Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT
NO. 37 PARK ROW, NEW YORK.

O. D. MUNN. A. E. BEACH.

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NEW YORK, SATURDAY, AUGUST 27, 1881.

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THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 295,

For the Week ending August 27, 1881.

Price 10 cents. For sale by all newsdealers.

"A MILITIA FOR THE SEA."

Under this title Mr. John Roach, in the August number of the *North American Review*, discusses the old but ever new subject—the weakness of our navy and the smallness of our foreign shipping trade. Probably there is no other one question in which the general public is so profoundly interested, for it combines the tariff with a leading point in governmental policy, and touches the national pride in a matter where we have especial cause to be sensitive. Every one is hoping that we shall soon have a change from the present situation, and the feeling is strong that some policy should be adopted to compass the desired end, but just how this can best be effected is by no means clear.

Mr. Roach brings forward a plan for the building of one hundred powerful iron screw steamships, with a speed of 15 and 16 knots, and of a burden of 2,500 to 4,000 tons, exclusively for the foreign trade, but of such special construction that all of them could, in thirty days' time, be armored with nine-inch steel plates. He would have the government encourage the building and running of these ships by American houses by the appropriation of three to five million dollars per annum in subsidies, and knows of one man who would then subscribe one quarter of the amount needed for the entire fleet. The vessels are to be built on plans approved by the government, but he gives drawings of a style of construction, with the vessels in sections, and the armor backed by coal bunkers, and quotes from the Chief of Naval Construction of the British Navy to show the effectiveness of coal and loose iron plates to resist the fire of heavy guns. These vessels, he claims, would be greatly superior to the best merchant ships heretofore built in their adaptability for war purposes, and quite equal to most of the modern iron-clads. The cost, also, is assumed to be less than would be that of simply taking care of an equal tonnage in time of peace, and not exceeding the annual appropriations of England and France to encourage mercantile shipping.

It is evident that this project should be looked at somewhat differently from the question of free trade *versus* protection, as they affect American ships. How far the plan suggested by Mr. Roach would be practicable only a board of naval experts can determine; but, were it feasible, it is apparent that the ends sought must be attained by having the ships built as well as owned in this country, and manned by American seamen. To this extent the appropriation therefor would be in the way of government protection and promotion of American ship manufacturing and shipping interests. On the other hand, one hundred such powerful steamships, capable of conversion into efficient iron-clads at short notice, would afford, in an emergency, a convenient naval force of considerable magnitude—a fleet by the side of which our entire navy at present would make but a poor show.

The first thing to be looked at, in any question of expending money to strengthen the navy, is the uncertainty as to what would be the best form of construction. Arms and armor have changed so radically within a few years, and the best authorities are still so widely divided in regard to most important particulars, that any large investment on this account is not to be thought of. Who knows, for instance, but that our recent splendid progress in the science of electricity may not lead to the development of such forces, heretofore unknown, as will make of little worth the best previous efforts in naval construction, and make the lightning as effectually our servant as steam and improved explosives now are? Looking at the matter in this light is the best justification of our past temporizing policy with regard to the navy, but under some such plan as that proposed by Mr. Roach the government would not have to expend much to largely supplement its naval strength, according to present standards, leaving out of view entirely the national benefit which such a fleet of American merchantmen engaged in foreign commerce would confer. It concededly costs ten to fifteen per cent more to build a first class iron ship here than it does in England; the capital to own and run the ship is also heavily taxed by our State laws, with no tax in England except upon net profits, and there are many petty charges here unknown abroad; but if it be possible to provide ourselves with a genuine "militia for the sea," a force on the water which would be a worthy counterpart of that which we always have on land, the plan would seem worthy of discussion on higher grounds than are usually considered in the questions which ordinarily make party issues.

THE COTTON MANUFACTURE.

The "cotton year," statistically, ends September 1, when the preceding year's growth is substantially all marketed, and the picking of the new crop is well under way, this part of the work extending up to the end of the year, and sometimes later. It is now certain that the crop of 1880–81 will exceed that of 1879–80, which was 5,761,252 bales, and was the largest crop ever raised in the country up to that time. The receipts reported up to August 10 were 5,735,356 bales, against 4,914,226 bales to the corresponding date last year. The quantity of cotton in a bale varies, although the improved machinery for compressing and baling has tended to make all bales heavier the last few years. The total weight of the last crop was 2,771,797,156 pounds, the lightest bales being of Sea Island, weighing 348 55 pounds, and the other descriptions varying from 460 to 509 pounds. Beside the American growth, India and Egypt together contribute about 1,500,000 bales annually to the world's supply of cotton, but of so different a quality as to affect but little the sale of the American staple with prices ruling as low as they have for a few years past.

