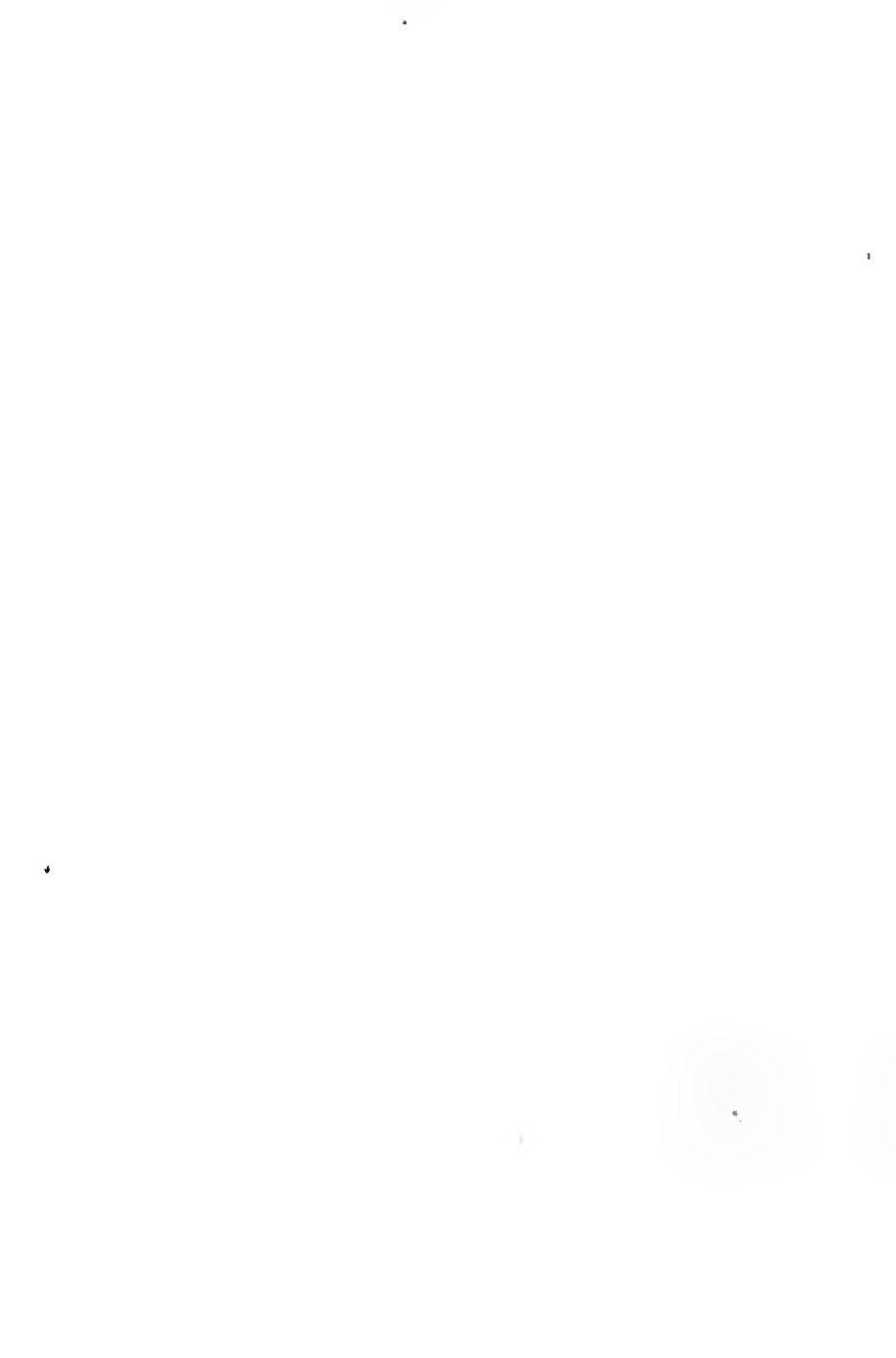


APPENDICES



APPENDICES

I

THE PANAMA CANAL CONVENTION

THE United States of America and the Republic of Panama being desirous to insure the construction of a ship-canal across the Isthmus of Panama to connect the Atlantic and Pacific oceans, and the Congress of the United States of America having passed an act approved June 28, 1902, in furtherance of that object, by which the President of the United States is authorized to acquire within a reasonable time the control of the necessary territory of the Republic of Colombia, and the sovereignty of such territory being actually vested in the Republic of Panama, the high contracting parties have resolved for that purpose to conclude a convention and have accordingly appointed as their plenipotentiaries, —

The President of the United States of America, John Hay, Secretary of State, and the

Government of the Republic of Panama, Philippe Bunau Varilla, Envoy Extraordinary and Minister Plenipotentiary of the Republic of Panama, thereunto specially empowered by said government, who after communicating with each other their respective full powers found to be in good and due form, have agreed upon and concluded the following articles:

ARTICLE I

The United States guarantees and will maintain the independence of the Republic of Panama.

