The Panama Canal in 1908: Discussion

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profited by the learning of Mr. Tracy Robinson, an historian of Isthmian affairs.

I left the society of the men who are making the canal with great regret. I cherish the hope that I may revisit them, that I may see their task crowned with success, and that I may yet gaze from the deck of an ocean liner upon the terraced sides of Culebra cut.

Before the paper, the PRESIDENT: No words are needed on my part to introduce to you Dr. Vaughan Cornish, who has given us so many papers before, and whose lectures we have so often enjoyed. He has generally for his study taken the study of waves, but to-night he deals with a different class of problems. He is going to discuss the Panama canal, and discuss it from every possible point of view which can in any way be considered geographical. As you have come to listen to the lecture and not to me, I will, without more ado, ask Dr. Cornish to kindly deliver his lecture.

After the paper, Colonel G. E. CHURCH: We have listened with keen interest to the lecturer. He thoroughly understands that any one describing the work being carried out at Panama should be extremely careful of his statements. I do not share in the idea that the white man can compete with other races in occupying tropical lands. There are, of course, in America immense areas of these, notably in the Amazon valley, mostly malaria infested; but I do not believe that the mosquito is entirely to blame for the malaria. I have in mind at this moment a work which is being carried out in the Amazon valley, an old enterprise of mine, the Madeira and Mamoré railway, situated exactly in the same latitude south of the equator as Panama is to the north. There are now 1500 men employed on that work, and measures of sanitation have not been taken similar to those of Panama, although every provision has been made for the health of the men. I have recently had information from there that the negro, while he does not fall ill with malaria so quickly as the white man, recuperates from it with less rapidity. It is a curious fact that there are no mosquitoes but plenty of malaria along the line of the falls of the Madeira. I have no doubt that the white man could occupy the whole Amazon valley if he had the United States Treasury behind him to give sanitation like that of Panama. Unfortunately, the emigrant to new countries is generally very poor, and is unable to carry with him many tons of petroleum, and organize brigades of men to fight mosquitoes. These lands cannot be occupied by white men in competition with negroes and other races of tropical breed. I have been struck with the marvellous feats of administrative ability performed at Panama by the French and Americans, and yield humble tribute to the engineering talent of France and to that of the corps of engineers of the United States army, that they should have planned and carried out so admirably such magnificent works as are now proceeding there. But I also submit that they have not yet tackled the great problems incident to the cutting of the canal; these are still to come, and we must withhold our judgment until we see them well under way. It is now twenty-seven years since work was commenced by the French, and it is an *astounding fact that the definitive plans for the canal have not yet been decided upon*. Meanwhile, millions sterling have been poured into that Danaïdes sieve simply to "*make the dirt fly*."

But what is the Panama canal being cut for? Is it for commercial purposes? or strategic reasons? or for a better control of the Pacific ocean? Look for a moment at its commercial position. Ninety-four per cent. of the population of the

world lies to the north of Panama, and of the other 6 per cent., the traffic that it will give the canal is not very great. If the United States Government is so anxious for commercial development, why has it so neglected the eastern side of South America? There are to-day 3000 European steamships yearly entering and clearing at the ports of Buenos Aires and Rio de Janeiro, and not one of them carries the American flag. The Argentine Republic alone is doing to-day, with its 6,000,000 of population, a larger export and import trade than the entire 400,000,000 of the Empire of China.

It may sound rather strange to you, but South America does more export and import trade than the Indian Empire of Great Britain. But where does that trade come from? It comes almost entirely from the eastern side of the Andes, within as easy reach of New York as it is to the ports of Europe; and yet, as I say, you look in vain for the American flag there. But they tell us, and I have seen many articles written in American magazines and newspapers about it, that wonderful results are to take place on the Pacific coast when the canal is opened, and that this west coast trade will go largely to compensate for cutting it. Only 6 per cent. of the area of South America lies on the Pacific slope of the Andes, and the twenty-eight passes of the Andes lying between $7^{\circ} 45'$ and 23° S. lat. average above 15,000 feet elevation, the lowest being 10,000 feet. Surely it is not proposed to cross those passes with railways, to take the trade of eastern South America across the Cordillera.

