

Scientific American.

ESTABLISHED 1845

MUNN & CO., - - - EDITORS AND PROPRIETORS.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, - - NEW YORK.

TERMS TO SUBSCRIBERS

One copy, one year, for the United States, Canada, or Mexico \$3.00
 One copy, one year, to any foreign country, postage prepaid. 20 lbs. 5d. 4.00

THE SCIENTIFIC AMERICAN PUBLICATIONS.

Scientific American (Established 1845)..... \$3.00 a year.
 Scientific American Supplement (Established 1876)..... 5.00
 Scientific American Building Edition (Established 1885)..... 2.50
 Scientific American Export Edition (Established 1873)..... 3.00

The combined subscription rates and rates to foreign countries will be furnished upon application.
 Remit by postal or express money order, or by bank draft or check.

MUNN & CO., 361 Broadway, corner Franklin Street, New York.

NEW YORK, SATURDAY, OCTOBER 21, 1899.

HYSTERIA AND YACHT RACING.

We regret to say that the sensational press is just now doing its very best to warrant the statement recently made in a foreign journal that we are a people much given to a form of popular hysteria.

We refer to the unwarranted—we had almost said cowardly—attack which has been made upon the managing owner of the American yacht "Columbia"; a gentleman who for the third time in the history of the cup has voluntarily undertaken the onerous labors and untold anxieties incident to the management of a cup defender.

Time and again has this distinguished yachtsman brought the American boat across the line, an easy victor over the challenging vessel; and the very journals that are now indulging in cheap sneers at his expense, were then the loudest in their praises of his untiring zeal, his executive ability, and his unquestioned skill as a yachtsman. Yet to-day we are told that his zeal is mere self-exploitation, his executive ability mere meddlesomeness, and that as a yachtsman he is crudely amateurish.

Now there is a cause for this sudden change of front, and the cause is not far to seek. It is to be found in the fact that the vanity of a certain minority (happily a very small one) in our midst has been cut to the quick by the fear that at last a challenging yacht has appeared off Sandy Hook that seems to their timorous souls to be just a bit better than our own; and in the chagrin occasioned by this discovery, the journals in question are venting their mortification upon the very people who should command at this crisis their warmest sympathy and support.

Such a spirit is pitiful to contemplate even in the abstract; but when it is so shameless as to flaunt itself in printer's ink upon column after column of a metropolitan paper, it may well bring a blush of shame to the cheek of every citizen and sportsman who has the fair name of his country at heart.

Mr. Iselin and the gentlemen associated with him in the management of "Columbia," are every bit as good yachtsmen when sailing a defeated "Columbia" as a victorious "Defender" or "Vigilant." In the name of good sportsmanship and common decency, then, let us have done with a show of petulance and bad temper, which befits more the kindergarten or the nursery than the public discussion of the greatest sporting event of the nineteenth century.

LIQUID AIR PROMOTING.

Somebody once made a statement to the effect that where the carcass is there will the vultures be gathered together. Though the speaker had in his mind a far different event from the liquid air craze of the year 1899, and the liquid air fallacy that was to be killed as soon as it was hatched, the interpreter of the prophecy might be excused for thinking that in the sudden swoop that has been made by the company-promoting vulture upon the liquid air carcass, he beheld a veritable fulfilment of the prediction.

For the protection of the public, we wish to enter an earnest protest against the commercial exploitation of comparatively untried inventions of which so much is going on in various parts of the country. The most flagrant examples of this sort of thing just now are to be found in the starting of companies and the selling of stock for the promotion of liquid air schemes of more or less, and generally more than less, preposterous pretensions. We do not say that any of these are deliberate attempts to obtain money falsely, but we do say that the crude nature of the liquid air apparatus, whether it be in the form of motor, refrigerator, explosive or whatnot, the absence of any demonstrated facts to establish its value, and the utter fallacy of the theories upon which the successful operation of many of these devices depend—render it our duty to warn the readers of the SCIENTIFIC AMERICAN against investing their money in enterprises which exist only in the imagination of their promoters.