ARTICLE II

The Republic of Panama grants to the United States in perpetuity the use, occupation and control of a zone of land and land under water for the construction, maintenance, operation, sanitation and protection of said Canal of the width of ten miles extending to the distance of five miles on each side of the centre line of the route of the Canal to be constructed; the said Zone beginning in the Caribbean Sea three marine miles from mean low water mark and extending to and across the Isthmus of Panama into the Pacific Ocean to a distance of

three marine miles from mean low water mark with the proviso that the cities of Panama and Colon and the harbors adjacent to said cities, which are included within the boundaries of the Zone above described, shall not be included within this grant. The Republic of Panama further grants to the United States in perpetuity the use, occupation and control of any other lands and waters outside of the Zone above described which may be necessary and convenient for the protection of the said Canal or of any auxiliary canal or other works necessary and convenient for the construction, maintenance, operation, sanitation and protection of the said enterprise.

The Republic of Panama further grants in like manner to the United States in perpetuity all islands within the limits of the Zone above described and in addition thereto the group of small islands in the Bay of Panama, named Perico, Naos, Culebra and Flamenco.

ARTICLE III

The Republic of Panama grants to the United States all the rights, power and authority within the Zone mentioned and described in

Article II of this agreement and within the limits of all auxiliary lands and waters mentioned and described in said Article II which the United States would possess and exercise if it were the sovereign of the territory within which said lands and waters are located to the entire exclusion of the exercise by the Republic of Panama of any such sovereign rights, power or authority.

ARTICLE IV

As rights subsidiary to the above grants the Republic of Panama grants in perpetuity to the United States the rights to use the rivers, streams, lakes and other bodies of water within its limits for navigation, the supply of water, or water-power, or other purposes, so far as the use of said rivers, streams, lakes and bodies of water and the waters thereof may be necessary and convenient for the construction, maintenance, operation, sanitation and protection of the said Canal.

ARTICLE V

The Republic of Panama grants to the United States in perpetuity a monopoly for the construction, maintenance and operation of any system of communication by means of canal or

railroad across its territory between the Caribbean Sea and the Pacific Ocean.

ARTICLE VI

The grants herein contained shall in no manner invalidate the titles or rights of private land-holders or owners of private property in the said Zone or in or to any of the lands or waters granted to the United States by the provisions of any Article of this treaty, nor shall they interfere with the rights of way over the public roads passing through the said Zone or over any of the said lands or waters unless said rights of way or private rights shall conflict with rights herein granted to the United States, in which case the rights of the United States shall be superior. All damages caused to the owners of private lands or private property of any kind by the operations of the United States, its agents or employees, or by reason of the construction, maintenance, operation, sanitation and protection of the said Canal or of the works of sanitation and protection herein provided for, shall be appraised and settled by a joint commission appointed by the Government of the United States and the Republic of Panama, whose decisions as to such damages shall

be final and whose awards as to such damages shall be paid solely to the United States. No part of the work on said Canal or the Panama railroad or on any auxiliary works relating thereto and authorized by the terms of this treaty shall be prevented, delayed or impeded by or pending such proceedings to ascertain such damages. The appraisal of the said private lands and private property and the assessment of damages to them shall be based upon their value before the date of this convention.

ARTICLE VII

The Republic of Panama grants to the United States with the limits of the cities of Panama and Colon and their adjacent harbors and within the territory adjacent thereto the right to acquire by purchase or by the exercise of the right of eminent domain, any lands, buildings, water rights or other properties necessary and convenient for the construction, maintenance, operation and protection of the Canal and of any works of sanitation, such as the collection and disposition of sewage and the distribution of water in the said cities of Panama and Colon, which in the discretion of the United States may be necessary and convenient for

the construction, maintenance, operation, sanitation and protection of the said Canal and railroad. All such works of sanitation, collection and disposition of sewage and distribution of water in the cities of Panama and Colon shall be made at the expense of the United States, and the Government of the United States, its agents or nominees shall be authorized to impose and collect water rates and sewage rates which shall be sufficient to provide for the payment of interest and the amortisation of the principal of the cost of said works within a period of fifty years, and upon the expiration of said term of fifty years the system of sewers and water works shall revert to and become the properties of the cities of Panama and Colon respectively; and the use of the water shall be free to the inhabitants of Panama and Colon, except to the extent that water rates may be necessary for the operation and maintenance of sewers and water.

