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Panama Canal as a commercial highway

- T H E S I S -

THE PANAMA CANAL - AS A COMMERCIAL HIGHWAY

Submitted by

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FOREWORD

The domestic and foreign commerce of the various countries of the world, especially that of the United States, has reached to such a point of development and expansion within recent years that students of business have begun to make a special study of the many factors involved.

Transportation is one of these factors; for if the products of any country cannot be carried rapidly and economically from seller to buyer the expansion of commerce and industry will naturally be embarrassed. Accordingly, many volumes have been written on transportation dealing specifically with its three popular phases - vehicular, maritime and railroad. Little, however, has been written on the Panama Canal either in respect to its service as an avenue of transportation or in relation to its aid and influence in the commercial and industrial development of nations.

Three reasons may be given for this seeming neglect in giving greater attention to the commercial study of the Panama Canal. First - the canal, not being a private enterprise operating soley for profits but strictly governmental for the benefit of the nation as a whole; does not directly command the attention of private citizens to the extent of encouraging a serious study of its economic functions. Second - the information furnished by the government concerning the financial operation of the canal is accepted without further study of causes and effects. Third - the canal being situated outside

continental United States does not stimulate the interest of the average citizen who has never seen the canal.

The necessity for a comprehensive study of the effect of the canal on the commerce of the world, as well as its influence on the economic progress of the Republic of Panama, cannot be denied; especially when the four hundred million dollars of American capital, invested in the enterprise, is taken into consideration. The benefits to be derived from such a study are twofold. First - it provides information from which the economic value of the canal can be readily appreciated and second - it shows results to justify the introduction of American ideas in Latin-American countries.

With these significant features in mind, the author has undertaken the task of preparing this treatise. In doing so it was thought desirable, for the purpose sought, to emphasise the importance of the canal to the commerce of the United States and discuss incidentally its effect on the commerce of Europe.

A comprehensive study of this character would be found wanting if it did not include a historical sketch of the motives and early attempts to establish transportation across the Isthmus of Panama. The same would be true in regard to the influence of the canal on the economic progress of the Republic of Panama. These topics are therefore included in the survey and will serve to augment the general discussion of the benefits of the Panama Canal to the commerce of the world.

The difficulties encountered in collecting and assembling the materials for this work are too numerous to mention. As already stated, the literature dealing with the commercial advantages of the canal (except statistics published by the United States Government) are very scanty. Those secured were either incomplete or too old for present use. The contents of this work, therefore, are based upon a study of materials gathered from many sources as well as upon the author's observation, study and experience in the Republic of Panama.

It is not practicable to give a complete list of all those who furnished materials for this work or the sources from which they could be obtained. Special mention, however, must be made of my mother who resides in the Republic of Panama, Beneditti Brothers of Panama, the National Institute of Panama, the Panama Chamber of Commerce and the United States Department of Commerce in Washington - all of whom aided materially in the compiliation of this work. To them and to those not mentioned, I express my sincere gratifications.

W. E. D.

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Outline of Thesis

THE PANAMA CANAL AS A COMMERCIAL HIGHWAY

1 - HISTORICAL BACKGROUND

1. Motive for discovery of Panama

The century begining with the year 1450 records an epoch in the economic and political history of the world. It was the period in which Europe witnessed a great change in her social, commercial and industrial pursuits. It marked the rapid growth of European commerce which had previously received its stimuli from the Crusades and Levant trade, and showed Europe seeking an expansion of her commercial area and the adoption of improved methods of organization and cooperation. In short, it was a period of explorations and discoveries conducted by Europeans on both sides of the continent for the purpose of shortening the course of transportation to foreign markets, of expanding commercial operations, and of securing closer contact with foreign countries.

It was during this period, to be specific in 1492, that Columbus set sail for the western world in an effort to find a short and continuous water-way to Asia and, in general, to discover what existed westerly beyond the horizon of Europe.

2. Discovery and search for passage across Isthmus

In May 1502 Columbus sailed from Spain on his fourth and last voyage to the western world, still desiring to find a western route to Asia. He disembarked at Admiralte, a province of Panama. With his men, he made a buoyant effort to cross the Isthmus but after encountering many difficulties overland and in the Carribean, gave up the task and ultimately died with discovering a continuous water-route to Asia.

The search for a continuous waterway was not abated. Explorations continued on sea and on land. Vasco Nunez de Balboa was one of the many explorers who undertook the task of finding a western route to Asia. After several months of struggle, Balboa succeeded in piercing the Isthmian jungles and on September 25, 1513, discovered the "South Sea" or the Pacific Ocean. It was this discovery that brought the belief that there existed no continuous waterway from east to west and this belief was fully corroborated when Magellan, in making his voyage around the world, discovered in 1520 the only waterway - the Strait of Magellan.

3. Necessity for transportation across Isthmus

The establishment of transportation across the Isthmus, although crude and hazardous, brought about an extensive trade between the Indians and Europeans. The vast supply of gold extracted from the mines of South America, especially from Peru on the Pacific, was brought up the coast to Panama - carried across the Isthmus on horse-back - and then shipped to Europe. In like manner the products coming from Europe were carried overland on packhorses from Atlantic to Pacific and then shipped to South America and Asia. An extensive trade was soon developed, with Panama as the intermediary shipping station and the commercial highway between countries in the Atlantic and Pacific oceans.

It will be seen that at this early period of modern commercial history there was a tendency toward the development of trade between countries in the Atlantic and Pacific

as well as a growing necessity for adequate transportation across the Isthmus of Panama.

4. Early canal projects

The idea of establishing maritime transportation across the Isthmus can be traced back to the discovery of the Americas. When it was realized that the Americas was a continuous continent, that the only strait was that of Magellan situated hundreds of miles south of Panama, and that the potentiality of trade between the eastern and western countries was exceedingly promising; suggestions came from many sources that a navigable strait be constructed across the Isthmus in order to permit direct shipments to the countries in the Pacific.

It will be of value to summarize briefly some of the important projects to establish maritime transportation across the Isthmus of Panama.

In 1529 Alvero de Saavedro, one of the men accompanying Balboa in his discovery of the Pacific and later a lieutenant of Cortez who established an important trans-continental route in Mexico, prepared the first plan for the construction of a canal across the Isthmus of Panama. Nothing was done, however, beyond suggesting that a canal be built.

In 1534 Charles V of Spain gave official cognisance to the necessity of an inter-oceanic waterway by authorizing an investigation of a canal route, using the Chagres and Rio Grande rivers as connecting links. After a general survey, however, the project was abandoned because the cost of construction was considered prohibitive.

During the period between 1616 and 1619 extensive surveys were made of the Darien region with the view of using the Tuira river to facilitate the construction of an Isthmian canal, but Phillip 11, of Spain, decided that a canal would facilitate the conquest of Spanish possessions in the Western Hemisphere and the project was finally abandoned. There was much hostility from other sources against the construction of an Isthmian waterway and it is said that one of the king's consuls attacked the project by saying - "What God has joined together let no man put assunder".

The century following this attempt to build a canal across the Isthmus of Panama was devoted to occasional surveys and suggestions coming from Spanish, French, British and American governmental and private sources; but none of the plans were ever materialized. This was due, perhaps, to political disturbances in Europe during the period; as well as changed political and national status of the countries in the Western Hemisphere.

5. Railroad transportation across Isthmus

With the projects to construct a canal temporarily postponed, nothing was done for over a century to improve transportation across the Isthmus of Panama. In 1848, however, during the "gold rush" to Califonia, the question of Isthmisn transportation again arose. At that time of American history there were no trans-continental railroads in the United States and the necessity for continuous transportation across the continent was becoming acute not

only because of the newly discovered gold deposits in Califonia but also because of the rapid development of the central and western sections of the country.

The attention of American capitalists was turned to Panama with the view of establishing trans-continental communication via the Isthmus of Panama. A company secured concessions from the province of New Granada (now called Panama) in 1849 and from Colombia in 1867. In 1850 work was begun for the construction of a single-track railroad forty-seven miles long and, five years later, the Panama Railroad was completed at a cost of approximately seven million dollars. The difficulties encountered during the construction of the railroad, especially in regard to labor, will be realized from the frequent statement that - "a life was given for each pile laid" - even though greatly exaggerated.

The significant feature in the establishment of the railroad across the Isthmus is the primary motive underlying its construction; a motive equally present in the construction of the Panama Canal; namely, to facilitate the transportation of American products between the two seaboards of the United States.

6. Canal projects resumed

The increasing traffic which developed after the establishment of railroad transportation across the Isthmus revived the idea of an inter-oceanic waterway.

In May 1879, a French Company, "La Compagnie Universale de Canal Interoceanique de Panama", received from Columbia

a concession to build a canal in Panama. Ferdinand de Lesseps who had previously succeeded in building the Suez canal, was selected to construct the proposed canal. The work was begun in 1882 but was suspended a year later on account of financial difficulties. The company was reorganized and it resumed work in 1894; but after encountering many difficulties was forced to suspend operations and in 1902 sold its rights to the United States.

7. Main causes for failure

Financial problems, to a great extent, contributed to the failure of the French Canal Company to build the canal, The project required large sums of money and it was very difficult for the company to raise new capital after the magnitude of the work was fully realized. In fact, during one stage of operation, $260,000,000 was spent to excavate 7,000,000 cubic yards of earth; and this rate of operation embarrassed the sale of additional stocks which were placed on the market for the purpose of financing the undertaking.

The French canal company should not be critisized for its failure to build the canal because the United States also found that the $100,000,000 originally estimated to build the canal, was insufficient; and had to increase the estimate to over $375,000,000.

But there were other causes in addition to finance which contributed to the failure of the French company to build the canal. The high death-rate and bodily infections resulting from yellow fever and malaria, as well as certain geographical

barriers encountered during the process of excavation, aggravated the difficulties of constructing the canal and hastened the collapse of the canal company.

8. U. S. acquisition of rights to build canal

The rolé of the United States in acquiring the rights to build the Panama Canal is of general knowledge and is briefly summarized here in order to give coherence to the study.

In 1850, when there was much speculation in Europe over the construction of a canal across the Isthmus, the United States subscribed to a treaty with Great Britain (The Clayton-Bulwer Treaty) whereby neither party was to build a canal across the Isthmus for a period of fifty years, that if a canal were built thereafter neither party should have exclusive control and that both parties should be responsible for its neutrality.

To acquire an unrestricted right to build and control the canal, the United States, in 1901, entered into another treaty with Great Britain (The Hay-Pauncefote Treaty) whereby the United States guaranteed the neutrality of the canal and laid down certain rules to be observed in order to maintain such neutrality.

Having removed this political barrier against the construction of the canal, the United States Congress in 1902 passed an act (the Spooner Bill) authorizing the purchase of the property of the French canal company for a

sum not exceeding $40,000,000; the negotiation of a treaty with the Republic of Colombia for a concession to build the canal, and the creation of a commission to supervise the construction of the canal.

As a result of this act, the Hay-Herran treaty of 1903 was prepared by which Colombia was to authorise the transfer of the rights enjoyed by the French canal company and grant the United States certain additional rights in the Province of Panama. This treaty was bitterly rejected by the Colombian congress with no likelihood of that country ever granting the concession to the United States.

Soon after the rejection of the treaty by Colombia, the province of Panama revolted and declared its independence. The results of this insurrection are contained in the following quotations:

> "Marines were landed from an American gunboat and two days later the Colombian troops took ship to Catagena" (Logan Marshall's "Panama" Page 63)

> "The United States seized the occasion to escape further dealings with the leaders of the Colombian government by promptly recognizing the independence of Panama and making a treaty with her". (Nida's "Panama and its Bridge of Water" Page 89)

> "For a cash payment of ten million dollars and a promise of $250,000 yearly after 1913, the United States obtained control of the Canal Zone". (Nida's "Panama and its Bridge of Water" Page 90)

The treaty referred to in the foregoing quotations is the Hay- Bunau-Varilla Treaty of November 18, 1903 whereby the United States recognized and guaranteed the independence of Panama in return for a right to build, maintain and perpetually controlled the Panama Canal and the Canal Zone.

The road thus becoming clear for the canal, construction work was commenced in 1904 and ten years later the Panama Canal was open to commerce.

9. Construction of the canal by U. S.

A great deal has been written on the construction of the Panama Canal and as the main feature of this study is directed to the economic aspect of the canal, only a casual glance at the magnitude of the work need be given. The extent of the work can be realized from the following quotation:

> "The American engineers removed from the canal prism 212,504,000 cubic yards of earth and rocks and this, together with the 30,000,000 excavated by the French, represents a total of 242,504,000 cubic yards; or the equivalent of material which would have to be removed in boring a thirteen-inch tunnel through the earth".
>
> "In the construction of locks, 5,000,000 cubic yards of concrete were poured, or the equivalent of material necessary to build a wall twelve feet high and eight feet wide for a distance of 262 miles".
>
> (Panama Chamber of Commerce - "The Republic of Panama etc". - page 35.)

These figures represent excavations up to the year 1914 when the canal was completed and before it was later closed to traffic for further excavations.

As already mentioned, the work was begun in 1904 and completed in August 1914. The canal was constructed at a cost of $375,000,000 which includes $10,000,000 paid the Republic of Panama for the concession and $40,000,000 paid the French canal company for its rights and tangible property.

10. The opening of the Panama Canal

The year 1914 records two significant events in the history of our present civilization. It marks the disintegration of the economic and political structure of Europe by the begining of a World War and, concurrently, the unification of this structure for the benefit of the world by the opening of the Panama Canal. To crystalize the significance of these events in clearer tone, the year shows that while a political and economic unit was being assembled in the Western Hemisphere by the opening of the Panama Canal the cannon of destruction was trained upon it from the continent of Europe by the begining of the World War.

On August 3, 1914, an ocean steamer for the first time passed through the Panama Canal, thus establishing direct maritime transportation between the Atlantic and Pacific oceans and providing a reduction in distance and time in ocean voyages.

To those who, during the past four hundred years, conceived the idea or attempted to construct an inter-oceanic waterway across the Isthmus of Panama, the construction of the Panama Canal by the United States must be regarded as the realization of their dreams.

