

Six Meter

The Six Meter class showed an outstanding revival both here and abroad during 1951, the high spot of the season being the American team's victory in the British-America Cup Races. Although the Americans got off to a bad start by losing the first three races they took the last four to win the series four out of seven.

The American boats were the veteran Goose owned by a syndicate of Seawanhaka Yacht Club members (Joseph Ridder, managing owner), Llanoria sailed by Magnus Konow, and Herman Whiton's Firecracker. All three boats were designed by Sparkman and Stephens and built by Henry B. Nevins at City Island, N. Y.

On Lake Ontario the Silas George Cup was again sailed for in Six Meters and was returned to the Royal Canadian Yacht Club when Ray Dixon sailed Circe to victory over Meteor, representing the Youngstown Yacht Club, and Stork from the Rochester Yacht Club.

There is talk of at least one new Six Meter being built in this country for next year. A new one is being built in England, and a new boat has already been ordered for Sven Salen, prominent Swedish yachtsman.

The next British-America Cup Race will be sailed in 1953, but next year there will be international competition in the Six Meter class in the olympics and it is probable that there will be a race for the Gold Cup.



THE JET THEORY OF SAILING

An Explanation of Jet Action in Sail Performance

By HERMAN F. WHITON

ONE GREAT DIFFERENCE between airplanes and sailboats is that a sailboat derives its motive power from the movement of the air itself. Another lies in the low velocities and relatively low changes in pressure over large areas of the sails, rather than the high velocities, sharp pressure changes and big concentrated forces with an airplane wing.

From simple physics, the energy content of a given volume of air, moving at a given rate, and of known density, can be computed. The volume of air involved in the action of a sail is closely estimable simply by inspection. From this it is possible to estimate how much energy is involved in the air which the sail uses, and to make some rough but important estimates of the relative values involved. Certain theoretical consequences may be outlined and from them evolves the theory of the importance of jet action in sail performance.

First of all, the air is divided into two parts. (See Figure I.) The larger part passes on the windward side of the sail and this volume of air tends to be compressed while the smaller part, on the leeward side, tends to be rarefied. To visualize the situation one should picture the sail moving obliquely into the wind, acting as an advancing shield and keeping the wind off the air which is passing to leeward. Let us, for convenience, call the mass of air passing to windward of the sail $3M$. Obviously it is forced to turn obliquely across the path of air behind it until it has moved completely across the sail, moving bodily sidewise. Then it is released off the leech with great attendant increase in velocity. Note in Fig. I that all the air caught between the zero and plus 4 lines has been moved obliquely and bodily to the left.

At the point of release, the air is hemmed in by the leech and by the relatively undisturbed new air coming in to windward. This constitutes a jet, and its efficiency affects the performance of the sail to a major degree. In other words, the energy in the air caught on the windward side of the sail has been partly transformed by changing the direction of the moving air and jetting it backward, creating a driving force in the opposite direction, as shown in Fig. I, which depicts the lateral movement.

The smaller air mass, containing approximately one-third or even less mass and energy than that which has passed to windward, denoted as of mass M , passes to leeward where it tends to go straight ahead and expand according to the laws of physics. In this it is assisted by the protection afforded by the advancing surface of the sail.

It expends its energy if unmolested, creating a partial vacuum at the luff of the sail. Of course this is an important factor in its driving effect, but considerations of simple geometry indicate that it must be much smaller than the forces developed by the mass $3M$, or more, to windward. This vacuum is augmented at the after edge of the sail by the jet on the windward side.

The somewhat rarefied air along the leeward side moves rapidly and easily because of this rarefaction and it is confined against the sail by the air further to leeward which approaches a more normal pressure. The fast-moving rarefied air close to the sail mingles with the current off the windward side and tends to reinforce the joint jet action.

The efficiency of the sail may, as we know, be substantially increased by placing the *leech* of another sail in front and to leeward. (See Fig. II.) While the effect of this is to decrease or even destroy the partial vacuum on the leeward side, it so accelerates the air movement that it augments the main rear jet all the more. To do this it must deliver its jet at an angle oblique to the boat, otherwise the two streams would not be approximately parallel where they meet as is apparent from Figure II.

The meeting and augmenting can be much more efficiently done by placing the second sail so that its leech is more closely parallel to the main leech. This is done with an overlapping, or genoa, jib, with the result that the jets from the two sails merge more or less into one at the after leeches where the velocities are at or near a maximum. See Fig. III.