We were recently consulted by correspondents with regard to the wisdom of investing in one of the most audacious of these enterprises, which has its headquar-

ters in the city of Boston and boasts of a modest capitalization of \$5,000,000. We made it our business, accordingly, to ascertain by correspondence and personal inspection just what kind of liquid air motors and plant for the manipulation of the same, the company possessed; but after the exchange of several letters and a visit by a representative of the SCIENTIFIC AMERICAN to the headquarters of the company we have failed to find either a motor, or a plant for the manufacture of the same, which would justify the Liquid Air, Power and Automobile Company in asking the public to put a single penny in its coffers.

We have at hand the explanatory pamphlet which was furnished us, at our request, by the company. We give a few quotations from this surpassing document, the opening sentence of which is a gem that needs no setting of the editorial pen: "Steam and electricity, giants both as they are, have had their day." Rivaling it in brilliance is the statement that "their fields were and are limited when compared with the transcendent possibilities of liquid air, whose power is not only on the earth but above it and beneath the sea as well." Of course the L. A. P. and A. Company has patents, and the fact is suggested as follows: "But now, with the inventions of George Code, Hans Knudson, and Milton Chase to control and apply it (liquid air) as a motive power, its possibilities of usefulness and profit admit no bounds less than those of the firmament above!"

The description of the glories of the new motor culminates in a burst of triumph with the statement, "the power transmitter enables us to secure five horse power from two." In the endeavor to warn the public against investment in a scheme of such grotesquely absurd pretensions, we cannot do better than allow the last quotation to stand without comment.

THE "DENVER" CLASS OF CRUISERS.

According to a report from Washington, a test has been made in the experimental towing basin which gives reason to believe that the new 3,500-ton semi-protected cruisers, if built, would attain a speed of 17 knots with 4,500 horse power. The specifications of these vessels call for a speed of 16½ knots, with the provision that if the speed on trial falls below this figure the ship will be accepted at a reduction of \$25,000 for every quarter knot to 16 knots, and a reduction of \$50,000 for every quarter knot between 16 and 15½ knots. It is stated in the report that these towing-tank experiments prove that shipbuilders who are intending to bid upon the plans for these vessels need have no fear that the ships will not fulfil the requirements as to speed.

The SCIENTIFIC AMERICAN has already criticized these cruisers as being of a type that is altogether out of date, and for most of the purposes of modern warfare practically useless. For the work that they are supposed to do they will be at least 3 knots too slow, even if they should reach, as the towing-tank experiments suggest, a speed of 17 knots an hour. We are free to confess that this discussion as to whether our new cruisers are to make 16½ or 17 knots is a waste of time and words in this late day in the development of the fighting ship. It would have been timely in the late seventies and early eighties, when we were considering the plans of the old 16-knot "Atlanta" and "Boston"; but the fact that in this age of 19-knot battleships and 22-knot armored cruisers, the first use to which our new towing tank is put is the testing of 15½ to 16½-knot half-protected cruisers, is positively humiliating.

Not merely in respect of speed, but as regards their armor and armament, these ships, by the time they are launched, will be at least eighteen years behind the times. We speak advisedly and "by the book," as a comparison with the first ship that was constructed of the protected cruiser type will show. This was the "Esmeralda," built in 1883 for the Chilean navy, purchased from that country in 1895 by Japan, and now known as the "Idzumi." This famous craft was the prototype of the modern, high-speed, protected cruiser, and as such she forms an admirable foil to set off the advance which has been made in the intervening years since she was launched. In view of the fact that the new cruisers, if they are ever built, will not be launched before the year 1901, the interval between the "Denver" and her prototype will amount to eighteen years. Let us see, then, from the following table, what advance has been made in that period, as judged by the proposed cruisers.

	"Esmeralda," 1883.	"Denver," 1901.
Displacement.....	2,950 tons	3,500 tons
Speed.....	18.3 knots	16.5 knots
Horse power.....	6,080	4,500
Coal supply.....	600 tons	700 tons
Officers and men..	300	290
Main battery.....	{ Two 10-inch B. L. rifles, Six 6-inch B. L. rifles }	Ten 5-inch rapid-fire guns
Protective deck....	1-inch complete	* None
Torpedo tubes.....	3	None

* Strip of 2-inch armor for one-third of the length amidships.