The Panama Canal was open to commerce on August 15, 1914 but the formal proclamation by the President of the United States was not issued until July 12, 1920. This delay was due principally to unsettled conditions of the World War in which the United States became a belligerent.

11 - COMMERCE OF THE UNITED STATES

1. Significance of the Panama Canal to U. S.

To the United States, the Panama Canal is of greater importance than to any other country. This is due principally to the geographical location of the continents of North and South America (the latter projecting easterly of the former as shown in exhibit "A" page 14) and the highly industrial pursuits of the people of the United States.

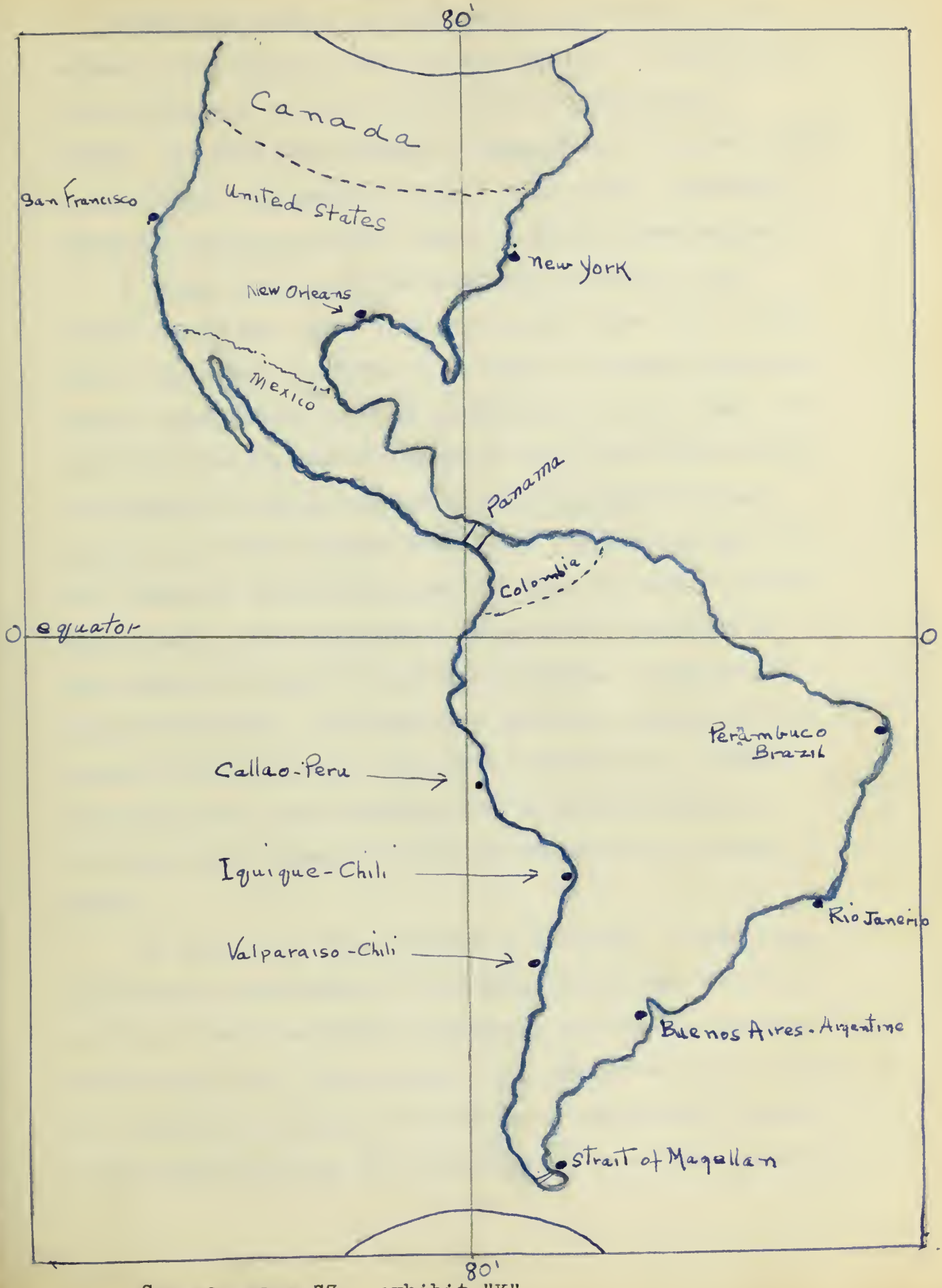
Prior to the removal of the physical link which connected the two continents, the United States merchant marine was required to encircle almost completely the entire continent of South America in order to make connections between the two seaboards of the United States. The effect of such a voyage upon the cost of producing and distributing American products, as well as upon the economic and social progress of the people, can be fully realized without the aid of statistical data or detailed explanation.

The gravity of this physical obstacle to the security and general welfare of the United States was vividly portrayed during the Spanish-American was when, in 1898, the battleship "Oregon" which was in Pacific waters and urgently required in the Atlantic for service in Cuban and Porto Rican waters, had to make the voyage around South America from the west coast of the United States, taking about a month to cover a distance of about thirteen thousand miles.

With the removal of this barrier and the resulting shorter distance, a voyage similar to that of the "Oregon's" via the shorter route could not be made in about eight hours.

Exhibit "A" page 14 and exhibit "K" page 73 will show ocean routes taken before and after the canal became a maritime highway.

EXHIBIT " A "



See map page 73 - exhibit "K"

Among the several factors which contributed to the economic development of the United States, is territorial diversification of the various kinds of industries. Without adequate and economic transportation from one region to the other, the growth of these industries, regionally dependent upon each other, would be greatly embarrassed.

A casual glance at the commercial history of the United States will show that during the later part of the last century and about the time when the United States was making negotiations for the construction of the canal, the industries on the eastern coast of the United States were in process of gradual expansion while agriculture and industries in the western section of the country were in the course of rapid development. This gradually led to much greater inter-dependence between both sections of the country for their respective products. And while trans-continental railroads were providing transportation between these regions, there was nevertheless a growing necessity for a more adequate and economical method of transportation between the two seaboards of the United States.

To facilitate this interstate commerce, to encourage nation-wide development of the many industries, and to provide cheaper maritime transportation between the two seaboards of the United States, the Panama Canal was built. The benefits accruing to the domestic and foreign commerce of the United States will be discussed in a later chapter.

These conditions, therefore, are the significant features of the Panama Canal to the economic development of the United States. And it can safely be said that without the Panama Canal or some other means of rapid and economical transportation between the two seaboards of the United States and foreign countries, this development, as it appears today, could not have become an actuality.

2. Economy in distance and time

It is very unlikely that the canal would be built by the United States if the economies of distance and time in maritime transportation between the two seaboards of the United States and foreign countries were not sufficiently beneficial to the nation. In other words, if the savings were not sufficiently encouraging, there would be no justifiable reason for undertaking the task of building the canal.

The economies resulting from the use of the canal is given below. In furnish this data, only important commercial ports are mentioned. The calculations of distance and time are selected from reliable sources* but are not to be accepted with mathematical exactitude because ships are subject to unexpected weather conditions, change of course, and irregular speed.

* 1928 and 1929 World Almanacs
Panama Canal General Information Bulletin - August 1927
Johnson - "Panama Canal and Commerce".
Nida - "Panama and its Bridge of Water"
Saavedra - "The Golden Book"

(a) Between the two seaboards of the U. S.

Before the canal was built, a ship leaving New York for San Francisco would take the shortest route by going through the Strait of Magellan. Because of the easterly location of South America to North America (see exhibit "A" page 14) the vessel had to sail about 39° east of New York and 97° south in order to get to the Strait and, thereafterm turn north for San Francisco. To make the voyage, the vessel had to cover about 13,135 nautical miles; and traveling at the rate of 10 knots an hour, would take about 55 days to reach San Francisco.

The Panama Canal has reduced the distance between New York and San Francisco to 5262 miles - thus providing a saving of 7,873 miles. A Steamer traveling at 10 knots an hour can now make the voyage in 22 days. This results in a saving of 33 days or 60% of the distance and time previously required to reach the west coast of the United States.

The distance from New Orleans to San Francisco via the Strait of Magellan is 13,551 nautical miles. Via the Panama Canal it is 4,683 miles. The canal has thus provided a reduction of 8,868 miles. A simple mathematical calculation based on the facts presented in the discussion ante will show that a steamer traveling at 10 knots an hour saves over 36 days by using the Panama Canal.

The reader will perhaps enquire why is there a greater mileage via the Strait of Magellan between New

Orleans and San Francisco than between New York and San Francisco when New Orleans is located southerly of New York. Attention is again directed to exhibit "A" page 14 which shows the relative geographical location of North and South America; the latter extending easterly of the former. Because New Orleans is situated westerly of New York, a ship leaving that port has to cover a greater distance easterly than one leaving New York in order to clear Pernambuco, the extreme easterly point of Brazil and of South America.

This accounts for the greater mileage from New Orleans to San Francisco via the Strait of Magellan and as that port is nearer the canal than New York, the distance saved via the canal must necessarily be greater than that saved from New York to San Francisco via the Panama Canal.

(b) Between eastern U. S. and western South America

Before the canal was open to traffic, steamers leaving eastern ports of the United States for the west coast of South America, were required to take the long voyage down the east coast of South America to reach the west coast, via the Strait of Magellan. The distance from New York to Valparaiso, Chili, via the Strait, is 8,380 nautical miles. The distance via the Panama Canal is now 4,633 miles. The canal has reduced the distance by 3,747 miles - or 45% of the former mileage. The number

of days a 10-knot vessel saves in making the voyage via the canal, is about 21.

From New York to Callao, Peru, the distance via the Strait is 9,613 miles. Via the canal, it is 3,363 miles. There is a saving of 6,250 miles and 26 days in making the trip by way of the Panama Canal.

The distance from New York to Guayaquil, Ecuador, via the Strait of Magellan, is 10,215 nautical miles. Via the Panama Canal it is 2,810 miles. The canal has, therefore, reduced the distance by 7,405 miles and enabled a 10-knot steamer to save about 30 days in making a voyage to this port.

The distance from New Orleans to Valparaiso, Chili, via the Strait, is 8,792 miles. Via the canal, it is 4,050 miles. This results in a reduction of 4,742 miles or 54% of the former distance; and a saving of nearly 20 days.

From New Orleans to Iquique, Chili, via the Strait, the distance is 9,559 nautical miles. The distance via the canal is now 3,425 miles; thus giving a reduction of 6,134 miles or 64%, and a saving of 25 days.

(c) Between eastern U. S. and Far East

The major share of this country's trade with the Far East is handled through the port of New York. Before the canal was built, practically all of this trade moved via the Suez Canal. The Panama Canal has not

completely diverted the trade from the Suez route; although the proportion now going via the Suez is very small and is estimated to be about 15%. *

Two reasons may be given why the Panama Canal would not be expected to be used in the shipment of all goods to the Far East or the Orient:

(1) The economy in distance from New York via the Panama Canal to the Orient is not much greater than that via the Suez.

(2) The additional advantage in calling for trade at many intermediary ports between New York and the Orient makes either the Suez or Panama route optional to American shipping interests.

Notwithstanding these conditions, there is nevertheless the direct advantage accruing to American ocean carriers by reason of the reduced mileage between eastern United States and the Far East, made possible by the Panama Canal.

The distance from New York to Honolulu via the Strait of Magellan is 13,312 nautical miles. Via the Panama Canal it is 6,700 miles - giving a reducting of 6,612 miles.

From New York to Manila via the Suez Canal, the distance is 11,589 miles. By way of the Panama Canal, via San Francisco and the Great Circle, the distance is 11,548 miles; thus giving a reduction of 41 miles.

* See statistics on page 84 showing shipments from U.S. via Panama Canal to Far East; also exhibit "J" pages 70-71 showing number of American vessels using the Suez Canal.

From New York to Hong Kong via the Suez, the distance is 11,628 miles. Via the Panama Canal, San Francisco and Great Circle, the distance is 11,383 miles. The Panama Canal has thus reduced the distance b7 245 nautical miles.

The distance from New York to Yokohama via the Suez Canal is 13,506 nautical miles. By way of the Panama Canal via San Francisco and Great Circle across northern Pacific (which route is much shorter than the direct route via Honolulu), the distance is 9,699 miles. The Panama Canal route is, therefore, shorter than the Suez route by 3,357 miles.

From New York to Shanghai via the Panama Canal, San Francisco, the Great Circle, and Yokohama; the distance is 10,649 miles. With call at Honolulu, the distance is 11,137 miles. If the voyage is made via the Suez Canal with calls at Colombo, Signapore and Hong Kong, the distance is 12,525 miles. The Panama Canal route is shorter than the Suez by 1,876 miles.

(d) Between eastern U. S. and Oceania

The distance from New York to Wellington via the Strait of Magellan is 12,852 miles. Via the Panama Canal, the distance is 10,030 miles; which results in a saving of 2,822 miles.

From New York to Sidney via the Cape of Good Hope, the distance is 13,306 miles. Via the Panama Canal, the distance is 9,691 miles. The Panama Canal has, therefore, reduced the distance by 3,612 miles.

(e) Between western U. S. and eastern South America

The direct traffic between the west coast of the United States and east coast of South America is relatively small because most of the products purchased by these South American countries are manufactured goods going chiefly from eastern and southern ports of the United States. It should not be necessary, therefore, to compare in details the distances between ports on the west coast of the United States and those on the east coast of South America. One example will be sufficient to show the distance saved by using the Panama Canal in making connections between these ports.

The distance from San Francisco to Perambuco, Brazil, (the most westerly port of South America) via the Strait of Magellan, is 9,746 nautical miles. Via the Panama Canal, the distance is 6,746 miles. The Panama Canal has thus reduced the distance by 3,612 miles.

The distance from San Francisco to ports south of Perambuco will, compared according to the above data, be shorter by way of the Strait of Magellan and longer by way of the canal. Conversely, the distance to ports north of Perambuco will be longer by way of the Strait and shorter by way of the canal. Note - this is in comparison with the figures relating to Perambuco, as shown above.

