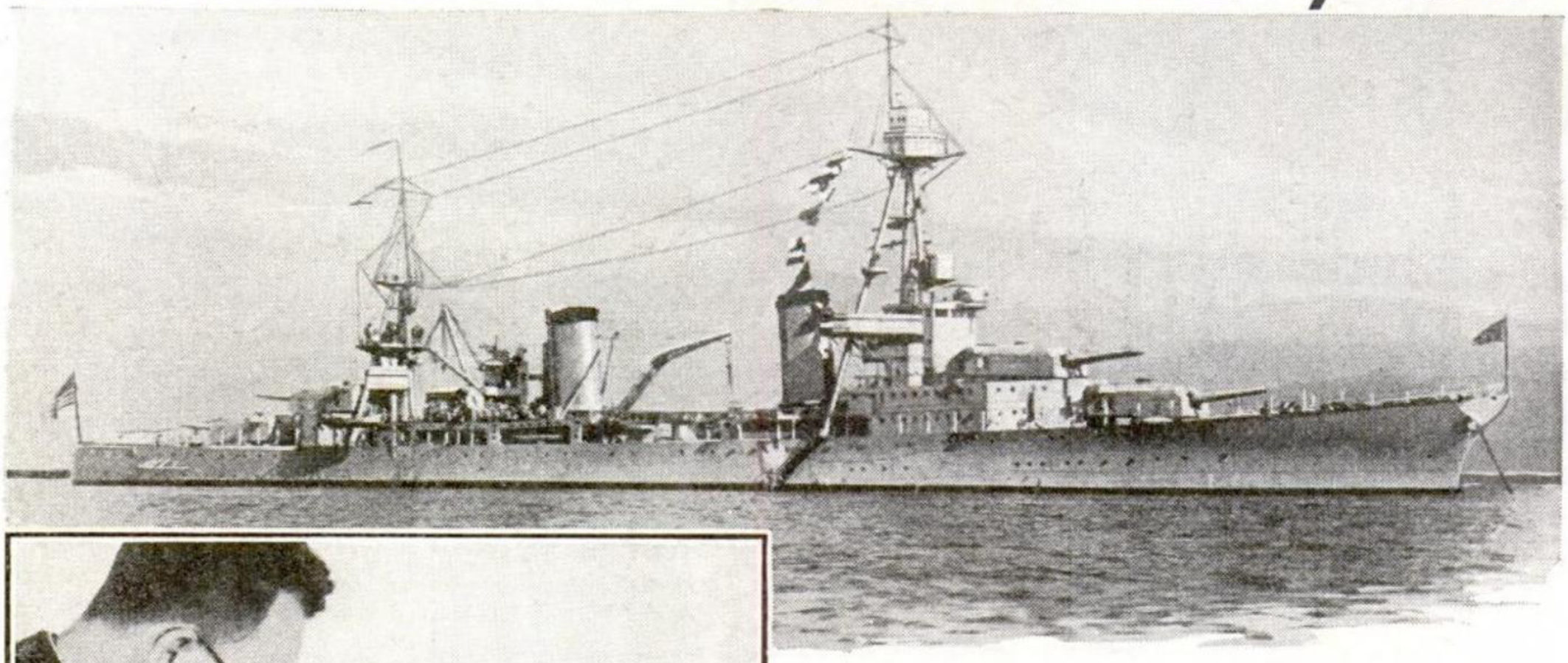
MIDGET MODEL *of the*



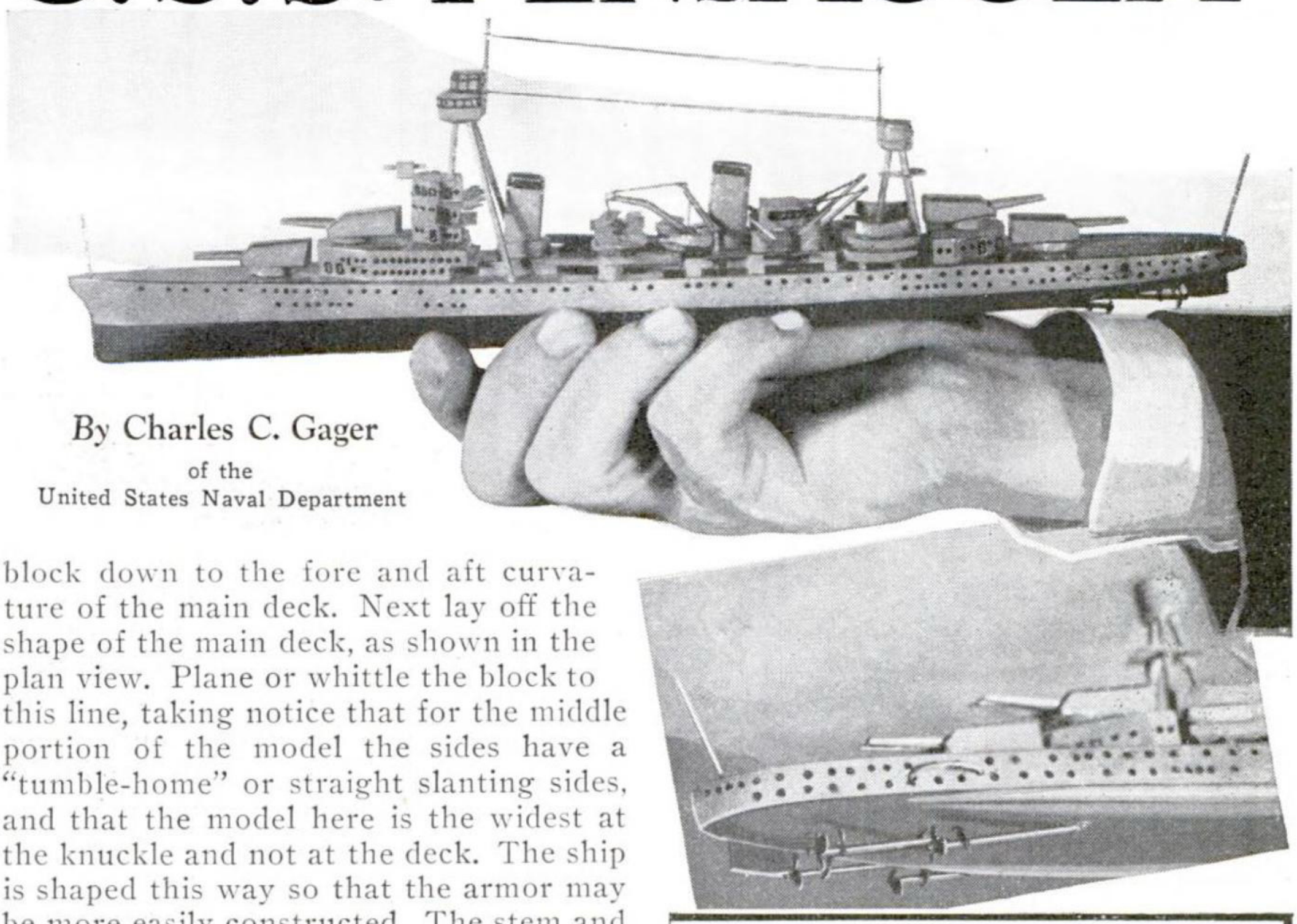
THROUGH permission from the navy department we are able to publish these working plans for constructing a model of the 10,000-ton Treaty cruisers, "Salt Lake City" and "Pensacola," which are sister ships. It is to be noted that the department has permitted the publication of sections showing the underwater form of these ships, so that, together with the other plans, an exact miniature model may be made of these very interesting naval vessels.

The "Salt Lake City" and "Pensacola" were the first two of fifteen ships built or being built under the limitations set by the Washington Treaty. Their displacement or weight is 10,000 tons without fuel or fresh water for the boilers, or about 11,600 tons including the latter. They are 585 ft. 6 in. long over all, by 65 ft. 3 in. extreme breadth, by 19 ft. 6½ in. draft. Their battery consists of ten 8-in. 55-caliber guns, and four 5-in., 25-caliber anti-aircraft guns. In addition each ship carries four seaplanes which are launched from two catapults. These cruisers are driven at a speed of 32.5 knots or about 37 land miles per hour. The propulsive machinery consists of eight oil-fired boilers and steam turbines with reduction gears driving four propellers and developing the enormous amount of 107,000 hp. The ships have a flush main deck, a bulbous forefoot forward, which decreases the resistance, and a moderately broad stern with V-sections under water, aft.

