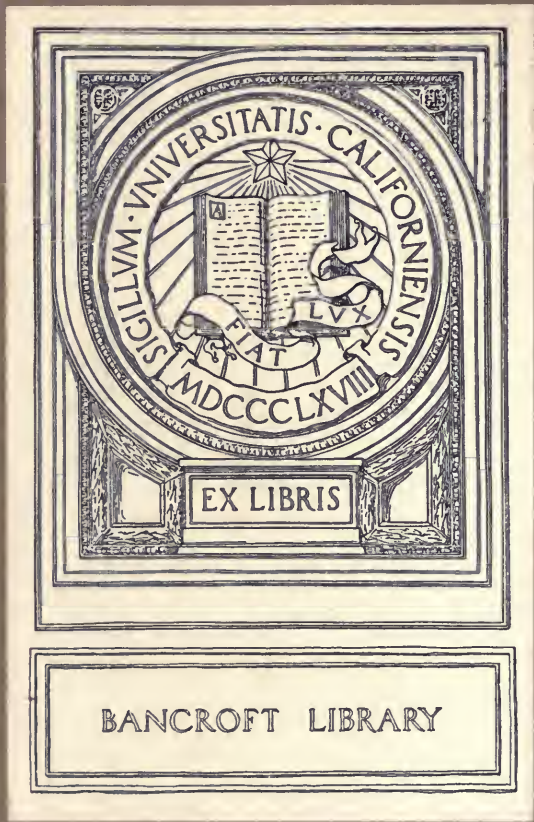


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The Panama Canal as a Business Venture

By

GEORGE L. FOX

Author of

**“President Roosevelt’s Coup d’Etat—The
Panama Affair in a Nutshell”**

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New Haven, Connecticut



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THE PANAMA CANAL AS A BUSINESS VENTURE

BY GEORGE L. FOX

Author of "President Roosevelt's Coup d'Etat — The Panama Affair in a Nutshell"

SINCE the time when President Roosevelt, to use the words of Justice Brewer, "rode rough shod over the rights of Columbia," it is remarkable to see how little attention is paid by the President or Congress to the important question of ultimate cost and probable financial return of the Panama Canal. The famous profane exclamation, "Damn the expense," voices the feelings of many, even of such a character as President Taft. The thought of a carefully prepared balance sheet is laughed at, and the money of the taxpayers is shovelled into a bottomless pit with the same lavishness that prompted Daniel Webster in his speech after a banquet to offer to pay the national debt out of his own impecunious pocket.

Congressman Gillett, of Massachusetts, a member of the Committee on Appropriations, in discussing national expenditure recently uttered the following sensible words:

"To me one of the most alarming tendencies of the time is the alacrity with which Congress appropriates money for any purpose, and the indifference of the people to huge expenditures. Taxation is so indirect, its burdens are so little appreciated, that any section of the country feels that whatever it receives from the nation is clear gain, and consequently there is apt to be no sense of responsibility in making appropriations, no selfish interest on the side of economy."

One of Mr. Gladstone's most famous colleagues speaks with reverence of the fact that the great leader seemed to be more careful in spending the public money than if it were his own. This is a very rare and commendable virtue, which our public men need at the present time. In such a spirit will be discussed herewith the following important questions, which have never received any attention in President Roosevelt's messages on the subject:

1. What will be the final cost of the canal?
2. What will be the probable income after the canal is built?
3. What will be the fixed charge each year upon the United States Treasury, if it is opened for traffic in 1920, and the thirty-year bonds begin to be redeemed in annual instalments at that time?
4. What will be the economic benefit in lessening the cost of transit of low-grade freight, such as coal, ores, metals, sugar, grain and lumber,

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between the two oceans through the canal as compared with the cost by the Panama Railroad, equipped throughout in the best possible way and furnished with the best possible terminal facilities, like the Tehuantepec Railroad across Mexico?

I

What will be the Probable Outgo?

