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REPORT OF THE ISTHMIAN CANAL COMMISSION.

The preliminary report of the Isthmian Canal Commission, recently transmitted to Congress by the President, would seem, on the face of it, to be somewhat self-contradictory, for the reason that although its facts and figures show that from an engineering point of view the Panama Canal is more advantageous and cheaper to construct, it is recommended that the more costly Nicaragua Canal be built. The estimates of the cost of the two canals are about fifty per cent greater than the estimates of the International Commission which recently examined the Panama Canal and the estimate put in last year by the Walker Commission for the Nicaragua scheme. This increase, however, is not due to any underestimate by either of these commissions, but results from a great enlargement of the scope of the plans for both enterprises, such enlargement being necessary to render them available for the larger vessels and greatly increased traffic of the year 1910, which, in the case of both schemes, is the time estimated for their completion.

To secure a true comparative estimate of the cost, the same depths and widths of the canal and dimensions of the locks were adopted in each case, namely, a depth of 35 feet at mean low water and a bottom width of 150 feet for the canals, with duplicate locks, each 740 feet long, 84 feet wide, and 35 feet in depth. In the case of Nicaragua, the canal would be 186 miles long from ocean to ocean, and as a preliminary to construction 98 miles of double-track railroad, costing $7,350,000, would have to be built. The Panama Canal, which is about two-fifths completed, would be 43 miles in length. The total cost of the Nicaragua Canal would be $200,540,000, and of the Panama Canal $143,342,579. The time necessary to complete each canal would be about ten years.

The considerations which led to the choice of the Nicaragua Canal are as follows: Although the estimated cost of the Nicaragua Canal is some $58,000,000 more than that of the Panama Canal, to the estimated cost of the latter scheme must be added the purchase price of the rights and properties of the present Panama Canal Company, which, it is conjectured, would be enough to bring the total cost up to that of the Nicaragua scheme. Judged from the standpoint of advantages of operation, the Panama Canal would be the shorter, it would contain fewer locks, the summit elevation would be less, and—a most important consideration for navigation—there would be less curvature. The average time of the passage from ocean to ocean would be about twelve hours as compared with thirty-three hours for the transit of Nicaragua. As offsetting this advantage, it is pointed out that as far as the interests of commerce are concerned, the sailing distances from port to port via Panama would be greater. The voyage from San Francisco to New York would be 377 miles longer by Panama than by Nicaragua; from San Francisco to New Orleans the distance would be 579 miles greater, and to Liverpool 386 miles greater. These longer sailing distances would more than offset the shorter time of passage through the Panama Canal, at least so far as United States commerce is concerned, and the report states that this difference would be sufficient to offset the greater cost of maintaining the longer canal.

The question of the construction of the Panama Canal by the United States government is greatly complicated by the fact that the concession by Colombia to the present Panama Company is exclusive, and that it will be in force for many years to come. The commission is of the opinion that any concession of rights by the government of Colombia to the United States by agreement with the new Panama Canal Company is, for various reasons, impracticable. Although no formal reply has been given by the Panama Company to the request of the commission for a statement of the terms on which it would dispose of its property to the United States, the report states that the company does not appear to be willing to sell its franchise, but is rather disposed to allow the United States to become an owner of part of the stock, a situation which will scarcely commend itself to our government. As against these difficulties and objections, it is to be noted that the governments of Nicaragua and Costa Rica are not hampered by any existing concessions.

Until the full text of the report is available, it will be premature to enter into any extended review. As it is, enough of the report has been made public to show that it would have been better to have awaited its publication before taking any such definite legislative action for the immediate construction of the canal as is contemplated by the Hepburn bill. The SCIENTIFIC AMERICAN has always strongly advocated a conservative course on the part of Congress with regard to this most important scheme; and its contention that the Panama route would be found to be, from an engineering standpoint, the most feasible and least costly, seems to be borne out by the report. As far as can be judged, the failure to recommend the Panama route is due largely to the short-sighted policy of the new Panama Canal Company. Had they come forward with a reasonable proposition, one that was consistent with the dignity of the United States government, it is quite possible that the shorter route, with its many obvious advantages, would have been adopted; but as the matter now stands, we certainly think that the attitude of the French owners has been such as to render the recommendation of the Nicaragua route the only logical course open to the commission.

THE RELATIVE COST OF STEAMSHIP CONSTRUCTION IN EUROPE AND AMERICA.

Among the papers presented at the recent general meeting of the Society of Naval Architects and Marine Engineers in this city was one by Mr. George Dickie, of the Union Iron Works, San Francisco, on the question "Can the American Shipbuider under Present Conditions Compete with the British and German Shipbuilders in the Production of the Largest Class of Ocean Passenger and Freight Steamships?"

The author of the paper recently made an extensive tour among the shipbuilding yards of Europe, one of the objects being to note what advantages foreign shipbuilders have over ourselves in skill, labor and materials. The paper was written on board the "Saxonia," a sister ship to the "Ivernia," which, in an article published in the SCIENTIFIC AMERICAN of November 10, was taken as the latest representative of the large cargo and passenger steamers which are becoming increasingly popular among the shipowners of the present day.