(f) Between western U. S. and Europe

The distance from San Francisco to Liverpool via the Strait of Magellan is 13,502 nautical miles. Via the Panama

Canal, the distance is 7,837 miles; thus giving a reduction of 5,666 miles.

From San Francisco to Hamburg via the Strait, the distance is 13,883 miles. Via the Panama Canal, the distance is 8,355 miles. The canal has, therefore, reduced the distance by 5,528 miles.

From San Francisco to Freetown, Serria Leon, Africa; the distance via the Strait of Magellan, is 11,380 nautical miles. Via the Panama Canal, the distance is 7,277 miles. The canal has thus reduced the distance by 4,103 miles.

See exhibit "B" page 24 for tabulated summary of distances between commercial ports in the United States and those in foreign countries.

EXHIBIT - "B"

TABLE SHOWING DISTANCES BETWEEN COMMERCIAL PORTS IN U.S. AND FOREIGN COUNTRIES

Ports	Via Magellan	Via Panama	Miles saved	Days saved
New York to Frisco	13,135	5,262	7,873	33
New York to Iquique	9,143	4,004	5,139	21
New York to Callao	9,613	3,363	6,250	26
New York to Valparaiso	8,380	4,633	3,747	16
New York to Guayaquil	10,215	2,810	7,405	30
New York to Honolulu	13,312	6,700	6,612	28
New York to Manila	11,589*	11,548**	41	-
New York to Hong Kong	11,628*	11,383**	245	1
New York to Yokohama	13,506*	9,699**	3,357	14
New York to Shanghai	12,525*	10,649	1,876	8
New York to Sidney	13,306***	9,691	3,612	15
New York to Wellington	12,852	10,030	2,822	12
New Orleans to Frisco	13,551	4,683	9,969	37
N. O. to Valparaiso	8,792	4,050	4,722	20
New Orleans to Iquique	9,559	3,425	6,134	25
Frisco to Perambuco	9,748	6,746	3,002	13
Frisco to Liverpool	13,502	7,836	5,666	24
Frisco to Hamburg	13,883	8,355	5,528	23
Frisco to Freetown	11,380	7,277	4,103	18

NOTE - Mileage and days saved are based on 10-knot steamer traveling 240 nautical miles in 24 hours.

* Via Suez Canal
** Via San Francisco with calls at certain intermediary ports
*** Via Cape of Good Hope.

SOURCES: 1929 World Almanac - pages 700 to 708
Panama Canal Bulletin August 1927 - pages 11 and 12
Johnson "Panama Canal and Commerce" pages 24 to 47
Nida "Panama and Bridge of Water" - page 204
Saavedra "The Golden Book" - pages 8 and 9 (table suppli.)

3. Economy in cost of operating vessels

It has been pointed out in the preceeding discussion that the Panama Canal has made possible a considerable reduction in the mileage and time required for vessels to sail between the two seaboards of the United States and from either seaboard to foreign countries. But this reduction would not be economically beneficial to all concerned if the costs of operating vessels were not proportionally reduced. That is to say, if all the savings resulting from the use of the canal had to be spent for use of the canal, or if it costs more to use the canal than the cost of sailing over the old route, there would be no inducement for vessels to use the canal; except for whatever advantages to be gained by an earlier arrival at the port of destination.

This matter was fully considered by the government in determining the rates to be charged commercial vessels using the canal; namely, $1.20 per net canal ton for laden ships and 40¢ per net canal ton for vessels in ballast. These were, in part, the rates established in 1912 to be charged commercial carriers. A discussion of the present rates will be given in a later chapter.

To what extent, therefore, has the Panama Canal reduced the operating expense of vessels making voyages via the canal? The savings vary according to the type and speed of the vessel, the route taken, the carrying capacity of the ship, and the question of its having cargo or sailing in ballast.

No information could be secured showing an actual test of the savings of a particular vessel, but the estimated savings can be measured from the following quotations:

> "For the 8-knot vessels, which are most used in the large grain traffic from the west coast of the United States to Europe, the canal shortens the time at sea 23 days and reduces the operating cost per trip from port to port as much as $6,000 or $7,000. After taking from the amount thus saved the sum required to pay toll charges for use of the Panama Canal, the owners or users of the vessels in the grain trade will gain $1,500 on the average for each trip via Panama instead of by the Strait of Magellan, and will, in addition, because of the reduced time spent at sea, be able to secure more transportation service each year and presumably larger gross and net returns from the vessels owned or controlled".

(Johnson "Panama Canal and Commerce" page 33)

This estimate was made in 1916; but the savings will be much higher today for three reasons:

1. The average speed of steamers in the trade between the west coast of the United States and Europe ranges between 10 and 15 knots an hour; thus shortening the time at sea and providing greater economy than that represented by the figures quoted above.

2. The cost of operating a ship has risen more than 50% since 1916.

3. The charges for using the canal have virtually remained unchanged since 1916.

In general, the savings will be much higher today because canal charges have not increased in line with other expenses for operating a vessel.

To throw further light on the savings that arise from the use of the canal, the following quotation is given:

> "If the cost of operating a ship be taken at 20¢ per net ton a day (and this, of course, varies greatly as among ships, depending on the vessel and the route over which she is operating) the cost of the tolls on a laden ship is equivalent to six days of operation at sea. On such an assumption, other considerations being equal, if a ship saves six days in her voyage by using the canal, it is profitable to come this way. Translated into distance, a 10-knot ship, traveling 240 nautical miles a day, will save by using the canal if it shortens the distance by 1,440 miles. On this basis, a ship in ballast can profit by using the canal if it saves 3-2/3 days".

(Panama Canal official information bulletin of August 1927 - page 11.)

To illustrate the foregoing more clearer, if the operating cost of a steamer of 5,000 net ton capacity is 20¢ per net ton per day, the cost of six days sailing, if that number of days is saved in a voyage, will pay the charges for using the canal which, figuring at $1.20 per net ton, total $6,000. Again, if a 10-knot steamer traveling 240 miles a day with operating expense of $1,000 a day, uses the canal and by so doing saves six days or 1,440 miles, the amount saved or $6,000 will be sufficient to pay canal charges.

Attention is directed to exhibit "B" page 24 which shows the number of miles and days saved by ships using the canal. This will readily throw light on the savings and reduced operating expenses of vessels using the canal when compared with the expenses incurred in making voyages over the old route.

4. Cost of transportation and commodities

It is unncessary to say that if the operating cost of the maritime carrier is reduced by means of the canal, the freight rates of the carrier will be reduced pro tanto or otherwise. And if the cost of transportation is reduced, the price of commodities will also be reduced.

To this extent, therefore, the canal has reduced the cost of transportation, the result of which is a reduction in the cost of commodities and an increase in the income of both producer and consumer.

3. Effect on railroad transportation

The trans-continental railroads in the United States have always been in competition with ocean carriers for trade between the two seaboards of the United States. This arises from the fact that, in addition to using the Strait of Magellan and Cape of Good Hope, ocean carriers were able to use the Panama Railroad and the Mexican Railroad for trans-shipment of goods between the Atlantic and Pacific coasts of the United States and foreign countries.

The Panama Canal has opened the way for greater competition between these carriers and were it not for certain legislative regulations, agreements between railroad and steamship companies, and an amicable adjustment of rates, competition today would be very severe. The effect of the Panama Canal on the railroads concerned is summarized in the following paragraphs.

(a) U. S. trans-continental railroads

The gradual development of the western states after the Civil War and the inter-regional trade resulting from it, led to the expansion of trans-continental railroads in the United States. With the exception of subsequent economic depression, the railroads did a large volume of business in trans-continental trade. These trans-continental roads, however, were subject to indirect competition of the Panama Railroad and the Mexican Railroad; because ocean carriers, finding it more economical to trans-ship goods

over these routes, were offering producers substantially low rates for shipments between the Atlantic and Pacific coasts of the United States. In fact, the American-Hawaiian Steamship Company, one of our largest coast-wise carriers, had, in 1907, sixteen of its vessels making trans-shipments via the Mexican railroad instead of sailing around South America via the Strait of Magellan. This led to frequent adjustments of local railroad freight rates, each providing substantial reductions in certain "zones" and on specified commodities shipped to either the Atlantic of Pacific coast.

As previously mentioned, the Panama Canal has created a more competitive situation. The shorter route made it possible for ocean carriers to quote lower rates, especially on bulky and heavy articles, than could the railroads. In 1915, the Interstate Commerce Commission made an adjustment of railroad rates to meet this competition by increasing intermediary and reducing terminal rates. The Transportation Act of 1920 has virtually followed the "zone" and "commodity" policy of fixing rates so as to enable health competition between these two classes of carriers. As a result of legislative regulations and agreements between railroad and steamship companies, the railroads are now receiving a share of this trans-continental freight without the necessity of resorting to cut-throat competition.

An effort has been made to secure the annual tonnage of

through freight moving over the railroads between the Atlantic and Pacific coasts of the United States. This data, when compared with the coast-to-coast freight carried by steamers, as shown in exhibit "C" page 32, would give a clearer picture of the relation between the tonnage of railroad and steamship freight carried between the two seaboards of the United States. But the data given in the various railroad publications are not arranged to facilitate this computation, hence the comparision is not made.

EXHIBIT - "C"

FREIGHT CARRIED BY STEAMERS VIA THE PANAMA CANAL BETWEEN ATLANTIC AND PACIFIC PORTS OF THE UNITED STATES

(expressed in tons of cargo)

YEAR	ATLANTIC TO PACIFIC	PACIFIC TO ATLANTIC
1915	1,134,673	1,101,829
1921	698,429	673,959
1922	1,288,075	1,274,542
1923	2,608,307	5,460,246
1924	2,719,240	10,808,138
1925	2,213,603	7,282,656
1926	2,435,748	7,633,856
1927	2,638,786	7,921,719

Source: Panama Canal Reports years 1915-1927

(b) Panama Railroad

In 1855 when there were incessant demands for trans-continental transportation in the United States, the Panama Railroad was built by American capitalists for the purpose of establishing shorter maritime connections between the two seaboards of the United States and assisting in the development of the western states. Like the trans-continental railroads in this country, the Panama Railroad did a large volume of business during the years following its completion. As mentioned in a prior discussion, the Panama Railroad had to compete not only with the trans-continental railroads in the United States but also with the Mexican railroad for trans-shipment trade. Accordingly, the volume of traffic fell off after 1870; but the railroad nevertheless continued to share an appreciable portion of this inter-coastal commercial traffic.

The opening of the Panama Canal has virtually crippled the through commercial traffic of the Panama Railroad. Its operation is now chiefly confined to local carriage, the volume of which is increasing annually according to the increased commercial activities of the Canal Zone and the Republic of Panama. Except for local commercial freight and governmental uses, therefore, the utility of the Panama Railroad in connection with the inter-coastal and foreign commerce of the United States is rather insignificant.

The submission of statistics for the last two years will be sufficient to show the relation of cargo shipments via the Panama Canal to the through commercial freight carried over the Panama Railroad.

Year	Through commercial freight carried over Panama Railroad	Total tons of cargo carried via Panama Canal
1926	64,590*	26,037,448**
1927	65,689	27,748,215

* See 78th. Annual Report of Directors of Panama Railroad Company - page 41.

** See Report of Governor of Panama Canal for year 1927 - page 6.

This, then, is one of the direct effects of the Panama Canal upon the volume of freight traffic over the Panama Railroad.

(c) Mexican Railroad

What has been said concerning the effect of the canal upon the trans-continental railroads in the United States and the Panama Railroad is also true in regard to the isthmian railroad at Tehuantepec, Mexico. This railroad, connecting Peurta Mexico on the Atlantic with Salina Cruz on the Pacific, has been, for many years, the avenue through which shipments were made between the two oceans. The Tehuantepec route was open to traffic in 1907 when the American-Hawaiin Steamship Company which, at that time, had sixteen of its ships in the Atlantic-Pacific trade, secured from the Mexican

Government a concession to use the road as a connecting link in the chain of ocean traffic between the two seaboards of the United States and the Far East.

The opening of the Panama Canal in 1914 has completely diverted the trade from this route to the more direct and economical route - the Panama Canal. As a result of this diversion, the volume of through freight over the Tehuantepec railroad has been considerably reduced.

5. Effect on domestic commerce

The main contribution of the Panama Canal to the domestic commerce of the United States are:

1. Greater accessibility to source of raw materials
2. Creation of markets for American agricultural and manufactured goods.
3. Lower transportation costs.
4. Reduced cost of manufactured goods
5. Increased volume of production.
6. Expansion of agricultural pursuits
7. Stimulus for establishing new industries
8. Better economic and social status of employer and employed.

The presence of these conditions in the various sections of this country will be observed after we have analyzed and compared the industrial and commercial activities of the United States since the opening of the Panama Canal.

(a) Commerce and industry in states on Pacific

The economic life of the western states as compared with that of the eastern states, is founded chiefly on agriculture. This refers not only to agriculture in its specific terminology but also to the mining and manufacturing of agricultural products conducted in the western section of the country.

Before the canal was built, raw products and manufactured goods going from this section for further manufacture, local distribution or shipment abroad; were heavily burdened by high railroad and steamship rates to the eastern seaboard of the United States. The products subjected to this high transportation cost were chiefly lumber, iron, steel, mineral oils, fruits and animal products.

The Panama Canal has caused a substantial reduction in transportation charges across the continent, both by rail and by water. It has enabled western products to find a profitable market not only in the eastern states but also in foreign countries. The market established as a result of the canal has led to the development of more agricultural lands in the west and the expansion of industries in this region.

Exhibit "D" page 43 shows the development of manufacture and agriculture in the United States since 1914. It also furnishes a comparison of the growth and value of industries in the various regions of the country for 1914 (the year the canal was open to commerce) and 1925. From this data, it will be seen that the value of the products of the Pacific

states alone has increased more than three times during the period 1914-25; using the year 1914 as the basis for reckoning.

The reader may rationally infer from the data given that the canal has not given directly any material assistance in this industrial expansion. But when we discuss in later chapters the effect of the canal on the foreign commerce of the United States, the commodity movements via the canal to foreign countries and between the two seaboards of the United States, it will be fully observed from the annual increase in the volume of traffic, that the canal has weilded and is still weilding a commanding influence in the industrial expansion of the western and other sections of the country.

