhile trade-off for shoal-water work. Earlier builders tended to curve their daggerboards back, or locate them further aft, off-center beside the cockpit, as mentioned previously. If weather helm is perceived as a problem, modern builders might try these traditional alternatives.

In conclusion, the Barnegat sneakbox is an unusual, worthwhile small-boat type. It has enjoyed a 150-year period of development and use, both as a pleasure craft and workboat. The three modern examples mentioned here all exhibit interesting variations on the original method of construction, which was itself a simple and economical procedure. Let's hope that designers and builders alike continue to produce new versions of this unique American craft.

Steve Redmond is a designer of small rowing and sailing craft whose office is in Burlington, Vermont.

Plans source information:

Plans are available from Glen-L Marine, 9152 Rosecrans, Bellflower, CA 90706.

Suggestions for further reading:

Chapelle, Howard I. *American Small Sailing Craft*. New York: W.W. Norton & Co., 1951.

Gardner, John. *Building Classic Small Craft*. Camden, ME: International Marine Publishing Co., 1977.

Guthorn, Peter. *The Sea Bright Skiff*. Exton, PA: Schiffer Publishing Ltd., 1971.

The Rudder Sail Boat Plan Book. New York: Rudder Publishing Co., 1948.