Mr. Dickie's comparison between British and German and American methods is made under three heads: skill in design, cost of labor, and cost of material. As regards the question of skill the British designers labor under the severe restrictions of Lloyd's Register, and Mr. Dickie gives them full credit for a thorough understanding of their profession and great skill in turning out economical designs that conform to the rigid requirements and restrictions of the Register. Given an American register of shipping that would lend itself more readily to the tendencies of American design, Mr. Dickie believes that the American architect will show himself to be quite abreast of his British cousin. As regards the cost of labor, it is shown that under our present methods labor cost in the United States is 25 per cent greater on the hull and 50 per cent greater on the machinery of an average ocean-going freight or passenger steamer.

It is just here, in discussing the cost of marine machinery, that the author brings out a fact which will be certainly very astounding to those of us who have believed that in economy of shop management we are far in the lead of Great Britain. As an explanation of the cheapness of British marine engine construction, he tells us that every part of the engine in a first-class establishment is made to gage, and when finished by the tools is sent to an expert examiner at a large surface table, who determines if every operation performed by the tools has been accurately done. If the work is not perfectly accurate, it is returned for correction or, if not worth correction, it is entirely rejected. "The pieces thus produced that go to make an engine when brought together, are not erected by fitting each piece to its place by file or chisel, but they are placed in stock ready to be assembled in a few hours on receipt of an order for an engine of the size they represent." The author is of the opinion that the introduction of a system to insure correct tooling on every piece entering into the construction of our marine engines would reduce the cost of erection by one-half. The full text of this valuable paper will be found in the current issue of the SUPPLEMENT.

REPORT OF THE COMMISSION ON PATENTS AND TRADE MARKS.

In our last issue we referred editorially to the fact that the Commission appointed by the President under act of Congress to revise the laws of the United States concerning patents and trade marks, had been holding a final session in the city of New York, preliminary to presenting to Congress bills for modifying and harmonizing the present patent practice and trade-mark laws with existing conditions. Through the courtesy of one of the members of the Commission, it has been our privilege to examine the report of the Commission and the bills, which have been most carefully drawn. It will only be possible to summarize briefly the general scope of the bills, rather than to pass any criticism upon them at the present time.

It will be remembered that the treaty of agreement which has been generally known as the "International Convention for the Protection of Industrial Property" was concluded at Paris in March, 1883, in which nearly all the important countries of Europe, together with the United States, were parties, the only important exceptions being Germany and Russia. The general object of the movement was to secure greater harmony between the patent systems of the world. The results derived from the Convention directly and indirectly have been far-reaching. Many leading European countries have since 1883 practically rewritten their laws in the direction of far greater liberality toward inventors.

No less than seventy-one countries have patent laws, and the general features of these laws, with particular reference to the differences existing between them and the United States, are clearly presented in the report. For instance, in many foreign countries patents are granted without investigating the question of novelty. Many countries require inventions to be unknown to the public up to the day on which application for patent is filed; many inventions, such as foods and medicines, which are patentable here are excluded from protection in most foreign countries; patents in many foreign countries date from the day of application instead of from the date of issue, as here; in nearly all foreign countries annual taxes are required to keep patents in force throughout the terms for which they are granted; patented inventions are required in foreign countries to be manufactured on a commercial scale within a short time after the grant of the patents on pain of forfeiture, and owners of patent rights may be compelled to license others to make and use the patented inventions.

None of these features should, in the opinion of the Commissioners, be incorporated into the United States patent system. There is no doubt, they say, as regards its essential features that the United States patent system is the best which has been devised up to the present time. But in some matters not affecting the essential principles of the system the Commissioners find certain features of the foreign laws desirable. These are, first, that foreigners who take out patents here should have in this country a representative on whom papers may be served in any suit affecting their interests; second, to render a foreign patent, as a bar to the grant of patent here, the same weight as any other disclosure—that is, if printed, the patent should be given the effect of a printed publication, and if not printed (and in many foreign countries patents are not printed and may even be kept secret), it should have no other effect than that of knowledge or use of the invention in the country in which it was granted; third, to provide that a mere application for a foreign patent shall not be a bar to the grant of a patent here; and fourth, that in case of an interference, if it is shown that the later applicant is the real inventor, the patent shall be granted only for the unexpired term of the first patent.

Furthermore, under the present laws, caveats can be procured only by citizens of the United States. The Commission considered that if caveats are still permitted to be filed, foreigners as well as citizens should be permitted to file them, but they recommend, in view of the fact that caveats are generally regarded as of no practical value, that the law which provides for them be repealed. They also recommend that the executors or administrators of a deceased inventor, even though appointed abroad, be permitted to apply for a patent for the invention. As the law is now construed in such a case, auxiliary letters of administration are required to be taken out in this country. This amendment seems to be broad-spirited, and will do away with many of the formalities which now render it difficult and expensive for a foreign administrator to file or prosecute an application in this country.

The report may properly be divided into two parts, namely, that which refers to modifying our present patent laws to conform with the Convention, and secondly, and by far the more important part, that which relates to reforming our present trade-mark practice. Our present practice is causing widespread discontent; and now that our merchants and manufacturers are engaged so extensively in foreign commerce, the importance of having a simple system of trade-mark registration is imperative, and it is to be hoped that this all-important question will receive the intelligent consideration of Congress and that the much-sought-after relief which is looked for by the industrial community may be found.

THE TRADE MARK BILL.

The Commissioners have made a careful study of the trade-mark laws of the principal foreign countries. Trade-mark laws are found to fall into two general