Especial significance will be given to these figures this year, and to everything pertaining to the cultivation and manufacture of this great staple, by the exhibition to open at Atlanta in October, all the preparations for which are in a very forward state, and give promise of affording a worthy representation of the vast interests concerned. Many had wished that such an exhibition might have been held in some Northern city, near the principal centers of manufacture, but this would have reduced to a minor place what will be a leading feature of the coming show—the illustration of the conditions under which the crop is raised, and the practical working of the appliances by which it is made ready for market. The exhibition, coming as it does right in the harvesting period, and in a locality where the gathering of the crop can be personally investigated by all visitors, will present more vividly to the minds of mechanics, inventors, and business men many questions of importance which have hitherto received comparatively little notice. These include not only such as relate to the merits of different improved gins and various devices to facilitate the picking and bettering the average condition of the crop, but the larger problems connected with the possibilities of the future in the more extensive utilization of the seed and the stalk for the production of oil, feed, paper, a substitute for jute, etc.

We have had a large and healthy growth in the manufacture of cotton goods for a few years past, which has covered a substantial development in this branch of industry in the South itself, where the factories already in operation are making good dividends and many new ones are projected. But we do not as yet make up into finished goods more than about one-third of the cotton we grow. In this department of industry Great Britain has long been a great way in advance of all the rest of the world, taking about one-half of our raw cotton, and nearly all of that furnished by other cotton growing countries. For the past few years times have been "rather hard" with her in this specialty, as in many other manufactures, but the falling off in actual amount of production seems to have been due rather to a depressed state of trade generally than the competition of manufacturers elsewhere. For the four years between 1870 and 1875, her production exceeded $500,000,000 annually, the raw cotton costing from one-third to two-fifths of this amount, and the remainder going to pay for English labor and capital. About one-fifth of this great total was exported, while our own exports of cotton goods for those years averaged about $3,000,000 yearly; they have since reached $11,000,000; but our imports of cotton goods in 1880, notwithstanding a pretty stiff tariff, were but little below $30,000,000.

We come next to England in the manufacture of cotton goods, running more spindles than France and Germany together, but how far behind her we still are these figures too plainly indicate. Undoubtedly lower wages and cheaper capital give the British manufacturer his principal advantages, to which are to be added better means of communication with different markets, long established connections, etc.; but with all these in his favor he has been especially alert, within a few years past, in seeking out and originating improvements in the machinery required in the business. Marked advances in this direction have been made in the cotton industry quite recently, and there is hardly any detail of the business for which some new device or machine has not been brought forward. The value as to advancement in the product, or economical performance, of many of these supposed improvements are yet matters of debate in the trade here, but the exhibition at Atlanta, in which British manufacturers of cotton machinery are to be prominently represented, ought to be of great advantage to our manufacturers generally, on account of the comparisons they can then make of their practical working. If the exhibition can effect anything to improve our chances of successfully competing in many foreign markets now closed to us, so that we shall export more largely of finished instead of raw cotton, thus widening the field for the employment of American labor and capital, its influence upon industry, both here and in England, will be great.

IS CONSUMPTION CONTAGIOUS?

If our medical journals were to announce the steady approach to this country—say from China—of an ill-understood, painful, and usually fatal malady, which if once established among us would certainly kill half a million of our citizens every year and ultimately carry off one in every five of the entire population, it is safe to presume that the announcement would not be calmly received. As one man, physicians not less strenuously than laymen, we should demand the most rigorous quarantine against the infected country. No effort would be accounted too heroic, no precaution too costly, to shield our country from so disastrous an invasion. And if there were any doubt as to the specific nature of the threatened plague or of the mode of its transmission or inception, neither our medical and sanitary societies nor the government would rest until competent commissions were sent to investigate the matter. It would be accounted criminal indifference on the part of medical and sanitary authorities to neglect to make a concerted and persistent effort to discover the causes and conditions of the plague, and how to protect the community from its ravages or to cure its victims when attacked.

Would the urgency of the case be diminished in any