The model shows a pleasing, well-balanced design which is not too complicated for the amateur to construct, and which contains sufficient detail for the worker to exhibit his skill. The plans are drawn on a scale of 1 in. equals 50 ft., which makes the model one-six hundredth the size of the actual ship. The dimensions are set down to the nearest 32nd of an inch. The model can be made with ordinary tools and material.

First shape up the hull from a block of clear pine or some other soft wood 1$^{9}/_{32}$ in. wide, $^{31}/_{32}$ in. deep, and 11¾ in. long. The main deck line should be laid off on each side of this block, as shown on the side view. Although the deck of the ship is actually cambered or curved from side to side as shown on the sections, this curvature is so small that it may be neglected on the model if desired. Plane the wood

U.S.S. "PENSACOLA"



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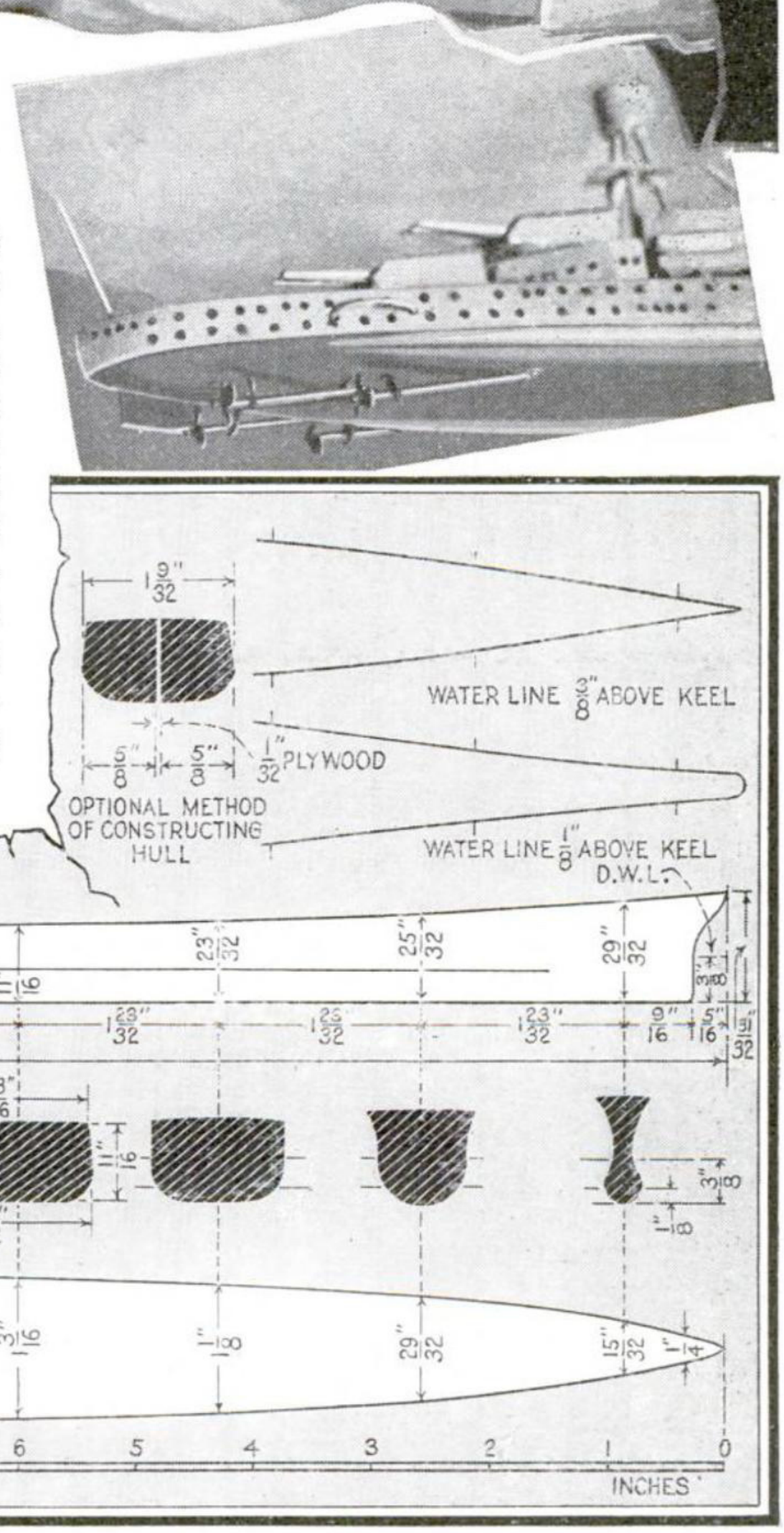
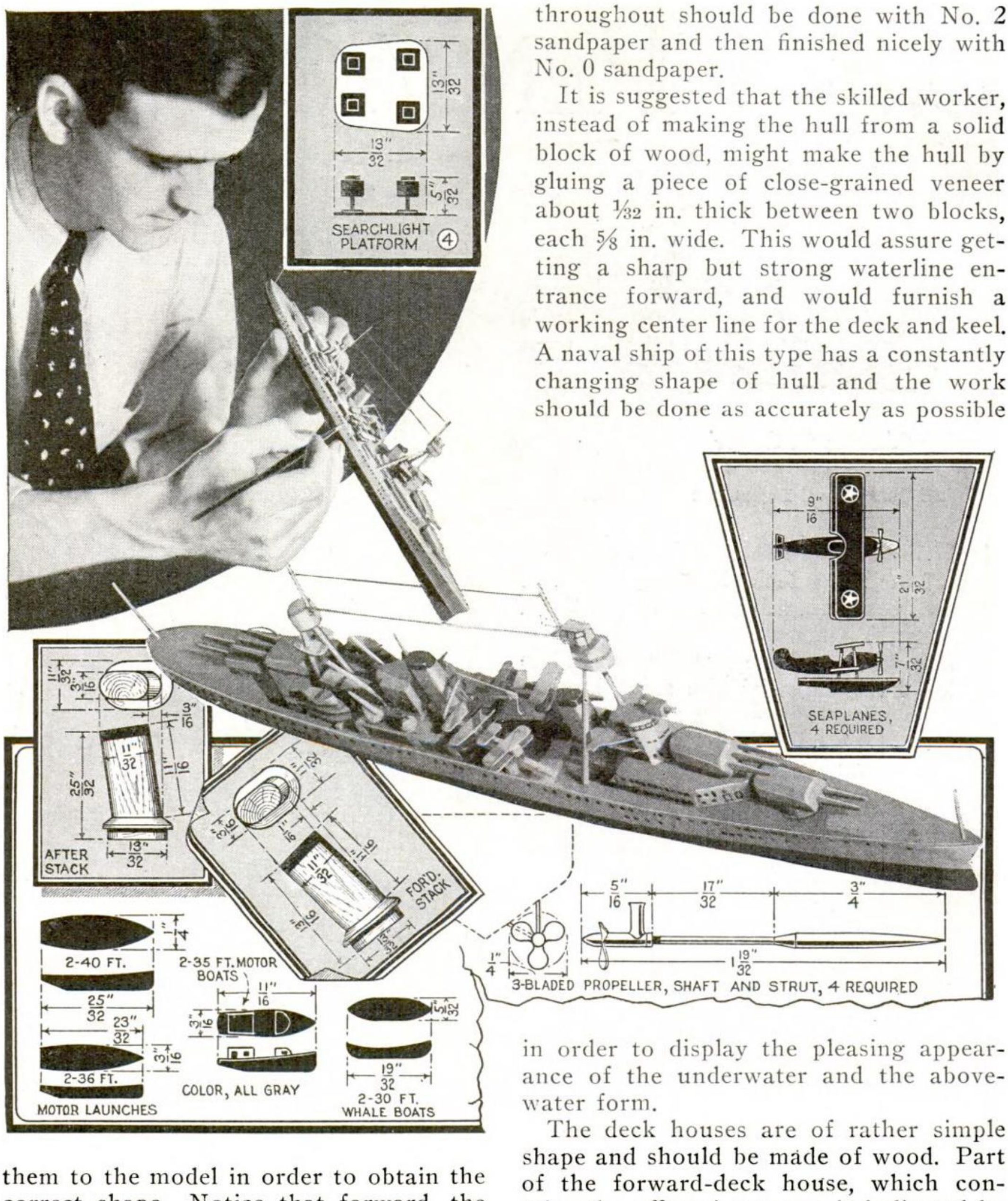
block down to the fore and aft curvature of the main deck. Next lay off the shape of the main deck, as shown in the plan view. Plane or whittle the block to this line, taking notice that for the middle portion of the model the sides have a "tumble-home" or straight slanting sides, and that the model here is the widest at the knuckle and not at the deck. The ship is shaped this way so that the armor may be more easily constructed. The stem and stern profiles should then be shaped up as shown in the side view, omitting the rudder and horn, which are to be fastened on later. Draw the two knuckle lines as guides for shaping the hull and make cardboard templates of the sections, applying

