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## THE UNITED STATES AND THE PARIS EXPOSITION.

It is to be hoped that Congress will take early action as the result of the President's message urging it to make provision for our adequate representation at the Paris exposition in 1900. The message recommends that such timely provision be made that our inventors and producers may have adequate opportunity to "fortify the important positions they have won in the world's competitive fields of discovery and industry."

It is certainly advisable that action should be taken during the present session, inasmuch as a delay of a whole year, at a time when other nations are making such special efforts is liable to result, among other disadvantages, in our securing an insufficient allotment of space. No one who is unacquainted with such work can appreciate the great amount of labor and time that is necessary in organizing a great national display of the kind that we ought to make at the French capital. The forthcoming exhibition will be a great opportunity for America. We have made great advances in the years that have intervened since the great French exposition of 1889. In a single decade we have started new industries and so developed them that we hold a leading position where but a few years ago we were not represented. In older industries, such as the manufacture of steel, we lead the world; and invention has never been so fruitful in our midst as in this closing decade of the century. The outside world is cognizant of these facts in a vague way, and the forthcoming exposition will give us an opportunity to demonstrate our advancement in a concrete and practical form.

## SHADE TREES FOR THE STREETS OF NEW YORK.

We note that the Tree Planting Association has opened offices at Nos. 64 and 66 White Street, New York City. Its aim is to beautify the city by encouraging the planting of shade trees on each side of the streets, and it is endeavoring to start the movement by persuading property holders on Fifth Avenue to plant trees in front of their houses. The aims of the association are in every way praiseworthy, and there is no conceivable way in which the "wilderness of streets" which is found in many parts of the metropolis could be so cheaply beautified and relieved of its monotony as by lining the curb of the sidewalks with suitable shade trees. Many of the side streets which lead up to Central Park on the east and west are rendered extremely handsome by the costly and artistic houses which they contain; but they all have a certain air of coldness or formality which would be largely dispelled by the presence of an avenue of trees.

## BRITISH INTEREST IN THE NICARAGUA CANAL.

The editor of Engineering, who is well known for his fairminded and courteous attitude toward this country in everything relating to American engineering and industry, states that it is a mistake to suppose that Great Britain has any desire to build and own the Nicaragua Canal because of its strategic value. He is of the opinion that the conditions are entirely different from those relating to the Suez Canal, where England's aim is simply to maintain neutrality. As a matter of fact, the strategic route to the East, where the United States is never likely to be a hostile power, does not lie through the Suez Canal, nor would it lie through the Nicaragua Canal. As a mere strategic route in time of war the Nicaragua Canal would never be worth the vast sum of money that it would cost; for it would be entirely in foreign territory, and would be "at the mercy of a small hostile republic or of a collier blocking the waterway."

## THE MISSISSIPPI FLOODS.

The calamitous floods which have again laid waste the lower Mississippi Valley have brought forth a vast amount of correspondence and suggestion as to the best way to control the great river and keep it within its banks. As is usual, the majority of the critics betray a complete ignorance of the magnitude of the problem and the cost of carrying it out in its entirety. One of the leading morning papers of New York has criticised the methods of the engineers to the extent of stating that the crevasses which have been formed in the embankments prove that as a system of protection the levees are a failure; and the writer goes on to condemn the whole system as such, and characterizes the outlay as a waste of public money. The obvious reply to such critics is to ask them what they would substitute in place of levees and revetment. As a matter of fact, the present methods are the result of long experience and a careful study of the problem by skilled engineers. The problem of the control of rivers which are subject to heavy floods is at any time extremely perplexing, and it is rendered doubly so in the case of the Mississippi on account of the enormous amount of silt which it carries down. Wherever the river broadens out into shoals, and the rapidity of its flow, and therefore its transporting power, is reduced, this silt is deposited and the available depth between the banks is reduced. The only possible way to prevent an overflow at the next flood