(b) Commerce in central states

The contribution of the Panama Canal to the economic development of the central states (or north central states) is not as great as its contribution to the development of other sections of the country. The reason for this is that both foreign raw materials and native manufactured goods must be carried quite a distance from seaboard overland, either by rail or water, to or from this territory. If ocean steamers were able to carry the products of this territory by sailing from Duluth, Minn., cruising around the Great Lakes, going down the Mississippi river to the Gulf of Mexico and then passing on to the Pacific or Asian ports via the Panama Canal, a great reduction in trans-

portation cost would result; thus giving this territory greater possibilities for industrial and commercial expansions.

The direct advantages of the canal to this territory, then, are the benefits arising from reduced cost of transportation of its products from either the southern or eastern seaboard of the United States to foreign countries.

The principal products of this territory are - corn, animal products, manufactures of iron and steel, i.e. automobiles; wheat, coal, iron, steel and rubber goods. Except for the reason given above, the Panama Canal does not confer a direct benefit to the development of some of the states within this section of the country, especially those producing wheat and grain, because the countries (South America, Far East and Oceania) whose distance to the Atlantic coast of the United States is shortened by the Panama Canal, are not important purchasers of American wheat and grains. The principal purchasers of these products (including corn and flour) are the United Kingdom, Germany, Italy, France, Belgium and Netherlands; and as shipments are made from the Atlantic seaports of the United States in most cases direct to Europe, the role of the Panama Canal in developing this industry is relatively unimportant. The canal, however, plays an important part in developing the other industries of this territory in so far as reduced cost of transportation from the Atlantic seaboards of the United States to

foreign countries is concerned. As already explained, inland transportation from seaboards to this territory operates as an hindrance to greater prosperity of this territory.

(c) Industry and commerce of the South

What has been said concerning the advantages to be gained by the central states if ocean steamers could sail from the Great Lakes down the Mississippi to the Carribean, would also be true in regard to the interior section of the southern states.

However, the southern states as a whole have been immensely benefited by the Panama Canal because New Orleans, the principal southern port of shipment, is brought much nearer to San Francisco, Western South America, Oceania and the Far East by reason of the Panama Canal.

In regard to domestic commerce, the southern states have greatly expanded production in agriculture, mining and manufacturing since the opening of the canal. The producers of cotton and cotton goods are more effectively competing with British East India cotton in both Far Eastern and South American markets. The coal, iron and steel from Alabama and Tennessee have also found a better market in South America and the Far East.

It is not very difficult to appreciate the value of the canal to the southern producers; bearing in mind that this study is not intended to embrace competitive prices in foreign markets or the many factors which enter

enter into the functions of production and distribution. Before the canal was built, American producers of cotton and cotton goods had to ship their products via the Strait of Magellan or over isthmian railroads in order to place them in the markets of western South America or Oceania; and had to make shipments via the Suez Canal in order to reach the Far Eastern countries to which Great Britain had a greater advantage in distance. The same is true in regard to the producers of iron, coal, steel and other southern products. The canal has now, in general terms, equalized the distance between New York and the Far East to that between Liverpool and the Far East. This has enabled the southern producers to compete more effectively with Great Britain for trade in these countries. The canal has also reduced the distance from the United States to South America, thus providing a ready market for the products of the southern states.

The expansion of the market in South America and the Far East necessarily requires increased production; and this results in greater prosperity for southern producers, wage-earners, and the general population of this territory. The extent of this development is summarized in exhibit "D" page 43.

(d) Commerce of north-eastern states

To the north-eastern section of the United States (from Pennsylvania to Maine) the Panama Canal has conferred a great benefit. This is the greatest manufacturing

section of the country. In 1919, the value of products manufactured in this section (New England and Middle Atlantic states) amounted to 43.5 per cent of the total manufactures of the country.* In 1925, the percentage was 42.8 of the total.** This naturally leads to the question - to what extent does the Panama Canal contribute an advantage to the manufacturing pursuits of this section of the country?

Before answering the question, it might be well to explain that the reason for the reduced percentage of manufactures in the eastern states, as shown above, is due to the development of manufacturing in the central and western states.

The question can now be answered, briefly, by saying that the direct advantage of the Panama Canal to this section of the country is the reduction in the cost of transportation of unfinished products coming from the Pacific coast of the United States, the reduction in the cost of raw materials from foreign countries via the canal, the reduced cost of manufactured goods, the reduced cost of transportation of these goods to all foreign markets and the ability of American manufacturers to compete with other manufacturers for foreign trade.

To illustrate further some of these advantages; the reduced transportation cost in receiving raw silk from

* See Faulkner - "American Economic History" page 559
** Compiled by the author from exhibit "D" page 43,& 44 based on 1928 Statistical Abstract - page 780.

China for the mills in New Jersey; hides and skins from western South America and Australia for the shoe factories in New England; nitrates from Chili for the foundries in Pennsylvania; copper from Peru for many industries in the several states; sugar from Hawaii for the refineries in New York; and unfinished goods from Califonia and other western states - most of which pass through the Panama Canal - are some of the advantages which the canal contributes to the development of industries and the expansion of domestic commerce in the northeastern section of the United States.

EXHIBIT - "D"

GROWTH OF MANUFACTURES IN THE UNITED STATES

Year	number of industries	Number of wage earners	Amount of capital	Value of products
			(in thousand of dollars)	
1909	268,491	6,615,046	$18,428,270	$20,672,052
1914	275,791	7,036,247	22,790,979	24,246,434
1919	290,105	9,096,372	44,688,094	62,418,079
1923	196,309	8,778,156	34,705,697	60,555,998
1925	187,390	8,344,261	?	62,713,713

Note - The number of industries is reduced because of the recent policy of establishing indastrial combinations.

GROWTH OF AGRICULTURE

(INCLUDING CROPS AND ANIMAL PRODUCTS)

Year	Value of products in million of dollars
1910	7,192
1914	8,165
1915	10,359
1922	11,211
1924	12,219
1925	13,034

Source: 1928 Statistical Abstract, pages 605 and 749.

EXHIBIT "D" - CONTINUED

GEOGRAPHICAL EXPANSION OF INDUSTRIES IN THE UNITED STATES

(Comparing the years 1914 and 1925)

Regions	Year	Number of industries	(in thousand dollars) Value of products
New England	1914	25,193	$2,926,675
	1925	18,173	6,161,009
Middle Atlantic	1914	85,466	8,053,644
	1925	58,895	19,409,491
East North Central	1914	59,896	6,542,261
	1925	42,888	19,026,814
West North Central	1914	27,199	2,032,192
	1925	16,280	4,724,411
South Atlantic	1914	28,925	1,682,999
	1925	16,576	4,535,222
East South Central	1914	14,410	700,668
	1925	8,080	1,808,702
Mountain	1914	6,079	165,353
	1925	3,849	367,968
West South Central	1914	12,417	802,538
	1925	7,887	2,546,506
Pacific	1914	16,206	1,067,889
	1925	14,762	3,455,241

Source: 1928 Statistical abstract - page 780

Note: The smaller number of industries in 1925 is due to industrial combinations.

The year 1914 is taken as the basis for comparison because the canal was open in that year.

From the foregoing discussion and data given in exhibit "D", it will be seen that the industrial and commercial activities of the United States have been greatly expanded since the opening of the canal in 1914. It will be necessary, at this point, to show the class of commodities and the quantity of goods passing through the canal since this expansion began. These are summarized in exhibits "E", "F" and "G" on the following three pages. As the nature of this study is more analytic than reproductive, a chronological statement of the commodity and cargo movements via the canal is not given. Instead, the fiscal year 1914-5 (the begining of canal operations) is given as the basis for comparing the commercial activities of the canal during the years 1921 to 1927.

Exhibit "E", page 47, gives a partial list of the tonnage of each commodity passing annually through the canal. No statistics are available to show the tonnage of each class of commodity going to or coming from the United States. In absence of this, exhibit "F" is prepared.

Exhibit "F", page 48, shows the total tonnage of all commodities (without classification) passing annually, in both directions, through the canal; and the proportion of this cargo going to or coming from the United States. It will be observed that nearly 70% of the total tonnage of cargo passing through the canal in both directions (using the year 1927 as an example) are goods shipped to or from American ports.

This traffic gives evidence of the markets, home and foreign, that have been created for American products and the resulting development and expansion of American industries. Referring again to exhibit "F", it will be seen that the tonnage of cargo shipped from the Pacific to the Atlantic is much greater than the traffic the other way. This is due chiefly to the large volume of products, particularly mineral oils, shipped from the west coast of the United States, i. e. Califonia, to the east coast of the United States and foreign countries. This leads to an enquiry of the relation of the coastwise traffic to the general traffic via the canal to and from United States ports. Exhibit "G" is therefore prepared.

Exhibit "G", page 49, shows the ralation of American coastwise trade via the canal to the total cargo shipments going to or leaving from the United States via the canal. It will be observed (using the year 1927 as an example) that more than 50% of the tonnage of cargo going to or coming from the United States by way of the Panama Canal, belong to the coastwise trade between the two seaboards of the United States. The balance, of course, belongs to foreign trade.

Exhibit "G" has another significance. It shows the volume of trade the railroads have lost as a result of the canal (see discussion ante) and the amount of business the steamships are now doing in this inter-coastal trade.

EXHIBIT - "F"

SHOWING SOME OF LEADING COMMODITIES SHIPPED VIA CANAL

(expressed in tons)

ATLANTIC TO PACIFIC

Commodities	1914 *	1924	1925	1926	1927
Mfg. of iron & steel	248,986	1,691,712	1,416,135	1,525,280	1,971,964
Mineral oils	23,531	1,079,137	948,451	721,817	649,279
Cotton	52.976	100,925	145,604	226,092	361,241
Sugar	21,103	32,952	91,461	158,997	282,912
Cement	-	303,724	359,831	283,328	222,817
Sulpher	-	146,712	165,925	188,889	211,625
Tin	-	191,733	145,188	202,733	194,111
Railroad materials	100,017	192,537	138,740	150,993	189,858
Phosphates	-	25,473	67,206	102,654	187,511
Machinery	48,370	181,112	133,024	134,411,	172,150
Paper	-	90,885	101,827	101,493	150,722
Ammonia	-	78,813	88,199	108,104	134,977
Automobiles	-	110,351	124,972	125,820	127,882
Coal	386,788	191,488	159,251	222,288	96,772
Textiles	-	90,207	94,132	78,770	91,967
Coke	-	90,447	96,114	93,344	89,750
Iron (metal)	-	94,745	51,867	47,490	60,216
Agricultural impl.	-	40,529	40,223	38,976	52,438

PACIFIC TO ATLANTIC

Mineral oils	35,363	9,721,446	5,989,622	5,930,716	7,143,165
Lumber	256,067	1,824,438	2,255,421	3,200,311	3,139,113
Wheat	231,439	1,352,388	1,078,844	1,187,384	1,477,376
Iron ore	136,154	888,198	1,045,383	1,334,408	1,403,737
Nitrate	1,074,961	1,744,580	2,155,814	1,878,050	1,174,384
Canned fruits	65,614	229,691	255,688	356,609	403,270
Canned vegitables	-	16,177	27,391	28.908	60.984
Fresh fruits	-	25,063	45,376	63,495	97,969
Dried fruits	-	103,469	155,832	150,229	200,433
Canned fish	-	151,201	165,071	168,701	209,491
Cold storage food	-	142,830	202,781	221,068	245,520
Sugar	391,682	286,782	300,465	318,039	427,035
Copper, metal	67,222	270,688	211,168	319,045	357,456
Barley	229,361	266,958	236,115	315,535	344,341
Wool	-	84,696	91,586	116,092	129,906
Coffee	-	102,451	81,881	104,739	113,313
Skins & hides	-	51,595	46,875	48,479	58,976
Copper ore	-	85,947	100,289	79,104	62,436

This is a partial list of the commodities.

* Johnson - Panama Canal and commerce - page 103
For other years - see Panama Canal 1927 report, page 14

EXHINIT - "F"

STATISTIS COMPARING TOTAL TONNAGE OF CARGO GOING THROUGH CANAL WITH PORTION SHIPPED TO AND FROM UNITED STATES PORTS - NOTING YEARS 1915 and 1921 to 1927

	ATLANTIC TO PACIFIC		PACIFIC TO ATLANTIC	
Year	Total cargo via canal	Portion from U.S. ports	Total cargo via canal	Portion from U.S. ports
1915*	2,873,007	2,528,819	3,833,908	2,266,450
1921	5,892,078	3,712,029	5,707,136	1,948,848
1922	5,495,934	3,771,441	5,388,976	2,867,819
1923	7,086,259	5,029,125	12,481,616	7,455,582
1924	7,860,100	5,467,255	19,134,610	14,453,405
1925	7,348,397	4,815,528	16,560,439	11,059,409
1926	8,037,097	5,366,433	18,000,351	12,151,661
1927	8,583,327	5,782,266	19,164,888	13,722,868.

* Year 1915 compliled from Johnson's "Panama Canal and Commerce" - page 99.

Other years compiled from 1927 Panama Canal Report - page 134.

EXHIBIT - "G" -

STATISTICS SHOWING TOTAL TONNAGE OF CARGO SHIPPED TO OR FROM UNITED STATES PORTS VIA THE PANAMA CANAL - WITH PORTION BELONGING TO COASTWISE TRADE

	ATLANTIC TO PACIFIC		PACIFIC TO ATLANTIC	
Year	Total cargo from U.S. via canal	Portion for coastwise trade	Total cargo from U.S. via canal	Portion for coastwise trade
1915*	2,528,819	1,134,673	2,266,450	1,101,829
1921	3,712,029	698,429	1,948,848	673,959
1922	3,771,441	1,228,073	2,295,715	1,274,452
1923	5,029,125	2,608,307	7,455,582	5,460,246
1924	5,467,255	2,719,240	14,453,405	10,808,138
1925	4,815,528	2,313,603	11,059,409	7,282,656
1926	5,366,433	2,435,748	12,151,661	7,633,856
1927	5,782,266	2,638,756	13,722,868	7,921,719.