Again, the increased efficiency is at the expense of destroying the vacuum at the forward edge of the mainsail, which results in a net over-all gain only because this vacuum is a minor source of energy at best. This theory is believed to explain why a boat under mainsail and jib can go faster with backwind in the mainsail. Further, it is believed to explain why a small jib cannot be trimmed flatter than, say, 10 degrees. Moreover, it offers an explanation as to why a large jib can be trimmed much flatter, so that a large portion of the mainsail can be aback and the boat still going well.

It offers a further explanation as to why the idea that leeches of sails used together should be parallel is usually correct. It also offers possibilities of interpreting other phenomena of sail trimming in terms of maximum jet velocities at the leeches of the sails such, for instance, as is obtained by slacking the main sheet as far as possible on a reach without letting the sail go aback.

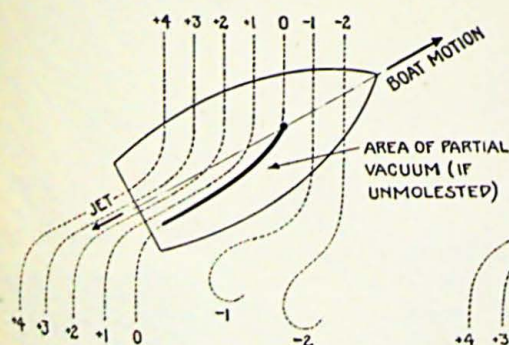


FIG. I

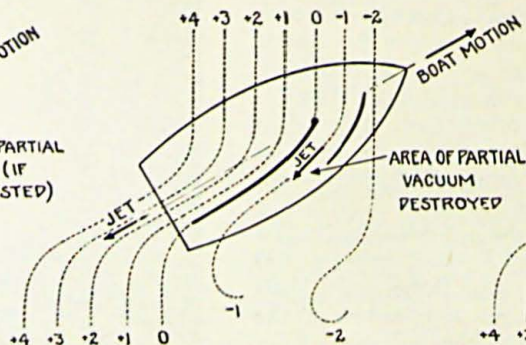


FIG. II

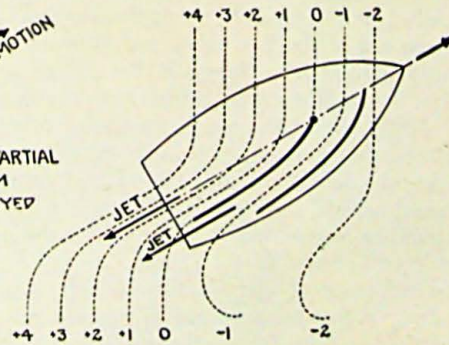


FIG. III



Seven (if you will look carefully) British "Sixes" caught by the camera during a spinnaker start off Cowes, Isle of Wight

SIX METER REVIVAL

► Whenever yachtsmen are about to give the 6 Meter Class up as a moribund victim of today's high prices, it always comes up with a flurry of new life. The most surprising development in the class recently is that Sven Salen, who for 25 years has been Sweden's leading exponent of Sixes in international competition, has come to an American designer for plans of a boat he is to build this winter. Sparkman & Stephens, of New York, have the design under way at this writing. One American yachtsman is reported to be on the fence as to whether he will or won't build a boat to the class for next year, and one Six is being built in England.

Next year's activities for the class, internationally, will be the Olympic Games and a race for the Scandinavian Gold Cup, and for 1952 is scheduled the second series for the new British-American Cup. The first series for this trophy, which replaces several of the same name that have produced excellent racing over the past 30 years, was sailed at Cowes last summer and the American team of *Goose*, *Llanoria* and *Firecracker* came through to win four out of seven races after losing the first three straight.



Upper left, Sprite, sailed by Patricia Bancker, winner in the Atlantics. Upper right, International class winner Susan, skippered by Emil Mosbacher, Jr.

Race Week Winners

Handicap, Division I, Tidsfordriv, R. F. Sheehan. International, Susan, Emil Mosbacher, Jr. S class, Fidget, W. J. Donovan. Atlantic, Sprite, Patricia Bancker. Star, Flame, C. S. Ogilvy. 210, Comet III, E. A. Hills. 110, Revonoc, Lawrence Conover. Raven, Old Crow, P. J. Roosevelt. Thistle, Brer Fox, Richard Brainard. Luders 16, Galu, F. W. Lorenzen. Rhodes 18, Huck, Robert Curtis. Hurricane, Two Bits, C. Nelson. Lightning, Championship Division, Cinderella Too, Noroton Junior Y. C. Lightning, Division II, Black Jack, Robert Connor. Comet, Marbet, Eleanor Edmunds. Snipe, No. 8800, Harry Allen. Meteor, Yankee Clipper, Peter Lorson. Bulldog, Small Fry, William Gundy. Blue Jay, No. 24, Betty Weed. Penguin, Hi Gene, Eugene Thorman. Arrow, Laguna, Carrie Neher.