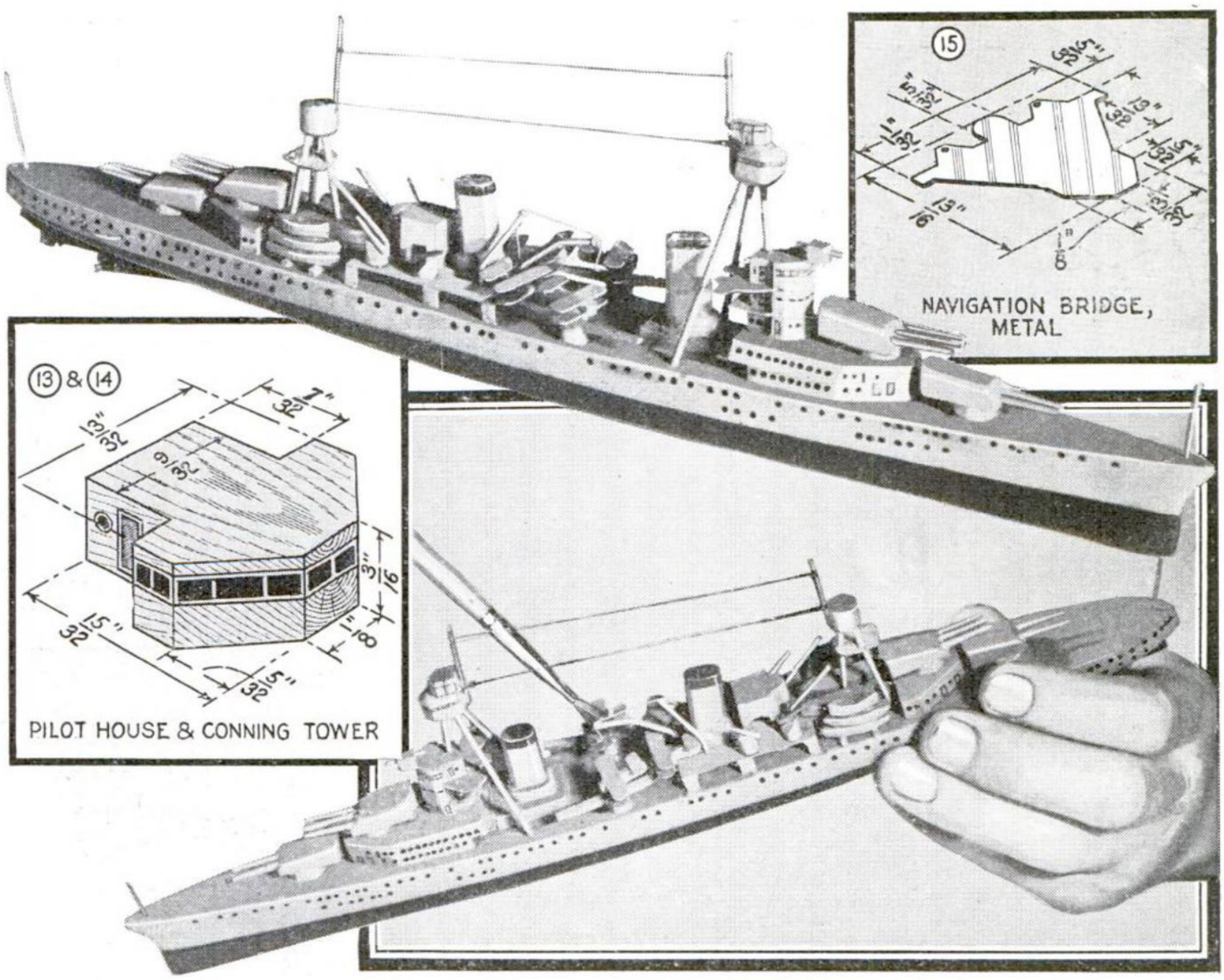




them to the model in order to obtain the correct shape. Notice that forward, the model is very sharp at the waterline, as shown in the plan view of this waterline ⅜ in. above the keel, while underwater forward the model has a well-rounded bulb, as shown in the plan view of the waterline ⅛ in. above the keel. A gouge will not be of much use in obtaining the flared sections above the waterline as the model is so tiny. It is better to remove the wood with No. 2 sandpaper held on a curved block. Indeed the rough fairing throughout should be done with No. 2 sandpaper and then finished nicely with No. 0 sandpaper.