* Compiled from "Johnson's "Panama Canal and Commerce" page 99.

Other years compiled from 1927 Panama Canal Report pages 12 and 134.

6. Effect on foreign commerce of U. S.

One of the greatest contributions to the expansion of the foreign trade of the United States, especially the trade with South America and the Far East, is the Panama Canal. As shown in exhibit "B" page 24, the canal, by reducing the length and time of voyages, has enabled the products of the United States to be brought to the doors of these countries at a comparatively low cost. This is one of the canal's foremost contributions.

But the mere reduced transportation cost or nearness to market could not, in itself, result in this commercial expansion. Other equally important factors, a few of which are listed below, must be considered in determining the cause for this expansion and in evaluating the services of the canal in regard to foreign trade. These factors are:

1. Tariff regulations and treaties.
2. Ability of American producers to meet foreign competition.
3. Economy and efficiency of production
4. Adoption of effective merchandising policies and practices.
5. Efficient and economical ocean carriers.
6. Adequate banking and trade facilities.
7. Attitude of foreign purchaser or his government to the seller or his government.

This explanation is given as a foreword to the study of the advantages and disadvantages of the canal to the foreign trade of the United States. In other words, the effect

of the canal on the expansion of the foreign trade of this country must be considered together with other important factors which enter into foreign trade.

(a) Advantages

As a general matter, all the countries to which the distance from the United States has been shortened by the Panama Canal have become better markets for American products. But as we are interested in the most important markets and the principal products of this and other countries, only those countries and products which play an important part in our foreign commerce, via the canal, need be analyzed. To do this, it will be necessary to divide the trade into four groups; according to the popular trade routes:

1. Western U. S. and Europe
2. Eastern U. S. and Wester South America
3. Eastern U. S. and Far East
4. Eastern U. S. and Oceania.

1. Western U. S. and Europe

As already explained, the Panama Canal has reduced the distance from the west coast of the United States to Eueope by over 5,000 miles. This would necessarily result in lower transportation charges and reduced price of American products in European markets. The general trend of shipments from the west coast of the United States to Eueope, via the canal, during the past seven years (with the year 1915 given as a basis for comparision) is shown on the following page.

Cargo shipments via Panama Canal - from West Coast of United States to Europe (both ways) in tons.

Year	PACIFIC TO ATLANTIC Exports from U.S. to Eueope	ATIANTIC TO PACIFIC Imports from Europe to U.S.
1915	842,617	127,376
1921	1,154,840	144,591
1922	1,302,183	186,696
1923	1,020,090	375,700
1924	1,231,230	427,992
1925	1,157,556	334,761
1926	1,331,622	324,540
1927	1,821,255	199,105

Source: Johnson "Panama Canal and Commerce" page 99 for year 1915.
Panama Canal Reports for years 1921 to 1927, see page 12 in 1927 report.

No records are available to show in details the "value" of each commodity shipped through the Panama Canal. The reason for this is that transit charges are levied according to the net tonnage of vessels; and the tonnage of cargo is recorded only for statistical purposes. Hence, it is not possible to give the value of the cargo shipped via the canal to any particular country. This data, therefore, represents the exports and imports (in tonnage of cargo) between the west coast of the United States and Europe; passing through the canal.

The commodities making up this cargo consist chiefly of wheat, grain, canned fruits and vegitables, and other

agricultural products. The volume of trade (in dollars) will be discussed under "European competition with the United States in Foreign trade".

1. Eastern U. S. and Western South America

Before the canal was open to commerce, the trade of western South America (and the eastern for that matter) was virtually monopolized by European countries. The South American producer would export to Europe nitrates, copper, animal products, grain, wheat and other agricultural products; and receive in return manufactured goods, consisting chiefly of machinery and textiles.

One of the chief hindrances to the American export trade was the high freight rates of American ocean carriers, as compared with the low European rate and low-priced European goods. Another was the fact that European ships would occasionally make the trip to South America in ballast for the purpose of transporting the products of these countries to Europe, which American carriers could not readily do because of the higher operating costs involved.

The canal has completely changed the picture; both as regard freight rates to South America and the movement of raw materials and finished goods. It has reduced the distance between New York and the chief shipping ports of South America by an average of 6,000 miles and has provided a fruitful source for raw materials and a profitable market for the manufactured goods of this country. The movement of cargo between this region and the United States, via the canal, is shown on the following page.

Cargo shipment via Panama Canal - between
East Coast of United States and West Coast South America

(in tons of cargo)

Year	ATLANTIC TO PACIFIC Exports from US to S/America	PACIFIC TO ATLANTIC Imports from S/America to US
1915	399,776	963,326
1921	933,261	975,574
1922	244,514	548,609
1923	275,313	1,779,210
1924	373,348	2,329,281
1925	377,864	2,661,756
1926	423,730	2,816,346
1927	412,835	2,518,661

The increased tonnage of imported cargo over exported is due to the greater demand of American industries for raw materials comprising chiefly of nitrates, iron ore, mineral oils, copper, coffee, cacao and such other products that cannot be economically produced in this country. And what is more significant is the fact that most of the goods coming from these countries are again exported to them in the form of finished goods.

Another reason for this difference in the volume of cargo shipped via the canal is that some steamers leaving the Atlantic ports of the United States make the trip to the west coast of South America by going through the Strait of Magellan so that calls might be made at intermediary

Source of statistics:
Panama Canal Reports 1921-27. In 1927 volume - page 12
Johnson "Panama Canal and Commerce" - page 99

ports on the Atlantic and Pacific coasts and, in the return voyage, pass through the canal with cargo for the United States. This would naturally show a greater amount of cargo passing through the canal from South America than the amount going to western South America.

3. Eastern U. S. and Far East

The benefits of the Panama Canal to the trade of the United States with the Far East do not arise chiefly from any noticeable reduction in the length of voyage but from the economies resulting in the purchase of fuel and other supplies by the carrier from the Panama Canal or other American supply stations; and the advantage of receiving trade at certain intermediary ports in the voyage to the Far East.

As pointed out in exhibit "B" page 24, the distance from New York to many ports in the Far East, with calls at certain ports en route, is practically the same via the canal as via the Suez. And while a thousand miles is saved via the canal to Yokohama or Shanghai, a voyage from New York will, by reason of trade advantages, be just as economical or profitable by way of Panama as it is via Suez.

What the canal has really done in connection with trade between the United States and the Far East, is to equalize the distance between eastern United States and Far East to that between western Europe and Far East. And this is a great advantage because American shippers were formerly handicapped by the distance across the Atlantic

Ocean when making the voyage to the east via the Suez.

The commerce of the United States with the Far East depends largely upon the extent of our demand for raw silk, tea, rice, matting and Hawaiian sugar; and their demand for manufactures of iron and steel, mineral products, machinery, agricultural products and manufactured textiles.

The movement of cargo between the United States and the countries in the Far East, via the canal, is shown on the following page.

Cargo shipment via Panama Canal - between east coast of United States and Far East.

(in tons of cargo)

Year	ATLANTIC TO PACIFIC Exports from US to Far East	PACIFIC TO ATLANTIC Imports from Far East to US
1915	994,370*	201,295*
1921	1,213,906	428,044
1922	1,728,172	303,315
1923	1,466,013	443,272
1924	1,504,275	295,003
1925	1,234,608	266,269
1926	1,421,214	353,834
1927	1,576,151	407,313

* Includes shipments to Australasia.

Source: Johnson "Panama Canal and Commerce" page 99
Panama Canal Reports 1921-27. 1927 Report pages 12 and 13.

Note: This data represents the movement of cargo between the east coast of the United States and the Far East, via the Panama Canal. It does not include shipments made via the Suez Canal or shipments to or from the west coast of the United States.

4. Eastern U. S. and Oceania

The trade of the United States with Oceania is greatly stimulated by the Panama Canal. The canal has reduced the distance from New York to Sydney (Australia) to about 9,000 miles and to Wellington (New Zealand) about 8,000 miles. The distance from Liverpool to these ports via the Suez (the shortest route, except to Wellington via Magellan) is about 12,000 respectively. The United States has therefore acquired a decided advantage over Europe in transportation costs to Oceania and the marketing of American products in these countries. However, the commerce of the United States with these British possessions is subject to Imperial Preference and other factors incidental to foreign trade.

The products exported from these countries are chiefly wool and grain, the first being the principal item going to the United States; and the imports, to which the American producers are subject to competition, are chiefly iron and steel, machinery, textiles and general manufactured goods.

mThe movement of cargo, via the canal, between the United States and these countries, is shown on the following page.

Cargo shipment via the Panama Canal - between east coast of United States and Oceania.

(in tons of cargo)

Year	ATLANTIC TO PACIFIC Exports from US to Oceania	PACIFIC TO ATLANTIC Imports from Oceania to US
1921	620,428	147,877
1922	288,090	45,957
1923	462,057	72,534
1924	587,481	47,777
1925	663,619	28,195
1926	727,406	33,087
1927	795,161	33,758

Source: Panama Canal Reports 1921-27. In 1927 report see pages 12 and 13.

The foregoing chapter is given to show the direct advantages of the canal to the foreign commerce of the United States without showing a comparison with the commerce of other countries. This will be discussed in a later chapter.

(b) Disadvantages

Throughout the discussion, so far, an attempt has been made to show the relative importance of the canal to the commercial activities of the United States. There is, however, a condition which may properly be called a disadvantage; and that is, the opportunity which the canal offers other countries to compete with the United States in foreign trade. This opportunity arises from a treaty which provides that the canal shall be "open to vessels of commerce ..... of all nations ..... on terms of entire equality". (Article 1 - Hay-Pauncefote Treaty of 1901 between the United States and Great Britain.)

This clause of the treaty prohibits discriminatory rates for using the canal and, with the distance saved by foreign countries using the canal, has given rise to even greater competition for trade between the United States and foreign countries than hitherto existed. In other words, instead of the United States becoming the sole beneficiary of the services offered by the canal, she is sharing its virtures on terms of "entire equality" with other commercial nations.

However, after evaluating the advantages and disadvantages of the canal in relation to the domestic and foreign commerce of the United States, there appears the following conditions.

1. The canal has stimulated economic incentives in the countries brought nearer to the United States through our purchase of raw materials and sale of finished goods.

2. It has enabled the expansion of our foreign trade by reducing the cost of transportation and the cost of commodities.

3. It has increased the productivity and has promoted the general welfare of the American people.

4. It has made the United States a firmer competitor with Europe in the important markets of the world.

111 - COMMERCE OF EUROPE

1. Economic advantages

It is unnecessary to discuss in this chapter the interest which Europe manifested in the establishment of a canal across the Isthmus of Panama. It will be sufficient to refer the reader's attention to Chapter 1 on the historical aspect of the canal, the various projects which arose from European sources, and the treaties between Great Britain and the United States providing for the neutrality of the canal and its use by all nations of the world on terms of entire equality. Europe, for many centuries, saw the necessity for an inter-oceanic waterway across Panama and realized the importance of such a waterway in expanding her commercial activities,and improving her social and political conditions.

To Europe, therefore, the Panama Canal, from a commercial point of view, has five significant features:

1. It has shortened the length and time of voyages to countries in the Pacific.
2. It has reduced the cost of transportation and the price of European goods.
3. It has expanded the market for European products.
4. By coming in closer contact with countries in the Pacific by reason of the canal, Europe has strenghtened her political relations with these countries.
5. The canal has placed the United States in a better position to compete with Europe in foreign trade.

(a) Economy in distance and time

Like the United States, the countries of Europe have greatly reduced the length and time of ocean voyages by sending their ships via the Panama Canal to the western ports of the American continent. Although this is so, the reduction, in most cases, does not correspond favorably with that of the United States. For example, the distance from New York to Valparaiso via the Strait of Magellan, is 8,380 nautical miles; via the Panama Canal, it is 4,633 miles. The distance from Liverpool to Valparaiso, via the Strait, is 8,747 nautical miles (almost the same as from New York to Valparaiso); but via the canal, it is 7,207 miles. Comparing now the relative advantage of the canal to exporters from New York and Liverpool, it will be seen that New York is given a greater advantage of 2,574 miles, when the voyage is made via the Panama Canal. Stating this advantage in terms of time, a 10-knot steamer leaving New York for Valparaiso saves ten days over one leaving Liverpool when the voyage is made via the Panama Canal.

Without making further analyses of relative distances from European ports, it will be sufficient to say that while European countries considerably reduce the distance and time of ocean voyages via the canal to the Pacific coast of the American continent, there are much greater economies accruing to the United States by reason of her proximity to the western ports of the Americas.

See exhibit "H" page 64 and exhibit "I" page 65

EXHIBIT - "H"

TABLE SHOWING DISTANCES BETWEEN COMMERCIAL PORTS OF EUROPE AND FOREIGN COUNTRIES

Ports	Via Magellan	Via Panama	Miles saved	Days saved
Liverpool to Valparaiso	8,747	7,207	1,540	7
Liverpool to 'Frisco	13,502	7,836	5,666	24
Liverpool to Iquique	9,510	6,578	2,932	13
Liverpool to Guayaquil	10,582	5,384	5,198	22
Liverpool to Wellington	12,989*	-11,425**	1,564	7
Liverpool to Callao	9,980	5,937	4,043	17
Liverpool to Honolulu	13,679	9,275	4,403	19
Hamburg to Frisco	13,883	8,355	5,528	22
Hamburg to Iquique	9,891	7,097	2,794	12
Bourdeaux to Frisco	13,262	7,886	5,376	22
Bourdeaux to Callao	9,740	5,987	3,753	16
Bordeaux to Iquique	9,270	6,628	2,642	12

Source: "The Golden Book" by Saavedra - suppliment of page 8
*Panama and its Bridge of Water" by Nida - page 204

Note: Miles and days saved computed by the author based on a 10-knot steamer traveling 240 nautical miles in 24 hours.

This is a partial list of distances from European ports to other countries.

* Via Suez and Colombo
** Via Panama and Tahiti.