Left, Revonoc, Jr., 110 winner sailed by Lawrence Conover. Right, R. F. Sheehan's Tidsfordriv, winner in the handicap class





Beken & Son

"Marletta," "Johan," and "Llanoria" seen during the British American Cup series

AMERICAN SIXES WIN BRITISH-AMERICAN SERIES

► The three-boat American 6 Meter team came from behind to win the British-American Cup series off Cowes, which ended Aug. 1, by four races to three, after being on the short end of a 3-1 score after the fourth race. The series marks the 30th anniversary of British-American team racing, which began in 1921 when the first American Sixes were built.

Of the American team, *Llanoria*, the only U.S. post-war-built Six in the series, was sailed by Magnus Konow, who used to race Sixes against us as a Norwegian and now, as an American citizen, is on our side of the fence. *Goose*, built in 1938 and an outstanding international competitor ever since, is owned by a Seawanhaka C.Y.C. syndicate, and was sailed in different races of the series by Robert B. Meyer, Herman F. Whiton, and Eric Ridder. *Firecracker*, ex-*Mood*, built in '36, was sailed in most of her races by her owner, Herman Whiton, an outstanding exponent of the class for 25 years, relieved in the two races in which he sailed *Goose* (substituting for her skipper, Bob Meyer) by Glen Foster, one of Whiton's crew.

Against them were three top British Sixes, *Johan*, J. Howden Hume; *Marletta*, Lt. Col. J. E. Harrison, and *Circe*, E. J. K. Coles. Mr. Whiton and Kenneth Preston, of *Circe's* crew, were the team captains.

The series was in doubt to the very end. The British took the opener, 13½ points to 8, with *Marletta* and *Johan* on top, in a 20-mile breeze in which the American suffered by starting with light weather mainsails. Next day, under more suitable canvas, the visitors squared the series, winning by the same score with *Llanoria* and *Firecracker*

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QUINCY BAY RACE WEEK

► The 14th annual Quincy Bay Race Week, sponsored by five clubs—Merrymount, Quincy, Town River, Squantum, and Wollaston—held off the Granite City, July 18-22, opened with the biggest first-day fleet in postwar years. Thereafter, weather and other factors conspired against the event and held the five-day total of 626 boats, somewhat below the entry list of a year ago.

After a fine opening race with 131 sail in an east wind under Quincy Y.C. colors, a vicious thundersquall struck on the second afternoon during the Town River Y.C. regatta, capsizing over a dozen boats and disabling many more. Only 42 boats out of 112 finished. Merrymount drew a whole-sail northwester for the third afternoon, as the fleet dropped off to 93 sail. The biggest turnout came on Saturday when Wollaston started 162 boats in a puffy westerly, but on the final day a smoky southwester was so strong as to prevent several Hingham Bay classes from appearing, dropped Squantum's entry list to 128.

Three 210s, *Mon Lei*, *Hard-A-Lee*, and *Typhoon*, went into the final race separated by a single point, and Dick Sullivan captured the trophy with *Typhoon* only by winning the race. The Indians, also, had excellent racing, from which Bob Dalrymple's *Tecumseh* emerged victorious by 3½ points over *Sequin* by virtue of three firsts despite

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EDGARTOWN REGATTA

► Light to moderate winds and sunny skies gave the 28th Annual Edgartown Regatta, held on July 20-21, two perfect sailing days. The racing fleet, reduced by about 80 of the smaller boats as compared to last year, numbered 136 and 152 on the two days. Cruising entries were slightly more than last year.

In Cruising A, Walter Rothschild's *Avanti* and Harold Lane's *Doris* finished both days within split seconds after sailing 18-mile courses. On Friday, *Avanti* was first on corrected time, with *Doris* second, P. MacKay Sturges' *Sapphire* third, and Robert P. Brown Jr.'s *Stella* fourth. The balance of the class sailed the wrong course. In Cruising B, first went to W. B. Lockwood's *Dolphin*, with Ed Kelley's *Departure* second and William B. Butler II's *Narwhal* third. In Cruising C, Ed Rigby's *Morning Star* was first, with Herman Page's *Gwen II* second and Moreau Brown's *Armata* third.

