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A Self-Righting Uncapsizable Cruising Dinghy – Part III

by **Eric Coleman**

Chief Details

Overall Length	14’
Waterline Length	13’ 3”
Beam	5’ 10”
Min. Freeboard	1’ 7”
Draft - Plate Up	9”
Draft - Plate Down	3’ 5”
Internal Ballast	76 lbs. (removable for trailing)
Centreplate	80 lbs.

Rig:	Bermudan (prototype)	
	Areas Main	67 sq. ft. (38 sq. ft. close reefed)
	Genoa	48 sq. ft.
	Working Jib	29 sq. ft.
	Storm Jib	12 sq. ft.
Weight of Canvas		5 1/2 oz. - working sails and storm jib
		4 1/2 oz. - genoa

Layout

The level of the bottom boards is raised almost to the top of the c/p case which is used as a toe rail. The reasons are: -

1. Crew can transfer from side benches to side deck very quickly with feet flat on the bottom boards under toe straps all the time. This is only required when driving the boat hard to obtain maximum performance.

2. It gives a large floor space for sleeping.

3. It gives a vast amount of room underneath for stowage of second anchor, paraffin, tinned food, etc. For tinned food, I use a large plastic washing-up bowl with a plywood overlapping lid.

The aft sections of the side benches are removable. One of them has locating chocks underneath so that it can be fitted across the cockpit at the forward end and used as a rowing thwart (shown on layout side view). 8’ 6” oars stow under side benches as shown. A sculling rowlock is provided.

Centreplate is hoisted by a drum winch and the wire leaves the case via a trunk so that water will not run into the boat when waterlogged. The ballast, in lead slabs, is removable for trailing. In the layout shown, water cans are stowed on top to keep heavy weights at the centre of the boat. 6" diameter buoyancy bags stow under the side decks.

Fore and aft compartments have large watertight hatches and the stern side buoyancy chambers can also be used for stowage. The forward compartment is big enough to crawl into for the odd snooze at anchor. Air beds stowed here do not have to be fully deflated and there is plenty of room for a 7' 6" inflatable dinghy. If no outboard is carried, the inflatable can be stowed on the aft deck.

The awning is permanently fastened to the forward bulkhead just above the hatch where it is rolled up and lashed. When set, the oars are stowed as shown so that they push out the sides to give more room. This also gets the oars out of the way. The material used on the prototype is of comparatively recent introduction in this country. It consists of a woven mixture of terylene and nylon with a matt finish. The appearance is virtually the same as cotton duck. The hairy nature of the material gives good thermal insulation because of the air trapped in it so that condensation in the awning is minimised. Advantages over cotton are freedom from shrinkage when wet and long life but no definite conclusions can be made until it has been tested for a season or two. The foredeck, although large, is a pretty exposed place so a small toe rail is provided.

Rig

A Bermudan rig is used on the prototype boat, not because it is necessarily the best for cruising but because it is bound to be asked for and there is the question of windage at anchor to be checked. The working sail area is 96 sq. ft. for a boat with an all-up weight of around 1000 lbs.

For coastal cruising, this will be as much as most people will want, particularly when single-handed. However, there are occasions when a fresh breeze drops rapidly leaving a popple which has a considerable slowing effect on a relatively heavy boat. By having a forestay 7/8 up the mast, a large genoa can be set in these conditions bringing the sail area up to 115 sq. ft. and avoiding the need for an outboard. Although the main can be rolled up for reefing, the more efficient system of reef points is provided. The mast is 17' 8" long and stepped in a socket on deck. It can be lowered after undoing the forestay by one person but two would be required in a fresh breeze.

At Anchor

When cruising, much of the time is spent at anchor and it goes without saying that hot meals should always be available. Sometimes there may be a gale blowing against the tide causing a short breaking sea. A short masted (lug or gaff) heavy beamy dinghy is OK in these conditions. The low windage of the mast avoids large angles of heel and the weight prevents the boat from being flung about when struck by waves. The top of the Roamer's mast is 20' 6" above the waterline which is a lot of windage so it is likely that the high stability will be fully utilised.