The estimated cost of the enterprise has steadily increased in arithmetical progression since DeLesseps floated his scheme in 1880. The first contract provided that a tide-water canal was to cost at the outside limit \$102,400,000.00. When the French company sold out to the United States it is estimated that \$250,000,000.00 had been expended. The Canal Commission by adroit manœuvring got the residuum of this expenditure for about one-sixth of this sum, viz., \$40,000,000.00. The Walker Inter-Oceanic Canal Commission in its report of 1901, on page 261, gives the estimated cost at \$144,233,358.00, not reckoning interest on investment during time of construction, in addition to the sum paid the French company on its property and rights, and to Panama, making a total of \$194,233,356.00 as the total estimate.

The actual expenditure of money from the United States Treasury for the building of the canal, including the appropriation to July 1, 1908, amounts in round numbers to \$130,000,000.00, of which \$50,000,000.00 was paid to the French company and the Republic of Panama. This leaves \$80,000,000.00 spent in actual construction of the canal.

In the *Canal Record* for September 16, 1908, the official tabulated statement of expenditures to July 31, 1908, puts the total amount at \$78,470,750.28. This does not include certain additional disbursements which cannot yet be classified.

If we add together the actual expenditure of the French companies and of the United States Government, the total expenditure for the building of the canal thus far will amount to \$330,000,000.00. The final cost of the Suez and the Manchester ship canals was two and one-half times the original estimates. It will be seen in the case of Panama that such a point has been reached, when hardly one-fourth of the excavation work has been done, and practically none of the construction work been accomplished.

In order to get an approximate answer to the question of final cost two methods of computation will be adopted, such as will seem to the average man just and reasonable.

The first method will be to multiply the average annual expenditure by the number of years to elapse before the canal is finished, and reckon in interest compounded from the time the money leaves the treasury and is sunk forever in the canal, to the estimated time of opening the canal for traffic.

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The second method will be to find what portion of the work has already been accomplished, and at what cost. Then to estimate the final cost on the supposition that the rate of cost and expenditure will be the same in the future as in the past will be a simple process of multiplication.

In applying the first method I find that by July 1, 1908, the sum of \$130,000,000.00 had been expended by the United States, and that the yearly expenditure for twelve years will be \$30,000,000.00 a year. On this basis, then, if compound interest be reckoned at two per cent annually, the result will be seen in the following table:

<i>Principal</i>	<i>Time</i>	<i>Amount</i>
\$130,000,000.00	12 years	\$164,871,200.00
30,000,000.00	12 years	38,047,200.00
30,000,000.00	11 years	37,301,100.00
30,000,000.00	10 years	36,569,700.00
30,000,000.00	9 years	35,852,700.00
30,000,000.00	8 years	35,149,800.00
30,000,000.00	7 years	34,460,700.00
30,000,000.00	6 years	33,784,800.00
30,000,000.00	5 years	33,122,400.00
30,000,000.00	4 years	32,472,900.00
30,000,000.00	3 years	31,836,300.00
30,000,000.00	2 years	31,212,000.00
30,000,000.00	1 year	30,600,000.00
\$490,000,000.00		\$575,280,800.00

It will be seen from this computation that the ultimate cost is likely to approach in round numbers, six hundred million dollars. The elements of uncertainty in this computation are the size of the annual appropriation, the rate of interest and the time. The appropriation for the fiscal year ending July 1, 1908, is \$40,000,000.00. It does not seem probable that the United States can continue to borrow at so low a rate as two per cent, when the bonds are no longer in demand as a basis for bank-note circulation. If the canal should be completed in less than twelve years, it is safe to say that there will be no saving of expense less than these figures, as any saving of time would be made up by increased annual expenditures. When the enormous construction work is added to the enormous excavation work, the annual expenditure may rise to fifty or sixty millions.

In making an estimate of cost according to the second method proposed, it is difficult to determine approximately what portion of the work has already been done and at what cost, so as to compute the final cost of the whole. Clearly the work can be divided into two parts, viz., the cost of excavation and the cost of construction of dams, retaining walls, locks, etc., with proper facilities in the shape of harbors and

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docks. Very little actual construction work has been accomplished. Mr. Lindon W. Bates, one of the best equipped and most expert writers on the canal, asserts that five per cent of the necessary material to be moved and placed has been moved and placed. Since this statement was printed, thirty-five million cubic yards have been removed. Let us for the sake of argument assume that Dr. Bates is wide of the mark in his estimate, and that instead of one twentieth, one fifth of the material to be moved and placed has been moved and placed.