First in the Ravens went to Henry Villard's *Hilgarda*; in the Yankees to Alexander Bright's *Rigadoon*; in the Interclubs to Arthur and Virginia Besse's *Indra*; while Vinc Bailey's *Fire Chief* was first in the Wianno Seniors Division I, with H. C. Hunt's *Marna* in Division II. Gilbert King Jr.'s *Hogans Goat* won in the 110s, Turner Wells' *Sayonara* in the SMYRAs, and C. F. Stoddard's *Seabiscuit* in the Vineyard 15s.

On Saturday the whole of Cruising A sailed the right course with T. K. Boyd's *Solution* first, and H. B. DuPont's *Cyane*

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Norman Fortier

The start of Class A on the second day of the 28th Annual Edgartown (Mass.) Regatta

AMERICAN SIXES WIN BRITISH-AMERICAN SERIES

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one-two. The next two days, in light going saw the British team chalk up two more victories, 13½-8 and 11-10½, the latter despite *Llanoria's* finishing first.

With only one chance left to save the series, the Americans tried a new combination of skippers, made necessary by the illness of Bob Meyer, *Goose's* regular helmsman, and *Goose* and *Llanoria* came in one-two for a team score of 12½-9. Next day saw an American sweep, with *Llanoria*, *Goose* and *Firecracker* one-two-three, to even the series at 3-3. In the final and deciding race *Llanoria* finished first and *Goose* second, for a score of 14½-7.

The boats were well matched, and excellent team strategy marked the performance on both sides. *Llanoria* and her fresh-caught-American skipper, Magnus Konow, who used to sail Prince Olaf's Sixes for Norway before the war, proved the star of the event, taking four firsts and a second place and being leading American boat in all but one race, in which she finished second to *Goose*.

The present British-American Cup is a new and perpetual trophy, presented by the Seawanhaka Corinthian Y.C., of Oyster Bay, L.I., in memory of the late George Nichols, former owner and skipper of *Goose*. Three previous British-American trophies have been permanently retired, the first in the possession of the British and two subsequently by American teams, which have largely centered at Seawanhaka though various other American clubs have been represented at times on the teams.



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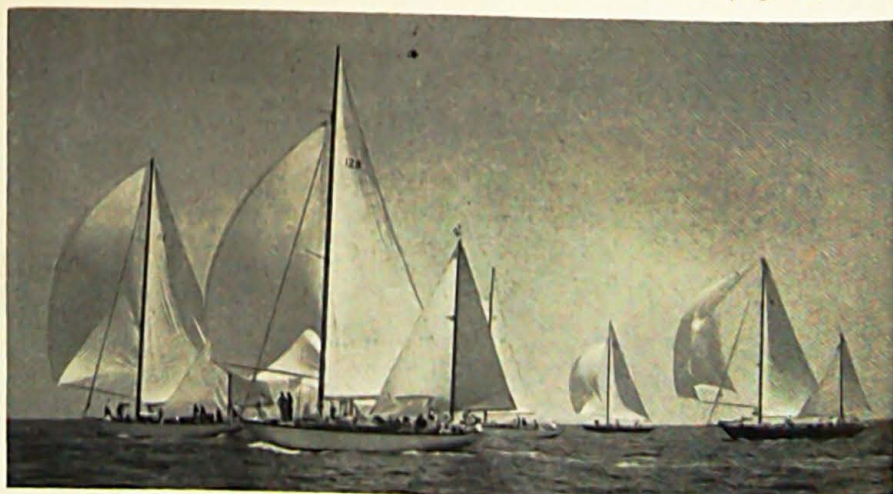
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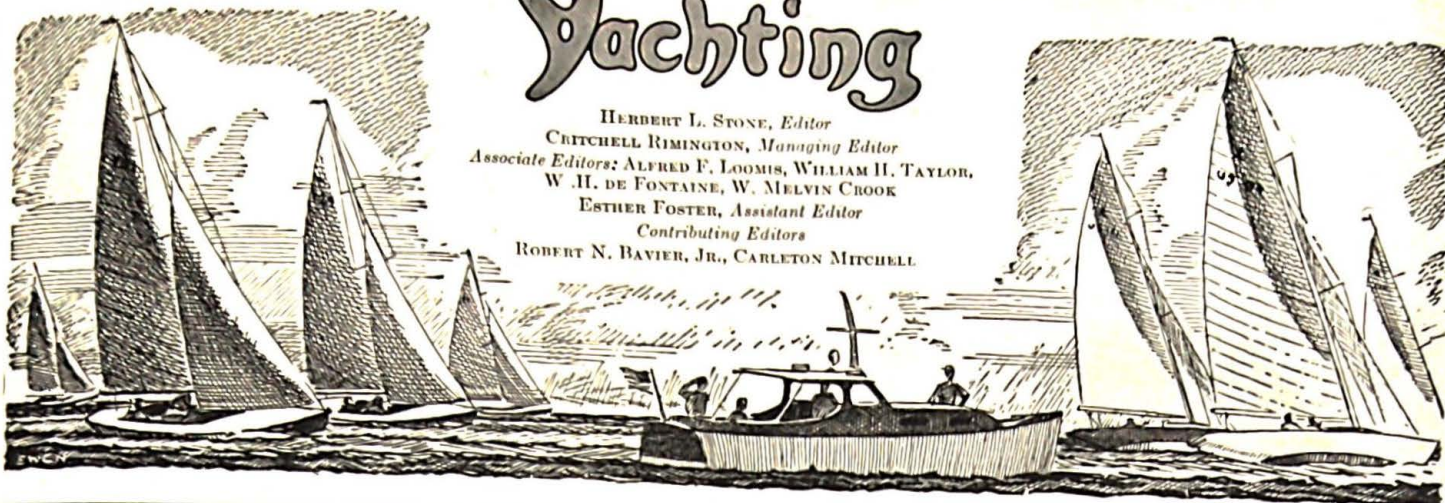


