ARTICLE XXVII.

The joint commission referred to in Articles III, VII and XIV shall be established as follows:

The President of the United States shall nominate two persons and the President of Colombia 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 death, absence or incapacity of any 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 XXVIII.

This convention when signed by the contracting parties, shall be ratified according to the laws of the respective countries and shall be exchanged at Washington within a term of eight months from this date or earlier if 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 22d day of January in the year of our Lord nineteen hundred and three.

JOHN HAY.
TOMÁS HERRAN.

PANAMA REPUBLIC

NOVEMBER 18, 1903

HAY-BUNAU-VARILLA TREATY

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 the 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 center 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 construction, maintenance, operation, sanitation and protection of the said Canal or of any auxiliary canals 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 right 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 in this treaty or by reason of the operations of the United States, its agents or employees, of private lands or private property of any kind by reason of the grants contained 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 Governments of the United States and of the Republic of Panama, whose decisions as to such damages shall be final and whose awards as to such damages shall be paid solely by 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 said private land 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 within 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 sewerage rates which shall be sufficient to provide for the payment of interest and the amortization 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 said system of sewers and waters.

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 lands 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 custom house 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 importations 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 transshiping 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, store houses, work shops, 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 dispatches of the Government of the Republic of Panama shall be transmitted over any telegraph and 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, tools, 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 imported under the laws of the Republic of Panama.

ARTICLE XIV.

As the price or 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 provision by future agreement for the pursuit, capture, imprisonment, detention and delivery within 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 modifications or annulment, the Republic of Panama agrees to procure its modifications 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 claimants shall resort to the Government of the Republic of Panama and not to 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 earnings of the Canal under Article XV of the concessionary contract with Lucien 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 any 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 railways 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 either in the Government or in the laws and treaties of the Republic of Panama shall, without 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.

This convention when signed by the Plenipotentiaries of the Contracting Parties shall be ratified by the respective Governments and the ratifications 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.

P. BUNAU VARILLA.

COLOMBIA-PANAMA REPUBLIC

JANUARY 9, 1909

ROOT-CORTES, ROOT-AROSEMENA, AND CORTES-AROSEMENA TREATIES

In an effort to compose the differences between the United States and Colombia arising out of the revolution at Panama, and the differences between Colombia and the new Republic of Panama, three treaties were signed at Washington on Jan. 9, 1909, between Secretary Root and Minister Cortes of Colombia; Secretary Root and Minister Arosemena of Panama; and Ministers Cortes and Arosemena. The treaties were of a tripartite nature, each depending on the others. They were ratified by the United States Senate on Feb. 24, 1909, but did not become operative by reason of the failure of Colombia to accept them.

The Root-Cortes treaty provided for peace and friendship between the United States and Colombia; granted freedom of passage through the Panama Canal to the troops and war ships of Colombia; exempted provisions, cattle, and other Colombia products from duty in the Canal Zone; granted free passage of Colombian mails in the zone; agreed to pay $250,000 annually to Colombia instead of Panama, from 1908 to 1917 inclusive, on condition that Colombia should recognize the independence of Panama and that Panama should be released from obligation to pay any of the public debt of Colombia; granted the use of ports in Colombia to American vessels; renounced all Colombia's rights in all canal contracts and concessions; and provided for a revision of the old treaty of 1846 (New Granada).

The Root-Arosemena treaty provided that the annual payment of $250,000 from the United States to Panama should begin four years instead of nine years from Nov. 18, 1903; consented to the assignment and transfer to Colombia of the first ten annual payments; provided for the delimitation of the cities of Panama and Colon and the adjacent harbors, and authorized the purchase by Panama of such portions of the waterworks in those cities as lie outside of the Canal Zone; provided for the arbitration of all questions arising out of the Hay-Bunau-Varilla treaty; and provided for reciprocal liberty of commerce and navigation, and granted to Panama most-favored-nation rights in the use of the Panama Canal facilities.

The Cortes-Arosemena treaty provided for the recognition of the independence of Panama by Colombia; provided for mutual and inviolable peace and friendship between Colombia and Panama; assigned to Colombia the first ten annual payments of $250,000 each payable by the United States to Panama under the Hay-Bunau-Varilla treaty; released Panama from the payment of any part of the public debt of Colombia; released each nation from all pecuniary claims held by the other on Nov. 3, 1903; confirmed the abandonment by Panama of all right and title to stock of the New Panama Canal Co.; granted reciprocal most-favored-nation rights to the citizens of each country, and established the status of citizens in the respective territories; provided that neither republic should extend its territory by force at the expense of the other; provided for the negotiation of additional treaties covering commerce, arbitration, and other relations; and provided for the establishment of the boundary line between Colombia and Panama.

COLOMBIA

APRIL 6, 1914

THOMSON-URRUTIA TREATY

The failure of Colombia to ratify the tripartite treaties was followed by prolonged negotiations between the United States and Colombia, looking to the settlement of their differences. These negotiations resulted in the signing of a treaty on April 6, 1914, between the United States Minister to Colombia, Thaddeus A. Thomson, and Francisco José Urrutia, Minister for Foreign Affairs of Colombia, together with five other plenipotentiaries representing Colombia. This treaty was

transmitted to the Senate by President Wilson on June 16, 1914.

On account of the allegation that the first article of the treaty constituted an "apology" by the United States for the incidents resulting in the independence of Panama, and also on account of the proposed payment of $25,000,000 to Colombia, this treaty met with opposition in the United States and it was still pending in the Senate when Congress adjourned March 4, 1915.

The United States of America and the Republic of Colombia, being desirous to remove all the misunderstandings growing out of the political events in Panama in November, 1903; to restore the cordial friendship that formerly characterized the relations between the two countries, and also to define and regulate their rights and interests in respect of the interoceanic canal which the Government of the United States is constructing across the Isthmus of Panama, have resolved for this purpose to conclude a Treaty and have accordingly appointed as their Plenipotentiaries:

His Excellency the President of the United States of America, Thaddeus Austin Thomson, Envoy Extraordinary and Minister Plenipotentiary of the United States of America to the Government of the Republic of Colombia; and

His Excellency the President of the Republic of Colombia, Francisco José Urrutia, Minster for Foreign Affairs; Marco Fidel Suárez, First Designate to exercise the Executive Power; Nicolás Esguerra, Ex-Minister of State; José Maria González Valencia, Senator; Rafael Uribe Uribe, Senator; and Antonio José Uribe, President of the House of Representatives;

Who, after communicating to each other their respective full powers, which were found to be in due and proper form, have agreed upon the following:

ARTICLE I.

The Government of the United States of America, wishing to put at rest all controversies and differences with the Republic of Colombia arising out of the events from which the present situation on the Isthmus of Panama resulted, expresses, in its own name and in the name of the people of the United States, sincere regret that anything should have occurred to interrupt or to mar the relations of cordial friendship that had so long subsisted between the two nations.

The Government of the Republic of Colombia, in its own name and in the name of the Colombian people, accepts this declaration in the full assurance that every obstacle to the restoration of complete harmony between the two countries will thus disappear.

ARTICLE II.

The Republic of Colombia shall enjoy the following rights in respect to the interoceanic Canal and the Panama Railway:

1. The Republic of Colombia shall be at liberty at all times to transport through the interoceanic Canal its troops, materials of war and ships of war, even in case of war between Colombia and another country, without paying any charges to the United States.

2. The products of the soil and industry of Colombia passing through the Canal, as well as the Colombian mails, shall be exempt from any charge or duty other than those to which the products and mails of the United States may be subject. The products of the soil and industry of Colombia, such as cattle, salt and provisions, shall be admitted to entry in the Canal Zone, and likewise in the islands and main land occupied or which may be occupied by the United States as auxiliary and accessory thereto, without paying other duties or charges than those payable by similar products of the United States.

3. Colombian citizens crossing the Canal Zone shall, upon production of proper proof of their nationality, be exempt from every toll, tax or duty to which citizens of the United States are not subject.

4. During the construction of the Interoceanic Canal and afterwards, whenever traffic by the Canal is interrupted or whenever it shall be necessary for any other reason to use the railway, the troops, materials of war, products and mails of the Republic of Colombia, as above mentioned, shall, even in case of war between Colombia and another country, be transported on the Railway between Ancon and Cristobal or on any other Railway substituted therefor, paying only the same charges and duties as are imposed upon the troops, materials of war, products and mails of the United States. The officers, agents and employees of the Government of Colombia shall, upon production of proper proof of their official character or their employment, also be entitled to passage on the said Railway on the same terms as officers, agents and employees of the Government of the United States. The provisions of this paragraph shall not, however, apply in case of war between Colombia and Panama.

5. Coal, petroleum and sea salt, being the products of Colombia, passing from the Atlantic coast of Colombia to any Colombian port on the Pacific coast, and vice versa, shall be transported over the aforesaid Railway free of any charge except the actual cost of handling and transportation, which shall not in any case exceed one half of the ordinary freight charges levied upon similar products of the United States passing over the Railway and in transit from one port to another of the United States.

ARTICLE III.

The United States of America agrees to pay to the Republic of Colombia, within six months after the exchange of the ratifications of the present Treaty, the sum of twenty-five million dollars, gold, United States money.

ARTICLE IV.

The Republic of Colombia recognizes Panama as an independent nation and taking as a basis the Colombian law of June 9, 1855, agrees that the boundary shall be the following: From Cape

Tiburon to the headwaters of the Rio de la Miel and following the mountain chain by the ridge of Gandi to the Sierra de Chugargun and that of Mali going down by the ridges of Nigue to the heights of Aspave and from thence to a point on the Pacific half way between Cocalito and La Arvita.

In consideration of this recognition, the Government of the United States will, immediately after the exchange of the ratifications of the present Treaty, take the necessary steps in order to obtain from the Government of Panama the despatch of a duly accredited agent to negotiate and conclude with the Government of Colombia a Treaty of Peace and Friendship, with a view to bring about both the establishment of regular diplomatic relations between Colombia and Panama and the adjustment of all questions of pecuniary liability as between the two countries, in accordance with recognized principles of law and precedents.

ARTICLE V.

The present Treaty shall be approved and ratified by the High Contracting Parties in conformity with their respective laws, and the ratifications thereof shall be exchanged in the City of Bogotá as soon as may be possible.

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

Done at the City of Bogotá, the sixth day of April in the year of our Lord nineteen hundred and fourteen.

THADDEUS AUSTIN THOMSON.
FRANCISCO JOSÉ URRUTIA.
MARCO FIDEL SUÁREZ.
NICOLÁS ESGUERRA.
JOSÉ MARIA GONZÁLES VALENCIA.
RAFAEL URIBE URIBE.
ANTONIO JOSÉ URIBE.

LAWS OF THE UNITED STATES RELATING TO THE PANAMA CANAL

THE SPOONER ACT

APPROVED JUNE 28, 1902

An Act To provide for the construction of a canal connecting the waters of the Atlantic and Pacific oceans.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President of the United States is hereby authorized to acquire, for and on behalf of the United States, at a cost not exceeding forty millions of dollars, the rights, privileges, franchises, concessions, grants of land, right of way, unfinished work, plants, and other property, real, personal, and mixed, of every name and nature, owned by the New Panama Canal Company, of France, on the Isthmus of Panama, and all its maps, plans, drawings, records on the Isthmus of Panama and in Paris, including all the capital stock, not less, however, than sixty-eight thousand eight hundred and sixty-three shares of the Panama Railroad Company, owned by or held for the use of said canal company, provided a satisfactory title to all of said property can be obtained.

SEC. 2. That the President is hereby authorized to acquire from the Republic of Colombia, for and on behalf of the United States, upon such terms as he may deem reasonable, perpetual control of a strip of land, the territory of the Republic of Colombia, not less than six miles in width, extending from the Caribbean Sea to the Pacific Ocean, and the right to use and dispose of the waters thereon, and to excavate, construct, and to perpetually maintain, operate, and protect thereon a canal, of such depth and capacity as will afford convenient passage of ships of the greatest tonnage and draft now in use, from the Caribbean Sea to the Pacific Ocean, which control shall include the right to perpetually maintain and operate the Panama Railroad, if the ownership thereof, or a controlling interest therein shall have been acquired by the United States, and also jursidiction over said strip and the ports at the ends thereof to make such police and sanitary rules and regulations as shall be necessary to preserve order and preserve the public health thereon, and to establish such judicial tribunals as may be agreed upon thereon as may be necessary to enforce such rules and regulations.

The President may acquire such additional territory and rights from Colombia as in his judgment will facilitate the general purpose hereof.

SEC. 3. That when the President shall have arranged to secure a satisfactory title to the property of the New Panama Canal Company, as provided in section one hereof, and shall have obtained by treaty control of the necessary territory from the Republic of Colombia, as provided in section two hereof, he is authorized to pay for the property of the New Panama Canal Company forty millions of dollars and to the Republic of Colombia such sum as shall have been agreed upon, and a sum sufficient for both said purposes is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to be paid on warrant or warrants drawn by the President.

The President shall then through the Isthmian Canal Commission hereinafter authorized cause to be excavated, constructed, and completed, utilizing to that end as far as practicable the work heretofore done by the New Panama Canal Company, of France, and its predecessor company, a ship canal from the Caribbean Sea to the Pacific Ocean. Such canal shall be of sufficient capacity and depth as shall afford convenient passage for vessels of the largest tonnage and greatest draft now in use, and such as may be reasonably anticipated, and shall be supplied with all necessary locks and other appliances to meet the necessities of vessels passing through the same from ocean to ocean; and he shall also cause to be constructed such safe and commodious harbors at the termini of said canal, and make such provisions for defense

as may be necessary for the safety and protection of said canal and harbors. That the President is authorized for the purposes aforesaid to employ such persons as he may deem necessary, and to fix their compensation.

SEC. 4. That should the President be unable to obtain for the United States a satisfactory title to the property of the New Panama Canal Company and the control of the necessary territory of the Republic of Colombia and the rights mentioned in sections one and two of this Act, within a reasonable time and upon reasonable terms, then the President, having first obtained for the United States perpetual control by treaty of the necessary territory from Costa Rica and Nicaragua, upon terms which he may consider reasonable, for the construction, perpetual maintenance, operation, and protection of a canal connecting the Caribbean Sea with the Pacific Ocean by what is commonly known as the Nicaragua route, shall through the said Isthmian Canal Commission cause to be excavated and constructed a ship canal and waterway from a point on the shore of the Caribbean Sea near Greytown, by way of Lake Nicaragua, to a point near Brito on the Pacific Ocean. Said canal shall be of sufficient capacity and depth to afford convenient passage for vessels of the largest tonnage and greatest draft now in use, and such as may be reasonably anticipated, and shall be supplied with all necessary locks and other appliances to meet the necessities of vessels passing through the same from ocean to ocean; and he shall also construct such safe and commodious harbors at the termini of said canal as shall be necessary for the safe and convenient use thereof, and shall make such provisions for defense as may be necessary for the safety and protection of said harbors and canal; and such sum or sums of money as may be agreed upon by such treaty as compensation to be paid to Nicaragua and Costa Rica for the concessions and rights hereunder provided to be acquired by the United States, are hereby appropriated, out of any money in the Treasury not otherwise appropriated, to be paid on warrant or warrants drawn by the President.

The President shall cause the said Isthmian Canal Commission to make such surveys as may be necessary for said canal and harbors to be made, and in making such surveys and in the construction of said canal may employ such persons as he may deem necessary and may fix their compensation.

In the excavation and construction of said canal the San Juan River and Lake Nicaragua, or such parts of each as may be made available, shall be used.

SEC. 5. That the sum of ten million dollars is hereby appropriated, out of any money in the Treasury not otherwise appropriated, toward the project herein contemplated by either route so selected.

And the President is hereby authorized to cause to be entered into such contract or contracts as may be deemed necessary for the proper excavation, construction, completion, and defense of said canal, harbors, and defenses, by the route finally determined upon under the provisions of this Act. Appropriations therefor shall from time to time be hereafter made, not to exceed in the aggregate the additional sum of one hundred and thirty-five millions of dollars should the Panama route be adopted, or one hundred and eighty millions of dollars should the Nicaragua route be adopted.

SEC. 6. That in any agreement with the Republic of Colombia, or with the States of Nicaragua and Costa Rica, the President is authorized to guarantee to said Republic or to said States the use of said canal and harbors, upon such terms as may be agreed upon, for all vessels owned by said States or by citizens thereof.

SEC. 7. That to enable the President to construct the canal and works appurtenant thereto as provided in this Act, there is hereby created the Isthmian Canal Commission, the same to be composed of seven members, who shall be nominated and appointed by the President, by and with the advice and consent of the Senate, and who shall serve until the completion of said canal unless sooner removed by the President, and one of whom shall be named as the chairman of said Commission. Of the seven members of said Commission at least four of them shall be persons learned and skilled in the science of engineering, and of the four at least one shall be an officer of the United States Army, and at least one other shall be an officer of the United States Navy, the said officers respectively being either upon the active or the retired list of the Army or of the Navy. Said commissioners shall each receive such compensation as the President shall prescribe until the same shall have been otherwise fixed by the Congress. In addition to the members of said Isthmian Canal Commission, the President is hereby authorized through said Commission to employ in said service any of the engineers of the United States Army at his discretion, and likewise to employ any engineers in civil life, at his discretion, and any other persons necessary for the proper and expeditious prosecution of said work. The compensation of all such engineers and other persons employed under this Act shall be fixed by said Commission, subject to the approval of the President. The official salary of any officer appointed or employed under this Act shall be deducted from the amount of salary or compensation provided by or which shall be fixed under the terms of this Act. Said Commission shall in all matters be subject to the direction and control of the President, and shall make to the President annually and at such other periods as may be required, either by law or by the order of the President, full and complete reports of all their actings and doings and of all moneys received and expended in the construction of said work and in the performance of their duties in connection therewith, which said reports shall be by the President transmitted to Congress. And the said Commission shall furthermore give to Congress, or either House of Congress, such information as may at any time be required either by Act of Congress or by the order of either House of Congress. The President shall cause to be provided and assigned for the use of the Commission such offices as may, with the suitable equipment of the same, be necessary and proper, in his discretion, for the proper discharge of the duties thereof.

SEC. 8. That the Secretary of the Treasury is hereby authorized to borrow on the credit of the United States from time to time, as the proceeds

may be required to defray expenditures authorized by this Act (such proceeds when received to be used only for the purpose of meeting such expenditures), the sum of one hundred and thirty million dollars, or so much thereof as may be necessary, and to prepare and issue therefor coupon or registered bonds of the United States in such form as he may prescribe, and in denominations of twenty dollars or some multiple of that sum, redeemable in gold coin at the pleasure of the United States after ten years from the date of their issue, and payable thirty years from such date, and bearing interest payable quarterly in gold coin at the rate of two per centum per annum; and the bonds herein authorized shall be exempt from all taxes or duties of the United States, as well as from taxation in any form by or under State, municipal, or local authority: *Provided*, That said bonds may be disposed of by the Secretary of the Treasury at not less than par, under such regulations as he may prescribe, giving to all citizens of the United States an equal opportunity to subscribe therefor, but no commissions shall be allowed or paid thereon; and a sum not exceeding one-tenth of one per centum of the amount of the bonds herein authorized is hereby appropriated, out of any money in the Treasury not otherwise appropriated, to pay the expense of preparing, advertising, and issuing the same.

TEMPORARY GOVERNMENT

Approved April 28, 1904

An Act To provide for the temporary government of the Canal Zone at Panama, the protection of the canal works, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the President is hereby authorized, upon the acquisition of the property of the New Panama Canal Company and the payment to the Republic of Panama of the ten millions of dollars provided by article fourteen of the treaty between the United States and the Republic of Panama, the ratifications of which were exchanged on the twenty-sixth day of February, nineteen hundred and four, to be paid to the latter Government, to take possession of and occupy on behalf of the United States the zone of land and land under water of the width of ten miles, extending to the distance of five miles on each side of the center line of the route of the canal to be constructed thereon, which said zone begins in the Caribbean Sea three marine miles from mean low-water mark and extends to and across the Isthmus of Panama into the Pacific Ocean to the distance of three marine miles from mean low-water mark, and also of all islands within said zone, and in addition thereto the group of islands in the Bay of Panama named Perico, Naos, Culebra, and Flamenco, and, from time to time, of any lands and waters outside of said zone which may be necessary and convenient for the construction, maintenance, operation, sanitation, and protection of the said canal, or of any auxiliary canals or other works necessary and convenient for the construction, maintenance, operation, sanitation, and protection of said enterprise, the use, occupation, and control whereof were granted to the United States by article two of said treaty. The said zone is hereinafter referred to as "the Canal Zone." The payment of the ten millions of dollars provided by article fourteen of said treaty shall be made in lieu of the indefinite appropriation made in the third section of the Act of June twenty-eighth, nineteen hundred and two, and is hereby appropriated for said purpose.