The *World's Work* for June, 1908, apparently from official figures, prints a diagram showing that less than one fourth of the excavation has thus far been accomplished. As the cost of excavation will increase with increase in depth, and the cost per cubic yard of the enormous construction work will equal or exceed the cost per cubic yard of excavation and dredging, an estimate that one fifth of the entire work to be done, based on the same unit of cost, has been executed seems not unreasonable. On this basis, then, it will cost five times as much to complete the work, provided in the future the cost remains the same in proportion as it has been in the past. This seems reasonable to expect, as twice to three times as many men are employed as under the French regime, the rate of wages is much higher, and the cost of materials will be determined by the extreme standards of a highly protected country.

The question now to be considered is what amount of money is to be taken as the previous cost which is to be the multiplicand for the multiplier that we have selected. Obviously as much of the French expenditure was wasted, it would not be fair to take the whole sum of \$250,000,000. Let us strike off \$30,000,000, add \$80,000,000 expended by the United States, and take \$300,000,000.00 as the multiplicand. On this basis, then, the product for the total cost of the enterprise will be one and a half billions of dollars. It is estimated that the cost to the United States, by July 1, 1908, has been \$130,000,000.00. On the supposition that \$30,000,000.00 of this has been used for sanitation, right of way and equipment, which will not have to be duplicated, let us strike off that sum and call our minimum multiplicand \$100,000,000. On this basis the minimum product giving the total cost of the canal will be half a billion of dollars. It seems erroneous, however, to make this last computation on the bargain price paid by the United States for the unfinished canal, as that sum does not represent the actual cost of the unfinished work, or what it would cost the United States to do what the French did, if the United States Government were now turning the first spade in the enterprise. It may fairly be concluded that the final cost will much exceed half a billion of dollars.

In December, 1903, the public mind and conscience seemed strangely incapable of judging fairly either of the discreditable diplomacy by which the United States extended its sovereignty over the Canal zone,

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or the expediency of the whole enterprise as a commercial project. But the lapse of five years has brought a tremendous sobering of the public judgment, a partial awakening from the delirium of Oriental empire and a dispelling of the glamor that dimmed the public vision. As the average man can see more clearly now, Webster's so-called miserable interrogatory "What is all this worth?" should be pushed to the heart of the matter, and we may next consider what will be the financial return of this enormous expenditure of the money of the taxpayers of the United States.

II

What will be the Probable Income?

This question naturally divides itself into two parts, viz., (1) What will be the gross income, derived from ships passing through the canal? (2) What will be the net income per year, after the costs of maintenance and operation have been paid?

While it was difficult to get a safe approximate answer to the inquiry about the cost of the canal, it is clearly far more difficult to answer this second question. Still it must be attempted, using the best authorities to throw light on the subject. The three experts whose testimony I shall review are Joseph Nimmo, formerly Chief of the Bureau of Statistics at Washington; Col. George E. Church of London, a leading explorer and authority on South America, and Prof. Emory R. Johnson, of the University of Pennsylvania, the official statistician of the Walker Panama Commission.

Mr. Nimmo, while in office, in 1880, with the help of Colonel Church, made to the Treasury Department on August 7, 1880, an exhaustive report. It is entitled "The Proposed American Inter-Oceanic Canal in its Commercial Aspects," and is published in the Quarterly Report of the Chief of the Bureau of Statistics, No. 1, 1879-1880, pp. 281-418. This is a most scientific treatment of the question and contains ninety pages of valuable appendices. Twice since that time, in 1898 and in 1899, he has published articles revising his estimates. Mr. Nimmo has had the experience of a veritable Cassandra. His able arguments have been entirely unheeded either by Government authorities or the general public, and I have found no reference to him or his report in the voluminous report on the industrial and commercial value of the canal, by Professor Johnson, the official statistician of the commission. In his report Mr. Nimmo considers at length the amount of shipping tonnage, the value of commodities, and the proportion of the commerce of the principal nations, which might have passed through the canal, if open at the time, and the various geographical and nautical conditions which control the amount of shipping and bear upon the future development of such commerce. Of his conclusions, which he summarizes, the following are the most important.