The Republic of Panama agrees that the cities of Panama and Colon shall comply in perpetuity with the sanitary ordinances whether of a preventive or curative character prescribed by the United States, and in case the Government of Panama is unable or fails in its duty

to enforce this compliance by the cities of Panama and Colon with the sanitary ordinances of the United States the Republic of Panama grants to the United States the right and authority to enforce the same.

The same right and authority are granted to the United States for the maintenance of public order in the cities of Panama and Colon and the territories and harbors adjacent thereto in case the Republic of Panama should not be, in the judgment of the United States, able to maintain such order.

ARTICLE VIII

The Republic of Panama grants to the United States all rights which it now has or hereafter may acquire to the property of the New Panama Canal Company and the Panama Railroad Company as a result of the transfer of sovereignty from the Republic of Colombia to the Republic of Panama over the Isthmus of Panama, and authorizes the New Panama Canal Company to sell and transfer to the United States its rights, privileges, properties and concessions as well as the Panama Railroad and all the shares or part of the shares of that company; but the public land situated

outside of the zone described in Article II of this treaty now included in the concessions to both said enterprises and not required in the construction or operation of the Canal shall revert to the Republic of Panama except any property now owned by or in the possession of said companies within Panama or Colon or the ports or terminals thereof.

ARTICLE IX

The United States agrees that the ports at either entrance of the Canal and the waters thereof, and the Republic of Panama agrees that the towns of Panama and Colon, shall be free for all time, so that there shall not be imposed or collected customhouse tolls, tonnage, anchorage, lighthouse, wharf, pilot, or quarantine dues or any other charges or taxes of any kind upon any vessel using or passing through the Canal or belonging to or employed by the United States, directly or indirectly, in connection with the construction, maintenance, operation, sanitation and protection of the main Canal, or auxiliary works, or upon the cargo, officers, crew, or passengers of any such vessels, except such tolls and charges as may be imposed by the United States for the use of the

Canal and other works, and except tolls and charges imposed by the Republic of Panama upon merchandise destined to be introduced for the consumption of the rest of the Republic of Panama, and upon vessels touching at the ports of Colon and Panama and which do not cross the Canal.

The Government of the Republic of Panama shall have the right to establish in such ports and in the towns of Panama and Colon such houses and guards as it may deem necessary to collect duties on importation destined to other portions of Panama and to prevent contraband trade. The United States shall have the right to make use of the towns and harbors of Panama and Colon as places of anchorage, and for making repairs, for loading, unloading, depositing, or transshipping cargoes either in transit or destined for the service of the Canal and for other works pertaining to the Canal.

ARTICLE X

The Republic of Panama agrees that there shall not be imposed any taxes, national, municipal, departmental, or of any other class, upon the Canal, the railways and auxiliary works,

tugs and other vessels employed in the service of the Canal, storehouses, workshops, offices, quarters for laborers, factories of all kinds, warehouses, wharves, machinery and other works, property, and effects appertaining to the Canal or railroad and auxiliary works, or their officers or employees, situated within the cities of Panama and Colon, and that there shall not be imposed contributions or charges of a personal character of any kind upon officers, employees, laborers, and other individuals in the service of the Canal and railroad and auxiliary works.

ARTICLE XI

The United States agrees that the official despatches of the Government of the Republic of Panama shall be transmitted over any telegraph or telephone lines established for canal purposes and used for public and private business at rates not higher than those required from officials in the service of the United States.

ARTICLE XII

The Government of the Republic of Panama shall permit the immigration and free access to the lands and workshops of the Canal and

its auxiliary works of all employees and workmen of whatever nationality under contract to work upon or seeking employment upon or in any wise connected with the said Canal and its auxiliary works, with their respective families, and all such persons shall be free and exempt from the military service of the Republic of Panama.

ARTICLE XIII

The United States may import at any time into the said zone and auxiliary lands, free of custom duties, imposts, taxes, or other charges, and without any restrictions, any and all vessels, dredges, engines, cars, machinery, tolls, explosives, materials, supplies, and other articles necessary and convenient in the construction, maintenance, operation, sanitation and protection of the Canal and auxiliary works, and all provisions, medicines, clothing, supplies and other things necessary and convenient for the officers, employees, workmen and laborers in the service and employ of the United States and for their families. If any such articles are disposed of for use outside of the zone and auxiliary lands granted to the United States and within the territory of the Republic, they shall

be subject to the same import or other duties as like articles under the laws of the Republic of Panama.

