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THE SPEED OF ICE YACHTS.

A short time since the Evening Post of this city printed the following letter of inquiry, with the answer appended: "Will you tell me if an iceboat can possibly go faster than the wind? L. R. W. "School of Mines, Columbia College, New York, October 1, 1879.

"Yes, if it is carried upon a fast express train when the wind is not high. If you mean to ask whether or not an iceboat can sail faster than the wind which propels it, the answer is No, and a member of the School of Mines should be ready with a demonstration of the fact.—Eds. Evening Post."

Immediately the Evening Post was taken to task for an assertion so plainly in opposition to observed facts; and, to justify the position taken, its editors appealed to two learned gentlemen, Professor Loomis, of Yale College, and President Barnard, of Columbia, whose opinion proved to be equally at variance with the experience of iceboat men.

Professor Loomis wrote: "The wind cannot communicate to a sailboat or an iceboat a velocity greater than its own velocity; nor indeed can it communicate an equal velocity, because a part of the force is wasted in overcoming friction.

"Since the velocity of the wind is very variable, while a boat (on account of its inertia) preserves a more uniform movement, it may happen that an iceboat moves with a velocity greater than that of the wind at a particular instant, but its velocity must be less than that of the previous wind which imparted to it its motion."

President Barnard wrote: "The answer of the editors of the Evening Post to the question proposed by L. R. W. is too obviously correct to require discussion, it being understood that the velocity of the wind propelling the boat is constant. If the wind is fluctuating, it is supposable that the boat may attain a velocity which at intervals will be superior to that of the wind."

In thus putting themselves squarely on record in opposition to a fact of common experience in iceboat sailing, these learned gentlemen furnish one more instance to the long list of mistakes by eminent scholars, who from a theoretical standpoint, have declared results to be impossible after they have been practically achieved. We would respectfully commend to their attention the articles on ice yachts, their construction and sailing abilities, in numbers 1, 54, 61, and 63, of the SCIENTIFIC AMERICAN SUPPLEMENT.

This question of exceeding the wind in velocity is simply one of fact, and the possibility of it depends upon the manner in which the boat is sailed, its light body, enormous spread of canvas, and the absence of much friction. If sailed directly before the wind, an ice yacht, like a balloon, simply drifts with the wind, and obviously cannot equal, much less exceed, the wind in velocity. But ice yachts are not sailed that way; their best speed is made with the sail hauled flat aft, when the sail cuts the air like a knife edge, and the pressure on it cannot be lessened by the boat's running away from the wind. Whatever may be the boat's speed the wind is steadily abeam and the pressure constant. Under these conditions, with favorable ice, experienced yachtsmen agree that the speed of an ice yacht may easily be double or treble the velocity of the wind that drives it.

And when it comes to a matter of opinion we are disposed to think that the verdict of practical and intelligent yachtsmen, owning and sailing yachts like the Haze, the Icicle, the Whiff, and others, who state what they know, is worth quite as much as that of inexperienced professors who state what they theoretically believe.

Aaron Innis, Esq., Vice-Commodore of the Poughkeepsie Ice-Yacht Club, and owner of the Haze, says that the best long distance time made by that boat during the winter of 1872, was nine miles in seven minutes—a speed of 77 miles an hour. For short spurts a speed of two miles a minute has been attained. Similar testimony as to the enormous speed of ice yachts is given by the commodore of the same club, Mr. J. A. Roosevelt, owner of the Icicle, who says that his boat has sailed at the rate of 60 miles in a 15 mile wind. And Commodore Irving Grinnell, of New Hamburg, owner of the Whiff, not only maintains the fact that ice yachts can sail much faster than the wind which drives them, but shows how the result is accomplished.

On the other hand, we should like to have the professors try to reconcile their assertions with observed boat speeds and wind velocities. If the wind velocity must always be greater than the speed of an iceboat, then in running at the rate of two miles a minute the boat must be or have (just previously) been under the influence of a wind exceeding one hundred and twenty miles an hour in velocity. Suppose the rate to be but a mile a minute, which is not an uncommon speed for races of considerable length, then there must be sweeping over the ice at the time a wind approaching a hurricane in severity, and we are strongly inclined to the opinion that ice yachtsmen do not often venture out in hurricanes; nor would they even were such winds at all prevalent in this latitude.