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The probable tonnage for the canal would amount to about one million three hundred and twenty-five thousand tons annually, the traffic would be confined to steam vessels, the trade around the Horn and across the Isthmus had been enormously diverted by one trans-continental railroad, very little traffic for Australia through the canal could be expected from either Europe or America, and the magnitude of the commerce of the countries on the western coast of South America is very limited by natural conditions. In his pamphlet published in 1898 he revises his estimate made in 1880, of possible tonnage per year for the canal, from one million six hundred and twenty-five thousand tons annually to three hundred thousand because of the great reduction in trans-continental rates and changed conditions. In 1899 in his article he says, "I conclude that not more than four hundred thousand tons of shipping annually can be confidently expected to pass through such canal."

Colonel George E. Church, whose estimate I shall next quote, is the greatest living authority on the geography of South America, and contributed one of the most important appendices to Mr. Nimmo's report, No. 60, on the relation of the west coast of South America to the proposed canal. His most complete discussion of the subject is found in an article entitled "Interoceanic Communication on the Western Continent" in *The Geographical Journal*, published in London, by the Royal Geographical Society, March, 1902.

As no one of the many advocates of the commercial value of the Panama Canal has ever seriously attempted to answer or criticize the soundness of Colonel Church's article, it is fair to assume that his position, his reasoning and his conclusions are difficult to controvert or overthrow.

The most prominent points which he makes in this article are as follows. He explodes the fallacy of the Suez Canal analogy, by showing that ninety-four per cent of the world live in countries to the north of Panama and six per cent south of it, whereas the parallel of latitude of Suez cuts through or runs in the neighborhood of the densest area of population of our globe.

He then by careful analysis eliminates from the influence of the Panama Canal the whole inter-trade of by far the greater part of the land surface and over nine-tenths of the population of the globe. His conclusion is that there is likely to be one million eight hundred thousand cargo tons of freight to go through the canal. Now comes one of the most difficult factors in the computation, viz., how to transmute cargo tons of weight into net register tons of capacity. Colonel Church adopts as a fair rule that every net register ton of steamships will absorb on the average two cargo tons of freight. On this basis he gives as the result of his analysis that the portion of existing traffic which a

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Panama Canal may possibly attract will require nine hundred and three thousand and twenty-nine net register tons of steamships.

The last expert to be quoted is Professor Emory R. Johnson of the University of Pennsylvania, the official statistician of the Commission. The character of Professor Johnson as a statistician may be seen from the following quotation, taken from his popular article in *Everybody's Magazine* for February, 1904.

"While it is not recommended that the Panama Canal shall be managed so as to secure a large net revenue, our country can, if it desires to do so, easily recover in a comparatively short time the money invested.

"By spending on an average \$20,000,000.00 a year for the next decade, the United States will secure a canal from which, during the succeeding twenty years, by means of moderate tolls, an income can be obtained that will meet current expenses and return to our National treasury the entire \$200,000,000.00." He is completely carried away with the Suez Canal analogy as a basis for comparison with Panama, confuses "may" with "will," overlooks the uselessness of the canal for sailing vessels, and thus figures out an available tributary tonnage in 1899 of five million tons register; then by figuring an increase of twenty-five per cent every decade, he estimates a round seven million tons in 1914, apparently forgetting that at that time there will be fourteen trans-continental railroads in North America and two in South America, all competing with the canal.

These are the three most careful estimates of the tonnage likely to pass through the canal, when it is opened. It now remains to convert this into dollars in order to compute the gross income. The Suez Canal toll is now \$1.70 per ton register, but in the concluding paragraph of his report, Professor Johnson speaks as follows:

"In the foregoing discussion a toll of one dollar a ton net has been made the basis of reasoning because that represents a maximum beyond which the charge ought not to go. A tariff much higher than that would in all probability so restrict the tonnage passing through the canal as to reduce the revenue derived from the tolls."