Underwater Design

The underwater shape is similar to modern dinghies except that the sections are flatter (less deadrise) and the bilges are swept up aft a trifle more than the racing dinghy. This latter feature reduces the amount of weather helm when heeled and gives a 'V' shape to the bottom of the transom so that, when deeply laden, there is no great increase in transom drag.

An external keep is fitted which is unusual in modern designs for the following reasons:-

1. The underwater surface area is slightly increased which means increased drag, particularly at low speeds. The sharp corners create eddies which add to low speed drag. The grip on the water by the keel will slow up the reaction of the boat to the rudder, will reduce manoeuvrability. These factors impair the racing efficiency of a dinghy and therefore restricts sales.

2. The timber, fastenings and work required will increase the cost and weight of the boat.

3. A greater angle of heel will result when the boat dries out on hard ground.

On the other hand, the following considerations apply to a dinghy designed primarily for cruising:-

1. The drag of a keel in light conditions is seldom of importance when on passage. Usually there are only six hours of fair tide available so there is no time to play around with ghosting when the wind fails. A practicable speed must be maintained by rowing or engine.

2. The reduction of manoeuvrability can **increase** the speed of a cruising dinghy by making the boat less exhausting to sail so that it can be driven harder for a longer time.

3. Most cruising dinghies spend a considerable time sailing in shallow water. The keel of Roamer (2 1/2" deep amidships) enables her to handle under sail in the normal way with the plate fully up.

4. The greater angle of heel on drying out can be largely offset by using deeper bilge rubbers (1 1/4"). The resultant hull protection will pay for itself in a few seasons.

Construction

Orthodox but stronger than usual with special emphasis on avoiding skill. Topsides, chine panels and foredeck are 8mm ply and 6mm ply elsewhere. The forward bottom panels have considerable twist which some people would find difficult in 8mm ply so 6mm is used for the bottom skin. This is then covered with 2.5mm strips of mahogany veneer glued on which gives nearly 9mm (3/8"). I would describe this strength of construction as 'moderate'. Ideally it would be preferable to add another layer of veneer to the bottom and a layer to the chine panels. Admittedly one may never strike a baulk of timber or a submerged withy. One may never drop the anchor over the bow when moving forward with a depth of less than a foot.....but such things can happen.

Fittings

The greatest strains on fittings are not always a direct result of sailing the boat. Take the tiller for instance. To design one to withstand all the strains of controlling the rudder is quite inadequate for a cruising dinghy. The greatest strain occurs when the helmsman loses his balance whilst going about and falls on it. This will, of course, be more likely to occur when beating round Beachy Head on a dirty night.

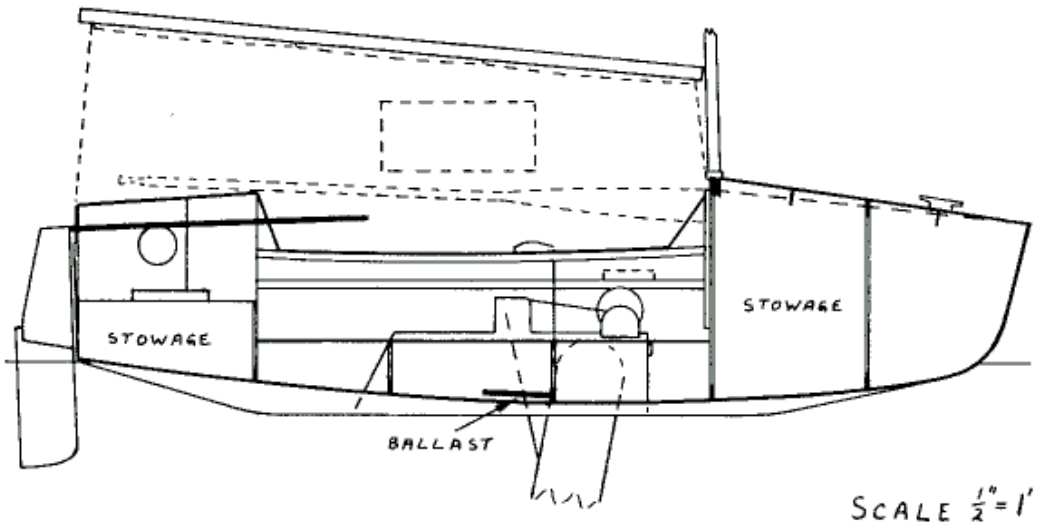
When is the greatest strain put on the rudder fittings? Consider, for a moment, an old potterer like me trying to push up some ditch leading nowhere. I am poling along with an oar, the wind is ahead and as I wrestle the blade out of the mud, the boat blows backwards. I have forgotten to remove the rudder from the transom, the blade is raised and the tip is the first thing to strike the mud bank astern. Immediately the rudder is pushed hard round so that I cannot remove it and the blade bends as the momentum of the boat continues to carry it astern. At this moment the force bending the rudder blade is multiplied by leverage at least tenfold by the time it reaches the pintles. A cruising dinghy has to be tough, particularly when "just pottering".