Sec. 2. That until the expiration of the Fifty-eighth Congress, unless provision for the temporary government of the Canal Zone be sooner made by Congress, all the military, civil, and judicial powers as well as the power to make all rules and regulations necessary for the government of the Canal Zone and all the rights, powers, and authority granted by the terms of said treaty to the United States shall be vested in such person or persons and shall be exercised in such manner as the President shall direct for the government of said Zone and maintaining and protecting the inhabitants thereof in the free enjoyment of their liberty, property, and religion.

THE PANAMA CANAL ACT

Approved August 24, 1912

An Act To provide for the opening, maintenance, protection, and operation of the Panama Canal, and the sanitation and government of the Canal Zone.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the zone of land and land under water of the width of ten miles extending to the distance of five miles on each side of the center line of the route of the canal now being constructed thereon, which zone begins in the Caribbean Sea three marine miles from mean low-water mark and extends to and across the Isthmus of Panama into the Pacific Ocean to the distance of three marine miles from mean low-water mark, excluding therefrom the cities of Panama and Colon and their adjacent harbors located within said zone, as excepted in the treaty with the Republic of Panama dated November eighteenth, nineteen hundred and three, but including all islands within said described zone, and in addition thereto the group of islands in the Bay of Panama named Perico, Naos, Culebra, and Flamenco, and any lands and waters outside of said limits above described which are necessary or convenient or from time to time may become necessary or convenient for the construction, maintenance, operation, sanitation, or protection of the

said canal or of any auxiliary canals, lakes, or other works necessary or convenient for the construction, maintenance, operation, sanitation, or protection of said canal, the use, occupancy, or control whereof were granted to the United States by the treaty between the United States and the Republic of Panama, the ratifications of which were exchanged on the twenty-sixth day of February, nineteen hundred and four, shall be known and designated as the Canal Zone, and the canal now being constructed thereon shall hereafter be known and designated as the Panama Canal. The President is authorized, by treaty with the Republic of Panama, to acquire any additional land or land under water not already granted, or which was excepted from the grant, that he may deem necessary for the operation, maintenance, sanitation, or protection of the Panama Canal, and to exchange any land or land under water not deemed necessary for such purposes for other land or land under water which may be deemed necessary for such purposes, which additional land or land under water so acquired shall become part of the Canal Zone.

SEC. 2. That all laws, orders, regulations, and ordinances adopted and promulgated in the Canal Zone by order of the President for the government and sanitation of the Canal Zone and the construction of the Panama Canal are hereby ratified and confirmed as valid and binding until Congress shall otherwise provide. The existing courts established in the Canal Zone by Executive order are recognized and confirmed to continue in operation until the courts provided for in this Act shall be established.

SEC. 3. That the President is authorized to declare by Executive order that all land and land under water within the limits of the Canal Zone is necessary for the construction, maintenance, operation, sanitation, or protection of the Panama Canal, and to extinguish, by agreement when advisable, all claims and titles of adverse claimants and occupants. Upon failure to secure by agreement title to any such parcel of land or land under water the adverse claim or occupancy shall be disposed of and title thereto secured in the United States and compensation therefor fixed and paid in the manner provided in the aforesaid treaty with the Republic of Panama, or such modification of such Treaty as may hereafter be made.

SEC. 4. That when in the judgment of the President the construction of the Panama Canal shall be sufficiently advanced toward completion to render the further services of the Isthmian Canal Commission unnecessary the President is authorized by Executive order to discontinue the Isthmian Canal Commission, which, together with the present organization, shall then cease to exist; and the President is authorized thereafter to complete, govern, and operate the Panama Canal and govern the Canal Zone, or cause them to be completed, governed, and operated, through a governor of the Panama Canal and such other persons as he may deem competent to discharge the various duties connected with the completion, care, maintenance, sanitation, operation, government, and protection of the canal and Canal Zone. If any of the persons appointed or employed as aforesaid shall be persons in the military or naval service of the United States, the amount of the official salary paid to any such person shall be deducted from the amount of salary or compensation provided by or which shall be fixed under the terms of this Act. The governor of the Panama Canal shall be appointed by the President, by and with the advice and consent of the Senate, commissioned for a term of four years, and until his successor shall be appointed and qualified. He shall receive a salary of ten thousand dollars a year. All other persons necessary for the completion, care, management, maintenance, sanitation, government, operation, and protection of the Panama Canal and Canal Zone shall be appointed by the President, or by his authority, removable at his pleasure, and the compensation of such persons shall be fixed by the President, or by his authority, until such time as Congress may by law regulate the same, but salaries or compensation fixed hereunder by the President shall in no instance exceed by more than twenty-five per centum the salary or compensation paid for the same or similar services to persons employed by the Government in continental United States. That upon the completion of the Panama Canal the President shall cause the same to be officially and formally opened for use and operation.

Before the completion of the canal, the Commission of Arts may make report to the President of their recommendation regarding the artistic character of the structures of the canal, such report to be transmitted to Congress.

SEC. 5. That the President is hereby authorized to prescribe and from time to time change the tolls that shall be levied by the Government of the United States for the use of the Panama Canal: *Provided*, That no tolls, when prescribed as above, shall be changed, unless six months' notice thereof shall have been given by the President by proclamation. No tolls shall be levied upon vessels engaged in the coastwise trade of the United States. That section forty-one hundred and thirty-two of the Revised Statutes is hereby amended to read as follows:

"SEC. 4132. Vessels built within the United States and belonging wholly to citizens thereof; and vessels which may be captured in war by citizens of the United States and lawfully condemned as prize, or which may be adjudged to be forfeited for a breach of the laws of the United States; and seagoing vessels, whether steam or sail, which have been certified by the Steamboat Inspection Service as safe to carry dry and perishable cargo, not more than five years old at the time they apply for registry, wherever built, which are to engage only in trade with foreign countries or with the Philippine Islands and the islands of Guam and Tutuila, being wholly owned by citizens of the United States or corporations organized and chartered under the laws of the United States or of any State thereof, the president and managing directors of which shall be citizens of the United States or corporations organized and chartered under the laws of the United States or of any State thereof, the President and managing directors of which shall be citizens of the United States, and no others, may be registered as directed in this title. Foreign-built vessels registered pursuant to this Act shall not engage in the

coastwise trade: *Provided*, That a foreign-built yacht, pleasure boat, or vessel not used or intended to be used for trade admitted to American registry pursuant to this section shall not be exempt from the collection of ad valorem duty provided in section thirty-seven of the Act approved August fifth, nineteen hundred and nine, entitled 'An Act to provide revenue, equalize duties, and encourage the industries of the United States, and for other purposes.' That all materials of foreign production which may be necessary for the construction or repair of vessels built in the United States and all such materials necessary for the building or repair of their machinery and all articles necessary for their outfit and equipment may be imported into the United States free of duty under such regulations as the Secretary of the Treasury may prescribe: *Provided further*, That such vessels so admitted under the provisions of this section may contract with the Postmaster General under the Act of March third, eighteen hundred and ninety-one, entitled 'An Act to provide for ocean mail service between the United States and foreign ports, and to promote commerce,' so long as such vessels shall in all respects comply with the provisions and requirements of said Act."

Tolls may be based upon gross or net registered tonnage, displacement tonnage, or otherwise, and may be based on one form of tonnage for warships and another for ships of commerce. The rate of tolls may be lower upon vessels in ballast than upon vessels carrying passengers or cargo. When based upon net registered tonnage for ships of commerce the tolls shall not exceed one dollar and twenty-five cents per net registered ton, nor be less, other than for vessels of the United States and its citizens, than the estimated proportionate cost of the actual maintenance and operation of the canal subject, however, to the provisions of article nineteen of the convention between the United States and the Republic of Panama, entered into November eighteenth, nineteen hundred and three. If the tolls shall not be based upon net registered tonnage, they shall not exceed the equivalent of one dollar and twenty-five cents per net registered ton as nearly as the same may be determined, nor be less than the equivalent of seventy-five cents per net registered ton. The toll for each passenger shall not be more than one dollar and fifty cents. The President is authorized to make and from time to time amend regulations governing the operation of the Panama Canal, and the passage and control of vessels through the same or any part thereof, including the locks and approaches thereto, and all rules and regulations affecting pilots and pilotage in the canal or the approaches thereto through the adjacent waters.

Such regulations shall provide for prompt adjustment by agreement and immediate payment of claims for damages which may arise from injury to vessels, cargo, or passengers from the passing of vessels through the locks under the control of those operating them under such rules and regulations. In case of disagreement suit may be brought in the district court of the Canal Zone against the governor of the Panama Canal. The hearing and disposition of such cases shall be expedited and the judgment shall be immediately paid out of any moneys appropriated or alloted for canal operation.

The President shall provide a method for the determination and adjustment of all claims arising out of personal injuries to employees thereafter occurring while directly engaged in actual work in connection with the construction, maintenance, operation, or sanitation of the canal or of the Panama Railroad, or of any auxiliary canals, locks, or other works necessary and convenient for the construction, maintenance, operation, or sanitation of the canal, whether such injuries result in death or not, and prescribe a schedule of compensation therefor, and may revise and modify such method and schedule at any time; and such claims, to the extent they shall be allowed on such adjustment, if allowed at all, shall be paid out of the moneys hereafter appropriated for that purpose or out of the funds of the Panama Railroad Company, if said company was responsible for said injury, as the case may require. And after such method and schedule shall be provided by the President, the provisions of the Act entitled "An Act granting to certain employees of the United States the right to receive from it compensation for injuries sustained in the course of their employment," approved May thirtieth, nineteen hundred and eight, and of the Act entitled "An Act relating to injured employees on the Isthmian Canal," approved February twenty-fourth, nineteen hundred and nine, shall not apply to personal injuries thereafter received and claims for which are subject to determination and adjustment as provided in this section.

SEC. 6. That the President is authorized to cause to be erected, maintained, and operated, subject to the International Convention and the Act of Congress to regulate radio-communication, at suitable places along the Panama Canal and the coast adjacent to its two terminals, in connection with the operation of said canal, such wireless telegraphic installations as he may deem necessary for the operation, maintenance, sanitation, and protection of said canal, and for other purposes. If it is found necessary to locate such installations upon territory of the Republic of Panama, the President is authorized to make such agreement with said Government as may be necessary, and also to provide for the acceptance and transmission, by said system, of all private and commercial messages, and those of the Government of Panama, on such terms and for such tolls as the President may prescribe: *Provided*, That the messages of the Government of the United States and the departments thereof, and the management of the Panama Canal, shall always be given precedence over all other messages. The President is also authorized, in his discretion, to enter into such operating agreements or leases with any private wireless company or companies as may best insure freedom from interference with the wireless telegraphic installations established by the United States. The President is also authorized to establish, maintain, and operate, through the Panama Railroad Company, or otherwise, dry docks, repair shops, yards, docks, wharves, warehouses, storehouses, and other necessary facilities and appurtenances, for the purpose of providing coal and other

materials, labor, repairs, and supplies for vessels of the Government of the United States and, incidentally, for supplying such at reasonable prices to passing vessels, in accordance with appropriations hereby authorized to be made from time to time by Congress as a part of the maintenance and operation of the said canal. Moneys received from the conduct of said business may be expended and reinvested for such purposes without being covered into the Treasury of the United States; and such moneys are hereby appropriated for such purposes, but all deposits of such funds shall be subject to the provisions of existing law relating to the deposit of other public funds of the United States, and any net profits accruing from such business shall annually be covered into the Treasury of the United States. Monthly reports of such receipts and expenditures shall be made to the President by the persons in charge, and annual reports shall be made to the Congress.

SEC. 7. That the governor of the Panama Canal shall, in connection with the operation of such canal, have official control and jurisdiction over the Canal Zone and shall perform all duties in connection with the civil government of the Canal Zone, which is to be held, treated, and governed as an adjunct of such Panama Canal. Unless in this Act otherwise provided all existing laws of the Canal Zone referring to the civil governor or the civil administration of the Canal Zone shall be applicable to the governor of the Panama Canal, who shall perform all such executive and administrative duties required by existing law. The President is authorized to determine or cause to be determined what towns shall exist in the Canal Zone and subdivide and from time to time resubdivide said Canal Zone into subdivisions, to be designated by name or number, so that there shall be situated one town in each subdivision, and the boundaries of each subdivision shall be clearly defined. In each town there shall be a magistrate's court with exclusive original jurisdiction coextensive with the subdivision in which it is situated of all civil cases in which the principal sum claimed does not exceed three hundred dollars, and all criminal cases wherein the punishment that may be imposed shall not exceed a fine of one hundred dollars, or imprisonment not exceeding thirty days, or both, and all violations of police regulations and ordinances and all actions involving possession or title to personal property or the forcible entry and detainer of real estate. Such magistrates shall also hold preliminary investigations in charges of felony and offenses under section ten of this Act, and commit or bail in bailable cases to the district court. A sufficient number of magistrates and constables, who must be citizens of the United States, to conduct the business of such courts, shall be appointed by the governor of the Panama Canal for terms of four years and until their successors are appointed and qualified, and the compensation of such persons shall be fixed by the President, or by his authority, until such time as Congress may by law regulate the same. The rules governing said courts and prescribing the duties of said magistrates and constables, oaths and bonds, the times and places of holding such courts, the disposition of fines, costs, forfeitures, enforcements of judgments, providing for appeals therefrom to the district court, and the disposition, treatment, and pardon of convicts shall be established by order of the President. The governor of the Panama Canal shall appoint all notaries public, prescribe their powers and duties, their official seal, and the fees to be charged and collected by them.

SEC. 8. That there shall be in the Canal Zone one district court with two divisions, one including Balboa and the other including Cristobal; and one district judge of the said district, who shall hold his court in both divisions at such time as he may designate by order, at least once a month in each division. The rules of practice in such district court shall be prescribed or amended by order of the President. The said district court shall have original jurisdiction of all felony cases, of offenses arising under section ten of this Act, all causes in equity; admiralty and all cases at law involving principal sums exceeding three hundred dollars and all appeals from judgments rendered in magistrates' courts. The jurisdiction in admiralty herein conferred upon the district judge and the district court shall be the same that is exercised by the United States district judges and the United States district courts, and the precedure and practice shall also be the same. The district court or the judge thereof shall also have jurisdiction of all other matters and proceedings not herein provided for which are now within the jurisdiction of the Supreme Court of the Canal Zone, of the Circuit Court of the Canal Zone, the District Court of the Canal Zone, or the judges thereof. Said judge shall provide for the selection, summoning, serving, and compensation of jurors from among the citizens of the United States, to be subject to jury duty in either division of such district, and a jury shall be had in any criminal case or civil case at law originating in said court on the demand of either party. There shall be a district attorney and a marshal for said district. It shall be the duty of the district attorney to conduct all business, civil and criminal, for the Government, and to advise the governor of the Panama Canal on all legal questions touching the operation of the canal and the administration of civil affairs. It shall be the duty of the marshal to execute all process of the court, preserve order therein, and do all things incident to the office of marshal. The district judge, the district attorney, and the marshal shall be appointed by the President, by and with the advice and consent of the Senate, for terms of four years each, and until their successors are appointed and qualified, and during their terms of office shall reside within the Canal Zone, and shall hold no other office nor serve on any official board or commission nor receive any emoluments except their salaries. The district judge shall receive the same salary paid the district judges of the United States, and shall appoint the clerk of said court, and may appoint one assistant when necessary, who shall receive salaries to be fixed by the President. The district judge shall be entitled to six weeks' leave of absence each year with pay. During this absence or during any period of disability or disqualification from sickness or otherwise to discharge his duties the same shall be temporarily performed by any circuit or district judge

of the United States who may be designated by the President, and who, during such service, shall receive the additional mileage and per diem allowed by law to district judges of the United States when holding court away from their homes. The district attorney and the marshal shall be paid each a salary of five thousand dollars per annum.

SEC. 9. That the records of the existing courts and all causes, proceedings, and criminal prosecutions pending therein as shown by the dockets thereof, except as herein otherwise provided, shall immediately upon the organization of the courts created by this Act be transferred to such new courts having jurisdiction of like cases, be entered upon the dockets thereof, and proceed as if they had originally been brought therein, whereupon all the existing courts, except the supreme court of the Canal Zone, shall cease to exist. The President may continue the supreme court of the Canal Zone and retain the judges thereof in office for such time as to him may seem necessary to determine finally any causes and proceedings which may be pending therein. All laws of the Canal Zone imposing duties upon the clerks or ministerial officers of existing courts shall apply and impose such duties upon the clerks and ministerial officers of the new courts created by this Act having jurisdiction of like cases, matters, and duties.

All existing laws in the Canal Zone governing practice and procedure in existing courts shall be applicable and adapted to the practice and procedure in the new courts.

The Circuit Court of Appeals of the Fifth Circuit of the United States shall have jurisdiction to review, revise, modify, reverse, or affirm the final judgments and decrees of the District Court of the Canal Zone and to render such judgments as in the opinion of the said appellate court should have been rendered by the trial court in all actions and proceedings in which the Constitution, or any statute, treaty, title, right, or privilege of the United States, is involved and a right thereunder denied, and in cases in which the value in controversy exceeds one thousand dollars, to be ascertained by the oath of either party, or by other competent evidence, and also in criminal causes wherein the offense charged is punishable as a felony. And such appellate jurisdiction, subject to the right of review by or appeal to the Supreme Court of the United States as in other cases authorized by law, may be exercised by said circuit court of appeals in the same manner, under the same regulations, and by the same procedure as nearly as practicable as is done in reviewing the final judgments and decrees of the district courts of the United States.

SEC. 10. That after the Panama Canal shall have been completed and opened, for operation the governor of the Panama Canal shall have the right to make such rules and regulations, subject to the approval of the President, touching the right of any person to remain upon or pass over any part of the Canal Zone as may be necessary. Any person violating any of such rules or regulations shall be guilty of a misdemeanor, and on conviction in the District Court of the Canal Zone shall be punished by a fine not exceeding five hundred dollars or by imprisonment not exceeding a year, or both, in the discretion of the court. It shall be unlawful for any person, by any means or in any way, to injure or obstruct, or attempt to injure or obstruct, any part of the Panama Canal or the locks thereof or the approaches thereto. Any person violating this provision shall be guilty of a felony, and on conviction in the District Court of the Canal Zone shall be punished by a fine not exceeding ten thousand dollars or by imprisonment not exceeding twenty years, or both, in the discretion of the court. If the act shall cause the death of any person within a year and a day thereafter, the person so convicted shall be guilty of murder and shall be punished accordingly.

SEC. 11. That section five of the Act to regulate commerce, approved February fourth, eighteen hundred and eighty-seven, as heretofore amended, is hereby amended by adding thereto a new paragraph at the end thereof, as follows:

"From and after the first day of July, nineteen hundred and fourteen, it shall be unlawful for any railroad company or other common carrier subject to the Act to regulate commerce to own, lease, operate, control, or have any interest whatsoever (by stock ownership or otherwise, either directly, indirectly, through any holding company, or by stockholders or directors in common, or in any other manner) in any common carrier by water operated through the Panama Canal or elsewhere with which said railroad or other carrier aforesaid does or may compete for traffic or any vessel carrying freight or passengers upon said water route or elsewhere with which said railroad or other carrier aforesaid does or may compete for traffic; and in case of the violation of this provision each day in which such violation continues shall be deemed a separate offense."

Jurisdiction is hereby conferred on the Interstate Commerce Commission to determine questions of fact as to the competition or possibility of competition, after full hearing, on the application of any railroad company or other carrier. Such application may be filed for the purpose of determining whether any existing service is in violation of this section and pray for an order permitting the continuance of any vessel or vessels already in operation, or for the purpose of asking an order to install new service not in conflict with the provisions of this paragraph. The commission may on its own motion or the application of any shipper institute proceedings to inquire into the operation of any vessel in use by any railroad or other carrier which has not applied to the commission and had the question of competition or the possibility of competition determined as herein provided. In all such cases the order of said commission shall be final.