The Haze carries over a thousand feet of canvas, and has a mast 20 feet high, five inches in diameter at the foot, sloping to 3 1/2 inches at top. How long would her rigging stand in an 80 mile wind? Nothing short of that would have driven her nine miles in seven minutes, unless her speed exceeded that of the wind. And what must be the strength of the supporting runner plank (16 ft. long, 1 foot wide, and 4 inches thick), to withstand, even for one minute, the

crushing force of a 120 mile wind, acting on such an enormous spread of canvas?

It is needless to say that no ice yacht was ever subjected to such a strain. Such winds do not blow on the Hudson; and if they did they would scarcely be chosen for regattas. Yet they must be of common occurrence in winter, if the position of Professors Barnard and Loomis is correct; for the speed of ice yachts in races is noted as carefully as that of race horses. In addition to the high speeds above recorded, we recall that of the Zig Zag and the Ella, five miles in five minutes in a race in 1872; the Whiz, the same day, nine miles in eight minutes; and the Cyclone, in 1874, one mile in 31 seconds.

SOME REASONS FOR AMERICAN SUCCESS.

In his new book on Foreign Work and English Wages, Mr. Thomas Brassey, M.P., maintains a hopeful feeling with regard to England's immediate industrial future, yet freely admits that in the long run the United States must "succeed to the place of the parent country as the first of commercial and manufacturing powers." The present success of American manufacturers in certain trades, he says, "may reflect on the want of adaptability and versatility shown by English firms in meeting the particular wants of markets whose conditions are unlike those with which the English exporter is chiefly familiar; but they do not indicate any decline in English superiority as regards the great wholesale trades. Cuba, for example, prefers to import her agricultural implements, and especially her plows, from the United States, because Americans—probably one or two American manufacturers—take pains to study the special requirements of Cuban agriculture, and adapt their wares to the need of their customers. Similarly, American engineers have of late obtained a preference in our own colonies for their locomotives and railway cars, and great alarm and annoyance was felt in England on this account. But the explanation is simple. The conditions of colonial railway making resemble those of America and not of Europe. Their lines, extremely long in proportion to the amount of traffic, require light and cheap carriages, ill adapted to European lines; and American experience and ingenuity meet these conditions. The ax, again, is the special American tool, the tool of a nation which has been for 200 years engaged in clearing regions largely occupied by primitive forest; and the American axes are consequently better for countries similarly situated than any that Sheffield or Birmingham produce."

These lines of manufacture, however, as Mr. Brassey must know, represent but a small portion of the trades in which America has risen to be a successful competitor of England, abroad as well as at home.

And the industrial conditions and business methods which have enabled us to overcome in so many departments the supremacy of England in so many of the world's great markets are, to say the least, likely to lead to other and greater triumphs. Besides, the possibilities of invention have not begun to be exhausted; and in the future, as in the past, that nation which leads in invention will, other things being equal, lead in productive power and all that is required for mastery in commercial and industrial competition. This factor of American success is frankly admitted by Mr. Brassey, when he says: "American invention is undoubtedly quicker and more active, as well as far more versatile, than our own, and meets with far more encouragement both from the law and from the public." So long as this condition remains in our favor—and the American people are not likely to allow it to be changed, however much the conspirators against the patent law may clamor for a change—just so long the certainty of America's supremacy in industrial affairs will be assured; and in the manufacturing arts, as in agriculture, the rise to supremacy will be, as it has been thus far, phenomenally rapid.

Medical Uses of the Carrier Pigeon.

Dr. Harvey J. Philpot, in a letter to the London Daily Telegraph, writes as follows:

"I have made valuable use of the carrier or homing pigeon as an auxiliary to my practice. So easily are these winged 'unqualified assistants' reared and trained that I am surprised they have not been brought into general use by the profession I belong to. My modus operandi is simply this. I take out half a dozen birds, massed together in a small basket, with me on my rounds, and when I have seen my patient, no matter at what distance from home, I write my prescription on a small piece of tissue paper, and having wound it round the shank of the bird's leg I gently throw the carrier up into the air. In a few minutes it reaches home, and, having been shut up fasting since the previous evening, without much delay it enters the trap cage connected with its loft, where it is at once caught by my gardener or dispenser, who knows pretty well the time for its arrival, and relieves it of its dispatches. The medicine is immediately prepared and sent off by the messenger, who is thus saved several hours of waiting, and I am enabled to complete my morning round of visits. Should any patient be very ill, and I am desirous of having an early report of him or her next morning, I leave a bird to bring me the tidings. A short time since I took out with me six pairs of birds. I sent a pair of them off from each village I had occasion to visit, every other one bearing a prescription. Upon my return I found all the prescriptions arranged on my desk by my dispenser, who had already made up the medicines."