On the basis of one dollar a ton then, according to the estimates already mentioned, the annual payments at first from canal tolls, according to these estimates of probable tonnage will respectively be \$400,000.00, \$900,000.00 and \$7,000,000.00, according to Professor Johnson. Bancroft Libr

In order to get the net income, we must subtract from these sums the annual cost of maintenance and operation of the canal. On page 256 of the report of the Walker Commission this cost is given as \$2,000,000.00. On page 97 of the Report of the Board of Consulting Engineers it is given as \$2,000,000.00. F. C. Penfield, in his "East of Suez," page 23, says that it can not be less than \$4,000,000.00 annually. Let us assume the minimum cost of maintenance and operation as

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\$2,000,000.00 per year, and the maximum as \$4,000,000.00. On such a basis, if Mr. Nimmo's estimate of tonnage proves true, the minimum annual deficit on this score will be \$1,600,000.00 and the maximum will be \$3,600,000.00. If Colonel Church proves to be the true prophet, the minimum and maximum deficits to be made up from the United States Treasury on maintenance and operation account will be respectively, \$1,100,000.00 and \$3,100,000.00. If Professor Johnson's estimates come true, then there will be a profit of \$3,000,000.00 and \$5,000,000.00 respectively to be devoted to paying off the principal and interest of the enormous canal debt.

III

What will be the fixed charge upon the United States Treasury from 1920 if the canal be opened for traffic in that year, and from that time the outstanding canal bonds be redeemed in thirty yearly instalments?

In endeavoring to answer this question, it will be assumed for the sake of argument that from 1920 the income from tolls will always equal the cost of maintenance and operation, although, according to the estimates of traffic by Mr. Nimmo and Colonel Church, there is sure to be a large deficit. The chief remaining variable in our problem then is the amount of actual outlay by the United States, when the canal opens for traffic in 1920. What are its minimum and maximum limits according to the results of the previous computations?

According to our first method of computation, viz., figuring principal and compound interest on twelve yearly instalments of expenditure of \$30,000,000.00 in addition to the amount already expended, the probable cost was found to be about \$600,000,000.00.

The second estimate was based on the supposition that twenty per cent of the material to be moved and placed had been so treated, and that the cost of the remaining eighty per cent of the work to be done would be on the same basis. By this method of computation the minimum and maximum results were half a billion of dollars and one and a half billion of dollars.

Now in estimating the fixed charge upon the treasury, beginning in 1920, it is to be noted that while the instalment for repayment of the principal each year will be constant, viz., one thirtieth of the total canal debt, the charge for the payment of interest will lessen each year until the extinction of the debt, by the amount which forms the interest at two per cent on the one-thirtieth of the principal paid off each year.

If the cost shall be \$600,000,000.00, the annual payment on principal account will be \$20,000,000.00, while the annual decrease in amount of interest to be paid will be \$400,000.00.

If the cost shall be \$1,500,000.00, the annual payment on principal

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account will be \$50,000,000.00, while the annual decrement will be \$1,000,000.00.

This supposition of the probable charge upon the treasury presupposes that the total cost of the canal will be represented by bond issues. Up to the present time part has come from surplus revenue and part from bond issues. It all comes out of the taxpayers of the United States. Where the appropriation is from surplus revenue the money is taken from the pockets of the present generation; if it comes from bonds it will largely come from the pockets of the next generation.

IV

What will be the economic benefit in the lowering of the cost of transportation of low-grade freight, such as cereals, ores, metals, sugar, grain and lumber, between the Atlantic and Pacific, through the canal, as compared with the cost via the Panama Railroad, equipped throughout in the best possible way and furnished with the best possible terminal facilities, like the Tehuantepec Railroad across Mexico?

Before attempting to answer this question three facts are to be noted; first, so far as passenger traffic is concerned the canal will be a hindrance and not a benefit. After it is completed it will take considerably longer for passengers to cross the Isthmus than it does now. The completion of the lock canal will wipe out the railroad in many places because of the broad lakes which will be created. It has become necessary to build a new line around the lakes. This will make the time of transit considerably longer than it is now. It will take steamers from twelve to twenty-four hours to pass between the two oceans.

Second, there is very likely to be a considerable transshipment of freight at the Atlantic terminus in any event when the canal is complete.