If the Interstate Commerce Commission shall be of the opinion that any such existing specified service by water other than through the Panama Canal is being operated in the interest of the public and is of advantage to the convenience and commerce of the people, and that such extension will neither exclude, prevent, nor reduce competition on the route by water under consideration, the Interstate Commerce Commission may, by order, extend the time during which such service by water may continue to be operated beyond July first, nineteen

hundred and fourteen. In every case of such extension the rates, schedules, and practices of such water carrier shall be filed with the Interstate Commerce Commission and shall be subject to the act to regulate commerce and all amendments thereto in the same manner and to the same extent as is the railroad or other common carrier controlling such water carrier or interested in any manner in its operation: *Provided*, Any application for extension under the terms of this provision filed with the Interstate Commerce Commission prior to July first, nineteen hundred and fourteen, but for any reason not heard and disposed of before said date, may be considered and granted thereafter.

No vessel permitted to engage in the coastwise or foreign trade of the United States shall be permitted to enter or pass through said canal if such ship is owned, chartered, operated, or controlled by any person or company which is doing business in violation of the provisions of the Act of Congress approved July second, eighteen hundred and ninety, entitled "An Act to protect trade and commerce against unlawful restraints and monopolies," or the provisions of sections seventy-three to seventy-seven, both inclusive, of an Act approved August twenty-seventh, eighteen hundred and ninety-four, entitled "An Act to reduce taxation, to provide revenue for the Government, and for other purposes," or the provisions of any other Act of Congress amending or supplementing the said Act of July second, eighteen hundred and ninety, commonly known as the Sherman Antitrust Act, and amendments thereto, or said sections of the Act of August twenty-seventy, eighteen hundred and ninety-four. The question of fact may be determined by the judgment of any court of the United States of competent jurisdiction in any cause pending before it to which the owners or operators of such ship are parties. Suit may be brought by any shipper or by the Attorney General of the United States.

That section six of said Act to regulate commerce, as heretofore amended, is hereby amended by adding a new paragraph at the end thereof, as follows:

"When property may be or is transported from point to point in the United States by rail and water through the Panama Canal or otherwise, the transportation being by a common carrier or carriers, and not entirely within the limits of a single State, the Interstate Commerce Commission shall have jurisdiction of such transportation and of the carriers, both by rail and by water, which may or do engage in the same, in the following particulars, in addition to the jurisdiction given by the Act to regulate commerce, as amended June eighteenth, nineteen hundred and ten:

"(a) To establish physical connection between the lines of the rail carrier and the dock of the water carrier by directing the rail carrier to make suitable connection between its line and a track or tracks which have been constructed from the dock to the limits of its right of way, or by directing either or both the rail and water carrier, individually or in connection with one another, to construct and connect with the lines of the rail carrier a spur track or tracks to the dock. This provision shall only apply where such connection is reasonably practicable, can be made with safety to the public, and where the amount of business to be handled is sufficient to justify the outlay.

"The commission shall have full authority to determine the terms and conditions upon which these connecting tracks, when constructed, shall be operated, and it may, either in the construction or the operation of such tracks, determine what sum shall be paid to or by either carrier. The provisions of this paragraph shall extend to cases where the dock is owned by other parties than the carrier involved.

"(b) To establish through routes and maximum joint rates between and over such rail and water lines, and to determine all the terms and conditions under which such lines shall be operated in the handling of the traffic embraced.

"(c) To establish maximum proportional rates by rail to and from the ports to which the traffic is brought, or from which it is taken by the water carrier, and to determine to what traffic and in connection with what vessels and upon what terms and conditions such rates shall apply. By proportional rates are meant those which differ from the corresponding local rates to and from the port and which apply only to traffic which has been brought to the port or is carried from the port by a common carrier by water.

"(d) If any rail carrier subject to the Act to regulate commerce enters into arrangements with any water carrier operating from a port in the United States to a foreign country, through the Panama Canal or otherwise, for the handling of through business between interior points of the United States and such foreign country, the Interstate Commerce Commission may require such railway to enter into similar arrangements with any or all other lines of steamships operating from said port to the same foreign country."

The orders of the Interstate Commerce Commission relating to this section shall only be made upon formal complaint or in proceedings instituted by the commission of its own motion and after full hearing. The orders provided for in the two amendments to the Act to regulate commerce enacted in this section shall be served in the same manner and enforced by the same penalties and proceedings as are the orders of the commission made under the provisions of section fifteen of the Act to regulate commerce, as amended June eighteenth, nineteen hundred and ten, and they may be conditioned for the payment of any sum or the giving of security for the payment of any sum or the discharge of any obligation which may be required by the terms of said order.

SEC. 12. That all laws and treaties relating to the extradition of persons accused of crime in force in the United States, to the extent that they may not be in conflict with or superseded by any special treaty entered into between the United States and the Republic of Panama with respect to the Canal Zone, and all laws relating to the rendition of fugitives from justice as between the several States and Territories of the United States, shall extend to and be considered in force in the Canal Zone, and for such purposes and such purposes only the Canal Zone shall be considered and treated as an organized territory of the United States.

SEC. 13. That in time of war in which the United States shall be engaged, or when, in the opinion of the President, war is imminent, such officer of the Army as the President may designate shall, upon the order of the President, assume and have exclusive authority and jurisdiction over the operation of the Panama Canal and all its adjuncts, appendants, and appurtenances, including the entire control and government of the Canal Zone, and during a continuance of such condition the governor of the Panama Canal shall, in all respects and particulars as to the operation of such Panama Canal, and all duties, matters, and transactions affecting the Canal Zone, be subject to the order and direction of such officer of the Army.

SEC. 14. That this Act shall be known as, and referred to as, the Panama Canal Act, and the right to alter, amend, or repeal any or all of its provisions or to extend, modify, or annul any rule or regulation made under its authority is expressly reserved.

REPEAL OF TOLLS EXEMPTION CLAUSE

APPROVED JUNE 15, 1914

An Act To amend section five of "An Act to provide for the opening, maintenance, protection, and operation of the Panama Canal and the sanitation and government of the Canal Zone," approved August twenty-fourth, nineteen hundred and twelve.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the second sentence in section five of the Act entitled "An Act to provide for the opening, maintenance, protection, and operation of the Panama Canal, and the sanitation and government of the Canal Zone," approved August twenty-fourth, nineteen hundred and twelve, which reads as follows: "No tolls shall be levied upon vessels engaged in the coastwise trade of the United States," be, and the same is hereby, repealed.

SEC. 2. That the third sentence of the third paragraph of said section of said Act be so amended as to read as follows: "When based upon net registered tonnage for ships of commerce the tolls shall not exceed $1.25 per net registered ton, nor be less than 75 cents per net registered ton, subject, however, to the provisions of article nineteen of the convention between the United States and the Republic of Panama, entered into November eighteenth, nineteen hundred and three": *Provided*, That the passage of this Act shall not be construed or held as a waiver or relinquishment of any right the United States may have under the treaty with Great Britain, ratified the twenty-first of February, nineteen hundred and two, or the treaty with the Republic of Panama, ratified February twenty-sixth, nineteen hundred and four, or otherwise, to discriminate in favor of its vessels by exempting the vessels of the United States or its citizens from the payment of tolls for passage through said canal, or as in any way waiving, impairing, or affecting any right of the United States under said treaties, or otherwise, with respect to the sovereignty over or the ownership, control, and management of said canal and the regulation of the conditions or charges of traffic through the same.

ADMISSION OF FOREIGN-BUILT SHIPS TO AMERICAN REGISTER

APPROVED AUGUST 18, 1914

An Act To provide for the admission of foreign-built ships to American registry for the foreign trade, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the words "not more than five years old at the time they apply for registry" in section five of the Act entitled "An Act to provide for the opening, maintenance, protection, and operation of the Panama Canal and the sanitation and government of the Canal Zone," are hereby repealed.

SEC. 2. That the President of the United States is hereby authorized, whenever in his discretion the needs of foreign commerce may require, to suspend by order, so far and for such length of time as he may deem desirable, the provisions of law prescribing that all the watch officers of vessels of the United States registered for foreign trade shall be citizens of the United States.

Under like conditions, in like manner, and to like extent the President of the United States is also hereby authorized to suspend the provisions of the law requiring survey, inspection, and measurement by officers of the United States of foreign-built vessels admitted to American registry under this Act.

SEC. 3. This Act shall take effect immediately.

PANAMA CANAL TOLL RATES

PROCLAMATION BY THE PRESIDENT, NOV. 13, 1912

I, William Howard Taft, President of the United States of America, by virtue of the power and authority vested in me by the act of Congress approved August twenty-fourth, nineteen hundred and twelve, to provide for the opening, maintenance, protection, and operation of the Panama Canal and the sanitation and government of the Canal Zone, do hereby prescribe and proclaim the following rates of toll to be paid by vessels using the Panama Canal:

1. On merchant vessels carrying passengers or

cargo, one dollar and twenty cents ($1.20) per net vessel ton—each one hundred (100) cubic feet—of actual earning capacity.

2. On vessels in ballast without passengers or cargo, forty (40) per cent less than the rate of tolls for vessels with passengers or cargo.

3. Upon naval vessels, other than transports, colliers, hospital ships, and supply ships, fifty (50) cents per displacement ton.

4. Upon army and navy transports, colliers, hospital ships, and supply ships, one dollar and twenty cents ($1.20) per net ton, the vessels to be measured by the same rules as are employed in determining the net tonnage of merchant vessels.

The Secretary of War will prepare and prescribe such rules for the measurement of vessels and such regulations as may be necessary and proper to carry this proclamation into full force and effect.

In witness whereof I have hereunto set my hand and caused the seal of the United States to be affixed.

Done at the city of Washington this thirteenth day of November, in the year of our Lord one thousand nine hundred and twelve, and of the independence of the United States the one hundred and thirty-seventh.

[SEAL.] WM. H. TAFT.

By the President:

P. C. KNOX,
Secretary of State.

EXECUTIVE ORDER

JAN. 27, 1914

CREATING A PERMANENT ORGANIZATION FOR THE PANAMA CANAL, EFFECTIVE APRIL 1, 1914

By virtue of the authority vested in me, I hereby enact the following order, creating a permanent organization for the Panama Canal, under the Act of Congress "To provide for the opening, maintenance, protection and operation of the Panama Canal and the sanitation and government of the Canal Zone," approved August 24, 1912.

SECTION 1. The organization for the completion, maintenance, operation, government and sanitation of the Panama Canal and its adjuncts and the government of the Canal Zone shall consist of the following departments, offices and agencies, and such others as may be established by the Governor of the Panama Canal on the Isthmus or elsewhere with the approval of the President, all to be under the direction of the Governor, subject to the supervision of the Secretary of War.

DEPARTMENT OF OPERATION AND MAINTENANCE—There shall be a Department of Operation and Maintenance under the immediate supervision and direction of the Governor of the Panama Canal. This Department shall be charged with the construction of the Canal and with its operation and maintenance when completed, including all matters relating to traffic of the Canal and its adjuncts, and the operation and maintenance of beacons, lights and lighthouses; the supervision of ports and waterways, including pilotage; the admeasuring and inspecting of vessels, including hulls and boilers; the operation and maintenance of the Panama Railroad upon the Isthmus, including telephone and telegraph systems; the operation of locks, coaling plants, shops, dry-docks and wharves; office engineering, including meteorology and hydrography; the construction of buildings and sanitary and municipal engineering, including the construction and maintenance of drainage ditches, streets, roads and bridges.

PURCHASING DEPARTMENT.—There shall be a Purchasing Department under the supervision and direction of the Governor. This department shall be charged with the purchase of all supplies, machinery or necessary plant.

SUPPLY DEPARTMENT.—There shall be a Supply Department, under the supervision and direction of the Chief Quartermaster. This department shall store and distribute all material and supplies for use of the Panama Canal and of its employees; and for other departments of the Government on the Isthmus and their employees; and for vessels of the United States and for other vessels, when required. The Supply Department shall operate commissaries, hotels and messes; shall be in charge of the maintenance of buildings, the assignment of quarters and the care of grounds; shall recruit and distribute unskilled labor; and shall have charge of the necessary animal transportation.

ACCOUNTING DEPARTMENT.—There shall be an Accounting Department under the supervision and direction of the Auditor, with an assistant in the United States. The duties of the department shall include all general bookkeeping, auditing and accounting, both for money and property, cost-keeping, the examination of payrolls and vouchers, the inspection of time books and of money and property accounts, the preparation of statistical data, and the administrative examination of such accounts as are required to be submitted to the United States Treasury Department; and the collection, custody and disbursement of funds for the Panama Canal and the Canal Zone. These same duties shall be performed for the Panama Railroad Company on the Isthmus when not inconsistent with the charter and by-laws of that Company. The department shall be charged with the handling of claims for compensation on account of personal injuries and of claims for damages to vessels. Within the limits fixed by law, the duties and financial responsibilities of the officers and employees charged with the receipt, custody, disbursement, auditing and accounting for funds and property shall be prescribed in regulations issued by the Governor, with the approval of the President. The Auditor shall maintain such a system of bookkeeping as will enable him to furnish at any time full, complete and correct information in regard to

the status of appropriations made by Congress, the status of all other funds, and the amounts of net profits on all operations, which are to be covered into the Treasury as required by the Panama Canal Act.

HEALTH DEPARTMENT.—There shall be a Health Department under the supervision and direction of the Chief Health Officer. This department shall be charged with all matters relating to maritime sanitation and quarantine in the ports and waters of the Canal Zone and in the harbors of the cities of Panama and Colon, and with land sanitation in the Canal Zone, and sanitary matters in said cities in conformity with the Canal Treaty between the United States and the Republic of Panama and existing agreements between the two governments thereunder, and all matters relating to hospitals and charities.

EXECUTIVE SECRETARY.—There shall be an Executive Secretary who, under the direction of the Governor of the Panama Canal, shall be charged with the supervision of all matters relating to the keeping of time of employees; to postoffices, customs, taxes and excises, excepting the collection thereof; police and prisons; fire protection; land office; schools, clubs and law library; the custody of files and records; and the administration of estates of deceased and insane employees. He shall, in person or through one of his assistants, perform the duties of a Shipping Commissioner. He shall conduct all correspondence and communications between the authorities of the Canal Zone and the Government of the Republic of Panama and such other correspondence as may be given him in charge by the Governor. He shall have charge of the seal of the Government of the Canal Zone and shall attest such acts of the Government as are required by law to be performed and done under the seal.

The duties herein prescribed for the foregoing departments, offices and agencies will be assigned to divisions or bureaus thereunder by the Governor of the Panama Canal, as the necessities therefor arise. Each of the foregoing departments shall discharge such further duties as may be assigned to it from time to time by the Governor; and the Governor, with the approval of the President, may transfer from time to time specific duties from one department to another.

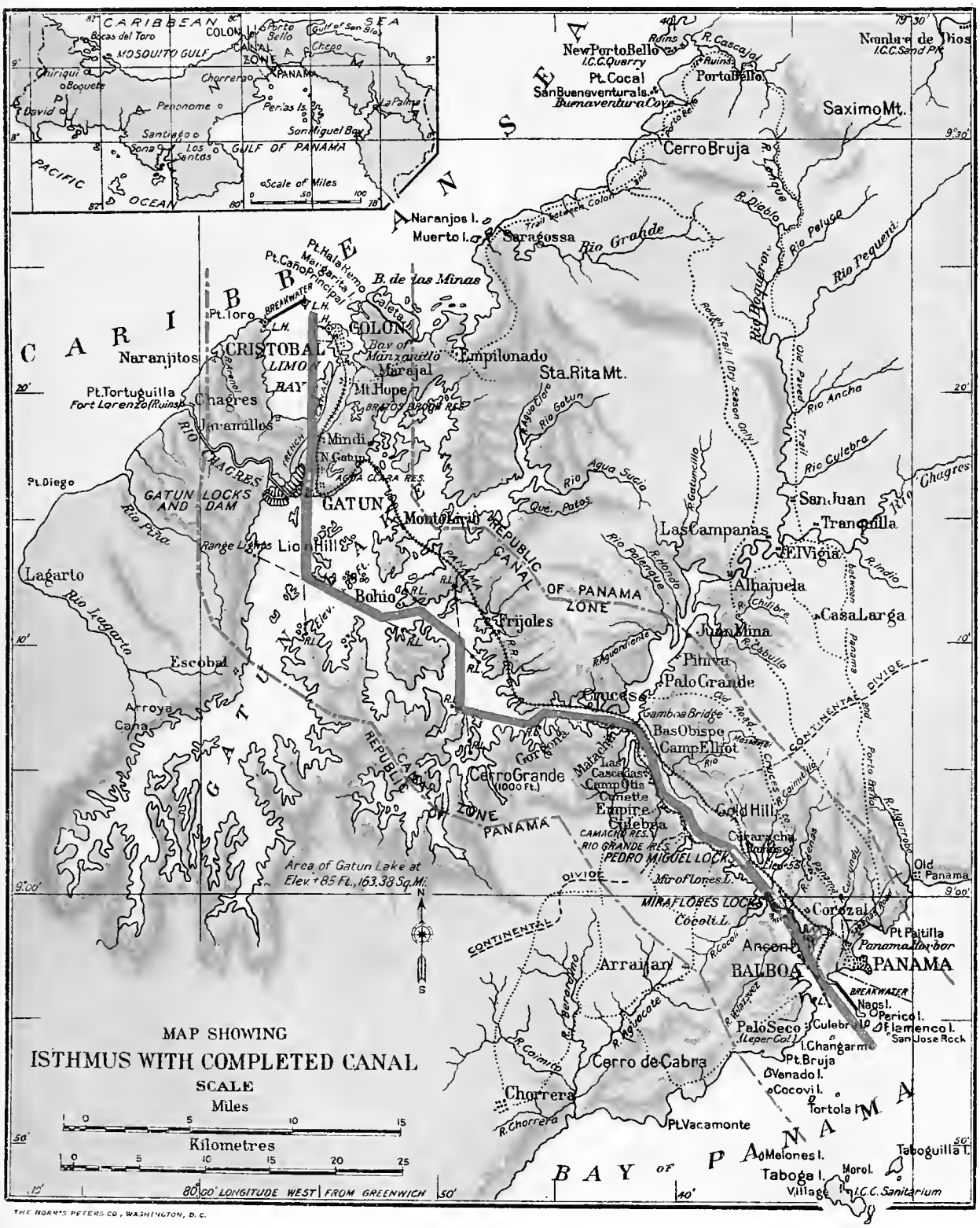
SECTION 2. The organization provided for in Section 1 shall be, in general, in accordance with the outline chart accompanying the memorandum of Jan. 27, 1914, entitled "Memorandum to accompany Executive Order of Jan. 27, 1914, providing for a permanent organization for the Panama Canal," and officers from certain departments shall be detailed in accordance with that memorandum.

SECTION 3. This order shall take effect from and after the 1st day of April, 1914, from which date the Isthmian Canal Commission, together with the present organization for the Panama Canal and the Canal Zone, shall cease to exist, in accordance with the terms of the above-mentioned Act of Congress.

WOODROW WILSON.

THE WHITE HOUSE,
January 27, 1914.