The comparison is, to say the least, profoundly discouraging. Here we have a vessel 550 tons larger than her eighteen year old prototype, that has 2 knots less speed, over 1,500 less horse power, is less completely protected, mounts a less powerful battery and fewer men to fight it, and that carries not a single torpedo tube as against three in the smaller ship!

Nor can those who are responsible for foisting a whole fleet of inferior ships upon the country evade the force of this comparison by claiming that the "Esmeralda" was a "show-window vessel," built for the trade, and unable to stand the hard knocks of actual service; for after a dozen years in the Chilean navy, during which she went creditably through the Chili-Peru war, she was considered sufficiently valuable by Japan to be purchased and placed on the active list of their navy.

We are correct in stating that nine-tenths of the naval constructors are opposed to the proposed cruisers, just as they were opposed to the construction of the six composite gunboats of the "Annapolis" and "Princeton" class which, but for the accident of the Spanish and Philippine wars, would have been useless for the duties of the American navy. The public is asking why these six obsolete vessels were ever proposed, much less authorized. Perhaps the Congressional Committees on Naval Affairs, who are responsible for the fiasco, can explain.

A TIMELY REBUKE.

We note that in a recent issue The Practical Engineer, of London, administers a stinging and richly deserved rebuke to that section of the English press which has been giving vent to its mortification over the American invasion of British trade by a tirade of abuse and misrepresentation which would do credit to the columns of the ripest yellow journalism. Referring to the suggestions of inferior workmanship which have been made regarding the Atbara bridge, in the Soudan, our contemporary says: "It is deeply regrettable to notice the tone assumed by some of the London journals, whose observations upon the subject are not only in extremely bad taste, but are, furthermore, in many cases ridiculous, and only calculated to show the utter ignorance of the writers upon the subject which they are dealing with. Moreover, they are such as must inevitably bring contempt upon the engineering community of this country, by whom they cannot be too promptly or too strenuously repudiated."

The distinction between the technical and the non-technical press is well made, for the tone of the one has been as intelligent and just as that of the other has been ignorant and unfair. "Engineering," speaking through its accomplished editor, who, by the way, is almost as well known on this as on the other side of the Atlantic, has ever been marked by a generous appreciation of the rapid advance made by the United States in the engineering industries during the past two decades, and even "The Engineer" has, of late years, abandoned its ungenerous attitude and has warned its readers that Englishmen were being beaten by America in some of their most important lines of work.

The London daily press, with a few notable exceptions, has always been the nursery of all that is ultra jingoistic and pseudo-patriotic in Great Britain, and there is a danger lest its late hysterical outburst over the Egyptian bridge and the Midland locomotives should be mistaken by the American people for a true expression of the attitude of the mass of the English people or the journals that provide them with technical literature. As a matter of fact, the latter have proved to be thoroughly awake to the serious nature of American competition, and have shown a full appreciation both of the superiority of American methods and the faults of their own.

GOVERNMENT ADVERTISING IN FRANCE.

The national debt of France is constantly on the increase, and apparently they have at last decided to go into advertising as a means of making money. This method has already been used to a considerable extent by various municipalities which have sold the space on certain public buildings to advertisers as the panels of city railway cars are disposed of in the United States. Now, however, the railway stations, police stations, custom houses, barracks, and other public buildings which are entirely under the control of the government are to be used to some extent for advertising purposes. The value of this space for advertising purposes is greatly enhanced by legal restrictions on the owners of private property which prevents the sale of space for similar purposes. The government has also introduced another advertising enterprise, which is the "lettre annonces" or advertising postpaid letter sheet. Half a sheet of ordinary letter size paper of rather poor quality is devoted to advertising except a space reserved for the address and a 15 centimes postal frank is printed upon it. The letter is written on the other half of the sheet, which is ingeniously folded and held by a gummed flap. The whole affair is sold for 10 centimes, that is, two-thirds of the price of single letter postage or exactly the same as a postal card. The