• ARTICLE XIV

As the price of compensation for the rights, powers and privileges granted in this convention by the Republic of Panama to the United States, the Government of the United States agrees to pay to the Republic of Panama the sum of ten million dollars (\$10,000,000) in gold coin of the United States on the exchange of the ratification of this convention and also an annual payment during the life of this convention of two hundred and fifty thousand dollars (\$250,000) in like gold coin, beginning nine years after the date aforesaid.

The provisions of this article shall be in addition to all other benefits assured to the Republic of Panama under this convention. But no delay or difference of opinion under this article or any other provisions of this treaty shall affect or interrupt the full operation and effect of this convention in all other respects.

ARTICLE XV

The joint commission referred to in Article VI shall be established as follows:

The President of the United States shall nominate two persons and the President of the Republic of Panama shall nominate two persons and they shall proceed to a decision, but in case of disagreement of the Commission (by reason of their being equally divided in conclusion) an umpire shall be appointed by the two Governments who shall render the decision. In the event of the death, absence, or incapacity of a commissioner or umpire, or of his omitting, declining or ceasing to act, his place shall be filled by the appointment of another person in the manner above indicated. All decisions by a majority of the Commission or by the umpire shall be final.

ARTICLE XVI

The two Governments shall make adequate provisions by mutual agreement for the pursuit, capture, imprisonment, detention and delivery within the said zone and auxiliary lands to the authorities of the Republic of Panama of persons charged with the commitment of crimes, felonies or misdemeanors without said zone and for the pursuit, capture, imprisonment, detention and delivery without said zone to the authorities of the United States of persons

charged with the commitment of crimes, felonies and misdemeanors within said zone and auxiliary lands.

ARTICLE XVII

The Republic of Panama grants to the United States the use of all the ports of the Republic open to commerce as places of refuge for any vessels employed in the Canal enterprise, and for all vessels passing or bound to pass through the Canal which may be in distress and be driven to seek refuge in said ports. Such vessels shall be exempt from anchorage and tonnage dues on the part of the Republic of Panama.

ARTICLE XVIII

The Canal, when constructed, and the entrances thereto shall be neutral in perpetuity, and shall be opened upon the terms provided for by Section I of Article Three of, and in conformity with all the stipulations of, the treaty entered into by the Governments of the United States and Great Britain on November 18, 1901.

ARTICLE XIX

The Government of the Republic of Panama shall have the right to transport over the Canal

its vessels and its troops and munitions of war in such vessels at all times without paying charges of any kind. The exemption is to be extended to the auxiliary railway for the transportation of persons in the service of the Republic of Panama, or of the police force charged with the preservation of public order outside of said zone, as well as to their baggage munitions of war and supplies.

ARTICLE XX

If by virtue of any existing treaty in relation to the territory of the Isthmus of Panama, whereof the obligations shall descend or be assumed by the Republic of Panama, there may be any privilege or concession in favor of the Government or the citizens and subjects of a third power relative to an interoceanic means of communication which in any of its terms may be incompatible with the terms of the present convention, the Republic of Panama agrees to cancel or modify such treaty in due form, for which purpose it shall give to the said third power the requisite notification within the term of four months from the date of the present convention, and in case the existing treaty contains no clause permitting its

modification or annulment, the Republic of Panama agrees to procure its modification or annulment in such form that there shall not exist any conflict with the stipulations of the present convention.

ARTICLE XXI

The rights and privileges granted by the Republic of Panama to the United States in the preceding Articles are understood to be free of all anterior debts, liens, trusts, or liabilities, or concessions or privileges to other Governments, corporations, syndicates or individuals; and consequently, if there should arise any claims on account of the present concessions and privileges or otherwise, the claimant shall resort to the Government of the Republic of Panama and not the United States for any indemnity or compromise which may be required.

ARTICLE XXII

The Republic of Panama renounces and grants to the United States the participation to which it might be entitled in the future earning of the Canal under Article XV of the con-

cessionary contract with Lucein N. B. Wyse now owned by the New Panama Canal Company and any and all other rights or claims of a pecuniary nature arising under or relating to said concession, or arising under or relating to the concessions to the Panama Railroad Company or any extension or modification thereof, and it likewise renounces, confirms and grants to the United States, now and hereafter, all the rights and property reserved in the said concessions which otherwise would belong to Panama, at or before the expiration of the terms of ninety-nine years of the concessions granted to or held by the above mentioned party and companies, and all right, title and interest which it now has or may hereafter have, in and to the lands, canal, works, property and rights held by the said companies under said concessions or otherwise, and acquired or to be acquired by the United States from or through the New Panama Canal Company, including property and rights which might or may in the future either by lapse of time, forfeiture or otherwise, revert to the Republic of Panama under any contracts or concessions, with said Wyse, the Universal Panama Canal Company, the Panama Railroad

Company and the New Panama Canal Company.