INDEX


CARIBBEAN SEA
COLON
Porto Bello
Gulf of San Blas
Bocas del Toro
MOSQUITO GULF
CANAL ZONE
PANAMA
Chiriqui
Boquete
Chorrera
David
Penonome
Perlas Is.
La Palma
Santiago
San Miguel Bay
Sona
Los Santos
GULF OF PANAMA
PACIFIC OCEAN
Scale of Miles
CARIBBEAN SEA
New Porto Bello
I.C.C. Quarry
Pt. Cocal
San Buenaventura
Buenaventura Cove
Ruins
R. Cascajal
Portobello
Nombre de Dios
I.C.C. Sand Pit
Saximo Mt.
Cerro Bruja
R. Diablo
Rio Peluca
Rio Pequeni
Rio Boqueron
Naranjos I.
Muerto I.
Saragossa
Rio Grande
Trail between Colon and
Pt. Hale
Pt. Cano Principal
Margarita I.
Humo
B. de las Minas
Caleta
BREAKWATER
L.H.
Pt. Toro
COLON
CRISTOBAL
LIMON BAY
Naranjitos
Bay of Manzanillo
Tumpilonado
Marajal
Sta. Rita Mt.
Pt. Tortuguilla
Fort Lorenzo (Ruins)
Chagres
Mt. Hope
Breakwater
Res.
Javamillos
Mindi
N. Gatun
Agua Clara Res.
RIO CHAGRES
Pt. Diego
GATUN LOCKS AND DAM
GATUN
Monte Lirio
REPUBLIC OF PANAMA
CANAL ZONE
Rio Piro
Range Lights
Lion Hill
Lagarto
Rio Lagarto
Bohio
Trijoles
Escobal
Arroya
Cana
Area of Gatun Lake at Elev. +85 Ft., 163.38 Sq. Mi.
Cerro Grande (1000 Ft.)
Gorona
Matachin
Las Cascadas
Camp Otis
Culebra
Empire
Gold Hill
Camacho Res.
Rio Grande Res.
Pedro Miguel Lock
Miraflores L.
Miraflores Locks
Cocoli L.
Ancon
BALBOA
PANAMA
Corozal
Pt. Paitilla
Panama Harbor
Old Panama
Arraijan
Rio Caimito
Rio Chorrera
Cerro de Cabra
Chorrera
Pt. Vacamonte
Pt. Bruja
Venado I.
Cocovi I.
Tortola I.
Naos I.
Perico I.
Flamenco I.
San Jose Rock
I. Changarmo
Pelo Seco
(Leper Col.)
Melones I.
Taboga I.
Village
Taboguilla I.
Morol.
I.C.C. Sanitarium
BAY of PANAMA
Las Campanas
El Vigia
San Juan
Tranquilla
Alhajuela
Casa Larga
Juan Mina
Pitiva
Palo Grande
Cruces
Bas Obispo
Camp Elliot
Gamboa Bridge
Old Ridge
Mamei
Chagres
Rio Ancha
Rio Culebra
Rio Gatun
Agua Sucia
Que. Patos
Rio Palenque
Rio Indio
Rio Chilibre
Rio Pabullo
Rio Aguacate
Rio Caimito
Rio Chorrera
Rio Cocoli
Rio Curundu
Rio Matachin
Rio Las Cascadas
Rio Gorona
Rio Aguacate
Rio Beraquito
Rio Rodriguez

INDEX

A

Abbot, Henry Larcom, biography, 463
Abendroth & Root Manufacturing Co., 370
Abraiba, 16
Accessory Transit Co., 100
Accidents, at Bas Obispo, 142; *see also* Workmen's compensation
Acetylene, use of, 403
Acevedo, Ramon F., 300; biography, 463
Acher, A. H., biography, 463
Acla, port, 24; new settlement, 25; disappearance of, 54
Acosta, Josephus, *Natural and Moral History of the Indies*, 120
Adams, James H., biography, 463
Adamson, William C., 242; biography, 463
Administration building, 217, 412–414
Africa, 247, 286
Agriculture, Canal Zone, 243
Agua Dulce, 117
Aguilar, Geronimo de, 16
Aguilar, Pedro, Civil Governor of Panama, 77
Aix-la-Chappelle, Peace of, 73
Aizpuru, Rafael, attempts to change forms of government, 82, 83; leader in revolution, 82, 84; president of Panama, 83, 84; exiled, 85
Akron Metallic Gasket Co., 389
Alabama, 318
Alameda, ship, 281
Alange, 75
Alanje, Chiriqui, founded by Hurtado, 31; re-establishment, 31
Alaska, 257, 278, 298
Alaskan, ship, 181
Albenameche, 16
Alberoni, Giulio, Cardinal, 69
Albites, Diego de, 24; establishes posts across Panama, 29
Aleutian Islands, 281
Alex. LeValley, ship, 181
Alexander VI, Pope, 21; distribution of lands by, 43
Alexander, A. E., 180
Alexander, Joshua W., 243
Alexander, William H., biography, 463
Alexandria Hotel, 321
Allegheny Mts., 317
Allen, Henry A., 149
Allicott Mills, 318
Allis-Chalmers Co., 372
Allison Coupon Co., 421
Almagro, Diego de, 21
Almirante Bay, 8
Alpha Portland Cement Co., 374
Alvarado, Alonso de, 40, 293
Alvarado, Pedro de, holds Salvador for Cortés, 33
Alzuru, Col., 78
Amador, Manuel, 174; biography, 463
Amazon River, 182; discovery, 6
America, 35, 42, 96; derivation of name, 5
American-Asiatic steamship routes, 278, 279
American Bitumastic Enamels Co., 385
American canal commission, *see* Canal commission
American Engineering Co., 349
American firms, list of, 434–460
American Gasaccumulator Co., 403
American Hawaiian Line, 314
American-Hawaiian Steamship Co., 304
American industries, 322
American labor, 275
American register, Admission of foreign-built ships to, 515
American Screw Co., 408
American Security & Casualty Co., 309
American Steam Gauge & Valve Manufacturing Co., 384
American Tool Works Co., 387
American Watchman Time Detector Co., 405
Ammen, Daniel, biography, 463
Amsterdam, 63
Amusements, 169–171
Anaquito, battle of, 38
Añasco, Capt. Pedro de Montilla, re-establishes Alanje, 31
Ancon, 59; hospital, 124; fire and telegraph system, 904; administration building, 412
Ancon Hill, 117, 149, 154
Ancon, ship, 181
Ancon Quarry, J. A. Loulan in charge, 161
Ancona, hospital, 205
Andagoya, Pascual de, 21, 40; alderman of Panama, 31; Inspector General of the Indies, 31, 97
Andalucia, Nueva, *see* Nueva Andalucia
Andes Mountains, 296
Andrés, Antonio, 59
Andreve, Guillermo, 300; biography, 463
Andrews, Capt. Philip, biography, 463; letter from Secretary Daniels, 267; The Panama Canal from a Navy Standpoint, 267–270
Angel, Laurence, biography, 463
Angostura, congress held at, 76
Aniñon, Felipe de, memorial from, 54
Annapolis, 317, 384
Anne, Queen of England, 68
Annett, C. F., biography, 463
Anson, Commodore, expedition under, 72; cruise along South American coast, 73; capture of Spanish ship, 73; promotion, 73; return to England, 73
Antietam, 318
Antigua, 21, 22, 24, 60; founding, 13; Nicuesa invited to govern, 14; prosperity under Balboa, 18; return of Balboa, 19; bishop of, 20; first European city on American continent, 28; seat of first bishopric, 28; burning of, 30; Oviedo to rule over, 30; disappearance of, 54
Antioquia, 81
Antofagasta, 297
Antonelli, Jean Baptiste, report of, 54, 97
Aragon, 18
Arango, José Agustin, biography, 216, 463
Arango, Ricardo Manuel, biography, 463
Arbolancha, Pedro de, 18; carries letters to Spain, 19; arrival of ship, 21

Arcila, 7
Arctic Ocean, 285
Argentina, 248, 320
Arguëllo, arrested by Pedrarias, 27; death, 27
Arias, Ricardo, biography, 463
Arias, Tomás, biography, 463
Arica, 60
Ariza, Andrés de, 74
Arjona, Aristides, 300; biography, 463
Armstrong Cork Co., 426
Army engineers, given charge of work, 133
Arosemena, C. C., 113; biography, 464
Arosemena, Pablo, biography, 463; president of Panama, 82
Arrows, Gulf of, *see* Samaná Bay
Art Metal Construction Co., 406
Artistic features, 238
Ashburn, Percy M., biography, 464
Asia, 247, 256
Asiatic colonies, 269
Asiatic exclusion, 256, 268
Aspinwall, William H., 87, 88; biography, 464
Aspinwall, *see* Colon
Astoria, 306
Atchison, Topeka & Santa Fé Railway, 309, 319
Athens of America, *see* Santo Domingo
Atlantic and Gulf ports, 307
Atlantic & Pacific Steamship Co., 314
Atlantic Coast, 96, 97, 261, 286, 305, 319; navy yards on, 269, 270
Atlantic fleet, 268, 270
Atlantic Ocean, 62, 64, 96, 114, 205, 256, 257, 291
Atlantic Steamship Lines, 313, 314
Atlas Portland Cement Co., 374–375
Atrato River, 6, 10, 16, 35, 36, 98, 101; expedition, 23
Atterbury, Francis, bishop, 70
Auckland, 305
Audiencia de los Confines, 53
Audiencia Real, abolishment, 53
Audiencias established, 38
Auditor of the commission, 215
Austin, Frederic, biography, 464
Austin cube mixer, 376–378
Australia, 88, 248, 291; coal from, 282
Austria, 286, 310
Automatic Time Stamp Co., 406
Avila, Pedro Arias de (Pedrarias Dávila), biography, 480; appointed governor, 20; expedition under, 20–22; reception by Balboa, 21; sails for Cemú and Careta, 24; rebuilds fort at Santa Cruz, 24; arrests Balboa's friends, 27; reports adverse to, 28; refounds Nombre de Dios, 29; leaves Oviedo to rule over Antigua, 30; contest with Saavedra, 32; succeeded by Rios, 32; appoints Córdoba in Nicaragua, 33; becomes governor of Nicaragua, 33; establishes a slave-mart in Panama, 33; searches for waterway, 96, 97; death, 34
Ayora, Juan de, 20, 22
Azuero, 79

B

B. V. D. Company, 434
Babcock and Wilcox Co., 366, 367
Bachicao, Hernando, invades Panama, 39
Badajoz, Francisco Gonzales de, 37
Badajoz, Gonzalo de, 29, 31; expedition to South Sea, 24; meets Espinosa, 25
Badajoz, Council of, 96
Bahamas, 63
Bahia Carabora, 36
Bahia Honda, 11
Baily, John, 100; biography, 464
Balboa, Vasco Nuñez de, 12, 13, 14, 29, 37, 97, 293, 299; biography, 464; accompanies Bastidas, 6; governor of Castilla del Oro, 15; marries Careta's daughter, 15, 26; opposes Ponca, 15; reduces natives to subjection, 15; treaty with Careta, 15; becomes friends with Ponca, 17; discovers the South Sea, 17; hears disquieting news from Spain, 17; sends present to Pasamonte, 17; denounced by Enciso, 19; return to Antigua, 19; superseded as governor, 20; receives Pedrarias, 21; release of, 22; expedition up Atrato River, 23; King Ferdinand repairs injury to, 21, 24; gives up Indian wife, 25; lays out new settlement at Acla, 25; sends to Cuba for arms, 25; actions towards Pedrarias, 26–27; sails into Gulf of San Miguel, 26; searches South Sea for gold country, 26; trial and death, 27
Balboa, Pacific terminal, 117; breakwater at, 172; gates at, 385; stores at, 425
Baldwin, J. L., survey under, 88
Ball, Thomas H., 310
Ball Engine Co., 369
Balls Bluff, 318
Baltimore, 313, 314, 317
Baltimore and Ohio Railroad, 317
Bank of England, 64
Bankers Trust Co., Board of, 309
Banks, T. S., & Co., 394
Barbacoas, 90
Barbados, orders to governors of, 65; negroes, 162; laborers from, 197
Barber, Charles W., biography, 464
Barcelona, 31
Bard, Thomas R., biography, 464; offers amendment to Hay-Pauncefote treaty, 492
Bariento, Capt., 37
Barneson, John, 304
Barneson-Hibberd Co., 304
Barratt, W. C., 314
Barrett, John, 196; biography, 464
Barrionuevo, Francisco de, Governor of Castilla del Oro, 35
Bartolomé, repels attack, 9
Bascom, Charles E., 351
Bascom, Joseph D., biography, 464–465
Baskerville, Sir Thomas, expedition to Panama, 49; assumes command after Drake's death, 49; returns to England, 49
Bas Obispo, 94
Bastidas, Rodrigo de, 8, 12, 293; biography, 465; character, 6; commercial dealings, 6; expedition under, 6; discovers Panama, 6; pension, 6; reaches South America, 6; return to Spain, 6; thrown into prison, 6
Bastimentos, Island of, 29, 56
Basuto, Juan, 31
Bates, William H., 465
Baxter, John K., 465
Bayley, S., proposes route for canal, 100

Bayou channel, 307
Bayonna, king of the Cimarrones, 53
Bazan, Alvarez de, attacks English fleet, 45
Beam, Walter Irvin, 465
Beaman, Don H., biography, 465
Bean, E. C., 180
Becerra, Francisco, dealings with the Indians, 22
Beck, Edgar P., biography, 465
Belcher, Capt. Edward, recommends construction of canal, 99, 100
Belding, W. M., 217, 465
Belding & Franklin Machine Co., 408
Belen, 11, 13, 54
Belen, Nuestra Señora de, 8
Belgium, 98
Belize, 100
Bell, William H., biography, 465
Belly, Felix, interest in canal, 100
Belly, Milaud & Co., contract for canal, 100
Beninski, 98
Bennett, Ira E., letter from Admiral Dewey, 255
Benson, Ernest S., 203, 465
Berger, C. L., & Sons, 395
Berger Manufacturing Co., 425
Bergin, Ralph William, 465
Berlanga, Tomás de, bishop of Panama, 35
Berlin, 63
Bermejo, Juan, 40, 41
Bertoncini, C. F., 465
Besgara, Joaquin Vargas, vice-governor of Tierra Firme, 76
Best, W. N., 398
Bethlehem, Our Lady of, 8
Bethlehem Iron Co., 313
Beyer, W. F., 465
Biddle, Charles, sent to Panama, 86; secures franchise for a trans-Isthmian railroad, 86; secures concession for railroad across Isthmus, 99; repudiated by United States government, 99
Bierd, W. G., 203, 215, 217, 465
Bird-Archer Co., 368, 369
Birues, Juan de, expedition against Dabaiba, 23
Biruquete, 24, 29
Biscaina, ship, 9
Bishop, Joseph B., biography, 465
Bitumastic solution, 385
Black, W. M., biography, 465
Blackburn, Joseph Clay Stiles, Senator, 135; biography, 465
Blackburn, S. E., 465
Blake, 69
Blanco, Cape, 61
Blaw Steel Construction Company, 373, 374
Blount, F. R., 465
Blue, C. E., 380
Blue, L. V., 381
Blue, Dr. Rupert, 125; biography, 465; Problems of Quarantine, 244–249
Blum & Koch, 433
Bô, M., 111, president of New Panama Canal Co., 107
Bobadilla, Gov. Francisco de, 10; returns to Spain, 6
Boggs, Maj. Frank C., 423; biography, 465–466
Bogotá, 78, 81, 86, 91, 99, 111, 183; Congress at, 83
Bohio dam, 192
Bohio, tug-boat, 349
Boilers, *see* Equipment
Bolich, D. W., 216, 466
Bolivar, Simon, president of Republic of Colombia, 86, 98; presides over congress of Angostura, 76
Bolivia, mineral wealth, 296; productions, 296; opportunities for development, 297; railroads, 297
"Bones of Men," *see* Acla
Bonacao, 7
Booth, Rufus K., 466
Boots, *see* Footwear
Boston, 311, 317, 319
Boston Belting Co., 393
Boston Woven Hose & Rubber Co., 393
Boswell, Helen Vanck, organizes women's clubs at Panama, 170
Botello, Luis, death, 27
Boya, 294
Boyd, Federico, 300; biography, 466
Braddock, General, 318
Bradley, H. S., 381
Bradley, Captain, buccaneer, 58; captures San Lorenzo, 58
Brazil, 78, 248, 320; ceded to Portugal, 6; Pinzon searches coast, 6; Portuguese claims, 43
Brem, Walter, 466
Bremerton, naval base, 261, 262, 269; navy yard 270
Bretons, explore Gulf of St. Lawrence, 44
Brisbane, 305
British Columbia, 248
British Empire, 291
Bristol, 63
Bristow, Joseph Little, 198; biography, 466
British Steamship Co., 197
Brito, 101, 104
Broderick, John J., biography, 466
Broderick & Bascom Rope Co., 351, 353
Brook, George D., 216, 466
Brooke, Lieut. Mark, 113; biography, 466; receives keys to Panama, 126
Brown, Thomas E., Jr., biography, 466
Brown Hoisting Machinery Co., 365
Browning Engineering Co., 365
Bryan, William Jennings, 110, 113; biography, 466
Bryce, James, British Ambassador, 114
Bubonic plague, 207
Buccaneer, derivation of, 56
Buchanan, James, President, 101, 226
Buckeye Engine Co., 370
Bucyrus Co., 355
Buda Co., 387
Budd, R., 466
Buenaventura, 85
Buenos Aires, Plaza hotel, 320
Buff, George L., 395
Buff and Buff Manufacturing Co., 395
Buffalo Gasoline Motor Co., 419
Buffalo Steam Roller Co., 365
Building Construction Division, 216; materials, 412–418
Bulwer, Sir Henry, biography, 466
Bunau-Varilla, Philippe, 112; biography, 466
Burke, Edmund, 71
Burlington, 316
Burr, William Hubert, 127; biography, 466
Burrows, Lemuel, Jr., letter to, 400–401

Characas, 314
Charles I., 356
Charles II., aids Portuguese, 69
Charles V., Emperor, 28, 44, 97; writes *New Laws* for the colonies, 38
Charles V., king of Spain, 97, 294
Charles VI., understanding with George I., 69
Chauncey, Henry, 88
Cheops, Pyramid of, 115
Chesapeake and Ohio Railway, 319
Chevalier, Michel, 100
Chiapes, 18, 38, 53
Chiari, Rodolfo, 300; biography, 467
Chicago, 115, 154, 315, 318, 319; drainage canal, 366
Chicago and Northwestern Railroad, 203
Chicago and Rock Island road, 203
Childs, Col. Orville, surveys route for canal, 100
Chile, 248, 297, 314
Chimu, 314
China, 51, 88, 256, 300, 314; trade with Panama, 52; laborers from, 90; naval strength, 269; commerce, 305
Chinandega, 61
Chincha, 314
Chinese labor, objections to, 197, 213
Chipana, 314
Chiri-Chiri Bay, 101
Chiriqui, 8, 79
Chiriqui Bay, 13
Chirú, 24; raided by Espinosa, 25
Choate, Joseph Hodges, biography, 467
Cholera, 245
Chuchaumá, 26
Cimarrones, 46; organization of, 52–53; attempts to exterminate, 53
Cincinnati, 319
Cities, *see* Towns
Civil service law, 132, 199, 200
Civil Tribunal of the Seine, 110
Civil War, 318
Clark, C. A., 355
Clark, Champ, Speaker, 241
Clark, F. C., 467
Clarke, Ernest W., 467
Clay, Henry, resolution introduced in U. S. Senate, 86; survey made for constructing Canal, 98
Clayton, John Middleton, biography, 467
Clayton-Bulwer Treaty, 100, 105, 106, 232, 256, 490–491
Clear, Thomas L., biography, 467
Cleveland Twist Drill Company, 388
Clio, ship, 79
Clothing, 433–434
Club houses, 223
Coale, Thomas E., biography, 467
Coastwise trade, 238
Cobb Engineering Co., 394
Cochran, S. A., 386
Cocoli, tug-boat, 418, 419, 349
Cocura, 18
Coiba, province, Balboa made captain-general of, 24
Colancha, José Leonardo, president of Panama, 81
Cold storage plant, description of, 412
Cole, Harry O., 137, 179; biography, 467
Cole, W. Bundy, 301
Colgate & Co., 425
Coligny, Gaspard de. admiral of France, 44
Collapsible steel forms, 372–374
Collins, Lorin C., biography, 467
Colmenares, Rodrigo Enriquez de, brings supplies to Antigua, 13; brings Nicuesa's garrison to Antigua, 15; sent to Spain, 17; arrival in Spain, 20
Coloma, Gen. Peregrino Santa, 80; president of Panama, 81
Colombia, 76, 77, 79, 81, 92, 102, 104, 226, 228; Darien buffer state for, 74; disturbed by Civil War, 83; protests against Nicaragua route, 106; favors treaty with United States, 107; denies right of French company to sell property, 108; claims indemnity from French company, 108, 111; Senate debates on Hay-Herran Treaty, 112; differences with United States, 112, 113; treaty with United States, 113; negotiations, 227; refuses to ratify Hay-Herran Treaty, 228, 229; congress, 229; troops land at Colon, 229; forbidden to land troops on Panama, 229; Republic of, 298; ports, 314; treaties with the United States, 489, 494–501, 505–507
Colombo, 248
Colon, Bartolomé, 7; biography, 467; separates from Ribero, 13
Colon, Cristobal, *see* Christopher Columbus
Colon, Diego, 12, 15, 36; biography, 467; appoints Balboa his lieutenant, 16
Colon, Luis, 36; biography, 467–468; grandson of Christopher Columbus, 36; titles conferred upon, 36
Colon, 89, 102, 195, 229, 250, 299, 301, 312, 313, 314; rebellion in, 84, 85; destroyed by fire, 85; Washington Hotel, 94; death rate, 121; sanitary improvements, 131; street paving, 189; water supply, 189; hospital, 205; reign of terror threatened, 229; cold storage plant, 412; stores, 425
Colquichaca, 296
Colquitt, O. B., 310
Columbia, ship, 196
Columbian Rope Co., 354
Columbus, Christopher (Cristobal Colon), 36, 43, 89, 120, 293; biography, 468; first voyage, 5; second voyage, 5; third expedition, 7; discovers mainland of South America, 7; fourth voyage, 7; discovers different parts of Panama, 8; mutiny against, 9; death of, 9; lands discovered by, 10, 11; searches for gold, 96; seeks passage connecting oceans, 96
Columbus, Fernando, 7
Columbus, Ohio, 319
Columbus Chain Co., 387
Colunje, Jil, president of Panama, 81, 82
Comagre, baptized, 16; visited by Balboa, 16
Comayagua, 38, 53
Comber, William George, biography, 468
Commerce, *see* Ocean Commerce
Commissary equipment, 214, 425–428
Compagnie Universelle du Canal Interocéanique de Panama, 91, 250; formation of, 102
Compañía de Tránsito de Nicaragua, 100
Compañon, Francisco de, 27, 29, 32
Company of Scotland Trading to Africa and the Indies, 64
Compensation, *see* Salaries, Wages

