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? WHY THE WEATHER ? Mailed September 9, 1933

WIND AND SAILS

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For some years engineers have been studying, with the aid of wind-tunnels and other special apparatus, the effects of wind pressure and air resistance on aircraft, but only recently have similar investigations been undertaken with respect to the sails of water craft. Some remarkable facts have been brought to light in this new field of research and they can hardly fail to influence both the design of sails and the methods of handling them. One expert, Dr. T. Tanner, suggests that if the hull resistance of a vessel were known from tank experiments, "the speed of the vessel in any given wind and in any direction could be predicted from wind-tunnel tests," and he thinks that "skill in the art of sailing could be reduced, apart from other considerations, to ability to set the sail in the required position determined by its aerodynamic characteristics."

Dr. Manfred Curry's remarkable book "Yacht Racing," the second edition of which in English appeared in 1930, is a revelation to yachtsmen of the old school, who little suspected the extremely complex interactions that occur between wind and sails. Nobody dreamed, for example, a few years ago that a sailing vessel is more forcibly propelled by a suction or negative pressure on the leeward sides of her sails than by the impact of the wind on the windward sides.

One of the many novel discoveries is that the driving force of a yacht's mainsail is reduced from 20 to 40 per cent. by the presence of the mast, which breaks up the wind stream into eddies. A suggested solution of the difficulty is to bend the sail to a vertical wire stay midway between two masts, one on each side of the yacht. The masts would incline inward and meet at their upper ends.

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