Is the purpose of the canal to give us more brotherly relationship with the eight millions of Philippine *Objects* we purchased of Spain? (I call them *Objects* for the simple reason that we have no *Subjects* in the United States.) But Manila, the capital of the Philippines, is exactly as near New York by way of Suez as it is by way of Panama. Is it worth cutting a Panama canal to save the 16 miles difference that Dr. Vaughan Cornish told us of? There is another point, any voyage between the ports of Europe and Asia is shorter for ships by way of the Suez canal than it is *viâ* Panama; therefore you may eliminate at once the entire inter-trade of Asia, Africa, and Europe from the influence of the canal. Again, suppose the canal were opened to-day, and with a toll, say, of 4s. per ton, which I suppose would be the minimum, can it compete with the Pacific railways across the continent? Is it possible that a man sending goods to the eastern part of the United States will ship them say, from 100 miles inland in California to the Pacific coast, put them on to a steamer, carry them through the canal round to New York or Philadelphia, and then transport them by rail to the interior, or will he at once put them on to a Pacific railway? What would be the cost of freight *viâ* Panama, including canal toll, between New York and say San Francisco or Vancouver? Surely not less than 30s. a ton, if we measure by freights as they are now or have been for the last two or three years; and yet, Mr. President, the Canadian-Pacific railway to-day has a regular freight tariff of 30s. a ton between Montreal and Vancouver. Do you suppose when the canal is completed that the railway rates cannot be lowered? I assure you the Pacific railways look as if they might very readily beat the canal on the freight question, for not only will they carry goods more expeditiously, but for less cost of insurance. Able men have played with statistics in a very curious way; they figure that the canal will commence with a traffic of anywhere from five to seven millions of tons. How do they get these figures? By taking all the entrances and clearances of ships at ports possibly tributary to the canal. But this is a very crude method. The Pacific coast of South America or North America is an example, because there it is that the canal hopes for its largest traffic. Take the little Costa Rica port of Punta Arenas on the Pacific, which shows about 320,000 tons a year of commerce on the

basis indicated; the actual fact is that it does about 12,000 tons of trade a year. Take the west coast of South America, there are regular lines of English and Chilean steamships that go up and down the coast, touching every day at two or three ports, dropping and picking up a few tons of cargo, and every port touched is given credit for entrances and clearances of from 5000 to 10,000 tons, according to the registered tonnage of the steamer. Thus the French Panama Company, as well as the United States Commissioners, have always made their figures. I may say that, with a year of labour, I analyzed all the commerce that would possibly go through the canal if it were open to-day, and I could not make it a million tons; so I will leave the commercial aspect of the canal for those mathematicians who see millions of tons in one steamship every year.

Finally, has the Panama canal a strategical aspect? Yes, it is strategical. In all time, I believe, nations have fought tremendous wars to turn the trade of the world across their territory. My country is the only one that seeks to "side-track" the grand trade avenues created by the private capital and resourceful energies of its own people. There is a mountain wall known as the Rocky mountains and the Andes, extending from the Arctic sea to the Straits of Magellan which seems to bar off Europe from any contact with the Pacific by a western, route except by the way of Cape Horn. It gives the United States a magnificent controlling position; and I do not see why we want to abandon it by opening a gateway through the centre of it. I come to the naval aspect of the canal, but with much diffidence, for I see some very able naval experts here to-night. I believe that it will take just as many ships to defend the Panama canal in case of war as it would to defend the Pacific coast without the canal, and that the interest on the cost of the canal (say, on at least £100,000,000 sterling) would keep many battleships in commission.

Mr. BERNACCHI: About eighteen months before Dr. Cornish's second visit I found myself compelled to spend seven days on the Isthmus of Panama—seven of the most dismal and uncomfortable days I ever spent, and when I say uncomfortable, I do not at all express what I felt. But notwithstanding the climate, hotels, and other things in general, the Isthmus is of deep interest to the scientific traveller. What impressed me was the fact that although so much time and thought had been devoted to the organization of the various departments, the educational question had not been forgotten. The year of my visit witnessed the establishment of English free schools in the various municipalities.