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The start of Class A on the second day of the 28th Annual Edgartown (Mass.) Regatta

Yachting

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VOL. 90

SEPTEMBER, 1951

NO. 3

WE NEED OPEN CLASS RACING

SOME yachtsmen predict revived activity in 6 Meter racing as a result of the victory of the American team at Cowes this year for the new British-American Trophy. We'd like to go along with them, for the decline of the class stresses the stagnation of international competition in the design of strictly racing, as differentiated from cruising-racing yachts. But the sad fact is that of the six British and American Sixes that raced at Cowes *Llanoria* and *Marletta* were built since the end of the second World War, and the prospects for further building are weak, principally because the cost of building a Six and campaigning her for a year runs into figures that would buy a very respectable all-around boat for cruising and distance racing. Ev Morris, who has done some sailing in Norway this summer, says the Norwegians are equally dubious about the 6 Meter picture for the future, though Bjarne Aas has turned out one new boat this year, for a Swiss owner for whom he has built two others in the past two years. The Sixes have furnished grand international racing for three decades, and more power to them if they can keep it alive and healthy. More practical, perhaps, would be to get some equivalent international competition going in boats of a size and type that can be built and campaigned for a cost that won't discourage all but a very few wealthy enthusiasts.

With the exception of the ocean and long distance racing fleets, yacht racing, both at home and internationally, has become almost entirely a competition among skippers and crews, in which the ingenuity of designers, builders and sailmakers not only is not encouraged, but in most cases is outlawed by class rules. There is nothing wrong with strictly man-against-man competition, but it's only one side of the sport, and it does nothing to produce faster or better boats, or to encourage the yacht designers upon whose art the "improvement of the breed" depends.

If 6-Meter development can be carried on in spite of almost prohibitive costs, fine. If not, then for the good of the sport there should be some other and less expensive class or type to encourage freedom of development along lines of speed with seaworthiness, and at the same time to encourage an owner's pride in his boat as well as in his own and his crew's skill. The alternative is technical stagnation in yacht design.

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YACHTING, published monthly by Yachting Publishing Corporation at 205 East 42nd Street, New York 17, N. Y. Herbert L. Stone, President and Treasurer; Carl Kappes, Jr., V. P. & Advertising Manager; Critchell Rimington, V. P.; Alfred F. Loomis, Secretary; E. L. Ryon, Circulation Manager. Subscription price, \$5.00 a year; single copies, 50 cents; foreign, \$6.00; Canadian, \$5.50. Change of address must reach this office four weeks before it is to be effective; old and new addresses must be given. Entered as Second Class matter at the Post Office at New York, N.Y., under Act of March 3, 1879. Agent for Great Britain: Willen Ltd., 101 Fleet Street, London, E.C. 4, England. Copyright 1951, by Yachting Publishing Corporation. Title registered U. S. Patent Office.