Compressed air plants, 216; use of, 338–340
Concafuego, galleon, 48
Concepcion, Veragua, founding of, 36
Concepcion River, 61
Concha, José Vicente, 108, 110, 468; proposes amendments to treaty, 111; withdrawal from United States, 111
Concrete, *see* Cement and concrete
Condor, 314
Conejo Valley, 100
Connecticut, 283
Connick, Harris D. H., 311
Connor, M. E., 468
Consular service, 276
Continental Trust Co., 309
Contract work, 132, 133, 221
Contractor's Hill, 142
Contreras, Hernando, 37; leader of rebellion in Nicaragua, 40, 41; death, 42
Contreras, Pedro, leader of rebellion in Nicaragua, 40, 41; driven to Punta de Higuera, 42
Contreras, Rodrigo de, 36, 37; deprived of property, 40
Convention of 1739, 71
Cook, Captain, buccaneer, 61; discovers Hawaiian Islands, 285
Cooke, Frederick H., biography, 468
Cooke, Tom M., 468
Cooper, Peter, 318
Coquimbo, 60
Corcoran, A. T., 468
Córdoba, Hernandez de, appointed lieutenant to Pedrarias in Nicaragua, 32; founds cities of Granada and Leon; explores Mar Dulce, 32
Cordoñez Miguel de, commander of Spanish troops, 67
Corinto, 260
Corn Products Refining Co., 431
Cornish, L. D., biography, 468
Cornthwaite, H. G., 468
Coronado, 321
Corozal, dredge, 182, 356, 357, 358
Corral, Bachiller, succeeds Oviedo as governor of Antigua, 30
Correoso, Buenaventura, president of Panama, 82, 83; senator from Panama, 83; deprived of military rank, 85
Corrugated Bar Co., 378
Corse, W. B., 468
Cortés, Hernando, 8, 97, 293; conquers Mexico, 16, 96
Cortes-Arosemena Treaty, 505
Cortés, Fernando, *see* Cortés, Hernando
Cosa, Juan de la, 10; biography, 468; accompanies Columbus, 5; accompanies Bastidas, 6; pension received by, 6; appointed mayor of Urabá, 7; death, 11
Costa Rica, 8, 31, 37, 61, 100, 104, 198, 199; first attempt to colonize, 37; congress held at, 100
Costs, of Panama Canal, 156-159, 234, 235; of French property, 232; of Canal Zone, 234; of sanitation, 121, 206; of hospitals, 125; of excavation, Culebra Cut, 140, 141, 156-159; of locks, 150, 156-159; of removing spoil, 156-159; of concrete, 156-159; of Panama Railroad, 91-95; of canal under the French, 103; of breakwaters, 178; of quarters, 131; of supplies, 131; of meals, 168; of club houses, 169; of barracks, 173, 178; of transportation, Panama Railroad, 198-199; of labor, 162, 163; of food, 167; of administration building, 177
Council meetings, 220
Coxon, Captain, in command of pirates, 60
Coya, 314
Craig, James G., biography, 468
Crane Co., 394
Cranes, 365–366
Crassus, Marcus Licinius, 23
Craven, Lieut. T. A., 101
Crew-Levick Co., 398
Cristobal, 181; steamships to, 93; fire and telegraph system, 404; cold storage plant at, 426; laundry at, 431
Crocker, William H., 311
Cromwell, Oliver, 56; demands on Spain, 69
Cromwell, William Nelson, 110, 112, 196; biography, 468; counsel of New Panama Canal Co., 106; opposes Nicaragua project, 106; brings about appointment of new canal commission, 106; induces Colombia to protest against Nicaragua route, 106; obtains charter under American laws, 106; visits Paris to arrange purchase, 106; supports Mark Hanna, 108; plans for passage of act permitting President to purchase New Panama Canal Company's property, 108
Crowley, D. E., 468
Cruces, 41, 86, 87; Drake attacks, 46; revenue of custom-house, 52; fortifications of, 55; Chagres River made navigable to, 97
Crusades, diseases spread by, 245
Cuba, 7, 11, 22, 122, 202, 251, 257, 270, 284, 313; Drake sails for, 48; sugar from, 288; iron ore shipped from, 314
Cucaracha, 180, 181; slide, 144, 145, 182
Cudahy Packing Co., 430
Cueto, 13
Culebra Cut, 94, 115, 117, 118, 128, 131, 140, 161, 162, 178, 180, 206; slides, 144, 158, 179; work of Gaillard on, 158; force increased, 191; excavation of, 193
Cullen, Dr. Edgar, recommends route for canal, 100
Cullinan, J. S., 310
Cumming, Joseph M., 311
Cummings, E. E., 468
Curac, ship, 314
Curl, Holton C., 468
Curtis Bay, 317
Cushing, Caleb, biography, 468

D

Dabaiba, Golden Temple of, 16, 23
Daldorch, ship, 182
Dalen inventions, 403–404
Damages, 239
Dampier, William, 60; biography, 468; *A New Voyage Around the World*, 61
Dams, 146–149; *see also* Gatun Dam; Wachusetts Dam
Daniels, Josephus, letter to Capt. Philip Andrews, 267
Darien, 5, 16, 57, 75, 97; peaceful condition of, 18; white man excluded from, 30; gold from, 52;

transferred to New Granada, 53; conditions at, 74
Darien, Gulf of, 6, 10, 12, 13, 98
Darien, Isthmus of, 64
Darien Colony, failure of, 97, 98
Darien Indians, 59; subjugated by Balboa, 17
Darien scheme, 63
Darling, Samuel T., biography, 468
Dauchy, Walter E., 468
Dauphine, ship, 44
David, City of, 31
David Lupton's Sons Co., 415
Dávila, Gil Gonzales, biography, 472; converts Indians, 31; discovers Lake Nicaragua, 31; undertakes to discover Spice Islands, 31; goes to Mexico, 32; defeats intruders sent by Pedrarias, 32; death, 32
Davis, Arthur P., 149
Davis, Carleton E., 468; charge of water-supply department, 189
Davis, Gen. George W. 127, 423; biography, 468–469; becomes governor Canal Zone, 122, 127, 196, 197; creates sanitary department, 127
Davis, Capt. John, commands buccaneers, 61
Declaration of Independence, 318
Deeks, W. E., biography, 469
Defense, *see* Fortification
De Lesseps, Ferdinand, *see* Lesseps, Ferdinand de
De Lesseps, tug-boat, 349
Demaquiel River, 98
Democratic platform, 242
Denmark, 78
Denys, John, explorer of Gulf of St. Lawrence, 44
Department of State, 277
Deportation, power given to Goethals, 139
Derrick, C., 469
Desaguadero River, 52
Deshon, George D., biography, 469
Designers of canal, 216–217
Destruction of the Indies, by Las Casas, 38
Detroit Lubricating Co., 400
Detroit Steel Casting Co., 386
Devoe, F. W., & C. T. Raynolds Co., 417
Devol, Carroll A., biography, 469
Dewey, Admiral George, letter to Ira E. Bennett, 255
Dewey, dry dock, 349
Diaz, Juan José, president of Panama, 82
Diaz, Manuel, 79; elected provisional governor of Panama, 80
Diaz, Pedro A., biography, 469
Diaz del Castillo, Bernal, 21, 22
Dickinson, Jacob McGavock, biography, 469
Dickson, Tracy Campbell, biography, 469
Diego, *see* Colon, Diego
Dieppe, expedition to America from, 44
Dimensions, *see* Size
Dingler, M., 195, 196
Diocletian, Emperor, 11
Disbursement office, 215
Disease, 244–245, 247; *see also* Bubonic plague; Cholera; Smallpox; Yellow fever
Dismukes, Douglas E., biography, 469
Distance, saved by canal, 248; between ports, 249
District of Columbia, 114
Dites, ruler of Pearl Islands, 24
Dixie, ship, 196
D. O. A. Terminals, 407
D'Olier, William Livingston, biography, 469
D'Olier Engineering Co., 367
Dolphin, ship, 202
Dominican Republic, first land settled by Europeans, 293; map of, 294; productions, 295
Donahue, John V., biography, 469
Donnelly, E. A., 180
Doying, William Albert Edward, biography, 469–470
Drake, Charles, 45
Drake, E. A., letter from, 400–401
Drake, Sir Francis, 55; biography, 49–50, 470; assists in slave trade, 44; sails for Darien and Cartagena, 45; captures Nombre de Dios; expeditions under, 45–47, 48–50; attacks Cruces, 46; first Englishman to see Pacific Ocean, 46; captures treasures at Nombre de Dios, 47; returns to Plymouth, 47; expedition to the Pacific, 47; expedition to Spanish Western colonies, 48; plans to capture Nombre de Dios, 48; plans to sack Panama, 48; return to Plymouth, 48; knighted by Queen Elizabeth, 48; sacks Santo Domingo, 48; sails into harbor of Cadiz, 48; sails for Roanoke, 48; sails for Florida, 48; takes possession of California, 48; Spanish town destroyed by, 49
Drake, John, 45
Dredges, 182, 362–363
Drills, diamond, 330–331; percussion, 332–334; rock, 329–341; sub-marine, 336–338
Drummond, Capt. Thomas, 66
Du Bois, James T., Minister to Colombia, 113
Ducker Co., 412
Dugan & Hudson Co., 431
Dumfriesshire, 63
Dumping sites, 133
Dunedin, 305
Dunn, D. C., 309
Duquesne, Pierre, 318
Durkee, Rodney S., 311
Duncan, W. M., 427
Du Pont de Nemours Powder Co., 344, 345, 346
Du Pont Repauno plant, 344
Duran, F. Mutis, 470
Durham, H. W., 470
Dutch Harbor, 281
Dutch Zee-roovers, 44
Dutrow, Howard V., biography, 470
Dynamite, quantity used, 142

E

Eagle Screw Co., 427
Earle Gear & Machine Co., 384
Earn-Line Steamship Co., 313–314
Earnshaw, Alfred, 313
Earnshaw, George Edward, 314; biography, 470
Eason, J. J., 470
East India Company, 64, 65
Eastwick, P. G., 301
Eaton, Captain, buccaneer, 61
Economics, 273
Ecuador, 76, 78, 314
Edgar Allen American Manganese Steel Co., 385
Edinburgh, 65
Education, vocational, 275, 276
Edwards, Clarence R., biography, 470

Egyptian pyramids, 330
Ehle, Boyd, 470
Ehrman & Co., 301
Eiffel, M., 103
Eight-hour law, 132
Einstein, James H., biography, 470
El Dorado, 65
El Draque, 45, 48
Electricity in construction and operation of canal, 323–329
Elizabeth, Queen, 49
Ellicott Machine Co., 362
Elliott, Howard, 316
Elliott, Malcolm, 470
Elliott-Fisher Co., 411
El Retrete, 6, 8, 96
Emancipation proclamation, 227
Embree, C. J., 470
Empire, 217; fire and telegraph system, 404
Empire, tug-boat, 349
Encinasola, Pedro de, 36
Enciso, Martin Fernandez de, 10, 11, 12; biography, 470; appointed mayor of Nueva Andalucia, 12; deposed, 13; establishes Antigua, 13; goes to Spain, 15; reports to Spanish king, 17; denounces Balboa and Zamudio, 19; accusations by Balboa against, 27
Endicott, Rear-Admiral Mordecai T., 128, 203; biography, 470; opposes sea-level canal, 132
Engineering Department, aids Gorgas, 212; organization of, 215.
Engineers, International Board of, 218
England, 43, 58, 59, 60, 182, 256, 310; expeditions from, 43; commerce, 44, 49, 71; right to supply slaves to colonies, 52; antagonism against Spain, 69; treaty with Spain, 67, 70, 72; petition of merchants to parliaments, 70; public opinion in 1738, 70; demands on Spain, 72; Spanish treasure brought to, 73; expedition to abolish Spanish rule on isthmus of Panama, 76; alliance with Japan, 269; capital invested abroad, 275
English Channel, 247, 258
Epidemics, *see* Disease
Episcopal See, transferred to Panama, 30
Equipment, received from French Company, 212, 322, 323; Belgium, 322; construction, 365–371; boilers, 366–368; miscellaneous, 393–394; office, 410–411; marine, 418–419; payroll, 421–422; commissary, 425–428; list of firms, etc., supplying, 436–460
Erie, Lake, 315
Erie Railroad, 314, 315, 316; charter, 315
Ernst, Gen. Oswald H., 128, 193, 194, 203; biography, 470
Escoria, 24
Esparza, sacked and burned, 60
Espinosa, Gaspar de, 20, 29; biography, 470; crosses isthmus to Panama, 25; attacks Paris, 125; raids territory of Chirú and Natá, 25; sentences Balboa to death, 27; secures a quantity of maize, 29; founds colony of Natá, 31; defeated by Urracá, 31
Esquemelin, 51
Esquivel, Juan de, governor of Jamaica, 11
Estero Real, 100
Estete, Martin, explores San Juan River, 33, 97
Europe, 247, 248, 256, 260, 266; beet sugar from, 288; colonies of, 269; war in, 272, 276, 277, 302, 310
Everett, F. M., 355
Evora, battle of, 69
Excavated matter, *see* Spoil
Excelsior Tool and Machine Co., 383
Executive order, creating permanent organization for Panama Canal, 516–517
Expeditions, *see* names of countries and personal names
Explosives, 342–347

F

Fabrega, José de, organizes new government of Panama, 77
Fairbanks, Charles Warren, biography, 470–471
Fairbanks, Morse & Co., 394
Fairmont Hotel, 321
Fall River, 317
Falmarc, Captain, surveys Isthmus of Panama, 86, 98
Faucett, N. S., 471
Faure, Ad., 471
Fearon, F. B., 301
Federal Reserve Act, 274
Ferdinand VII., king of Spain, 10, 17, 77; letter of Columbus to, 8; receives pearls from Balboa, 18; listens to stories against Balboa, 19; regrets treatment of Balboa, 21; death, 28
Ferdinand and Juana, 18
Fernandez de Oviedo y Valdes, Gonzalo, 20, 27, 293; complaints against Balboa, 26; reports adverse to Pedrarias, 28; left by Pedrarias to rule Antigua, 30; reforms Antigua, 30; deposed by Pedrarias, 30; accompanies Diego Colon to Seville, 32; complains of Pedrarias 32; sails for Cuba, 32; sails to Hispaniola, 32
Fernandino, 202
Feuille, Frank, biography, 471
Fields, J. B., 471
Fiji Islands, 248
Fillmore, Millard, President, 100
Filós, Dr. Francisco, 300; biography, 471
Fine Arts Commission, 238
Finley, George I., 471
Fire alarm and signal systems, 404–406
Flamenco Island, 172
Flanders, 64
Flint, A. L., 471
Florida, 96, 202, 318; Huguenots settle in, 44; Drake sails for, 48; ports, 306
Florida East Coast Railroad, 374, 378
Flynn, J. H., biography, 471
Foard, Joseph R., 313
Fogs, navigation suspended by, 281, 282
Fonseca, Chiriqui, 54; founded by Hurtado, 31
Fonseca, Gulf of, 31, 53, 54, 99, 100
Food supplies, 206, 207, 214, 428–431
Footwear, 431–433
Forbes, S. G., biography, 471
Foreign-built ships, act to provide for admission of, 515
Foreign shipping, 243
Forsyth, J., 301
Fortifications, 243
Fortifications, Portland cement used in, 374

Forts, *see* names
Foster, A. W., 311
Foster, M. E., 309
France, 78, 297, 310; expedition to Brazil from, 44; navy strength, 269; foreign commerce, 273
Franciscan friars, 20
Franco-Prussian War, 100
Frank, L. F., & Co., 430
Frederick, E. P., 351, 352
Freeman, F. C., biography, 471
Freeman, John R., 149
Freight rates, *see* Toll rates
French, H. F., 471
French Panama Canal Company, 193, 194, 226, 250
French pirates, 44
Fuel, *see* Pocahontas coal
Fulvia, 17
Fumigation, 246
Fyffe, James Perry, biography, 471

G

Gaillard, David Du Bose, biography, 471; commissioner, 134; work on Culebra Cut, 158
Galena, ship, 85
Galindo, Vicente Olarte, president of Panama, 82; death, 82
Gallego, ship, 8
Galvao, Antonio, Portuguese navigator, 97; proposes routes for canal, 97
Galveston, 180, 378
Gama, Antonio de la, governor of Castilla del Oro, 35, 97; makes Chagres River navigable, 97
Gamboa, Ramon, 79
Gamboa, 94, 179; cable connection established with White House, 180
Gamboa, dredge, 182
Gamboa Dam, 193
Gamboa dike, blowing up of, 180
Gamewell Fire Alarm Telegraph Co., 404, 405
Ganges River, 245
Garavito, Andrés, 37; plans ruin of Balboa, 26
Garcia, Luis, commissioned to subdue French filibusters, 62; traitor to Spain, 62; death of, 62
Garcia de Hermosillo, Juan, report advocating port in Honduras, 54
Garella, Napoleon, 86, 471; recommends canal, 86; surveys for canal route, 99
Garlington, Creswell, biography, 471
Garrison, Lindley Miller, biography, 471; secretary of war, 181
Gasca, Pedro de la, sent to Peru to quell revolt, 40; gold sent to Cruces, 41
Gates, movement of, 151; equipment for, 379–385
Gatun, 89, 114, 116, 154, 173, 179, 180, 217, 372; gates of, 116; spillway, 148, 158, 381, 384; concrete work, 157; emergency dam at, 382; hydroelectric station, 384; concrete works, 389; fire and telegraph system, 404
Gatun Dam, 93, 94, 119, 161, 181, 192, 206; exploration, 193; strength, 149; machinery and tools for, 384
Gatun Lake, 94, 95, 147, 150, 180, 181
Gatun Locks, 372, 384; concrete in, 375–376
Gatun, tug-boat, 180, 349
Gause, Frank A., biography, 471–472
Geddes, Albert H., 180
General Electric Co., 329
General Petroleum Co., 304
Geographical Sciences, Congress of, 102
George I., understanding with Charles VI., 69
George II., 70, 417
Gerig, William, 217, 472
Germany, 286, 297, 310, 315; naval strength, 269; foreign commerce, 271, 272, 273, 277
Gettysburg, 318
Gibralta, 58
Gibraltar, Strait of, 247
Gibson, Collins P., 472
Gillespie, D. L., Co., 416
Gilmore, Maurice E., biography, 472
Gisborne, Lionel, 100
Goethals, George R., biography, 472
Goethals, George Washington, 118, 119, 169, 181; biography, 472; chief engineer of railroad, 93, 94; commends sanitary work in Panama, 123; chief engineer of canal, 133; continues plans of predecessor, 133; investigates type of canal, 136; begins excavation work, 136; directs details, 137; adjusts grievances, 138; controls labor strikes, 162, 163, 164; appointed governor of Panama canal, 181, 185; promotion, 186; institutes cost-keeping system, 156–159; praised by Shonts, 208, 209; work commended by Stevens, 223; construction of canal, 254
Goitia, Pedro, president of Panama, 81
Gold Hill, 94, 142
Gold Medal Camp Furniture Manufacturing Co., 416
Golden-Anderson Valve Specialty Co., 392
Golden Castile, *see* Castilla del Oro
Golden Gate, 281, 282, 310
Golden Hind, ship, 48
Golden Island, 59, 65
Golden Temple of Dabaiba, 16, 23
Goldmark, Henry, biography, 472
Goldschmidt Thermit process, 407
Gomez, Estevan, 96
Gonima, General, 83, 84, 85
Gonzales, *see* Dávila
Good Hope, Cape, 48, 248; trade route, 249
Goodrich, Admiral, 196
Goodwin Car Co., 362
Goolsby, E. M., 472
Gorgas, Col. William Crawford, 122, 189, 195; biography, 472; experiments with yellow fever, 122; acting governor Canal Zone, 122; master of tropical sanitation, 122, 123; drafts plans for sanitation, 127; commissioner, 135; promotion, 186; services as sanitation officer, 203; sanitation work praised by Roosevelt, 205; triumph of science over disease due to, 206; director of Sanitary Department, 212
Gorgona, 217; fire and telegraph system 404
Gorham Manufacturing Co., 427
Gourgues, Captain de, 44
Governor of the canal, duties, 239
Grace, W. R., & Co., 314
Gracias Á Dios, Cape, 8, 10, 33, 53, 62
Granada, 37, 40, 61
Grant, Ulysses S., President, 101, 174
Great Britain, 78, 174, 256, 259, 300; plans attack on Nicaragua, 98; foreign commerce, 271, 272, 273; objects to certain treaties, 100; treaties

with the United States, 490–494; *see also* England
Great Northern Railway, 203
Greek labor, 206
Green, H. T. S., 301
Greene, Civil Service Commissioner, 199
Greenlee Bros. & Co., 408
Greenslade, George A., 472
Grey, Sir Edward, 242
Greytown, 101, 104
Grogniet, Captain, 61, 62
Grove, William R., 472
Grunsky, Carl Ewald, 127; biography, 472–473
Gruver, Dr. F., 473
Guam, 257, 258, 270
Guanaja, 7, 8
Guanaja Islands, 96
Guanin, trade in, 5
Guantanamo, 202, 258, 263; importance of, 261, 270; necessity of naval base at, 261
Guardia, Aurelio, biography, 473
Guardia, Santiago de la, 79; death of, 80
Guarocuya, Indian chief, 294
Guatemala, 31, 38, 53
Guayaquil, 248
Gudger, Hezekiah Alexander, biography, 473
Guerra, Cristobal, member of expedition under Niño, 5; second voyage, 6
Guerrero, Gonzalo, 16
Guimba, 8
Gulf, Beaumont, and Texas Railway, 309
Guns, 172
Guthrie, M. C., 473
Gutierrez, Diego, 37
Gutierrez, Felipe, 36
Guzman, Capt. Antonio Tello de, detailed to erect line of forts, 23, 29; discovered original village of Panama, 29
Guzman, Hernando Mejía de, 39, 40