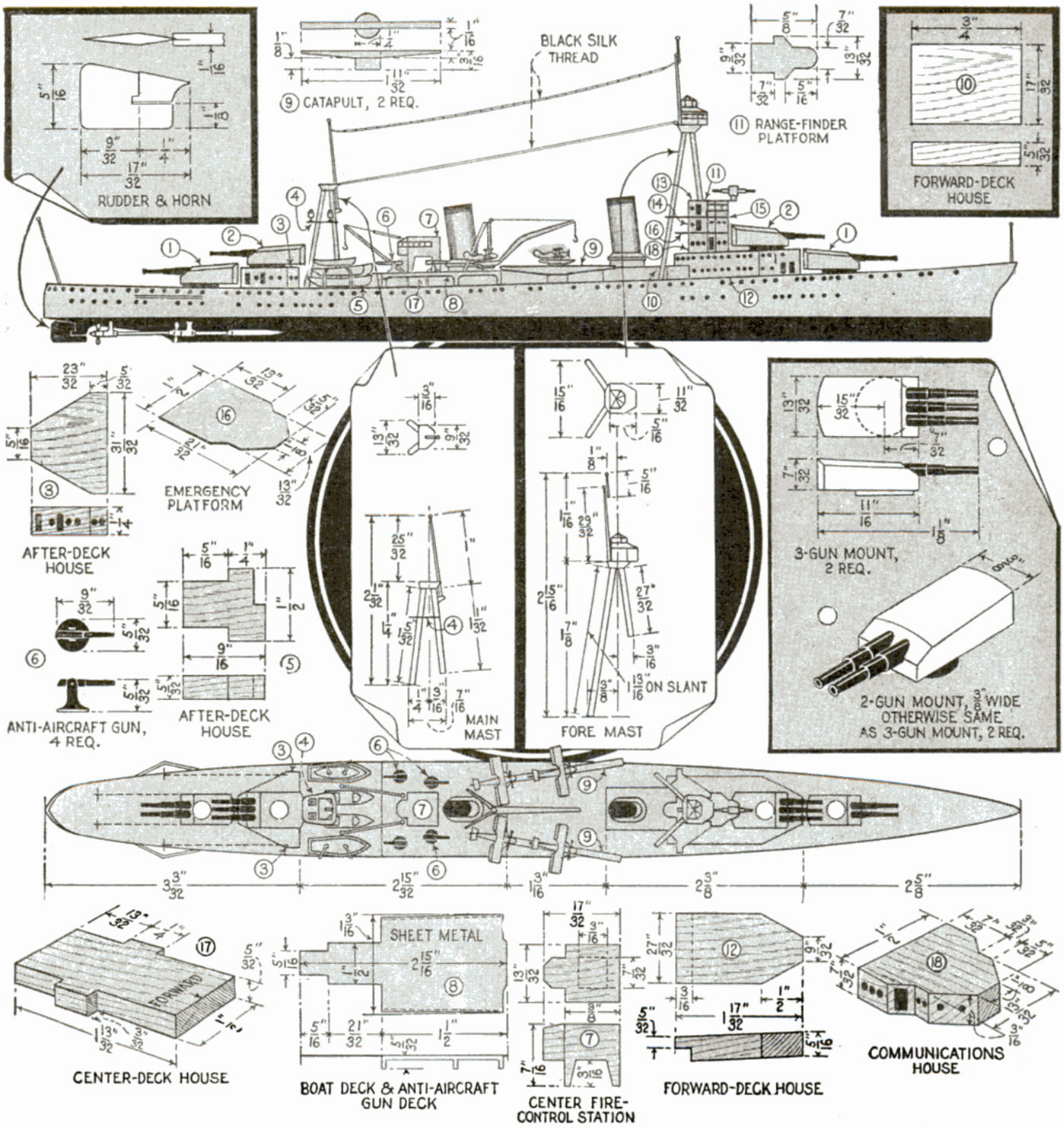
It is suggested that the skilled worker, instead of making the hull from a solid block of wood, might make the hull by gluing a piece of close-grained veneer about 1/32 in. thick between two blocks, each ⅝ in. wide. This would assure getting a sharp but strong waterline entrance forward, and would furnish a working center line for the deck and keel. A naval ship of this type has a constantly changing shape of hull and the work should be done as accurately as possible in order to display the pleasing appearance of the underwater and the above-water form.

