

centuries ago. They invented the *keel*—a projecting plate running end to end along the bottom of the boat. Later came the *centerboard*, which is a keel that can be raised or lowered as needed.

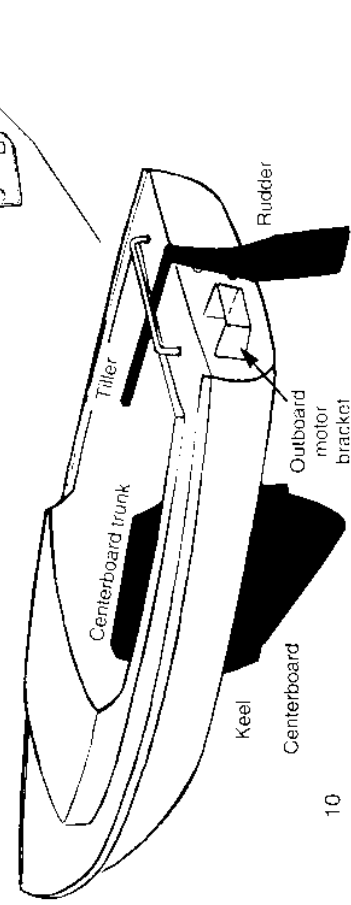
The keel and centerboard provided “lateral resistance” to a wind blowing a sailboat sideways, and helped keep it on course.

Now you have the basic blueprint for a working sailboat: a boat, a sail, the wind, a rudder, and a keel or centerboard.

A sailboat is not as complicated as an internal combustion engine—but not all that simple either. Take design, for instance. Sailboats, like cars or planes, can be designed for specific purposes, such as recreation, racing, or long-distance cruising. They also can be designed for specific kinds of users—beginner or advanced, amateur or professional, child or adult—or specific kinds of water: big lake, small lake, bay, or open ocean.

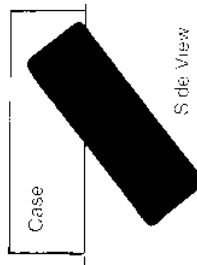
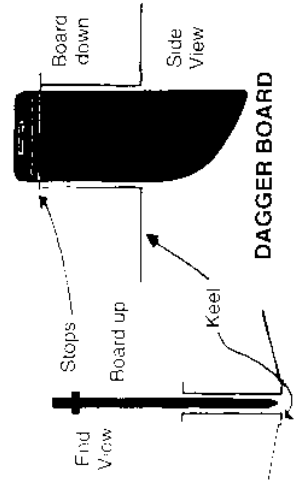
Hulls can be designed in various ways: with a flat or rounded bottom, narrow beam or wide beam. A boat’s parts can be made of wood, aluminum, fiberglass, or a combination of these materials. Its bow can be pointed, flat, or rounded. Its sails can be rigged in different ways, and there are a number of variations in keels and centerboards. Let’s look at a few.

Most small sailboats in this country, both racers and day sailers, have centerboards rather than keels. The board may be made of wood, iron, bronze, fiberglass, or aluminum. It is hung on a pivot at its forward (front) end so that it can be raised or lowered through a housing called a *centerboard trunk*. When lowered into place, the centerboard increases the boat’s resistance to a



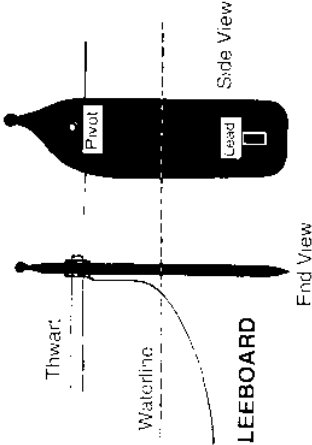
wind trying to blow it sideways. The centerboard can be adjusted up or down according to the wind’s force and direction, the boat’s course, and the water’s depth.

Close relatives of the centerboard do the same job but look different and have different names. *Dagger boards*, for instance, move straight up and down in a narrow housing (trunk), and are much less maneuverable than centerboards.



BILGE BOARD

Bilge boards are centerboards located in the *bilges*, or opposite sides of the hull. They are often used on the flat-floored racing craft known as inland lake scows.



Leeboards are simple versions of bilge boards, and are mounted on (and worked from) the outside of the boat. They are used mostly on canoes and other small craft that have no centerboard or daggerboard trunk.

Catamarans, which have twin hulls with a platform between, usually have a centerboard or dagger board in each hull. The *trimaran*, which has a large central hull flanked by two smaller hulls, gets lateral resistance from the *lee hull* (the hull away from the wind) and does not normally use boards of any kind.

Now let’s look at some of the main types of sailboats.