The aforesaid rights and property shall be and are free and released from any present or reversionary interest in or claims of Panama, and the title of the United States thereto upon consummation of the contemplated purchase by the United States from the New Panama Canal Company shall be absolute, so far as concerns the Republic of Panama, excepting always the rights of the Republic specifically secured under this treaty.

ARTICLE XXIII

If it should become necessary at any time to employ armed forces for the safety or protection of the Canal, or of the ships that make use of the same, or the railroads and auxiliary works, the United States shall have the right, at all times and in its discretion, to use its police and its land and naval forces or to establish fortifications for these purposes.

ARTICLE XXIV

No change in the Government or in the laws and treaties of the Republic of Panama, with-

out the consent of the United States, affect any right of the United States under the present convention, or under any treaty stipulation between the two countries that now exists or may hereafter exist touching the subject matter of this convention.

If the Republic of Panama shall hereafter enter as a constituent into any other Government or into any union or confederation of states, so as to merge her sovereignty or independence in such Government, union or confederation, the rights of the United States under this convention shall not be in any respect lessened or impaired.

ARTICLE XXV

For the better performance of the engagements of this convention and to the end of the efficient protection of the Canal and the preservation of its neutrality, the Government of the Republic of Panama will sell or lease to the United States lands adequate and necessary for naval or coaling stations on the Pacific coast and on the western Caribbean coast of the Republic at certain points to be agreed upon with the President of the United States.

ARTICLE XXVI

This convention when signed by the Plenipotentiaries of the Contracting Parties shall be ratified by the respective Governments and the ratification shall be exchanged at Washington at the earliest date possible.

In faith whereof the respective Plenipotentiaries have signed the present convention in duplicate and have hereunto affixed their respective seals.

Done at the City of Washington the 18th day of November in the year of our Lord nineteen hundred and three.

JOHN HAY. [SEAL]

P. BUNAU VARILLA. [SEAL]

II

CANAL STATISTICS

Length from deep water to deep water	50½ miles.
Length on land	40½ miles.
Bottom width of channel, maximum	1,000 feet.
Bottom width of channel, minimum, 9 miles, Culebra Cut	300 feet.
Locks, in pairs	12
Locks, usable length	1,000 feet.
Locks, usable width	110 feet.
Gatun Lake, area	164 sq. m.
Gatun Lake, channel depth	85 to 45 feet.
Excavation, estimated total	174,666,594 c. y.
Excavation, amount accomplished April 1, 1910	103,205,666 c. y.
Excavation by the French	78,146,960 c. y.
Excavation by French, useful to present Canal	29,908,000 c. y.
Concrete, total estimated for Canal	5,000,000 c. y.
Time of transit through completed Canal	10 to 12 hours.
Time of passage through locks	3 hours.
Relocated Panama Railroad, estimated cost	\$7,225,000
Relocated Panama Railroad, length	46.2 miles.
Canal Zone, area	about 448 sq. m.
Canal Zone area, owned by United States	about 322 sq. m.
French buildings, number acquired	2,150
French buildings, number used	1,537
French buildings, net value when acquired	\$1,959,203
Value of utilized French equipment	\$1,000,000
Canal force, actually at work	about 39,000
Canal force, Americans	about 5,500
Cost of Canal, estimated total	\$375,000,000
Work begun by Americans	May 4, 1904
Date of completion	Jan. 1, 1915

III

DISTANCES FROM AMERICAN AND EUROPEAN ATLANTIC PORTS, VIA THE PANAMA CANAL

From	To Port Townsend, via San Francisco	To San Francisco	To Guayaquil	To Callao	To Iquique	To Valparaiso	To Coronel
New York	6,074	5,299	2,684	3,359	4,021	4,630	4,838
Norfolk	5,872	5,079	2,662	3,157	3,819	4,428	4,636
Charleston	5,673	4,898	2,463	2,958	3,638	4,229	4,437
Port Tampa	5,328	4,553	2,098	2,593	3,255	3,864	4,072
New Orleans	5,477	4,698	2,263	2,758	3,420	4,029	4,237
Galveston	5,574	4,799	2,364	2,858	3,520	4,129	4,338
Liverpool	8,813	8,038	5,603	6,098	6,760	7,369	7,577
Hamburg	9,242	8,467	6,032	6,527	7,189	7,798	8,006
Antwerp	8,963	8,188	5,753	6,248	6,910	7,519	7,727
Bordeaux	8,713	7,938	5,503	5,998	6,660	7,269	7,477
Gibraltar	8,447	7,672	5,237	5,723	6,394	7,003	7,211