is to scour out this deposited silt, or to raise the height of the adjoining banks, or both. This can be accomplished by building wing dams, cut-offs, etc., and protecting the banks by revetment and building artificial levees. The work of this kind which has been already carried out has rendered effective service, not merely in the Mississippi Valley, but along the course of other rivers that are subject to overflow. Because at certain points it has failed to stand the supreme test of the past few weeks, it is folly to condemn the whole system for all time. Compared with the whole scheme of improvement aimed at by the Mississippi River Commission, the work which has been done thus far has been fragmentary, and, to a certain extent, experimental, and it is absurd to condemn it for lack of efficiency at this early stage of the work. Works of this kind, whether for the control of rivers or the regulation of tidal harbors, cannot be expected to show their full efficiency until considerable sections of the work have been brought to completion.

## THE MERITS OF THE WATER TUBE BOILER.

The points of advantage which the water tube boiler possesses over those of the Scotch type were briefly summed up by Rear Admiral Fitzgerald in a paper before the Institution of Naval Architects. The admiral is recognized as one of the most advanced and practical officers of the English navy, and his paper gave the good points of the boiler from the standpoint of the man who has to fight the ship. The type of boiler upon which the observations were based was the Belleville, and the experience was that gained on the Powerful and Terrible and on the smaller range of experiments carried out on two or three gunboats. The points of superiority are: 1. Ability to raise steam rapidly. The Sharpshooter, a gunboat of 735 tons displacement, has raised steam in twenty minutes from "fires out" and cold water. She would have taken from two to three hours with her old boilers. 2. Ability to make large and rapid increase of speed, and also large and rapid reductions without blowing off. With a Scotch boiler a ship has to be worked up gradually to full speed; but with water tube boilers even a large ship can start off almost like a torpedo boat. 3. Comparative safety. The risk from scalding in the event of a shell penetrating the boiler room is far less. Each of the water tube boilers of the Powerful holds only a ton of water; but each boiler of the Majestic holds 22 tons. 4. Facility for examination, cleaning, and repairs. Unlike the Scotch boilers, these can be cooled with great rapidity without any danger of injury, in order that they may be examined, cleaned, and if necessary, repaired. In the Scotch boiler such rapid cooling would involve leaky seams and tube plates. 5. Saving of weight. The weight of the boilers, uptakes, etc., of the Powerful for 25,000 horse power, with natural draught, is only 1,164 tons. If she had been fitted with Scotch boilers, it would have been about 1,862 tons—a saving of nearly 700 tons, or about 40 per cent.

## THE AMERICAN LOCOMOTIVE EXPORT TRADE.

There is perhaps no branch of foreign trade in which the United States have won a more speedy recognition than in the locomotive industry. It is not many years ago that the foreign locomotive trade was almost entirely in the hands of European manufacturers, and the American locomotive was an unknown quantity outside of the United States. The causes were not far to seek. In the first place, the large colonial interests of the European nations brought them into close contact with foreign states and peoples, who had the opportunity to see the European locomotive at work, as it were, at their very doors. On the other hand, the development of the railroad system of this country was so extraordinarily rapid, and produced such an enormous demand for locomotives, that our manufacturers were fully occupied in supplying the home market. Of late years, however, the rate of railroad construction has been steadily reduced; the older roads have become thoroughly equipped with modern and more powerful locomotives and the demand for new stock has shown a relative decline.

One natural result of this has been to cause our builders to give increasing attention to the foreign market, and a very successful attempt has been made to introduce the American locomotive in those countries which have hitherto been exclusively controlled by European builders. Our success has been greatly assisted by the fact that the American built machine is specially adapted to the requirements of foreign railroads. It is strong in those points in which the other type is weak. The European locomotive has always suffered from a certain rigidity which, while it has no particularly bad effect on the comparatively level and straight lines which are found on the railways of the old world, has proved to be positively disastrous when these machines came to be run on the sharp curves and more or less loosely constructed tracks of some of the foreign and colonial railways.

Now, it is a fortunate fact that the circumstances which caused the earlier roads of the United States to be built on a rather rough and ready plan, with light rails, sharp curves, and heavy grades, produced a type