It is a well-known fact that the commerce on the Atlantic Ocean which calls for steamships to carry freight is far greater than on the Pacific coast of America, while the great commercial ports are more numerous and nearer together on the east coast than on the west coast of the continent. Any owner of a steamship reaching Colon with a half cargo, without the certainty of a return cargo from the Pacific coast, will hesitate to go through the canal. He will realize the much greater opportunity of getting a charter or cargo on the Atlantic than on the Pacific, with New Orleans or Galveston not far away, while if he goes through, his ship if he returns to the Atlantic must pay tolls twice on its carrying capacity, with or without cargo. It seems probable therefore that when the canal is built, a considerable amount of freight will break bulk at either end, much of which will be carried across by railroad.

The third thing to be remembered is that the tolls paid by the ship's owner are transferred as a freight charge to be paid ultimately to a

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large degree by the shipper. If there is only a half cargo on board, that charge will unquestionably be increased to a considerable degree, for otherwise the ship owner will be out of pocket, inasmuch as he will have to pay tolls on the freight-carrying capacity of his vessel.

Many of the articles attempting to show the commercial value and economic benefit of the canal are misleading and unsound, because they are founded on the enormous saving of distance between the voyage around the Horn and through the canal. The elaborate tables of distance via the Canal and Magellan routes, in order to justify the expenditure by the United States, compiled by the official statistician, Professor Johnson, are somewhat ludicrous and academic, and have no practical value. They tacitly ignore the fact that freight can be transhipped at Colon, on the Atlantic, carried fifty miles by railroad, and at Panama loaded again into a steamer floating on the Pacific Ocean. The question at issue is not how much shorter to Pacific ports will the voyage of a steamer be through the canal as compared with round the Horn. The real question is what will be the saving in the cost of carrying freight from the Atlantic to the Pacific Ocean between two methods. One is to carry it in the hold of a ship through the completed canal, built at the cost of the United States Treasury for an enormous sum. The other is to transfer it from a ship's hold to a railroad car at Colon, carry it across the Isthmus and re-transfer to a ship's hold at Panama. This view of the case is made all the more emphatic by the opening of the Tehuantepec Railroad, which now transports the sugar of the American-Hawaiian Company formerly carried by steamers around South America. The former prejudice against breaking bulk between shipping point and point of destination, in the delivery of freight, is out of date. As long as consignments are delivered in good order, shippers will not be disposed to ask whether there was any transshipment in the course of the voyage or not.

The problem now remains for us to determine the cost of transportation of freight between the two oceans by the two methods which have just been described. Through the canal the cost will be determined by the amount of tolls levied on the freight-carrying capacity of the steamer. On the Suez Canal the tolls amount to a little over \$2.00 per ton net register according to British measurements, which are the same as American. Let us assume \$1.00 and \$1.50 per net registered ton as the toll to be charged on the Panama Canal. According to statistical experts the ordinary freight steamer, when fully loaded, will carry about two tons of cargo to each ton of net register. This will make the extra cost for passing through the canal of each cargo ton in a fully laden ship fifty or seventy-five cents, and in a partly loaded ship, if the full incidence of the toll falls upon the shipper, a somewhat larger amount, possibly reaching a dollar a ton.

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With this cost of transportation through the canal we have now to compare the cost of transfer from ship's hold to ship's hold across the Isthmus by railroad. This divides into two parts, viz., the cost of carriage on the railroad and the cost of handling at either terminus. At the loading port, in the case of coal and ores, where the tracks are elevated, as at the ore docks in Marquette and many other places, gravitation can be utilized and the cost of handling is very slight.

Mr. J. J. Hill, in an address before the Chicago Commercial Association, said that the average freight cost of moving a ton one mile is .787 cents for the whole United States, and this seems to be a generally accepted estimate among economists. On this basis the cost of transportation over the Panama railroad, which is fifty miles long, would be about forty cents. Let us call it fifty or a cent a mile. Mr. Bates, who is doing the great engineering work of raising Galveston above the sea, says that a reasonable charge for handling freight at both ends would be thirty-five cents a ton, provided the best machinery were used. He says that at Galveston the charge is about thirteen cents a ton. Allowing for error, let us call it thirty cents a ton for handling at both termini. This makes a total charge of eighty cents to a dollar per ton for the cost of carrying across the Isthmus from ship's hold to ship's hold.