H

Haakon VII, ship, 415
Hagan, James Monroe, biography, 473
Hagerstown, Md., 318
Hahl, C. W., 309
Haines, A. L., biography, 473
Hains, Gen. Peter C., 128, 193, 194, 203; biography, 473
Hale, Eugene, Senator, 202
Hale, R. B., 311
Halifax, 291
Hamburg, 63
Hamburg-American Steamship line, 273
Hamilton, Alexander, establishment of New Edinburgh, 66
Hammer, J., biography, 473
Hammock, derivation of, 417
Hammond, John Hays, biography, 473; Our Foreign Commerce, 271–277
Hampstead Water Co., 63
Hanna, Marcus A., Senator, 115; biography, 473; supports Panama route, 108
Harding, Chester, biography, 473
Harmon, Daniel W., biography, 473
Harper, A. C., 473
Harpers Ferry, 318
Harriman, E. H., 203
Harris, William B., biography, 473
Harris, William B., Co., 427
Harris County Navigation District, 307
Harrod, Benjamin Morgan, 127, 128, 203; biography, 473; removed from Isthmian Canal Commission, 193
Hartigan, Fred L., 473
Hatillo, 82
Haupt, Lewis Muhlenberg, 108; biography, 473–474
Havana, 76, 122, 313; settlements burned in, 44
Havre de Grace, 317
Hawaii, 181, 248, 270; tidal variation, 281; volcanoes, 283; description, 284, 285; immigration, tourist resort, 285; sugar industry, 285–290; annexation, reciprocity treaty, 286; effect of tariff on sugar, 287–290; concrete job in, 378; conditions, 383
Hawaiian Islands, 257, 285
Hawkins, Sir John, biography, 474; slave trade, 44–45; helps defeat the Invincible Armada, 45; death, 49
Hay, John, 109, 110; biography, 474; treaty negotiations, 104
Hay-Bunau-Varilla Treaty, 112, 113, 227, 235, 300, 501–505
Hay-Concha agreement, 109, 494–495
Hay-Herran Treaty, 110, 111, 227, 228, 495–501
Hay-Pauncefote Treaty, 226, 227, 232, 233, 238, 242, 256, 261, 264, 491–494; ratification, 105, 107; ambiguous language, 174
Hayes, H. S., 180
Hazard Manufacturing Co., 353
Hazen, Allen, 149
Health, International, 246–247
Hebard, R. W., 474
Hecker, Frank Joseph, 127; biography, 474
Helena, Mont., dam at, 378
Heller, Charles W., 397; biography, 474
Heller & Brightly, 397
Hellman, I. W., Jr., 311
Helmer, J. H., 474
Henderson, Peter & Co., 418
Henry VII., 43
Henry VIII., 44
Hepburn, William Peters, 232, 241; biography, 474; favors Nicaragua route, 106
Hepburn bill, 107
Heredia, Pedro de, founds city of Cartagena, 35
Heroine, ship, 84
Herran, Tomás, 111
Herrick, Alfred B., biography, 474
Hill Clutch Co., 379
Hilo, 282
Hindostan, 90
Hinman, H. D., 474
Hinojosa, Pedro de, invades Panama, 39, 40
Hise, Elijah, biography, 474
Hispaniola, 6, 8, 9, 10, 11, 12, 13, 38; Spaniards given permission to settle in, 5; Drake's expedition to, 48
Hitner's Sons Co., Henry A., 393
Hitt, Samuel M., 474
Hodges, Harry Foote, 134; biography, 474
Hoffman, George M., biography, 474
Hoge, W. V., Jr., 381
Hohlfeld, Herman L., biography, 474–475

Lucas, John, & Co., 417
Ludowici-Celadon Co., 418
Lumbermans National Bank, 309
Lupton, David D., 415
Lupton, Edward, 415
Lussan, Raveneau de, *Journal d'un Voyage*, 62
Lynch, Robert Newton, 303
Lyster, Theodore C., biography, 477

M

McAlpin Hotel, 320
MacArthur, Arthur Frederic, biography, 477; The Proposal to Complete the Canal by Contractors' Groups, 250–254
MacArthur-Gillespie group of contractors, 251–254
MacArthur Brothers Co., 251
Macbeth-Evans Co., 404
McClintic-Marshall Construction Co., 137, 380
MacDonald, Donald Francis, biography, 477
MacDowall, Capt. Patrick, 67
Macfarlane, James, biography, 477
MacGregor, Gregor, 76
MacGregor, H. T., 310
Machine shop operations, 387
Machinery, oiling of the, 397–400
Machinery and tools, 384–385
Machuca, Diego, arrest of, 37
McIlvaine, Cloyd A., biography, 477
McKay, Gordon, 432
Mackenzie, Gen. Alexander, 134
McKinley, William, President, 104, 105; biography, 477; assassination of, 107
McLean, John H., 477
Macondray & Co., 304
Madeira, 65
Madrid, treaties of, 59, 70, 73
Maduro, Henry L., biography, 477
Maduro, Joshua L., biography, 477
Magdalena River, 35
Magellan, Straits of, 198, 248, 249, 255, 258, 262, 291, 313, 419; discovery, 96
Magellan trade route, 248, 249, 263
Magoon, Charles E., 128, 203; biography, 477; supports Gorgas, 122; strict orders for sanitation, 123; governor of Canal Zone, 193
Mahan, Admiral, 265
Mahana, George S., 431
Maine, 306
Maine, ship, 350
Malarial mosquito, 122, 189, 190
Mallet, Sir Claude, British Consul, 196
Maltby, F. B., 216
Managua, Lake, 100
Manchuria, 286
Manchuria, ship, 314
Manhattan Rubber Co., 393
Manila, 248, 251, 258, 262, 314
Mann, C. H., 477
Mann, Isaac T., 401
Mann, James R., 241
Mansvelt, biography, 477; buccaneer, 57
Manzanillo, motor boat, 419
Manzanillo Island, 88
Maracaibo, 58
Maritime Canal Co., 193, 194; chartered by United States, 104; organization of, 104
Mar Dulce, 31
Marengo, 294
Mare Island, Navy Yard, 261, 262, 269
Margaret of Dundee, ship, 67
Margarita Island, 116; guns mounted at, 172, 173; forts on, 174
Marine equipment, 418–419
Mariner, ship, 181, 349
Markell, J. E., 132
Marks, A. A., 425
Marks, David, 477
Marmora, 9
Marquez, Diego, 20
Marroquin, Vice-President of Colombia, 111
Martha Washington Hotel, 321
Martinique (Martinio), 7, 124
Martinsburg, 318
Maryland Heights, 318
Mason, Charles Field, biography, 477
Massachusetts, 283
Mauna Loa, 285
Maxim, Sir Hiram Stevens, biography, 477–478; The British Empire and The Panama Canal, 291–292
May, William Howard, biography, 478
Mayabanez, Indian chief, 294
Mears, Frederick, biography, 478
Mediterranean Sea, 247, 285, 312
Melbourne, 305
Mendoza, Carlos A., 300; biography, 478
Menendez, Pedro, wipes out Huguenots, 44; governor of Porto Bello, 56; surrenders to Capt. William Parker, 56
Menocal, Lieut., surveys Nicaraguan territory, 104
Merchant marine, 241, 263, 264, 274
Metcalf, E. D., 355
Metcalf, E. F., 355
Metcalf, H. G., 355
Metcalfe, Richard L., biography, 478
Meteorology and River Hydraulics Division, 216
Mexican Coast, 61, 280
Mexico, 8, 16, 38, 53, 61, 87, 260, 300; Cortés sends troops to, 32; suffers from buccaneers, 62; treasures, 70; moves for independence, 75; commerce, 276
Mexico, Gulf of, 248, 307, 319
Meyer, Adolph, 202
Meyer, George von L., Secretary of Navy, 256
Michler, Lieut. Nathaniel, 101
Milla, Manuel, makes survey for canal, 98
Millard, Joseph Hopkins, biography, 478
Miller, Jacob, Sons & Co., 433
Miller, R. C., 309
Mindanao, 61
Minion, ship, 45, 46
Minot, Charles, 315
Miraflores, 93, 157, 158, 372, 373; locks, 117, 137, 179, 180, 382, 384; dams, 149; concrete work at, 389
Miraflores Lake, 117, 119; spillway gates at, 381
Miraflores, tug-boat, 349
Miro, Gregorio, president of Panama, 82
Mississippi River, 318
Missouri River, 87
Mollendo, 297
Moltke, ship, 312
Moluccas, *see* Spice Islands

Mongolia, ship, 314
Monniche, T. B., biography, 478
Monocacy, 318
Monotype machine, 409
Monroe Doctrine, 256, 257, 261, 267, 269, 277
Montalvo, Francisco, 76
Montbar, Pierre le Grand, buccaneer, 56
Monterey, 306, 321
Montoya, M., 85
Montreal, naming of, 44
Moore, Charles C., 311
Moore, F. H., 478
Moore, J. Hampton, biography, 478; Panama Canal Legislation, 231–243
Morales, Eusebio A., 300; biography, 478
Morales, Gaspar de, expedition to Pacific Coast, 24; wages war on Dites, 24; retakes possession of the South Sea, 24; changes name of island, 24; returns to Antigua, 24
Moran Towing and Transportation Co., 418
Morant Keys, 7
Morazan, Francisco, president Central American Federation, 99
Morden Frog & Crossing Works, 407
Morgan, Sir Henry, buccaneer, 51, 57, 72; destroys castle of Triana, 57; sold as a slave, 57; sack of Panama City, 58; appointed deputy governor of Jamaica, 59; biography, 478
Morgan, J. P., & Co., 113
Morgan, John T., Senator, biography, 478; champions Nicaragua, 106; opposes canal commissioners' recommendations, 108; opposes Hay-Herran Treaty, 111
Morillo, Pablo, Mariscal de Campo, commands Spain's fleet, 76
Morocco, 7
Morris Machine Works, 363, 364
Morris, Philip, & Co., Ltd., 421
Morris, R. K., 478
Morse-Boulger Destructor Co., 424
Morton, Paul, 202
Mosaic Tile Co., 384
Moscow, 315
Mosquera, 79
Mosquito Coast, 100
Mosquitoes, 122, 123, 189, 245, 246; *see also* Malarial Mosquito; Yellow Fever Mosquito
Motsett, C. H., 478
Mourgeon, Juan de la Cruz, 77
Municipal Engineering Division, 216
Munn, W. C., 309
Muñoz, Hernan, death, 27
Myers, F. E., & Bro., 423

N

Najallo, 294
Naos Island, 118, 172, 173; breakwater, 143, 144, 178
Naples, expedition abandoned by Ferdinand, 20
Napoleon, Louis, emperor of France, 99, 100, 294
Narragansett Bay, 306
Nashville, gunboat, 112, 229
Natá, 24, 32, 41, 75; raided by Espinosa, 25; colony founded by Espinosa, 31
Natal, 247
National Board of Fire Underwriters, 406
National Cash Register Co., 421
National City Bank of New York, 274
National Fire Proofing Co., 412, 414
National Malleable Castings Co., 389
Natural and Moral History of the Indies, by Josephus Acosta, 120
Naval Academy, 384
Naval base, *see* Bremerton, Mare Island, New Orleans, Pearl Harbor, Pensacola, San Francisco Bay
Navy, effect of Panama Canal on, 255–265
Navy Department, 261, 265
Negroes, imported from Portuguese settlements, 52; Spanish colonies supplied with, 52
Neira, Gabriel, president of Panama, 82
Nelson, Horatio, biography, 478; arrives at Panama, 98
Nemacolin Path, 318
Neumeyer & Dimond, 419
New Albion, *see* California
New Andalusia, 10, 20
New Bedford, 317
New Edinburgh, 98; colony founded and deserted, 65, 66, 67
New England, 316; orders to the governors of, 65
New Granada (Colombia), 53, 54, 75, 76, 78, 88, 89, 98; mails from, 91; treaty with the United States, 87, 227, 489
New Haven, 203
New Haven System, The, 317
New Home Sewing Machine Co., 422
New Jersey, 305, 313, 315
New London, 317
New Orleans, 87, 93, 248, 249, 255, 311, 318; naval station, 261; port, 306
New Panama Canal Company, 91, 104, 126, 127; refuses to sell property, 106; desires price fixed by arbitration or valuation, 107; negotiates with the United States, 107; titles defended by Cromwell, 108; investigation of titles, 110; transfer of property, 113
New Rice Hotel, 309
New River coal, 400, 401
New Spain, *see* Mexico
New Testament, 67
New Voyage and Description of the Isthmus of America, by Lionel Wafer, 61
New Voyage Around the World, A, by William Dampier, 61
New World, possibilities of, 5
New York (state), 66, 85, 92, 247, 248; orders to governor of, 65; legislature, 88
New York (City), 197, 198, 255, 260, 262, 292, 315, 317, 318, 319, 320; steamships from, 87, 93; Wallace goes to, 129; traffic, 199; canal shortens distances to, 268; exports, 271; National City Bank, 274; greatest seaport, 291; canal routes to, 302; transatlantic steamers to, 313
New York and Erie Railroad, 315
New York, New Haven & Hartford Lines, 316, 317
New York Shipbuilding Co., 305
New Zealand, 291, 305; commerce, 248
Newfoundland, 44, 96
Newport News, 93, 314, 319
Newport News Shipbuilding and Dry Dock Co., 305
Nicaragua, 8, 31, 38, 39, 260; bishop of, 35; rebellion, 40; efforts to interest France in canal

route, 99; proposed treaty, 99, 100; canal bill passed by House, 106; pressure on United States for canal route, 111
Nicaragua Canal route, 193, 226; selected by United States, 104–105, 106; Colombia protests, 106; opposition of Cromwell, 106; recommended by commission, 107; cost, 194
Nicaragua Lake, 40, 98, 100, 101; canal proposed through, 97
Nichols, A. B., 478
Nicholson, Samuel M., 408
Nicobar Islands, 61
Nicuesa, Diego de, biography, 478–479; governor of Castilla del Oro, 10, 11; invited to Antigua, 13; places Olano in chains, 14; driven from Antigua, 14; sails to Porto Bello, 14; garrison at Nombre de Dios, 15; accusations of Balboa against, 27
Nile River, 120
Niles-Bement-Pond Co., 387
Niña, ship, 6
Niño, Andrés, attempt to discover Spice Islands, 31; searches for waterway, 96
Niño, Pedro Alonso, biography, 479; accompanies Columbus, 5; second expedition under, 5; reaches South American coast, 5; returns to Spain, 5; cast into prison, 5–6
Nixon, Courtland, biography, 479
Noble, Alfred, biography, 479
Noble, Robert E., biography, 479
Nollman & Co., 430
Nombre de Dios, 6, 7, 32, 33, 36, 38, 39, 46, 48 52, 53, 86, 96, 97, 120, 154, 158; founding, 14; terminus of trans-isthmian trade, 29; attacked and captured by Drake, 45, 46–47, 48, 49; abandonment recommended, 54; route from Panama to, 54; disappearance of, 54; settlement moved to Porto Bello, 55
Norfolk, 93, 314, 318
Norfolk & Western System, 318
North America, 51, 88, 266; Cabots sight continent, 43; British colonies, 72
North Atlantic trade route, 247
North Carolina, 319
North German Lloyd steamship line, 273
North Sea, 41, 60
Northern Pacific & Great Northern system, 319
Norway, 286
Nueva Andalucía, *see* New Andalusia
Nuevo Cartago, 37
Nugent, William W., & Co., 400
Nuñez, Rafael, 83
Nutting, Daniel C., biography, 479
Nye Steam Pump & Machinery Co., 365

O

Oahu, Island of, 283
Obaldia, José Domingo de, 79; biography, 479
Obarrio, Nicanor A., biography, 479
Ocean commerce, changes, 249
Ocean trade routes, 247
Ogle, Sir Chaloner, expedition under, 70; joined by Vernon's forces, 72
O'Gorman, James A., Senator, 241; biography, 479
Ohio, 302, 315, 318, 319
Oil, 366–367
Ojeda, Alonso de, 44, 120, 293; biography, 479; accompanies Columbus, 5; expedition under, 5; first to sight Panama, 5; Indian slaves property of, 5; returns to Spain, 5; sails from Santa Maria, 5; reaches South America, 5; governor of Nueva Andalucía, 10, 11; founder of San Sebastian, 11; placed in chains, 11; kindness of Esquivel to, 12; death, 12; separates from Nicuesa, 13
Olano, Lope de, 13
Oliver, Jack, 78
Oliver Iron & Steel Co., 388
Olympic, ship, 118
Open Door in the Far East, 256
Oram, H. P., 479
Oregon, 203; boundary dispute, 87; mail steamships from, 87
Oregon, ship, 105, 231
Oregon Railway & Navigation Co., 203
Oregon Society of Engineers, 204
Orsted, recommends route for canal, 100
Ortega, Jerardo, president of Panama, 83
Ortega, Juan de, pursues Oxenham, 47
Oruro, 296
Osborne, T. M., 355
Osorio, Diego Álvarez, first bishop of Nicaragua, 35; precentor of Panama cathedral, 35
Otis Elevator Co., 382
Otoque, 60
Ovando, Don Nicolás de, 10, 37; supersedes Bobadilla, 6
Oviedo y Valdes, Gonzalo Fernandez de, *see* Fernandez de Oviedo y Valdes
Owen, Wesley M., biography, 479
Oxenham, John, 46; accompanies Sir Francis Drake, 45; expedition under, 47–48; death of, 48