Three of the chief obstacles at that time appeared to me to be, first, the nature of the country itself; second, the flood waters of the Chagres river and the construction of those immense artificial dams; third, the scarcity of labour. The last difficulty has, we are told, been overcome, but I still believe that the Panama canal, should it ever be completed, will be built in the main by Jamaica labour, by the Jamaica negro.

Mr. MACKINDER: I listened with very great interest to the criticisms of Colonel Church, and with a great deal of what he said I agree. But I submit that whether you regard the matter from a geographical or a financial point of view, he wrote off the strategical side of the question rather too lightly. Even if you take the cost of the canal as one hundred millions, that would only build forty capital ships nowadays, and Great Britain has already more than forty such ships in commission. If the United States mean to have one of the first-rate fleets, the cost of that fleet would be more than equivalent to that of the Panama canal, and such a fleet has to be rebuilt every fifteen years. Therefore I submit that since two oceans are concerned, the cost of the canal might prove to be a very valuable investment. The part of the United States which lies west of the hundredth meridian west has a

very small rainfall except along the border adjacent to Canada, and in California. The vast majority therefore of the American population must, probably for all time, live on the Atlantic slope. But the United States is deeply interested in Oriental markets, and she carries a great deal of traffic across the continent, therefore she is interested both in the Pacific and in the Pacific terminals of her railways. Her chief base of power must, however, be on the Atlantic coast. Her motives are thus those which induced Germany to make the Kiel canal. I submit that the construction of the Panama canal is not a bad investment for the United States, given the intention of being a naval power on both oceans.

Mr. THEODORE WALKER, who had been to Panama last spring, remarked that the tide on the Pacific side is, as far as he could judge, 14 to 20 feet higher than on the Atlantic side, where it was, he believed, only about a few inches. In that case, he thought it would have been very difficult to have made a canal on the level from sea to sea.

The PRESIDENT: Time is getting on, and I think I had better bring this discussion to a close by giving a very hearty vote of thanks to the lecturer, Dr. Vaughan Cornish. We have had an extremely interesting discussion, and I should like before he replies to ask one question, with regard to the effect of opening the canal. I cannot help believing it would have been possible to make some sort of rough estimate of the saving to the world at large in the shortening of distances, and therefore, from this point of view, of the capital value of the canal. I should like to know from Dr. Cornish what in his opinion is the best estimate, from the purely commercial point of view, of what the canal will save to the world. No doubt the French would have been wise if they had made such an estimate before commencing this work. The Americans, also, might have been wise to do so, but I do not think it would have stopped them either. They have what I may call a sentimental reason for their actions—a feeling that this great work has been commenced and ought to be finished at all hazards. I also think that the strategical value of the work to the United States will be very great indeed. The canal is to be opened to ships of war in time of war, and if one considers the advantages of being able to transfer ships from the Pacific to the Atlantic when such a power is denied to their opponents, any one must see that the canal will be worth a great deal to the United States.

Dr. CORNISH: The advantages which it is hoped to obtain for the United States by the construction of the canal are of three kinds, viz., commercial, industrial, and military; and the event which determined the building of the canal was a military one. This was the voyage of the battleship *Oregon* in 1898, at the commencement of the war with Spain. This vessel, one of the few battleships which the United States then possessed, was in the Pacific, and had to steam round South America to effect a junction with the remainder of the fleet. For weeks the whole nation was kept in a state of nervous tension until the news of her arrival at Key West. This experience created a general feeling throughout the country that an Isthmian canal was necessary—a feeling which provided the Administration with the necessary motive power. Whether this instinctive strategy be right or wrong is a matter upon which experts differ. The shorter line of communication increases the power of offence, but entails responsibilities of defence. Whether the advantage or the disadvantage is likely to be the greater is a question, the answer to which depends largely upon another question, viz. Which nation or nations are likely antagonists? That is a question which it would be difficult to discuss non-politically, as our rules require. On account of the mixed motives for the construction of the canal, I have not examined very carefully the direct financial return, for I do not think the undertaking can be properly regarded as a business concern.