

which provides a small measure of additional longitudinal stability and a visually pleasing outline.

The width of the squared-off tail block on the hot dog or general purpose board is usually from three to six inches. Most surfers seem to prefer about five inches. If this dimension is too small, it requires too bulky a tail section (with poor effect on stability in turns) or too long and narrow a tail (with loss of lift).

#### PLANING SURFACE AND TRANSVERSE BOTTOM CURVATURE

The flatter the bottom, transversely, on a general purpose board, the more sensitive it will be to turning pressure, particularly in combination with dropped rails. This is due to the fact that the flat or relatively flat bottom surface causes the board to ride higher up on the water where it can move from side to side with less side-wall pressure to contend with. As mentioned above, a completely flat bottom causes the board to lose stability, especially in riding at high speed over thick foam left by the preceding wave. To minimize side slippage in the soup, a small skeg about  $1\frac{1}{2}$  inches high and 4 inches long depending from the center of the board approximately  $3\frac{1}{2}$  feet from the bow, has been found successful, although its use requires turning from the rear position to keep the belly-skeg airborne during the turn.

Most surfboards, of any class, have some degree of transverse curvature which blends in with rounded rails. A transverse curvature of approximately  $9/16$  of an inch for 18 inches of width at the forward end of the planing surface produces a satisfactory combination of turning sensitivity and stability when properly combined with other elements of design as discussed elsewhere. This curvature

may steepen in the bow section (a crown) for parting chops. For *maximum-speed capability*, whatever degree of curvature is used at the forward end of the planing surface, that amount must not change all the way aft. In other words, a template, cut to the given curvature and held at right angles to the bottom surface, could be moved aft along the planing surface and remain in contact with the bottom surface to the very end. Such a high speed planing surface is a section of an oblique cylinder. Any variation in the degree of curvature will produce drag just as longitudinal curvature or rounded breakaway edges will do.

#### WEIGHT

Heretofore, weight has been a factor usually considered alone. Those who wanted a more stable board preferred greater weight; those wanting a board easier to maneuver usually chose the lighter weight. At present however, the understanding is spreading that weight and maneuverability are bound in with other elements of design. A board with a quick turning bottom surface and tail features can weigh 35 or even as much as 40 pounds and still feel fairly light in riding position. On the other hand, a board weighing only 25 pounds, while vulnerable to wind and cross chop, can feel heavy and sluggish on the wave due to the shape of its bottom, tail and rails. Accordingly, as elements of design and their function become more clearly understood, there is a trend toward slightly heavier boards among surfers who prefer moderate and large waves. In combination with a faster and more maneuverable bottom design, the average weight may be effectively raised with some advantage from, say, 29 pounds for a 10 foot board to around 33 or 34 pounds or more.