P

Pacific Coast, 17, 59, 87, 96, 97, 101, 260, 261, 263, 264, 267, 276, 278, 291, 302, 303, 304, 305, 319; expedition to, 24; navy-yards on, 269, 270; commerce, 302–306
Pacific Coast States, 321
Pacific Mail Steamship Co., 85, 280, 282, 314
Pacific Ocean, 61, 64, 96, 100, 114, 117, 118, 256, 257, 267, 268, 276; fogs, 281; discovery of, 300
Pacific reserve fleet, 270
Pacific slope, locks on, 193
Pacific Steam Navigation Co., 91, 312, 313
Pacific trade routes, 248
Pain Fireworks Display Co., 420, 421
Paish, Sir George, 273
Palisades, 372
Palmer, Aaron H., 479
Palos, 5, 6
Pamiento, Don Juan, 67
Pamplona, 53
Panama (Republic), 91, 196, 228, 298–301; independence declared, 53, 220; Audiencia Real y Chancelleria established, 53; treaties, 81; presidents, 81, 82, 83, 84; troops landed in, 82; mail steamships to, 87; United States takes possession of French property, 126, 127; ship channel, 127; recognition of, 225; financial stability, 298; mountains, 298; schools and

industries, 298, 299; National Assembly, 299; Supreme Court, 300; president, 300; factors in business, 301; tourist travel, 311; treaties with the United States, 501–505; *see also* Tierra Firme.
Panama (City), 88, 97, 101, 102, 103, 104, 123, 195, 196, 260; original fishing village, 29; Pedrarias founds town, 29; made a city, 30; expedition from, 30; Gasca arrives at, 41; plaza at, 42; Drake plans to sack, 48; location, 51; population, 51; growth and prosperity, 51; decline of, 51; abandonment recommended, 54; sack of, 58; rebuilding of, 59; shipment of gold to, 60; annual fair, 71; conditions at, 74; insurrection in, 84; center of trade, 86; improvements, 131, 205; street paving, 189; society, 196, 197; sanitation, 298
Panama, Gulf of, 18, 299
Panama, Isthmus of, 8, 9, 38, 57, 63, 98, 226, 250, 304; Ojéda first to sight, 5; discoverer of, 6; Columbus discovers parts of, 8; significance of name, 23; forts established across, 25, 29; slave-mart on, 33; Royal Audiencia established, 35; growth of, 35; Tomás de Berlanga, bishop of, 35; La Merced Convent on, 35; Pizarro tries to seize, 38, 39; invasion of, 39; peace restored, 42; governor punishes marauders, 47; commerce, 51–52; provinces of, 53; Audiencia, 53; route to Nombre de Dios, 54; blockade of, 60; governor of, 62; decision to expel Scotch settlers, 65; treasurer of, 70; attacks on, 72; decline of cities on, 74; Darien, buffer state for, 74; permanent military force established, 75; England seeks to abolish Spanish rule, 76; English defeated by Spanish forces, 76; constitution, 77; granted the right of suffrage, 77; passes from dominion of Spain, 77; annexation to Colombia, 77, 80; guard established, 78; unfavorable conditions in, 78, 79; assumes title of sovereign state, 80; disturbances in, 83; survey of, 86; canal completed, 87; explored for waterway, 96; independence proclaimed, 112; republic recognized by United States, 112; revolution in, 112; death rate in, 121; sanitation, 121–125; sewerage system, 189; water supply, 189; civil-service rules, 199, 200; building on, 207; revolutions, 227–229
Panama Banking Co., 301
Panama Bay, names of forts at, 60, 62, 91, 144, 174
Panama Canal, 91, 285, 291, 312; laborers, health of, 103; extravagance of officials, 103–104; construction of, 110; transfer to United States, 113; description, 114–120; lock and sea-level types, 132; gates, 150, 151, 152; locks, description of, 150–155; water tunnels, 150, 151; labor employed, 160–164; laborers, quartering and feeding, 165–168; defenses, 172–174; terminal facilities, 175–178; construction of piers, 177; operation of, 179–182, 237; first vessel to pass through, 181; Goethals, first governor of, 181, 185; government, 181, 183–186, 237; requirements for chief engineer, 187, 188; yellow fever prevents work on, 195; organizers of work on, 203; three fundamental problems, 205; acquisition and building free from scandal, 225; payment for, 235; completion and opening of, 237, 243, 270, 316, 317; a sieve to sift out disease, 246; plan of contractors' groups, 251; effect on navy, 255–265; routes shortened and effect on trade, 255, 262, 264, 268, 276, 302, 303, 304; control of, 256; fuel transportation, 263; neutrality, 269; ship subsidies, 274; transportation, effect on, 302, 303, 304; laws relative to, 507–517; toll rates proclamation, 515–516; permanent organization for, 516–517
Panama Canal Act, 237, 241, 314, 509–515
Panama Canal Commission, authority changed, 160, 161; instructions received from President Roosevelt, 188
Panama Canal Company, 104; *see also* New Panama Canal Company.
Panama Canal route, 193; commission to study, 106; adversely reported, 107; cost, 194; economy of, 263
Panama Cathedral, 35
Panama-Pacific International Exposition, 243, 300, 310, 311
Panama Railroad, 82, 95, 98, 102, 203, 214–215, 313; charter, 88, 127; emigrants transported, 89; completion of, 90; president, 90; controlled by United States, 91; dividends, 91; loses California trade, 91; bought by United States, 92; rates, 93, 198, 199; improvement of, 93–95; transfer to United States, 113; reorganization, 128; control of, 197, 198; vice-president, 198; essential to construction of canal, 204; reconstruction, 207, 208; superintendent, 215; submergence of right of way, 408; new station, 412
Panama steamship line, 93, 419
Panama trade route, 249
Pan-American Defensive Alliance, 277
Pan-American Supreme Court, 277
Panamomé, 24
Panciaco, son of Comagre, 16; aids Pocorosa, 23
Paraiso, 94, 217
Paraiso, dredge, 182
Paria, Gulf of, 6, 7
Parizao Pariba, 24
Paris, cacique, 29, 62; attacks Spaniards, 24; escapes Espinosa, 25
Paris, Congress of Geographical Sciences, held at, 102
Parker, Charles Libermann, biography, 479
Parker, Capt. William, trades with natives of Darien, 44; burns Triana, 56; sails from Plymouth, 56
Parsons, William Barclay, 127, 188; biography, 479; letter to J. F. Wallace, 187
Pasamonte, treasurer at Santo Domingo, 15; commissions Balboa captain-general of the colony, 17; receives embassy from Balboa, 17
Pasco, Samuel, biography, 479
Pasha, ship, 45
Paterson, William, biography, 479–480; author of the Darien scheme, 63; goes to America, 63; founder of the Bank of England, 64; helps to found New Edinburgh, 65; member of Parliament, 68; rewarded by Queen Anne, 68; proposes construction of canal, 98, 100
Pauncefote, Sir Julian, 105; biography, 480
Pay roll equipment, 421–422
Payne, Sereno E., commends Stevens' work, 224

Pearl Harbor, 270; naval base, 261, 262
Pearl Islands, 18, 24, 26, 27, 29, 39, 47, 60, 299; attacked by buccaneers, 62; English cruise along coast, 44
Pearls, trade in, 5
Pedrarias Dávila, *see* Ávila, Pedro Arias de
Pedro, chief of Cimarrones, 46
Pedro Miguel, 94, 117, 119, 149, 157, 158, 173, 179, 217, 372, 373; locks, 180, 181, 216, 384; emergency dam, 382; concrete works, 389
Penberthy Injector Co., 368
Penn, Admiral William, takes Jamaica, 69; English expedition under, 294
Pennsylvania, 315, 318
Pennsylvania Canal, 347
Pennsylvania Flexible Metallic Tubing Co., 393
Pennsylvania Railroad, 94
Pennsylvania Steel Co., 313, 391
Pensacola, naval station, 261
Pepperman, W. Leon, 203; biography, 480
Perez, Benito, viceroy of New Granada, 76
Perez, Rodrigo, 26
Perico Island, 172
Perkins Hotel, 321
Perry, James Clifford, biography, 480
Peru, 16, 19, 21, 30, 33, 35, 45, 54, 78, 291, 297, 314; riches of, 18; revolt in, 39, 40; Tierra Firme under viceroy of, 53; treasures, 70; depredations on, 72
Petroleum products, 402
Peynado, Francisco J., biography, 480; The Dominican Republic and the Panama Canal, 293–295
Pheasant, Port, 45
Philadelphia, 89, 255, 270, 314, 317, 319
Philip II., 70; forbids construction of canal, 97
Philip III., 97
Philip IV., 51
Philip V., 62
Philippi, 318
Philippine Islands, 48, 51, 61, 125, 248, 257, 262, 270, 300; trade with Panama, 52; concrete job in, 378
Phillips, Capt. John L., 419; biography, 480
Phinotas Chemical Co., 423
Pierce, Claude Connor, biography, 480
Pike, Robert, 46
Pines, Isle of, 45
Pintsch compressed gas, 315
Pinzon, Martin Alonso, biography, 480
Pinzon, Vicente Yañez, 96; biography, 480; expedition under, 6; sails from Palos, 6; crosses equator, 6; reaches coast of Brazil, 6; returns to Palos, 6
Pisa, Alonso de, brings supplies to Costa Rica, 37
Pittsburgh Forge and Iron Co., 392
Pittsburgh Steel Co., 388
Pizarro, Francisco de, 293; biography, 480; conquers Peru, 10, 11; leads expedition, 23; expedition to Pacific Coast, 24; arrests Balboa, 27; defeated by Urraca, 31
Pizarro, Gonzalo, 36; defeats Vela, 38; desires to conquer Tierra Firme, 38, 39; sends force to seize Panama, 39; controls highway to Peru, 39; victories at Anaquito, 40; death of, 40
Plague, 245, 247, 248
Plate River, *see* Rio de la Plata.
Plenty, Port, 45
Plymouth, Drake sails from, 48
Plymouth Harbor, 48
Pocahontas coal, 400–402
Pocahontas Consolidated Collieries, 401
Pocahontas Fuel Co., 401
Pocorosa, chief, 22, 24; attacks Santa Cruz, 23; subjects punished, 25
Police, 189, 220
Polk, James K., President, 99
Polson, Major, expedition from Great Britain, 98
Ponca, 15
Ponce, Gen. Fernando, president of Panama, 82; leads negroes in revolt, 82
Ponce de Leon, Hernando, 29, 293; defends post at Panama, 25
Porque, ruler of Quarequá, 17
Porras, Belisario, biography, 480; president of Panama Republic, 300
Porras, Pedro Ruiz de, succeeds to military command, 77
Port Brito, 100
Port improvements, 306–310
Port Royal, Jamaica, 59
Porter, Ambassador, 113
Portland, 248, 306, 314
Portland cement, *see* Cement and concrete.
Portland hotel, 321
Porto, Gen. Eloi, 83
Porto Bello, 6, 49, 52, 55, 56, 57, 75, 86, 87, 154, 178; Columbus reaches, 8; Columbus arrives at, 9; advantages of, 54; prey to pirates, 59; blockade of, 70; expedition to, 71; attacked by English, 76; stone plant at, 372; concrete job in, 378; crushing plant at, 379
Porto Bello, tug-boat, 349
Porto Rico, 257, 261, 286; trade with English vessels, 44; sanitation, 122
Portugal, 78, 96, 286; cession of Brazil to, 6; claims Brazil, 43
Portuguese Islands, 286
Portuguez, Bartolomé, buccaneer, 56
Post, William, 417
Potosí, 296
Power distribution, 324–326
Prescott, H. G., 197
Press, disloyal attitude, 214
Pressed Steel Car Co., 360, 361
President, control of commission authorized, 235
Presidio, military reservation, 310
Preston, Pedro, 84; threatens Americans in Colon, 85; leads rebellion in Colon, 85; hanging of, 85
Price, William Jennings, biography, 480
Prince George Hotel, 320, 321
Prinz, ship, 312
Proclamations, royal, permitting settlement in Hispaniola, 5; Panama Canal toll rates, 515–516
Providence, 306, 307, 319
Puente, Alonso de la, 20
Puerto Bono, 9
Puerto de Caballos, 54
Puerto Principe, Cuba, 57
Puget Sound, 248, 260, 263, 280, 303
Pumps, 363–365
Punta de Higuera, 42
Punta Manzanillo, 29
Punta Mosquito, 9

Purchas His Pilgrimes, extract from, 120
Purchasing and Supply Department, 215
Pyramid of Menkaura, 330

Q

Qualquojou, Camilo, biography, 480–481
Quantity, of cubic yards of earth removed by French Company, 103; by Americans, 136, 140-145; of materials in Gatun dam, 146; of materials in slides, 179, 182; of material in locks, 154; of water handled by culverts, 147; of flood water of Chagres River, 147
Quarantine, problems, 244–249; regulations, 246
Quarequa, 17
Quarrier, H., 381
Queen's Gardens, 7
Quevedo, Juan de, bishop, 20, 21, 27; intervenes between Balboa and Pedrarias, 25; makes reports adverse to Pedrarias, 28
Quibo, 60
Quito, 47, 76

R

Railroads, transcontinental, 243; trans-Andean, 248; rates, 302, 303; *see also* Atchison, Topeka & Santa Fé Railway; Atlantic Seaboard; Chesapeake and Ohio Railway; Erie Railroad; Gulf, Beaumont & Texas Railway; Houston railroads; New York and Erie Railroad; New York, New Haven & Hartford Lines; Norfolk and Western railway system; Northern Pacific & Great Northern system; Panama Railroad Company; Southern Pacific Railroad Company; Southern Railway.
Railway Traction and Supply Co., Chicago, 379
Raleigh, Sir Walter, colony of, 48
Rancheria, 49
Randolph, Isham, biography, 481
Randolph, Gen. W. F., 174
Rats, plague carriers, 246
Rauschenberg, E. C., 381
Rause, Capt. James, joins Drake, 45; returns to England, 45
Rawles-Cobb Co., 394
Real, José María del, 76
Realejo, 54, 61
Recreations, 420–421
Redfern, Samuel Edward, biography, 481
Reed, Dr. Walter, 122
Reeder, D. F., biography, 481
Registry of ships, *see* Ships, registration.
Reinach, Baron, 103
Reliance, tug-boat, 349, 389
Remington typewriters, 410
Renteria, 37
Repauno plant, *see* Du Pont Repauno plant.
Repeal of tolls exemption clause, *see* Tolls exemption clause.
Republic Rubber Co., 393
Rerdell, Montfort C., biography, 481
Reyes, Gen. Rafael, 85, 112; elected president of Colombia, 113; sails for Paris, 113
Reynolds, William T., biography, 481
Rhode Island, 283, 306, 307
Rhodesia, 247
Ribero, Diego de, companion of Columbus, 13; slain by Indians, 30
Richmond, 319
Riviera, American, 309
Rio Cubita, 61
Rio de Janeiro, 248
Rio de Janeiro, ship, 281
Rio de la Plata, 248
Rio de las Balsas, 25
Rio del Media, 101
Rio Grande, 90, 100, 101
Rio Hacha, 44
Rio Negro, convention held at, 81
Rios, Pedro de los, 33; appointed governor of Antigua, 32; expelled from the Indies, 35; governor of Castilla del Oro, 35
Ripley, Joseph, 217; biography, 481
Rising Sun, ship, 67
Ritz-Carlton hotel system, 319, 320
Roads, built by Engineering Department, 212
Roanoke, Drake sails for, 48
Robb Mumford Boiler Co., 368
Robinson, Arthur L., biography, 481
Robles, Doctor, governor of Castilla del Oro, 35; attempts on Nicaragua fail, 37
Rock drill, description of, 329–341
Rock Island Railroad, 203
Roderick Random, by Smollett, cited, 73
Rodman, Hugh, biography, 481
Roebling, John A., 347
Roe-Stephens Manufacturing Co., 392
Rogers, H. A., Co., 386
Rogers, Richard Reid, 481; counsel to Isthmian Commission, 203
Rojas, Gabriel de, 32; explores San Juan River, 33, 97
Rolph, James, Jr., 311
Romain, Cape, So. Carolina, 44
Roosevelt, Theodore, President, 105, 112, 118, 202, 203, 252; biography, 481; calls commission to consider offer of canal company, 107; denounces treaty with Colombia, 113; appoints Isthmian Canal Commission, 127; appoints executive committee to the commission, 128; favors lock canal, 132; concentrates authority of commission, 160, 161; orders club houses built, 169; instructions to commission, 188; instructions from, 189; appoints Shonts, 202–203; praises sanitation work of Gorgas, 205; wisdom of orders, 209; relations with Stevens, 223; How the United States Acquired the Right to Dig the Panama Canal, 225–230; denies usurping authority, 225; messages relative to canal, 225; defends position, 226–229; sends naval vessels to isthmus, 229
Roosevelt dam, 378
Root, Elihu, biography, 481; negotiations as Secretary of State, 110, 113; attitude in tolls controversy, 241
Root-Arosemena Treaty, 505
Root-Cortes Treaty, 505
Rose, William H., biography, 481
Rosedale Foundry and Machine Co., 384
Ross, David W., 203, 215; biography, 481
Ross, John W., 481
Ross, Maj. Roland, proves mosquito cause of malaria, 122, 189

Ross-Meehan Foundry Co., 392
Rotisserie Sportsman Hotel, 320
Rourke, Louis Keegan, biography, 481–482
Rousseau, Harry H., commissioner, 134, 161; biography, 482; designs terminal plants for canal, 178, 186
Royal Mail Steam Packet Co., 312, 313
Rua, Alonzo Perez de la, 31
Rubberhide Co., 433
Ruggles, George H., biography, 482
Ruggles, W. B., 482
Ruiz, Gen. Benjamin, president of Panama, 83, 84
Runnels, Ran, 78
Russia, 310, 314, 315; Czar of, 119
Ryswick, Peace of, 62; Treaty of, 65

S

Saavedra, deputy for Cortés, 32
Sacramento, 87
St. Andrew, Fort, 65
St. Augustine, Fla., burned by Drake, 48
St. Augustine, Cape, 6, 96
St. Augustine, Fort, 44
St. Lawrence, Gulf of, 44
St. Lawrence River, Cartier explores, 44
St. Louis, 154, 318
St. Mary's, ship, 79
St. Peter's, 310
St. Petersburg, 315
St. Philip, ship, 48
Salaries, 215, 238; *see also* Wages.
Salcedo, Diego Lopez de, 33
Salguero, Rodrigo, 40, 41
Salina Cruz, 248
Salinas Bay, 100
Salvador, 31
Samaná Bay, description of, 293–295
Samano, Viceroy, 77
Samballas Islands, 61
Samuel, Frank, 386
San Blas, 101
San Blas, motor boat, 419
San Diego, 248, 269, 270, 306; exposition, 310
Sands, Robert Marcena, biography, 482
San Felipe fortress, 56
San Francisco, 87, 199, 248, 249, 255, 258, 260, 263, 268, 278, 282, 292, 300; variation of tides at, 281; Chamber of Commerce, 303; Palace hotel, 321; Union Iron Works, 305, 306
San Francisco Bay, 303, 304, 310; desirable naval base, 261, 262, 269
San Francisco Exposition, 310
Sanitary appliances, 423
Sanitary Department, 125, 212
Sanitation, 211; laws, 205; cost of, 206
San Gil de Buenavista, 53
San Juan del Norte, seized by Great Britain, 99
San Juan del Sur, 100
San Juan de Nicaragua, 49
San Juan de Pinos, fort, 48
San Juan de Ulloa, *see* Vera Cruz.
San Juan harbor, 49
San Juan River, 33, 37, 39, 97, 100, 101
San Lorenzo, 58, 59; strong citadel, 55; capture of fort, 72
San Lúcar, 40, 96; harbor, 9; Pedrarias sails from, 20
San Miguel, Gulf of, 18, 26, 31, 47, 97, 98; new settlement established on, 22
San Pedro, port, 306
San Pedro, ship, 60
San Sebastian, 12, 35; founding of, 11; disappearance of, 54
Sao Paulo, 320
Santa Barbara, 306
Santa Catalina, ship, 314
Santa Catarina, 57, 58
Santa Clara, ship, 314
Santa Fé de Bogotá, 53, 75, 76
Santa Gloria, 9
Santa Maria, 59, 60, 62
Santa María de la Consolacion, 6
Santa Maria River, 60
Santa Cruz, 11, 25; naming of, 22; garrison established, 22, 23; capture of, 23; Pedrarias rebuilds fort, 24
Santa Cruz, ship, 314
Santa Cecilia, ship, 314
Santa Marta, 40, 49, 76
Santiago, 56, 82; audiencia transferred to, 53; town-council, 54; Vernon at, 73
Santiago al Angel, 31
Santiago de Guatemala, 53
Santiago de los Caballeros, 31
Santiago del Principe, 53
Santiago de Veragua, 80
Santo Domingo, 6, 10, 11, 12, 15, 17; arrival of Columbus at, 9; English vessels arrive at, 44; description, 293
Santos, 248
Sapoa River, 100
Saunders, William Lawrence, biography, 482
Savannah, 87
Saville, Caleb Mills, biography, 482; work at Gatun, 148
Savoy hotel, 321
Sawkins, Captain, attacks Pueblo Nuevo, 60; succeeds Coxon in command of pirates, 60
Schafer, Lt. George C., 197, 482
Schiavoni, Mario J., 482
Schieren, Charles A., Company, 389
Schildhauer, Edward, biography, 482
Schuyler, James D., 149
Scotland, 66; sends expedition to America, 65
Scott, J. W., 309
Screw spike tie plates, 390–391
Scully, M. E., tug-boat, 349
Sea-level canal, *see* Panama Canal.
Sealing device, 382–383
Seattle, 260, 306, 314, 321
Segari, S., & Co., 430
Segovia, 62
Sesostris, king, 120
Sessions, Arthur, biography, 482
Seville, 6, 20; Treaty of, 70, 71
Sewerage system, 189
Sewing machines, 422
Sexton, S. B., Stove & Manufacturing Co., 427
Shaler, Col. J. R., 197, 198
Shanghai, 262
Shannon, E. P., 217
Shanton, George R., 482