From	To Yokohama, via San Francisco, "a,"	To Shanghai, via San Francisco and Yokohama, "a,"	To Manila, via San Francisco and Yokohama, "a,"	To Sydney, via Tahiti, "b,"	To Melbourne, via Tahiti, "c," and Sydney, "b,"	To Wellington, via Tahiti, "b,"
New York	9,835	10,885	11,585	9,852	10,427	8,892
Norfolk	9,634	10,684	11,384	9,650	9,858	8,690
Charleston	9,344	10,367	10,809	9,451	10,006	8,491
Port Tampa	9,069	10,119	10,819	9,086	9,661	8,126
New Orleans	9,234	10,284	10,984	9,251	9,826	8,291
Galveston	9,335	10,385	11,085	9,352	9,927	8,392
Liverpool	12,574	13,624	14,324	12,591	13,166	11,631
Hamburg	13,003	14,053	14,753	13,020	13,595	12,060
Antwerp	12,724	13,774	14,474	12,741	13,316	11,781
Bordeaux	12,474	13,524	14,224	12,491	13,066	11,471
Gibraltar	12,208	13,258	13,958	12,225	11,188	11,265

"A" Via Honolulu adds 252 miles.

"B" Omitting Tahiti reduces voyages from by 52 miles.

"C" Voyage from Brito to Sydney by Wellington is 232 miles less than by way of Tahiti: from Panama it is 405 miles less.

"D" Voyage from Brito to Wellington direct is 185 shorter than via Tahiti, and from Panama it is 358 miles shorter.

IV

BIBLIOGRAPHY

BOOKS

- ABBOT, HENRY LARCOM: Problems of the Panama Canal. New York and London, 1907.
- BATES, LINDEN WALLACE: Retrieval at Panama. New York, 1907.
- BIGELOW, JOHN: The Panama Canal and The Daughters of Danaus. New York, 1908.
- BRISTOW, JOSEPH LITTLE: Report of, 1905.
- BUNAU-VARILLA, PHILIPPE: Nicaragua or Panama. New York, 1901.
- BUNAU-VARILLA, PHILIPPE: Comparative characteristics of Panama and Nicaragua. New York, 1902.
- BUNAU-VARILLA, PHILIPPE: Le Detroit de Panama. Paris, 1907.
- BURR, WILLIAM HUBERT: Ancient and Modern Engineering and the Isthmian Canal. New York, 1902.
- BURR, WILLIAM HUBERT: The Canal Record, Ancon, Canal Zone, 1907-1908.
- CAMPBELL, DAVID N. E.: Searchlight on the Panama Canal. Baltimore, Md., 1909.
- CORNISH, VAUGHAN: The Panama Canal and its Makers. London, 1909.
- FREEMAN, JOHN RIPLEY: Lock Canal at Panama. Washington, 1909.
- GOETHALS, GEORGE V.: The Isthmian Canal. Washington, 1909.
- HALL, A. B., and C. L. CHESTER: Panama and the Canal. New York, 1910.
- JOHNSON, EMORY R.: The Isthmian Canal in its Economic Aspects. Chicago, 1906.
- JOHNSON, WILLIS FLETCHER: Four centuries of the Panama Canal. New York, 1906.
- LINDSAY, CHARLES H. A. F.: Panama, the Isthmus and the Canal. Philadelphia, 1906.
- Official Proceedings of the new Panama Canal Company at Paris, Dec. 30th, 1903. Washington, 1904.

- Papers relating to the Construction of the Panama Canal, Washington, 1907.
- PENSA, HENRI: *La République et le Canal de Panama*. Paris, 1906.
- ROBINSON, TRACY: *Panama; a personal record of forty-six years, 1861-1907*. New York and Panama, 1907.
- ROUSSEAU, HARRY T.: *The Isthmian Canal*. Washington, 1909.
- SHONTS, HON. THEODORE P.: *Speech of*. Washington, 1907.
- SMITH, JOSEPH RUSSELL: *The Organization of Ocean Commerce*. Philadelphia, 1905.
- STEVENS, JOHN F.: *A Sketch of the Panama Canal; its past, present and possible future*. New Haven, Conn., 1908.
- SULLIVAN and CROMWELL: *Compilation of executive documents and diplomatic correspondence relative to a trans-isthmian canal in South America*. New York, 1905.
- TAFT, WILLIAM HOWARD: *Arrangement of Pending Questions with Panama*. International Bureau of American Republics, 1904.
- TAFT, WILLIAM HOWARD: *The Panama Canal*. Washington, 1905.
- TAVERNIER, EDOUARD: *Etude due Canal interocéanique de l'Amérique centrale au point de vue diplomatique, juridique et économique*. Paris, 1908.
- VIALATE, ACHILLE: *Les États-Unis et le canal interocéanique*. Paris, 1904.
- VIALATE, ACHILLE: *Essais d'histoire diplomatique américaine*. Paris, 1905.
- WALLACE, JOHN FINDLEY: *Some Engineering Problems in the Panama Canal*. Chicago, 1906.
- WEIR, HUGH C.: *The Conquest of the Isthmus*. New York, 1909.
- WEGENER, GEORG: *Der Panama-kanal*. Leipzig, 1904.
- WYSE, LUCIEN NAPOLEON BONAPARTE: *Le rapt de Panama*. Toulon, 1904.