EXHIBIT - "I"

COMPARATIVE ADVANTAGES IN DISTANCES
VIA PANAMA CANAL - FROM NEW YORK AND LIVERPOOL
TO PRINCIPAL COMMERCIAL PORTS

Via Panama To	From Liverpool	From New York	New York advantage over Liverpool
Valparaiso	7,207	4,633	2,574
Iquique	6,578	4,004	2,574
Callao	5,937	3,363	2,574
Guayaquil	5,384	2,810	2,574
Acapulfo	6,017	3,443	2,574
Honolulu	9,276	6,702	2,574
San Francisco	7,836	5,262	2,574
Portland, Or.	8,486	5,912	2,572
Port Townsend	8,606	6,032	2,574

Source: "Panama and Its Bridge of Water" by Nida - page 204

Note: This is a partial list of commercial ports. It is given to show the advantage New York has over Liverpool and other European ports in the matter of distance in voyage to many ports via the Panama Canal. The difference represents the mileage across the Atlantic which European carriers must cover in order to reach the canal.

(b) Economy in cost of transportation

It will be observed from exhibits "H" and "I" of the preceeding pages, that Europe is brought closer to the Pacific by reason of the Panama Canal. It necessarily follows that the operating expenses of ships using the canal are reduced by the number of dsys saved in making voyages to the ports in the Pacific; and as pointed out in chapter 11, the charges for using the canal can be paid by a 10-knot freighter out of its allotted operating expenses if it saves six days or 1,440 miles by using the canal. A mathematical calculation will show the number of days saved by a steamer whose speed is greater than ten knots an hour.

2. Comparative advantage of Panama-Suez canals

Before the Panama Canal was open, the movement of commerce from the eastern ports of the United States to the Pacific coast of Asia, went principally by way of the Suez canal while that of Europe (except for a small portion going over the Trans-Siberian Railroads) also went via the Suez. The Suez route was also taken by European carriers in making connections with Australia and New Zealand; although the route via the Cape of Good Hope was usually taken.

Except for Europe's trade with Australia and New Zealand, and the United States's trade with the Far East, the Panama Canal has not materially affected the volume of traffic carried via the Suez. This is due to the fact that the distance, via Panama, from New York (the port through which

most of the Far Eastern trade is handled) to the Far East, with calls at certain intermediary ports, is about the same or without a noticeable difference as that via the Suez. This is true also as regard the distance from Liverpool to certain ports in the Far East, via the Suez. (see exhibit "B" page 24 and exhibit "H" page 64.)

Summarizing the comparative distances, it will be appropriate to say that the distance from Liverpool to the Far East, via the Suez, when ships make calls at certain intermediary ports, is practically the same as from New York to the Far East, via Panama.

The Panama and Suez routes to the Orient should be regarded, therefore, as both supplimentary and competitive, depending of course, upon three factors:

1. Relative distances - if direct sailing is intended.
2. Opportunity for trade by making calls at certain ports en route to the Far East.
3. Cost of fuel and supplies at supply stations en route.

(a) To Europe

The relation of the Suez Canal to Europe is similar to that of the Panama Canal to the United States. The Suez has shortened the distance and reduced the cost of transportation from Europe to the Far East while the Panama Canal, to the United States, has reduced the distance and cost of transportation to the western coast of the American continent.

Alternatively, the Panama Canal is of greater importance

to Europe than is the Suez to the United States. This has been explained in prior discussions, but for emphasis, it may again be mentioned that Europe has considerably shortened the sailing distance to the Pacific coast of America by reason of the Panama Canal while the United States has merely to "choose" the Suez of Panama routes to the Far East.

The Suez has made possible the expansion of European trade with the Far East; but in competition with the United States whose trade move principally through the Panama Canal. The movement of trade will be discussed when we consider European competition with the United States in foreign trade.

(b) To the United States

The relation of the Suez Canal to the United States is merely incidental to the expansion of her trade with the Far East. While a relatively small quantity of trade now moves via the Suez, most of it moves via the Panama Canal for three reasons:

1. In general terms, the distance from New York to the Far East is shorter via Panama than via Suez.
2. Ships leaving New York for the Far East can take on cargo at San Francisco rather than having the cargo shipped by rail to the eastern seaboard of the United States.
3. Ships trading only in Pacific waters can have cargo trans-shipped via the Panama Canal or carried over trans-continental railroads to the Atlantic coast or any region of the United States.

The proportion of American ships passing through the Suez Canal is given in foot-note of exhibit "J", pages 71 and 72., which compares Suez and Panama canal activities.

The effect of the Panama Canal upon the Suez Canal is a diversion of the American trade which formerly went via the Suez to the Far East. The direct connection of the United States with the Far East has resulted in an expansion of the trade with these countries, has given the United States producers greater facilities to compete with European exporters, has created an expansion of maritime activities, and has stimulated the industrial and commercial development of the country.

(c) Suez vs. Panama Canal activities

The Suez and Panama canals are respectively rendering a valuable service in the economic, social and political advancement of nations. The Panama Canal has opened the gate to Pacific America while the Suez, connecting the Mediterranean and Red Sea, has done likewise for Asia. To the United States, the Suez may be regarded as supplimentary to the Panama Canal in her Far Eastern trade, while to Europe it is an economic necessity. To both the United States and Europe, the Panama Canal is an economic necessity for maritime connection with the western or Pacific coast of the American continent. In this respect, therefore, both canals may be regarded as rivals in the service they are rendering for the economic, social and political development of nations.

A table comparing the volume of traffic passing through both canals is given on the following pages.

EXHIBIT - "J"

COMPARING TRAFFIC OF SUEZ AND PANAMA CANALS

(commercial vessels only)

	SUEZ CANAL			PANAMA CANAL		
Year	Number of vessels	Suez tonnage	Tons cargo	Number vessels	Panama tonnage	Tons cargo
1915:	3,708	15,266,155	-	1,075	3,792,572	4,888,454
1916	3,110	12,325,347	-	758	2,396,162	2,408,089
1917	2,353	8,368,918	-	1,803	5,798,557	7,058,563
1918	2,522	9,251,601	-	2,069	6,438,851	7,582,031
1919	3,986	16,013,802	13,973,000	2,024	6,124,990	6,916,621
1920	4,009	17,574,657	-	2,478	8,546,044	9,374,449
1921	3,975	18,118,999	-	2,892	11,415,876	11,599,212
1922	4,345	20,743,245	21,360,000	2,736	11,417,459	10,884,910
1923	4,621	22,730,162	-	3,967	18,605,786	19,567,875
1924	5,122	25,109,882	-	5,230	26,148,878	26,994,710
1925	5,337	26,761,935	-	4,673	22,855,151	23,958,836
1926	4,980	26,060,377	25,409,000	5,197	24,774,591	26,037,448
1927	5,545	28,962,000	29,524,000	5,475	26,227,815	27,748,215

Source: 1927 Panama Canal Report - pages 6, 135 and 139
1928 World Almanac - page 725
1929 World Almanac - page 722
1928 Commerce Yearbook of U.S. Vol. 11, pages 719-720.

continued

EXHIBIT - "J" CONTINUED

COMPARING TRAFFIC OF SUEZ AND PANAMA CANALS

Notes - on Suez Canal traffic

In 1918 -	5 ships - were American		
	1,862 ships - were British		
In 1919 -	54 ships - were American		
	2,679 ships - were British		
In 1926 -	115 ships - were American	(512,000	tonnage)
	2,673 ships - were British	(14,722,000	tonnage)
In 1927 -	112 ships - were American	(682,000	tonnage)
		(16,534,000	tonnage)

Notes - on Panama Canal traffic

			Tonnage	Tons Cargo
In 1918 -	567 ships - were American		1,704,040	2,098,277
	702 ships were British		2,529,203	2,615,675
In 1926 -	2,432 ships - were American		12,565,255	13,710,956
	1,423 ships - were British		7,039,542	6,750,843
In 1927 -	2,685 ships - were American		13,914,645	15,242,156
	1,351 ships - were British		6,942,555	6,436,785

These notes are given to show the relation of British to American traffic passing through Suez and Panama canals, and the relative importance of each canal to both countries. The British-American traffic is taken as the basis for measuring Suez-Panama canal activities because ships under the registry of these countries furnish the bulk of traffic via both canals.

Taking the year 1927 as a base for comparison, it will be observed that, according to the relative volume of traffic, the Panama Canal is of greater importance to Europe than the Suez is to the United States; and further, the Suez is of greater importance to Europe than it is to the United States.

3. European competition with U.S. in foreign trade

In presenting this chapter on European competition with the United States in foreign trade, a word of explanation must be given at the outset as to its character and scope. The purpose of the chapter is merely to show the movement of trade of the United States and Europe (emphasizing Great Britain) in those countries to which the distance has been reduced or in some other way affected by the Panama and Suez canals. It will, therefore, be unnecessary to comment upon the movement of trade between the United States and Europe (although shipments are made from the west coast of the United States via the canal direct to Europe) or of trade to Africa or the countries on the Atlantic coast of Central and South America. The study will be concentrated on the movement of trade in the most important countries in western South America, the Far East, and Oceania.

To summarize the study, three sets of statistics will be presented; one showing some of the principal commodities involved in this trade; a second comparing the trade of the United States and Great Britain in these foreign markets; and a third comparing the tonnage of cargo from Europe and the United States passing through the Panama Canal to these countries. These are shown as exhibit "L" page 77; exhibit "M" pages 78-81 and exhibit "N" page 84; respectively.

As a preface to the study of these exhibits, a map showing the trade routes from Europe and the United States to the leading commercial ports of the world, is given as exhibit "K", page 73.

Exhibit. - "K"

Poole Bros. Chicago

God's Handiwork in Placing Panama at the Central Point of the World's Business.

"Who holds Panama has the keys to the Western World"—said John Patterson, founder of the Bank of England.

Printed in U. S. A.

The opening of the canal and the begining of the World War ushered a new era in the foreign commerce of the United States. The leading markets of the world over which European countries virtually controlled, were left open to the American exporter because of Europe's activities in the war. Since the close of the war and the gradual return of all countries to political and commercial stability, the newly acquired trade of the United States has become the target for European competition. But this competition is balanced more favorably for the United States in many respects, one of which is the advantage which the United States has secured over Europe in the length and time of ocean voyages to countries the distance to which is shortened by the Panama Canal. The increase in American export and import trade, comparing the year 1914 with 1927, is shown below:

EXPORTS FROM THE UNITED STATES *
(in million of dollars)

Year:	Europe	N/America	S/America	Asia	Oceania	Aftica
1914	1,486	528	124	113	83	27
1927	2,398	1,213	452	583	215	103

IMPORTS TO THE UNITED STATES *

1914	895	427	222	286	42	19
1927	1,267	1,004	531	1,304	59	86

* 1928 World Almanac - page 337.

It can safely be said that by reason of the Panama Canal, the increasing number of American ocean carriers, government regulations and assistance (such as the Frderal Reserve Act of 1913 regulating finance and trade, the Webb Act of 1918 encouraging combinations for export trade, and the Edge Law of 1919 providing foreign banking connections) and the

productive efficiency of American producers; the United States has greatly expanded her foreign trade, notwithstanding post-war foreign competition.

The extent of this expansion can be further illustrated by showing the increasing percentage of the foreign trade of the United States to the total trade of the world.

PERCENTAGE OF UNITED STATES
FOREIGN TRADE TO WORLD'S TOTAL *

YEAR	EXPORT	IMPORT
1911-13	12.4	8.4
1926	16.4	13.6
1927	15.4	12.3

NOTE: The years 1911-13 (immediately preceeding the opening of the canal) are taken as the base for comparing the last two years. It is unnecessary to list in chronological order the annual changes in percentage of this trade because our purpose is simply to show changes in the foreign trade of the United States before and after the canal was open to commerce.

* 1928 Commerce Yearbook, Vol. 11 - page 742.

(a) Important markets of U. S. and Europe

The principal European and American markets directly concerned with traffic through the Panama and Suez canals, may be classified under three regional groups; namely, Far East, Oceania and Western South America.

FAR EAST*	OCEANIA	WESTERN SOUTH AMERICA **
China	Australia	Ecuador
Japan	New Zealand	Peru
		Chili
		Bolivia.

NOTE: * The Hawaiian Islands are omitted, being territories of the United States. Other Far Eastern markets are omitted because of their relative commercial unimportance.

** Colombia is omitted because shipments to and from that country are made through the ports of Catagena and Barranquilla on the Atlantic seaboard as well as through Buenaventura on the Pacific. Shipments via the Panama Canal from the United States and Europe to Colombia are relatively small when compared with direct shipments to the Atlantic seaports of Colombia.

Bolivia is included although she has no seaport. This is done because the greater part of her exports and imports move through the inland city of Tacna to the seaport Arica in Chili or through Mollendo in Peru on the Pacific rather than through Buenos Aires in Argentine on the Atlantic.

(b) Trade movements in foreign markets

The movement of trade between these and other countries follow, in general terms, the same principles governing domestic commerce; namely - demand and supply. These markets are important for the products required from them and the goods they receive from abroad. The class of commodities and the volume of trade done in these countries are shown on the following pages.

EXHIBIT - "L"

1. CLASS OF COMMODITIES

PRINCIPAL ITEMS EDPORTED TO AND FROM THE UNITED STATES

FAR EAST

Export	Import
Silk	Wheat
Tea	Tobacco leaf
Wool	Refined oil
Skins and hides	Machinery
	Automobiles
	Raw cotton and Textiles

OCEANIA

Export	Import
Skins	Tobacco
Hides	Textiles
Wool	Automobiles and Supplies
Sausage casings	Mineral oils
Butter	Lumber
	Machinery

WESTERN SOUTH AMERICA

Export	Import
Iron ore	Textiles
Copper	Machinery
Nitrates	Refined oil
Nitrates	Iron and Steel
Cacao	Automobiles and Supplies
Coffee	Cotton goods
Rubber	Leather goods
Ivory nuts	Railroad Engines and supplies
Wool	Lumber.
Tin	
Panama hats	
Crude oils	

This is a partial list of the principal commodities exchanged between the United States and these countries.