This estimate would seem not to be far from the truth, if the statements by Mr. John F. Wallace about the Tehuantepec Railroad, in a public speech, are sound. He said: "Modern methods and machinery will enable this railroad, one hundred and seventy miles in length, to conduct a profitable business at a rate not to exceed two dollars per ton from ship hold to ship hold." The grades on the Panama railroad are much lower than on the Mexican road, and as it is less than one-third as long, a flat rate of eighty cents per ton would seem to be profitable for the United States. On this point Mr. Wallace wisely says:

"If you are building the canal for the sake of giving the business world cheaper freights, why not confer these benefits as soon as possible, through the railroad? In a year you can give them, by properly perfecting the railroad, the benefits of rates as low as the canal could possibly make, to fully half as much traffic as the canal would get."

This is admirable advice, only it does not go far enough. If as low rates can be obtained by spending five million dollars as by spending from five hundred millions upward, why dig the canal at all?

If then the cost of freight by ton through the canal will be from fifty to seventy-five cents a ton, and the entire cost by railroad will be eighty cents, or a dollar, it is clear that the economic benefit to result from this enormous expenditure will be a reduction of not more than fifty to seventy-five cents a ton on a portion of the freight carried both

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ways between the Pacific coast of America and the countries washed by the Atlantic Ocean.

There are two interesting questions connected with this portion of the investigation which I will only state and not discuss in full. The first is, How much freight between Europe on the one hand and the Orient and the Pacific coast of the United States on the other, now passing across the trans-continental railroads, will be diverted to an all sea route by foreign vessels? The second is as follows, viz., What portion of the United States east of the Rocky Mountains will get any direct benefit in the lowering of freight rates by the canal, for the freight which it may send to or receive from the Pacific coast and the Orient?

A partial answer to these questions has been given by Professor Albert Bushnell Hart of Harvard University, an answer all the more significant because he is a champion of the canal and a defender of President Roosevelt's diplomacy in seizing the Isthmus by force in 1903.

In discussing the commercial future of the chief Pacific seaports of the United States, he says:

"The one disturbing influence which nobody as yet can calculate is the probable diversion of traffic from all the Pacific ports when the Panama Canal is finished, but what is lost in the proportion of foreign trade will doubtless be made up by traffic from the East to the West of America, and shipments destined for the Orient from all parts of the United States west of Pennsylvania and north of Kentucky and Missouri can afford to pay trans-continental rates rather than go through the Isthmus."

It is time now to summarize the results of this investigation in as brief a form as possible.

(1) *The cost of the canal is very likely to approach half a billion dollars, and may, if carried through, amount to one and a half billion of dollars.*

(2) *As to income from tolls, two of the experts figure out results which involve, at the opening of the canal in 1920, a deficit on account of maintenance and operation of from one to three million dollars. According to the third expert, there will be a profit of three to five millions, while the annual charge upon the United States treasury will be, at the lowest, ten millions.*

(3) *Beginning with 1920, under the conditions of payment of debt assumed, the fixed charge or drain on the National treasury each year for thirty years will be from twenty millions to fifty millions a year, plus a constantly decreasing interest account.*

(4) *As to the economic benefit to be derived from the building of the canal in the lowering of freight rates, it is not likely to exceed more than seventy-five cents a ton to individual shippers, and the gain may be considerably less than that amount.*

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In conclusion it may be properly asked, What does the building of the Panama Canal by the United States mean to the citizens of the country?

The proper answer would seem to be as follows: An enormous sum, probably amounting to at least one half a billion of dollars, is to be taken from the pockets of two generations of taxpayers, in order to confer a slight benefit on the shippers of merchandise between the Atlantic and Pacific Oceans.

If this investigation has been conducted on a sound basis, and its conclusions are approximately correct, there would seem to be a modicum of truth in the statement made by Mr. Samuel Hill of Seattle, Wash., and Washington, D. C., at Lincoln, Neb., in May, 1907, when in a public lecture he said that the building of the Panama Canal by the United States was the "monumental folly of the age."