DOCUMENTS AND REPORTS

1900-1909

- Annual Report of the Isthmian Canal Commission, 1906*. Washington, 1907.
- Annual Report of the Isthmian Canal Commission, 1907*. Washington, 1907.

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-
- Annual Report of the Isthmian Canal Commission, 1908. Washington, 1908.
- Annual Report of the Isthmian Canal Commission, 1909. Washington, 1909.
- Annual Report of the Health Dept., Panama, Canal Zone. Washington, 1907-1908.
- Annual Report of the Department of Sanitation, Panama, Canal Zone, Washington, 1907.
- Hearings before the Senate Committee on Interoceanic Canals. Washington, 1902.
- Laws of the Canal Zone, Isthmus of Panama, enacted by the Isthmian Canal Commission. Washington, 1906.
- Manual of Information concerning employments for service on the Isthmus of Panama. Washington, 1908.
- Notes on Panama. Compiled and arranged by Captain H. C. Hale, General Staff. Washington, 1903.
- Report of the Board of Consulting Engineers for the Panama Canal. Washington, 1906.
- Report of the Chief Sanitary Officer of the Canal Zone, W. C. Goras. Washington, 1905.
- Report of the Chief Engineer of the Isthmian Canal Commission, 1904-1905. Washington, 1905.
- Report of the Engineering Committee, 1905, Washington, 1905
- Report of the Health Department of the Isthmian Canal Commission. Washington, 1905-1906.
- Report of the Isthmian Canal Commission, 1899-1901. Washington, 1901-1902.
- Report of the Nicaragua Canal Commission, 1897-1899. Baltimore, 1899.
- Report of Population, Deaths, etc., Panama Canal Zone. Washington, 1906.
- Report of the Senate Committee on Interoceanic Canals on the proposed ship canals through the American Isthmus connecting the continents of North and South America. Washington, 1901.
- Roosevelt, President: The Code of Civil Procedure of the Canal Zone. Washington, 1907.
- Roosevelt, President: Message from the President transmitting report of Board of Engineers. Washington, 1909.
- Roosevelt, President: Message from the President transmitting a letter from the Secretary of War. Washington, 1909.

- Roosevelt, President: Special message of President Roosevelt to the two houses of Congress. Washington, 1906.
- Roosevelt, President: Message from the President, transmitting the report of the Board of Consulting Engineers on Panama Canal and of the Isthmian Canal Commission on the Panama Canal, together with a letter written by Chief Engineer Stevens. Washington, 1906.
- Same as above. Ordered reprinted with the views of the minority. Washington, 1906.
- Sea-level canal connecting the Atlantic and Pacific Oceans, etc. Washington, 1906.
- Statement of William Howard Taft, Sec. of War, before the Committee on Interocceanic Canals of the U. S. Washington, 1906.
- Sundry technical reports in relation to the Panama Canal, covering 1899-1904 inclusive. Panama, 1905.
- The Panama Canal. Isthmian Canal Commission. 1910.

MAGAZINE ARTICLES

- ABBOT, H. L.: The Panama Canal and the Regulation of the Chagres River. *Engineering Magazine*, Dec., 1902.
- ABBOT, H. L.: Natural Conditions affecting the Construction of the Panama Canal. *Engineering Magazine*, Aug., 1904.
- ABBOT, H. L.: Hydraulics of the Chagres River. *Engineering Magazine*, June, 1910.
- BAKER, B. N.: What use is the Panama Canal to our country without American ships? *North American Review*, Nov., 1909.
- BARRETT, JOHN: Panama, Central America and Mexico. *Independent*, July, 1909.
- BEL, RAYMOND: L'isthme de Panama et le canal interocéanique. *Tour de monde*, Jan., 1902.
- BURR, WM. H.: The Panama Route for a Ship Canal. *Popular Science Monthly*, July, Aug., 1902.
- BURT, GEORGE A.: A Comparison of the Isthmian Canal projects. *Engineering Magazine*, April, 1900.
- CARR, JOHN F.: The Panama Canal: history, conditions, prospects. *Outlook*, April, May, June, 1906.
- COLQUHOUN, A. R.: The strategical and economical effect of the opening of the Panama Canal. *Royal United Service Institution Journal*, Feb., 1908.
- COLQUHOUN, A. R.: An Englishman's views of the Panama Canal. *North American Review*, March, 1908.