Source: 1926 Commerce Yearbook, Vol. 11 - the commodity movements listed under the various countries shown on page 76 of this thesis.

EXHIBIT "M"

STATISTICS SHOWING PERCENTAGE OF UNITED STATES TRADE IN FAR EAST

(in thousand of dollars)

CHINA

	IMPORTS				EXPORTS			
Year	Total	United States	Great Britain	%US	Total	United States	Great Britain	% US
1913	416,219	25,862	70,745	6.0	294,413	27,485	11,933	9.3
1923	738,722	123,558	96,318	16.3	602,334	101,443	34,566	16.8
1924	824,755	154,675	102,069	18.4	625,145	81,611	40,703	13.1
1925	796,207	119,711	78,236	14.8	652,137	120,249	40,020	18.4

Great Britain is listed for comparing European competition with the United States in China, but France and Germany are important competitors in this trade. Several reasons are given for this condition but the one with which we are concerned is the fact that the Suez Canal has aided the transportation of European commerce to the countries in the Far East.

JAPAN

Year	Total	United States	Great Britain	% US	Total	United States	Great Britain	% US
1913	361,215	60,617	60,779	16.8	311,741	91,351	16,277	29.2
1924	1,010,566	276,382	128,822	27.3	726,683	306,835	25,144	41.2
1925	1,055,819	272,913	93,281	25.8	912,044	412,966	24,508	43.6
1926	1,120,271	320,504	80,233	28.6	931,094	405,647	28,033	42.1

It should be noted that nearly one-half of the total exports from Japan goes to the United States. The commodity making up the greater part of these exports, is raw silk.

Next to the United States in Japan's imports, is British India which supplies most of the cotton goods to Japan. This item is the largest among the many commodities imported by Japan from the United States.

See exhibit "E" page 43 re commodity movement via the canal and statistics on page 52 re cargo shipment via canal to Far East.

Source: 1926 Commerce Year Book Vol. 11 - pages 149, 151 and 350

EXHIBIT "M" continued

STATISTIC SHOWING PERCENTAGE OF UNITED STATES TRADE IN
O C E A N I A

(in thousand of dollars)

AUSTRALIA

Year	IMPORTS Total	United States	Great Britain	% US	EXPORTS Total	United States	Great Britain	% US
1913	388,102	52,087	201,121	13.7	365,600	12,632	165,088	3.5
1923	601,764	113,501	312,371	18.9	524,092	43,384	235,317	8.3
1924	619,199	152,166	280,090	24.6	511,510	30,821	196,321	6.0
1925	732,681	180,573	321,935	24.6	741,069	42,122	319,964	5.7
1926	735,419				706,061			

NEW ZEALAND

1913	108,477	10,260	64,790	9.5	109,887	4,418	88,038	4.0
1924	214,346	34,402	102,491	16.0	229,334	14,277	184,630	6.2
1925	253,312	42,907	123,491	16.9	263,282	20,709	211,675	7.9
1926	242,363	48,582	110,896	20.0	215,400	18,075	168,984	8.4

The trade of the United States with these countries is small when compared with that of Great Britain. The canal has brought Australia and New Zealand nearer to the United States but by reason of preferencial trade with the "mother country" the imports of these countries from the United States are relatively small.

EXHIBIT "M" continued

STATISTICS SHOWING PERCENTAGE OF UNITED STATES TRADE IN SOUTH AMERICA

(in thousand of dollars)

	IMPORTS		CHILI		EXPORTS			
Year	Total	United States	Great Britain	% US	Total	United States	Great Britain	% US
1913	120,274	20,089	36,109	16.7	142,802	30,413	55,548	21.3
1923	112,986	30,135	27,105	26.7	184,317	84,712	53,185	46.0
1924	120,347	28,279	25,119	23.5	199,264	83,058	62,636	41.7
1925	147,702	40,998	30,934	27.8	225,633	88,384	78,020	39.2

It is significant to note the increase in U. S. trade with Chili since 1913 as compared with Great Britain which, in that year, lead the U. S. in both export and import to Chili. The other competitors in Chilean trade are France and Germany. The Panama Canal is a contributing factor in the increase of U. S. trade in Chili.

			PERU					
1913	29,043	-	-		43,587	-	-	
1923	58,084	21,908	11,464	39.2	98,439	38,033	31,800	38.8
1924	73,019	25,820	12,484	35.4	101,713	33,184	37,376	33.1
1925	73,476	28,401	13,729	38.7	87,459	30,446	29,768	34.8
1926	72,762	33,618	11,356	46.2	89,154	30,720	25,449	34.5

Source: 1926 Commercial Yearbook - Vol. 11
1924 and 1925 Commercial yearbooks

EXHIBIT "M" continued

SOUTH AMERICA - CONTINUED
(in thousand of dollars)

ECUADOR

	IMPORTS				EXPORTS			
Year	Total	United States	Great Britain	% US	Total	United States	Great Britain	% US
1913	8,851	2,822	2,624	31.9	15,810	3,840	1,622	24.3
1924	10,521	4,240	2,613	40.3	13,396	3,844	977	31.4
1925	12,163	5,455	2,713	44.8	15,968	6,678	909	41.8
1926	9,451	4,006	2,134	42.4	12,763	5,069	683	39.7

Great Britain ranks second to the United States as an exporter to Equador.

Spain, France and Italy each take a large amount of the products exported from Equador.

BOLIVIA

1913	21,320	1,574	4,322	7.3	36,488	218	29,497	.60
1924	18,655	5,324	3,894	28.5	34,184	7,574	24,307	22.1
1925	23,022	6,203	4,577	26,9	40,347	3,313	32.511	8.2
1926	24,148	6.955	5,246	28.8	41,825	3,958	32,821	9.4

Germany and Italy follow, in order, Great Britain in the export trade to Bolivia.

Great Britain is the largest market for Bolivian products; the principal commodities being products from the mines.

3. Movement of trade via Panama Canal

Although the canal was built to provide economical transportation between countries in the Pacific and Atlantic oceans, some of the commercial vessels bound for countries in either ocean make voyages via the Strait of Magellan, Suez Canal or even the Cape of Good Hope, in order that they might secure trade along the Atlantic coast or in the Mediterranean.

In general, the movement of trade via the Panama Canal comprises shipments to either terminals of the canal, to Canada, to the United States, and to other countries. For our immediate purpose, the study of European competition with the United States in foreign trade, we need only to consider shipments to the Far East, Oceania and Western South America. Accordingly, exhibit "N", page 84, is prepared.

Exhibit "N" compares the movement of European and American commerce, via the Panama Canal, to the countries under consideration. The year 1915 is taken as a base for comparing later years. It will be seen that the competitive movement of trade of Europe and the United States is more pronounced in shipments to Oceania and South America than it is to the Far East. In fact, nothing is shown for Europe under "Far East" because European shipments to this region are made via the Suez Canal.

The figures shown in the exhibit are expressed in tonnage of cargo. It is regretted that the canal authorities

do not publish, in addition to the tonnage of cargo, the value of commodities shipped through the canal to each country. This would enable a calculation of the percentage (in dollars) of the foreign trade of the United States and other countries passing through the canal to the various countries of the world.

EXHIBIT - "N"

STATISTICS COMPARING FOREIGN TRADE OF UNITED STATES AND EUROPE PASSING THROUGH PANAMA CANAL TO PRINCIPAL REGIONS

(expressed in tons of cargo)

FAR EAST

ATLANTIC TO PACIFIC				PACIFIC TO ATLANTIC		
Country	1915*	1925	1927	1915*	1925	1927
U. S.	994,370	1,234,608	1,567,151:	201,296	266,269	407,313

EUROPE - Shipments from Europe move via Suez Canal.

OCEANIA

Country	1915**	1925	1927	1915**	1925	1927
U. S.	-	663,619	795,161	-	28,195	33,758
EUROPE	-	518,406	539,792	-	420,356	493,425

SOUTH AMERICA

Country	1915	1925	1927	1915	1925	1927
U. S.	399,776	377,864	421,835:	963,326	2,661,756	2,518,611
EUROPE	81,182	776,388	623,030:	632,978	1,708,626	1,326,573.

NOTE - * Shipments to Far East for year 1915 include shipments to Oceania.

** Shipments to Oceania in 1915 included with shipments to Far East.

Shipments from Europe to Oceania move also via Suez, Magellan and Good Hope.

Source: for year 1915 Johnson "Panama Canal and Commerce" page 99
for 1925 - 1927 - Panama Canal report for 1927- page 12.

IV - COMMERCIAL ACTIVITIES OF THE CANAL ZONE

Apart from being a highway through which the commerce of the world is carried from one country to another, the Panama Canal is responsible for the annual distribution of several million dollars of American and foreign products in the Canal Zone; the territory controlled by the United States.

The commercial activities and services performed by the government and its subsidiary agency, the Panama Railroad Company, comprise manufacturing, agriculture, merchandising, railroad and such other governmental and private functions as are incidental to the customary undertakings of an organized state.

This chapter does not intend, however, to comment on all the commercial activities of the Canal Zone. It will analyze only the commerce or merchandising of American products to ships passing through the canal or such other service or merchandising incidental to the welfare of the American producer. It will exclude naval vessels and government commercial vessels.

The functions pertinent to the character and scope of this study may be divided into four classes:

1. Service - mechanical service rendered to ships, such as repairs.

2. Materials and supplies - furnished steamships.

3. Fuel (coal and oil) furnished steamships and individuals.

4. General merchandising - groceries, dry-goods, and like commodities furnished steamships and individuals.

1. Service

The service rendered by the government to commercial vessels (excluding the lockage of ships through the canal) consists chiefly of repairs. In 1927, the government dry-docked 146 vessels, 79 of which were commercial vessels of private ownership. The income received for repairs to commercial vessels and its relation to the total for repairs is shown in the following table.

	1925	1926	1927
TOTAL	$3,620,218	3,519,724	3,067,728
Individuals and Steamship Cos.	$1,229,868	1,001,586	764,619

2. Fuel (Coal)

The government has invested nearly $3,000,000 in coaling stations on the Isthmus. This amount represents fixed assets and current inventories. Against this investment, there has been an annual net profit of over $500,000. The government sells most of the coal to commercial vessels. The relation of this sale to the total annual sales is shown below; price per ton varying from $8.00 to $12.00

	1926	1927
TOTAL SALES - (in tons)	364,503	372,641 tons.
Sold to Steamships and Indv.	337,509	365,367 "

The value of these sales is as follows:

	1926	1927
TOTAL SALES (in dollars)	$3,566,237	$2,994,349
To Steamships and Indv.	$3,429,166	$2,575,689.

Source: Panama Canal report for 1927
Panama Railroad reports for 1927 and 1928

2. Fuel (Oil)

Fuel oil at Panama is obtained chiefly from Califonia and South America and is supplied to steamships from tanks leased by the canal authorities to private concerns, but pumped through lines controlled by the government. Some of the large oil companies leasing tanks on the Isthmus, are as follows:

Asiatic Petroleum Company
Arrow Oil Company
Union Oil Company of Califonia
Husteca Petroleum Company
Texas Oil Company
United Fruit Company (private use)
West India Oil Company
Standard Oil Company of New York

The relation of sales to steamship companies and individuals to the total sales is given below, for the year 1927.

	1927
Total sales - (in barrels)	16,350,339 barrels.
To steamship companies and indv.	15,544,230 "

3. Materials and Supplies

The Canal Zone government supplies a large quantity of materials and supplies, received from this country, to American and foreign vessels using the canal. In 1926, the sale of sundry items of this nature to 2,818 commercial vessels, amounted to $109,590. The relation of sales to steamships to the total sales for 1927 is given below:

	1927
Total Sales	$6,536,414
Sold to 3,420 com'l ships	134,106

4. General merchandise

The commodities comprising this general merchandise are principally groceries, dry-goods and light hardware. The sale of these commodities are made through "commissaries" operated by the government agency, the Panama Railroad Company. The fixed and current investments for the distribution of these goods amounted to nearly $5,000,000 in 1927. For that year, gross sales amounted to $9,000,000 and net profits over $300,000.

The value of products comprising this general merchandise coming from the United States and the sale of them to steamship companies and individuals for the years 1926 and 1927, is given below:

PURCHASES BY GOVERNMENT	1926	1927
Total	$6,567,946	$7,356,407
From United States	4,887,886	5,313,970
SALES BY GOVERNMENT		
Total	$8,731,841	$9,128,580
To steamship (not govt.)	766,989	794,689
To employees of canal & r/road	5,447,106	5,751,234
To non-employees	660,336	697,673

The last two items are listed for the purpose of discussion in a later chapter on the Republic of Panama.

SUMMARY OF COMMERCIAL ACTIVITIES ON THE CANAL ZONE

	1927
SERVICE	
Total - Repairs etc.	$3,067,728
Amount to steamship companies and indv.	764,619
MATERIAL AND SUPPLIES	
Total sales	$6,526,414
Sold to steamships and indv.	134,106
FUEL (coal)	
Total sales	$3,566,237
Sold to steamships and indv.	3,429,166
FUEL (oil)	
Total Sales - (in barrels)	16,350,339
Sold to steamships and indv.	15,544,230
GENERAL MERCHANDISE	
Total sales	$9,128,580
To steamship companies	794,689
To employees of canal and railroad	5,751,234
To non-employees (other than steamships)	697,673

The foregoing is but a partial statement of the commercial activities on the Canal Zone.

The aim of this statement is to show the service that is being rendered by the United States Government on the Canal Zone to commercial vessels using the canal and the volume of business that is being done in the Zone in addition to the lockage of ships through the canal. But more important than this, from the standpoint of American domestic and foreign commerce, is the volume of American products that is being sold in the Canal Zone as a result of the canal. The canal, in this respect, has opened a new and profitable market for the distribution of the products of the United States.

V - EFFECT ON SHIPPING INTERESTS

The Panama Canal has greatly influenced the expansion of the merchant marine of many nations. This arises chiefly from the fact that the canal has brought more closely together the countries dependent, either soley or reciprocally, upon the products of each other.