The deck houses are of rather simple shape and should be made of wood. Part of the forward-deck house, which contains the officers' quarters is indicated by No. 12, while the other part of the forward-deck house, containing air intakes to the forward boilers is No. 10. The center-deck house containing air intakes to the after boilers and also containing the galleys, is No. 17. Nos. 3 and 5 detail both parts of the after-deck house, the first containing washrooms and shops, while the latter is the part located under the main mast, and carries provisions and a radio transmitter. No. 4 shows the search-



light platform on the mainmast, No. 6, the anti-aircraft guns and No. 7, the center fire-control station, from which the firing of the guns is controlled. The pilot house, No. 13, and the conning tower, No. 14, are similar in construction. The latter is an armored station from which the movements of the ship are controlled in time of battle. The superstructure decks and platforms should preferably be made of thin sheet metal, cut to shape with a pair of shears and touched up with a file. The edges of unit No. 8, the boat and anti-aircraft gun deck, are bent over at right angles along its greatest width, and it is fastened over units Nos. 5 and 17. Upon unit No. 11 is placed the range finder, which is an instrument used for determining the distance to the enemy. Unit No. 15 is the navigating bridge, and on this platform are stationed the officers who are controlling the movements of the ship. No. 16 is an emergency platform, while No. 18 is the communication house and main radio station. Two catapults, No. 9, for releasing airplanes, are required. No. 1 shows the 2-gun mounts and No. 2 the 3-gun mounts, two of each being required, one fore and one aft.

The stacks are made of wood. Note that the after stack is slightly shorter and has a greater rake aft than the forward stack. Likewise, the main top mast has a greater rake aft than the fore top mast. The legs of the tripod masts should be made slightly longer than the dimensioned drawings so that they may be recessed into the hull or deck houses on which they are mounted, and into the top blocks. Metal rods will make better and stronger legs for the masts than wooden ones, but the latter will serve the purpose. The roofs of the 8-in. gun houses are rounded from side to side and the guns should be recessed into the houses. The guns may be trained or moved horizontally by mounting the house on its base with a brad at the axis. Four types of small boats are shown and are to be shaped from small blocks of soft wood. Davits made of wire for the model are fitted for use when carrying the 30-ft. whale boats outboard. The catapults also may



be made to swivel. The seaplanes have only one pontoon each, which together with the body may be of wood with the wings of sheet metal or cardboard. The four propellers and struts or hangars are made of thin sheet metal and the shafting of wood or from a rod. Each strut has two arms from the shafting to the hull, one at a small angle to the horizontal and one nearly vertical as shown on the sections for the inboard propellers. These struts may be made of sheet metal and the ends which abut against the hull may be sharpened and pressed into the hull. The outboard propellers project beyond the widest part of the hull and are protected from damage by propeller guards, made of wire. The rudder and horn are diamond shaped, and for accurate work they may be constructed of wood and glued in place.

The model should be painted gray above the waterline, 3/8 in. above the keel, and a brick red below. Port holes may be represented by black dots and the outline of the doors inked in. A still better method of simulating them, is to use hollow rivets set in shallow holes. Color the rims gray as the hull. Also, set the deck houses, turrets, etc., in place on the deck, pencil around to outline their position, and then paint both these units and the deck separately before gluing in place.