- DAVIS, ARTHUR P.: Panama and the Nicaragua Canals compared. *Forum*, Jan., 1901.
- DENISON, LINDSAY: Making good at Panama. *Everybody's Magazine*, May, 1906.
- EVANS, ROBLEY D.: The Panama Canal. *Hampton's Magazine*, Jan., Feb., March, 1910.
- FORD, JAMES T.: The present condition and prospects of the Panama Canal Works. *Institution of Civil Engineers*, Feb., 1901.
- GHEENT, W. J.: Labor and the Commissary at Panama. *Independent*, May, 1909.
- GOETHALS, G. W.: Special report on the Panama Canal situation. *National Geographic Magazine*, April, 1909.
- GORGAS, WM. C.: Solving the Health Problem at Panama. *American Review of Reviews*, July, 1904.
- HAINS, PETER C.: The Labor Problem on the Panama Canal. *North American Review*, July, 1904.
- HUBERICH, CHARLES H.: Le canal transisthmique. *Revue du droit publique*, March, April, 1903.
- JOHNSON, EMORY R.: The Panama Canal. *Independent*, April, 1903.
- JOHNSON, EMORY R.: The Panama Canal: the title and concession. *Political Science Quarterly*, June, 1903.
- JOHNSON, EMORY R.: Effect of the Canal upon the Pacific Railways. *Railway World*, Jan., 1904.
- KIEFFER, H. P.: Constructing the Concrete Locks of the Panama Canal. *Scientific American*, Aug., 1909.
- LAMPE, FELIX: Deutsche Anteilnahme am Panama-und Nikaragua-Kanal. *Deutsche Monatschrift*, Sept., 1902.
- LEIGH, JOHN G.: The Panama Canal. *The Pall Mall Magazine*, April, 1902.
- LEIGH, JOHN G.: Sanitation and the Panama Canal. *Lancet* (London), June, 1905.
- LINDSAY, C. H. FORBES: "Investigating" the Canal. *Harper's Weekly*, Feb. 27 and Mar. 6, 1909.
- LINDSAY, C. H. FORBES: The Situation at Panama. *American Review of Reviews*. April, 1909.
- LINDSAY, C. H. FORBES: Panama, a field for American enterprise. *Independent*, Oct. 21, 1909.
- MORISON, GEORGE S.: The Panama Canal. *Am. Soc. of Civil Engineers*, 1903.

-
- PALMER, FREDERICK: Many minds and one Canal. *Collier's Weekly*, Feb., 1905.
- PARSONS, WM. B.: The Panama Canal. *Century Magazine*, Nov., 1905.
- ROWLAND, HENRY C.: The truth about Panama. *Appleton's Booklover's Magazine*, April, June, 1906; May, 1908.
- RICHARDSON, GARDNER: Progress in Panama. *Independent*, April, 1909.
- RICHARDSON, GARDNER: The Construction of the Canal. *Independent*, May, 1909.
- SLOSSON, E. E. and G. RICHARDSON: The sea-level versus the lock canal. *Independent*, March, 1906.
- SPRINGER, J. F.: The Panama Canal. *Iron Age*, July 1, 8, 1909.
- TAFT, WILLIAM HOWARD: The Panama Canal; why the lock system was chosen. *Century Magazine*, Dec., 1906.
- TAFT, WILLIAM HOWARD: An answer to the Panama Canal critics. *McClure's Magazine*, May, 1909.
- TATHAM, WM.: The present aspects of the Panama Canal from the tourist's point of view. *Franklin Institute Journal*, Sept., 1909.
- VIALATE, ACHILLE: Les États-Unis et le canal interocéanique, un chapitre d'histoire diplomatique américaine. *Revue générale de droit internationale publique*, Jan., Feb., 1903.
- VARILLA-BUNAU, PHILIPPE: Panama et Nicaragua. *Science au XX^e siècle*, April, 1903.
- WILSON, OWEN: The Conquest of the Tropics. *World's Work*, July, 1908.

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