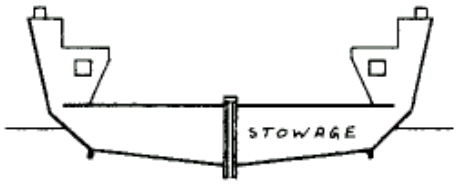
Leaving the subject of strains which I have only touched upon, there is the question of finding suitable fittings. The transom pintle I specify for Roamer is adequately strong but only 2 1/2" long. The rudder only needs a bump on the bottom and it is off. A minimum practicable length would be 5".

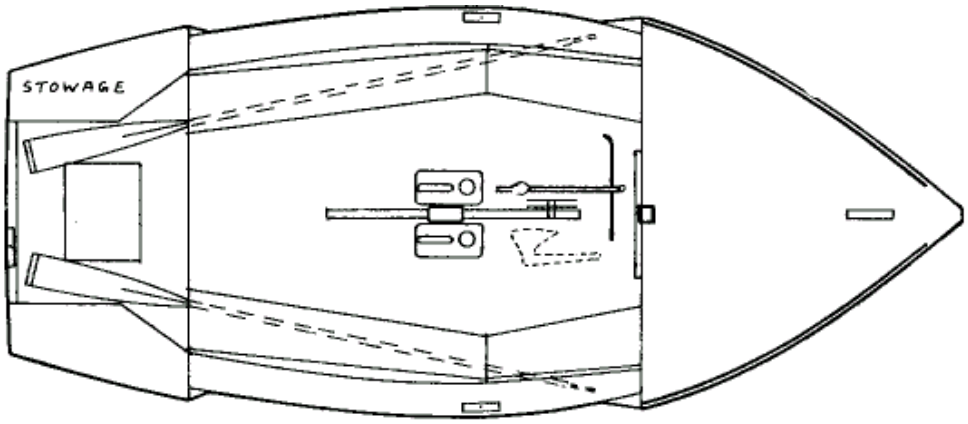
Alternative Versions

I don't know of any best rig for cruising dinghies and I think it has yet to be evolved. For lengths up to 14' the gunter has many advantages although above this length, the yard begins to be unhandy. Gaff rig with topsail probably sets the largest area on a short mast. In fresh winds it might be possible to stow the gaff rig and hoist a bermudan mainsail giving an efficient rig of low windage, the snags being complexity and cost. Whatever the rig, experimentation will be encouraged.

It sometimes happens that, for family reasons, a cabin is required and a beamy boat such as Roamer could well be modified, thus saving the cost of another boat. The stern structures could be converted to a cabin for two children, forward of this a short but wide cockpit, then a forward cabin with two 6' 6" berths. Cooking could be carried out under a cockpit awning which would give comfortable headroom. Such a layout avoids the stern down attitude of pocket cruisers with the whole crew in the cockpit aft. The crew being near the point of maximum beam can still use their weight effectively when sitting to windward and the resulting performance would enable the boat to sail rings round the average pocket cruiser.







Plans

Fully detailed and building instructions leave the builder nothing to work out for himself; all parts are fully listed together with suppliers' addresses.

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