Sharp, Capt. Bartholomew, 59; biography, 482; tried for piracy, 60, 61
Sharp, H. S., 314
Shenandoah, ship, 84
Sherman, Edward C., biography, 482
Sherman, Gen. W. T., 174
Sherman law, 274
Ship subsidy, 274
Shipping, hygiene, 244–249
Ships, registration, 239, 243; supplies, 239; railroad-owned, 239, 243; foreign-built, 242; sanitation, 246–247; inspection, 247
Shoes, *see* Footwear.
Shonts, Theodore P., biography, 482–483; chairman of Isthmian Canal Commission, 128, 129, 193, 202–203; favors contract plan, 132; resignation, 133; The Railroad Men at Panama, 202–209; addresses Atlanta Chamber of Commerce, 208; praises Goethals, 208, 209
Shontz, C. M., 483
Shovels, *see* Steam shovels.
Siberia, ship, 314
Sibert, Lt.-Col. Wm. Luther, 158; biography, 483; commissioner, 134; promotion, 186
Sierra Leone, 48
Simons, William, Co., 356
Singapore, 248
Size, of Panama Canal, 114; of locks, 118, 150-155; of lock gates, 151; of Culebra Cut, 118; of Gatun Dam, 146; of Gatun Lake, 117; *see also* map, 521; of wharves and piers, 177; of Balboa dry dock, 176; of Naos Island breakwater, 178; of Toro Point breakwater, 178; of guns, 172-173; of coaling plants, 175; of Miraflores Lake, 117; of Spillway gates, 147
Skiff, F. J. V., 311
Slides, 144, 158, 179, 182; *see also* Cucaracha; Culebra, West Culebra.
Slifer, H. J., 483
Sloss, Leon, 311
Smallpox, 245, 248
Smith, H. A. A., biography, 483
Smith, J. A., biography, 483
Smith, Jackson, 135, 203, 214; biography, 483
Smith, Ray Low, biography, 483
Smith, T. L., Co., 378
Smollett, *Roderick Random*, 73
Sneed, J. W., biography, 483
Snyder, 199
Société Civile Internationale du Canal Interocéanique, 102
Soconusco, 53
Solis, Juan Diaz de, 96; biography, 483
Soo Canal, 114, 154
Sosa, Juan de, 36
Sosa, Lope de, governor of Antigua, 28; death, 30
Sosa Hill, 119, 149
Soto, Hernando de, 21, 32
South African trade route, 247
South America, 38, 51, 61, 91, 205, 248, 266, 269, 274, 291, 298, 305, 312, 319, 320, 321; expeditions to coast, 5; Bastidas reaches, 6; mainland discovered, 7; coast ravaged by buccaneers, 62; commerce, 69, 70, 276; canal benefits, 267
South Carolina, 318; Huguenots attempt to settle, 44
South Mountain, 318
South Sea, 16, 17, 20, 36; discovery of, 19; fleet equipped to explore, 22; expedition of Badajoz to, 24; Morales takes possession, 24; Balboa seeks for gold country, 26
South Sea Company, 52; assiento conferred on, 69, 70, 73
South Sea Islands, 286
Southampton, 313
Southern and Pacific Railroads, 319
Southern Pacific Railroad, 314
Southern Railway, 318
Spain, 33, 96, 286; erects forts in the colonies, 55; antagonism against England, 69; defeat by Portugal, 69; demands by Cromwell, 69; trade interference, 69; treaty with England, 69; war with England, 69, 70, 72; decision of court, 70; demands on, 72; ships destroyed at Cartagena, 72; force sent to maintain rule in colonies, 76; proposes Caledonian Bay route, 98
Spalding, A. G., & Bros., 420
Spanish America, desires independence, 75
Spanish-American War, 105
Spanish labor, 162, 206, 213–214
Spanish Main, 312
Spanish Succession, War of the, 52, 62
Speedy Return, ship, 67
Spencer Otis Co., 391
Sperr, John, 419
Spice Islands, 48, 51; attempts to discover, 31, 96
Spillway, 94, 147; gate machinery, 379–382
Spoil, disposal, 143, 358; cost of removing, 156
Spooner, John Coit, Senator, 108, 232; biography, 483
Spooner act, 110, 127, 193, 194, 232–233, 507–509
Spooner bill, substituted for Hepburn bill, 109
Spratling, L. W., 483
Squier, Ephraim George, suggests treaty, 100
Stackpole & Sons, 395
Standard Atlantic Fleet, 259
Standard Pacific Fleet, 259
Standard Sanitary Manufacturing Co., 424
Stanton, F. C., 483
Standard Underground Cable Co., 407
Steacy-Schmidt Manufacturing Co., 381
Steam shovels, description of work, 142
Stearns, Frederick Pike, 149; biography, 483
Steel and iron castings, 385
Stephens, John Lloyd, 88, 90; biography, 483; confidential mission to Central America, 99; recommends Nicaraguan route, 99
Stephens-Adamson Manufacturing Co., 379
Sterling, R. S., 310
Sterns, F. E., 483
Stetson, John B., Co., 433
Stetson Shoe Co., 431
Stevens, John F., 203, 210; biography, 483–484; succeeds Wallace, 130; perfects transportation facilities, 131; favors lock canal, 132; chairman of commission, 133; resignation, 133; address by, 204–205; Truth of History, 210–224; relations with President, etc., 223
Stickle, H. W., biography, 484
Stimson, Henry L., 174; biography, 484
Stone, A. K., biography, 484
Stone, T. H., 310
Strain, Lieutenant, surveys route for canal, 100

Strathdon, ship, 280
Street, G. C., 310
Strickland, G. B., 484
Strikes, waiters', 139; *see also* Labor troubles
Strom, Carl E., 484
Stuebner, G. L., Iron Works, 379
Suez Canal, 102, 114, 247, 262, 274
Suez Canal trade route, 247
Suez, Isthmus of, 101
Sugar, tariff, 287–290; *see also* Cuba; Java; Hawaii
Sullivan, J. G., 203, 484
Sullivan Machinery Co., 340
Sulzberger & Sons Co., 430
Surena, 23
Surre River, 37
Surveying instruments, 395–397
Swan, Captain, buccaneer, 61
Swan, ship, 45
Swindell Brothers, 418
Sydney, 248, 305

T

Tabira, Juan de, 20; expedition against Dabaiba, 23
Taboga Island, 60, 91, 124
Tabor, 24
Tacoma, Wash., 182
Taft, William Howard, President, 94, 122, 202; biography, 484; sanitation orders, 123; orders resignation of Wallace, 129; visits Panama, 134, 149, 196; visits Jamaica, 196; signs exposition act, 311; tolls proclamation, 515–516
Tahiti, 248
Talavera, hanging of, 12
Taracuri, 24
Tariff, *see*, Sugar; Underwood tariff
Tataracherubi, 24
Taussig, Rudolph J., 311
Taylor, Chas., Sons Co., 418
Taylor, J. M., 396
Taylor, William H., 362
Taylor Instrument Companies, 396
Taylor, S. G., Chain Co., 391
Tehuantepec, 97, 98, 101
Tehuantepec, Isthmus of, 304
Tehuantepec route, 181
Telegraph system, 404
Telephones, 217
Teneriffe, Santa Cruz castle, 69
Teniente Rodriguez, ship, 182
Tennessee, 319
Tenney, M. W., 484
Texas, 310; cattle produced, 308
Texas Company, 397
Texas Gulf Coast, 309
Thatcher, Maurice Hudson, biography, 484
Thearle, Harry Bishop, 420
Thelma, ship, 415
Theobald & Oppenheimer Co., 421
Thew Automatic Shovel Co., 357
Thierry, Baron Amédée Simon Dominique, 98
Thom, Leslie Grant, 484
Thomas E. Coale Lumber Co., 415
Thompson, F. du. Pont, 381
Thompson, John W., 484
Thomson, Thaddeus Austin, biography, 484; sent to Bogotá, 113
Thomson-Urrutia Treaty, 505–507
Thonet Bros., 418
Thorne, Charles S., 401
Three-In-One Oil Co., 399
Thurston, Lorrin Andrews, biography, 484; The Effect of the Panama Canal on Hawaii, 278–290
Tiburon, Cape, 9, 58
Tides, *see* Hawaii; San Francisco
Tierra de Guerra, *see* Tuzulutan
Tierra Firme (Isthmus of Panama), 10, 12, 15, 19, 27, 30, 31, 38, 41, 55, 61, 62, 63, 75, 77; mines and trade of, 51; government of, 53; placed under viceroy of Peru, 53; sets up government as Republic of Panama, 53; port of entry not removed, 54; threatened by pirates, 56; depredations on coast, 72; peaceful condition, 74; proposes confederation of colonies, 76; projects for a ship canal on, 97; *see also* Panama (Republic)
Tiger Island, seized by Great Britain, 99
Titanic, ship, 118
Tivoli, 94
Tivoli Club, 170
Tivoli Hotel, 139, 170
Tobey, E. C., 484
Toledo, Maria de, attempts colonization, 36
Toll rates, 237; contention relative to, 238–239; controlled by Interstate Commerce Commission, 241; proclamation relative to, 515–516
Tolls exemption clause, repeal, 241, 242, 515
Tomlinson, M., 386
Toponcanté, 67
Tordesillas, treaty of, 21, 43
Toreba, 32
Toro Island, breakwater, 178
Toro Point, 116; guns and forts at, 172, 173, 174
Toro Point, motor boat, 419
Tortuga, headquarters for buccaneers, 56
Totonagua, 24
Totten, Col. George M., 91; railroad constructor, 88
Tourist accommodations, 319–321
Tower, A. C., 390
Tower Manufacturing and Novelty Co., 411
Townley, Captain, buccaneer, 61; death of, 62
Towns, location of, 239
Transportation rates, 240
Transvaal, 247
Trautwine, John C., railroad constructor, 88
Treaties, interoceanic communications, 489–495; *see also* Clayton-Bulwer Treaty; Cortes-Arosemena Treaty; Hay-Bunau-Varilla Treaty; Hay-Concha Agreement; Hay-Herran Treaty; Hay-Pauncefote Treaty; Root-Arosemena Treaty; Root-Cortes Treaty; Thomson-Urrutia Treaty; names of countries
Treaty of 1670, 71
Triana, 6; burning of, 56; castle, 57
Tribunal Civile de la Seine, 103
Tropics, description, 311, 312
Trujillo, 32, 54
Tubanamá, post established at, 22
Tubby, W. G., 203
Tucker, Herman Franklin, biography, 484
Tumaco, 18
Tumbez, 40

Trade routes, *see* Good Hope, Cape of; Magellan trade route; North Atlantic; Ocean; Pacific; Panama; South African; Suez Canal
Tutuila, 257
Tuzulutan, inhabitants converted to Christianity, 38
Two Ocean Standard, 257, 259
Typhus, 245

U

Ulua, River, 53
Umstead, Ambrose B., 314
Unalaska, Island of, 281
Underwood, F. D., 315
Underwood, Oscar W., 241; quoted, 274
Underwood tariff, 272
Underwood Typewriter Co., 410
Union National Bank, 309
Union Oil Co., 366
Union Pacific Railroad, 91
United Fruit Co., 182, 311, 318
United Fruit Line, 93
United Kingdom, *see* Great Britain
United Shoe Machinery Co., 432
United States, 78, 79, 119, 120, 124, 125, 174, 193, 205, 248, 263, 264, 265, 267, 268, 283, 286, 297, 300, 305, 314; troops landed in Panama, 82; treaty with New Granada, 87; completes canal, 87; purchase of Panama Railroad, 91, 92; purchases Canal Zone, 92; Senate resolution favors Nicaraguan route, 99; proposed treaty with Nicaragua, 99, 100; Congress appoints Canal Commission, 104; Nicaraguan route decided on, 104–105; recognition of Panama Republic, 112, 229; treaty with Colombia, 113; government of Canal Zone, 183; payment for sanitation, 206; forbids Colombia to land troops, 229; merchant marine, 263, 264; expansion, 266; commerce, 271, 272, 302; invisible exports from, 272, 273; relations with Latin America, 277; tariff on sugar, 288, 289; population, 291; productions, 291, 292; revival in ship building, 305, 306; government, 307; military reservation, 310
United States of Colombia, *see* Colombia
United States Topographical Corps, 88
Urabá, 7, 97
Urabá, Gulf of, *see* Darien, Gulf of
Urracá, chieftain of Veragua, 31
Ursua, Pedro de, 53
Utrecht, Treaty of, 52, 62, 69

V

Vaca de Monte, 99
Valderrábano, Andrés de, 26; death, 27
Valdés, Ramon M., 300; biography, 484–485
Valdivia, 13, 17, 293; sent to Antigua, 15; brings provisions to Antigua, 16; in wreck near Yucatan, 16; return from Hispaniola, 16; death, 16; shipwrecked, 19
Valdivieso, Bishop of Leon, 40
Valladolid, 9
Valparaiso, 262, 313; Drake captures ships, 48
Van Buren, Martin, President, 99
Vancouver, 248, 291
Van Nuys hotel, 321
Vasquez, Pedro, governor of Castilla del Oro, 35
Vela, Vasco Nuñez, viceroy of Peru, 38; imprisons Vaca de Castro, 38; death, 38
Velasco, Diego Fernandez de, governor of Castilla del Oro, 97
Velazquez, Diego de, 293
Venables, General, English expedition under, 69, 294
Venezuela, 6, 58, 76
Vera Cruz, 45
Veragua, 7, 8, 29, 46, 60, 75, 79, 96; Columbus anchors at, 8; description of, 8; fertility and mineral wealth of, 10; Nicuesa in search of, 13; gold from, 52; transferred to New Granada, 53; depredations of buccaneers on coast of, 62
Vera Paz, 53
Verdugo, Melchior, seizes ships, 39
Vernon, Edward, 71, 72; biography, 485; proceeds to Cuba, 73; recalled, 73
Verrazano, Giovanni, expedition to America, 44
Vespucci, Amerigo, 43; member of party with Columbus, 5
Vessels, *see* Ships
Victoria, Queen of England, 312
Victoria Louise, cruising steamer, 312
Vienna, Treaty of, 70
Vila, Gen. Ramon Santodomingo, 83; president of Panama, 83
Villa de los Santos, 61
Virginia, 305; orders to governors of, 65
Vladivostock, 282
Voorhees Rubber Co., 393

W

Wachusetts Dam, 148
Wafer, Lionel, *New Voyage and Description of the Isthmus of America*, 61
Wage-earners, 272, 274, 275
Wages, 131, 215; *see also* Salaries
Wales, 314
Walker, J. A., 485
Walker, Rear-Admiral John G., 107, 127, 202; biography, 485; conference with, 188; letter to Wallace, 199
Walker Commission, 148
Wallace, John Findley, 93, 122, 196, 203; biography, 485; appointed chief engineer, 127; dissatisfaction and resignation, 128, 129; succeeded by Stevens, 130; letter from Parsons, 187; Building the Foundations, 187–201; household of, 195; yellow fever in family, 195; elected vice-president of railroad, 198; secures control of railroad, 198; letter from Walker, 199; resignation from railroad, 201; inspection of proposed route, 355
Walpole, Sir Robert, 70, 71
Ward, Charles, 192
Wardlaw, R. H., biography, 485
Warren, H. P., 485
Warwick, Walter W., biography, 485
Washington, George, 318
Washington (State), 269
Washington, D. C., 128, 202, 317
Washington Hotel, 170, 321, 412, 414, 424
Washington monument, 114
Waste material, *see* Spoil
Water supply, 189, 211
Water Supply Department, 189

Waterloo, battle of, 227
Watervliet, N. Y., 118
Watling John, succeeds Sharp, 60; death, 60
Watt, John M. G., 485
Wellington, 305
Wearing apparel, *see* Clothing
Weather Bureau, 278, 279, 280, 281
Weather records, 216
Weaver, John Heisley, biography, 485
Weaver, J. H., & Co., 402–403
Weber, F., & Co., 396
Weidman, Charles E., biography, 485
Wellington Hotel, 321
Wells, George M., biography, 485
Werweer, General, 98
West Culebra slide, 145
West Disinfecting Co., 423
West Indian negro, 163, 166, 206, 207
West Indian ports, 314
West Indies, 9, 55, 61, 62, 64, 261; secret agent for English merchants in, 44; trade with England, 44; free trade with, 69; British fleet sent to, 70; British trade interrupted, 70; coast guard in, 70; cruising service, 312
West Virginia, 318, 319
Western Wheeled Scraper Co., 359
Westinghouse Machine Co., 382
Wheeling Mold and Foundry Co., 380
White, Henry, biography, 485
White House, 202; cable connection with Gamboa, 180
Whitmer, Robert Foster, biography, 485
Whitmore, Samuel Washington, biography, 485
Whitmore Manufacturing Co., 398
Wickwire Bros., 423
Wilkinson, E. T., 415
William III., 64, 65
Williams, Edward J., 203, 215; biography, 486
Williams, Brown & Earle, Inc., 397
Williamson, S. B., 486
Willson, F. D., biography, 486
Wilmington, 317
Wilson, Eugene Trimble, biography, 486
Wilson, Jas. G., Co., 416
Wilson, William A., 310
Wilson, Woodrow, President, 180, 181, 184, 241, 310; biography, 486; appoints Goethals governor, 185; promotions made, 186; demands "free tolls" clause, 238; executive order, 516–517
Winchester, 318
Winds, effect on sea transportation, 281, 282, 283
Winn, H. J., 396
Wire rope, use of, 347–355
Wireless telegraph stations, 239
Women's clubs, 170
Wood, Maj-Gen. Leonard, 122; biography, 486; The Defense of the Canal Zone, 266
Wood, Robert E., biography, 486
Wood, William M., biography, 486
Wood Drill Works, 342
Woodruff, George W., 401
Workmen's compensation, 236
Wright, Daniel E., 137, 486; biography, 486
Wyse, Lieut. Lucien Napoleon Bonaparte, 486; selects route for canal, 102

X

Xagua, 37
Xaquixaguana, battle, 40
Ximenes, Cardinal Francisco, 38

Y

Yañez Pinzon, Vicente, discovers Brazil, 43
Yankee ingenuity, 275
Yavisa River, 62
Yellow fever, 122–123, 204, 211; epidemic and deaths from, 189, 190, 195; extirpation, 195, 204, 245, 248, 266; *see also* Gorgas, Dr. William Crawford; Reed, Dr. Walter
Yellow fever mosquito, 122, 189
Yokohama, 248, 262, 278, 280, 305
Yoratuba, 67
York Safe & Lock Co., 422
Young, M. H. de., 311
Young Men's Christian Association, 169, 206, 223
Youngstown Sheet and Tube Co., 371
Yucatan, 8, 16, 38, 96

Z

Zamudio, Martin, 13; goes with Enciso to Spain, 15; writes of rumored recall of Balboa, 17; denounced by Enciso, 19
Zinn, A. S., biography, 486