What the railroads and other vehicular means of transportation have done for the expansion of domestic commerce, ocean carriers have done for the expansion of foreign commerce. The services rendered by these carriers are indispensable factors in the economic progress of all nations, and any improvements or accommodations made in that behalf is a step toward greater prosperity.

Foreign trade, therefore, necessarily requires prompt service and economical transportation. To fulfil these requirements, the number of ocean carriers should be increased according to the volume of commerce to be carried. That is to say, the increase in the merchant marine of any country should follow in line with the expansion of the foreign and coastwise trade of that country.

The effect of the Panama Canal in this international maritime expansion can be realized from the fact that the number of ships passing through the canal has been increased from 1,075 in 1915 to 5,475 in 1927 (over 500%). If the world tonnage of vessels is taken into consideration, it should be interesting to note that Great Britain has increased her's by nearly 1,000,000 tons since 1914; the Dominions

have done likewise, other countries have made appropriate increase in commercial tonnage, and the United States has increased her's from 1,582,000 tons in 1914 to 12,768,000 in 1927.*

The effect of the canal on international shipping interests can be further emphasized by saying that in 1927 eighty steamship companies, operating vessels under the flag of thirty nations, have established regular sailing schedules to Panama either for lockage through the canal or for trade at the terminal ports.**

1. Of the United States

In 1914, at the begining of the World War and the opening of the Panama Canal, the merchant marine of the United States (steam and motor vessels of 100 tons and over) amounted to 1/39th. of the world tonnage and 1/18th. of the tonnage of Great Britain and Ireland (excluding the Dominions) *** In that year the United States had 1,066,280 tons of her vessels registered in foreign trade and 6,818,363 tons registered in coastwise trade; with 9.7% of American exports and imports carried in American vessels.**** This low tonnage of American carriers arose from many causes the most significant of which were the high cost of building American ships, the high cost of operation, low rates offered by foreign carriers and, in coastwise trade, the competition of railroads.

* See 1926 Commerce Yearbook, Vol. 11, page 629
** Panama Canal and its ports - for 1927, page 44
Tourist Information, Panama Chamber of Commerce, page 10
1927 Panama Canal Report - page 99
*** 1926 Commerce Yearbook, Vol. 11 page 629
**** 1928 Statistical Abstract, pages 47 and 441.

The demand for American products during and after the war, the opening of the Panama Canal and the many legislations regulating the American merchant marine, virtually revolutionized the status of American ocean carriers. The change in the status of American shipping interests has given the United States, in June 1927, 1/5th. of the world tonnage and 1/3rd. of the tonnage of Great Britain. In that year, also, the United States had 7,309,000 tons of her vessels registered in foreign trade and 9,533,000 in coastwise trade; with 34.1% of her exports and imports carried in American vessels.

The percentage of American products carried in American vessels has increased since 1914 but there is still a large percentage carried by vessels of other nations, particularly the British. The reason for this is the lower freight rates offered by British carriers, made possible by lower operating expenses and the diffusion of trade to various ports of the world.

In regard to the foreign and inter-coastal trade of American shippers, the following companies, operating ships under the American flag, contribute the greater part of American shipping via the canal or to the terminal ports.

United Fruit Company	Argonaut S. S. Co.
Panama Railroad Company	Dollar Line S. S. Co
Pacific Mail S.S. Co.	Garland S. S. Co
Luckenback S. S. Co.	Isthmian S. S. Co
Standard Oil Company	Lind Navigation Co.
Atlantic-Pacific S.S. Co.	Munson Line S. S. Co.
Panama Mail S. S. Co.	Pacific-Carribean S. S. Co
Trans-Marine Corporation	United American S.S. Co
Williams S. S. Co.	Panama-Pacific S.S. Co
Johnson Line S. S. Co.	American-Hawaiian S.S. Co.

It should be of interest to note that the Panama-Pacific Steamship Company is the latest contributor to the American shipping interests in the Panama trade. Its latest vessel, the 32,830 ton "Virginia", launched in November 1928, is registered with her sister ship the "Califonia" for the coast-to-coast trade of the United States. The "Virginia" is the largest commercial vessel ever built in the United States and this is remarkable because it was built for the coastwise trade via the Panama Canal. To this extent, therefore, the Panama Canal has exercised a commanding influence in the expansion of the American Merchant Marine.

But what has been the trend in the movement of American vessels via the canal, since the canal was open to traffic? An analysis of the reports show that the number of American commercial vessels using the canal has been increased from 459 in 1915 to 2,685 in 1927. This shows the serviceability of the canal to American producers and steamship companies. But further analyses show that there has been no noticeable change in the percentage of American ships to the total number of ships using the canal; the total for 1915 being 1,075 and in 1927 - 5,475. In the tonnage of vessels using the canal, the United States has increased her's from 1,700,145 tons in 1915 to 13,914,645 tons in 1927. The total tonnage of all vessels using the canal was 3,792,572 in 1915 and 26,227,815 in 1927, showing but little change in the percentage of American vessels. This analysis is confined to commercial vessels only.

The increase in number and tonnage of American ships using the canal without a noticeable increase in the percentage of the total number of ships, is due to European competition in foreign markets against the expansion of American trade. It is due also to the fact that American producers have been taking advantage of lower freight rates by making shipments abroad through foreign ocean carriers. It should be noted, however, that a large percentage of American ships passing through the canal are engaged in the inter-coastal trade from which foreign carriers are excluded and to which American shipping interests enjoy an exclusive monopoly.

Statistics showing the number of ships under American registry engaged in foreign and coastwise trade, and the number passing annually through the Panama Canal, are shown in exhibits "O", "P", "Q" and "R" on pages 96 to 99 respectively.

(b) Of other countries

Among the European nations whose commercial vessels transit the canal in large numbers, Great Britain ranks first; and the number of her ships using the canal stands second only to the United States.

The distinguishing feature between the commercial transits of the United States and other countries, is that most of the American ships using the canal are engaged in coastwise trade (between the two seaboards of the United States) while those of other countries are engaged in foreign trade.

The number of British ships using the canal has been increased from 465 in 1915 to 1,351 in 1927. In the tonnage of vessels (Panama Canal measurement) the total has been increased from 1,630,833 tons in 1915 to 6,942,555 in 1927. The total number of ships using the canal in 1915 was 1,075 of which Great Britain contributed 46%. The number in 1927 was 5,475 of which Great Britain contributed 25%. The reduction in 1927 is due to the increasing number of ships flying the American flag engaged in the coastwise trade via the canal. In the tonnage of vessels using the canal, the total in 1915 was 3,792,572 tons and in 1927 it was 26,227,815.

A summary of the relation of the canal to the merchant marine of all nations shows that during the fourteen fiscal years since the opening of the canal in 1914, 40,377 commercial vessels, measuring 174,677,954 tons, flying the flags of 33 nations, carrying 185,655,490 tons of cargo and paying $166,363,228 in tolls; passed through the canal. During this period vessels flying the flags of the United States and Great Britain have comprised about three-fourths of the total traffic through the canal, their respective percentage being as follows: *

	Vessels:	P.C. Tonnage:	Tons Cargo:	Tolls Paid
UNITED STATES	45.2	49.2	50.5	48.7
GREAT BRITAIN	29.4	29.4	27.8	30.0

Source: * 1927 Panama Canal Report, pages 99, 135-139.

EXHIBIT - "Φ"

STATISTICS COMPARING GROSS TONNAGE OF BRITISH AND AMERICAN STEAMSHIPS TO WORLD TONNAGE.

(Steam and motor vessels of 100 tons and over)
June 30, 1927.

(in thousands of tons)

Country	1914	1921	1924	1926	1927
TOTAL	39,737	52,415	56,066	67,844	58,507
Great Britain) and Ireland)	18,348	19,015	18,722	19,083	19,023
British Dominion*	1,402	1,844	2,132	2,259	2,220
United States **	1,582	12,125	11,620	10,990	10,768

Other countries - the balance.

* Does not include Canadian Great Lakes shipping vessels.

** Does not include United States Great Lakes and Philipine Island shipping vessels.

SOURCE: 1926 Commerce Yearbook, Vol. 11, page 629.

EXHIBIT - "P"

STATISTICS SHOWING REGISTERED AND ENROLLED TONNAGE OF UNITED STATES VESSELS - AND THE PERCENTAGE OF AMERICAN PRODUCTS CARRIED IN AMERICAN SHIPS

Year	Registered for: Foreign trade.:	Enrolled for : Coastwise trade :	Percentage of imports and exports carried by US ships
1914	1,066,000 tons	6,818,000 tons	9.7
1915	1,862,000	6,486,000	14.3
1916	2,185,000	6,244,000	16.3
1917	2,440,000	6,392,000	18.6
1918	3,599,000	6,282,000	21.9
1919	6,665,000	6,201,000	36.4
1920	9,924,000	6,357,000	43.4
1921	11,077,000	7,163,000	35.7
1922	10,720,000	7,703,000	36.6
1923	9,069,000*	9,177,000**	35.0
1924	8,794,000	8,911,000	35.7
1925	8,151,000	9,216,000	33.0
1926	7,719,000	9,552,000	34.0
1927	7,309,000	9,533,000	34.0

* Decrease from 1923 to 1927 due toadjustment of vessels registered and those lost at sea.

** Increase due to trade via Panama Canal between the two seaboards of the United States.

SOURCE: 1928 Statistical Abstract - pages 417 and 441.

EXHIBIT "Q"

NUMBER OF SHIPS AND TOLLS PAID FOR USE OF CANAL
EMPHASIZING BRITISH AND AMERICAN TRAFFIC.

Commercial vessels only

Y Year	TOTALS Ships	TOTALS Tolls	UNITED STATES Ships	UNITED STATES Tolls	BRITISH Ships	BRITISH Tolls
1915	1,075	4,367,550*	459	2,002,845*	465	1,847,341*
1916	758	2,408,089	213	724,219	358	1,140,795
1917	1,803	5,798,557	404	1,238,322	780	2,595,158
1918	2,069	6,458,853	567	1,713,827	702	2,498,596
1919	2,024	6,172,828	784	2,327,261	607	1,954,715
1920	2,478	8,51[illegible],933	1,129	3,805,924	753	2,805,018
1921	2,892	11,276,889	1,210	4,784,577	972	3,989,081
1922	2,736	11,197,832	1,095	4,867,495	905	3,788,007
1923	3,967	17,508,414	1,994	9,474,054	1,065	4,7[illegible],281
1924	5,230	24,290,963	2,947	14,483,327	1,265	5,814,983
1925	4,673	21,400,523	2,726	11,302,031	1,211	5,734,039
1926	5,197	29,931,055	2,432	11,538,809	1,423	6,569,71[illegible]
1927	5,475	24,228,830	2,685	12,720,447	1,351	6,452,527
	40,577	166,363,228*	18,245	80,984,125*	11,887	49,865,998*

* Figures exclude factions of the dollar.

TONNAGE OF SHIPS AND
CARGO CARRIED VIA CANAL

TOTALS - 1915 to 1927	174,667,954 [illegible] tons	185,655,490 tons cargo
By American vessels	85,945,088 "	93,773,[illegible]36 "
By British vessels	51,355,607 "	51,641,769.

Source: 1927 Panama Canal report - pages, 10,135 and 179.

NUMBER OF SHIPS AND TOLLS PAID FOR USE OF CANAL

EXHIBIT - "R" -

STATISTICS SHOWING CANAL TRAFFIC FOR 1927
EMPHASIZING BRITISH AND AMERICAN TRADE

COUNTRY	Number of Ships	Panama Tonnage	Tons of cargo	Tolls Collected
TOTAL	5,475	26,227,815	27,748,215	$24,228,830
United States	2,685	13,914,645	15,242,156	12,720,447
Great Britain	1,351	6,942,555	6,436,785	6,452,527
Others	1,439	5,370,615	6,069,274	5,055,856.

SOURCE: Panama Canal Report for 1927 - page 10.

3. Should American ships pay tolls?

In the proclamation of President Taft, dated November 13, 1912, it was provided, among other things, that the tolls to be charged vessels using the canal shall be as follows:

> "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".

Tolls are, therefore, levied on the net tonnage of ships, which is the interior space devoted to the carriage of cargo or passengers. Each "net ton" means 100 cubic feet space of 2.83 cubic metres. The rates established in 1912 have not been changed, except that 72 cents per net ton is charged vessels travelling in ballast.

An analysis of the total tonnage of vessels and tolls collected during the period 1915 to 1927 (exhibit "Q" page 98) shows the tonnage of vessels amounted to 174,667,954 and tolls collected - $166,363,228. It also shows that the tonnage of vessels flying the flag of the United States amounted to 85,945,008 and tolls collected - $80,984,125. A further analysis shows that in 1927 (exhibit ""R" page 99) the tonnage of all vessels amounted to 26,227,815 and tolls collected amounted to $24,228,830. In that year, commercial vessels of the United States measured 13,914,645 tons and paid $12,720,447 in tolls; nearly 50% of the total canal trade. The cargo carried by these American vessels amounted to 15,242,156 tons. If the tolls paid were apportioned to

the cargo carried, it would show that the American carriers have paid 82 cents per ton of cargo for using the canal.

Of the 15,242,156 tons of cargo carried by American vessels in 1927, 10,560,505 tons (exhibit "G" page 49) or over 75% of the total were shipments between the two seaboards of the United States. In other words, the government is charging American producers an average of eighty-two cents for every ton of cargo shipped between the two seaboards of the United States, via the Panama Canal.

In view of the fact that American ships contribute about 50% of the total traffic via the canal and that about 75% of American shippings via the canal belong to the inter-coastal trade of the United States, the question now arises-should American ships engaged in coastwise trade pay the same rate for using the canal as those engaged in foreign trade and those belonging to foreign countries?

A search for an answer to this question reveals the fact that on August 24, 1912 an Act was passed by Congress which exempted ships under American registry engaged in coastwise trade from paying tolls for the use of the canal; but before the canal was open to traffic the Act was repealed, on the recommendation of President Wilson, on June 15, 1914. Three reasons were given for the repeal of this Act; namely:

1. The exemption of tolls to coastwise carriers would amount to a violation of the Hay-Pauncefote Treaty of 1901 between the United States and Great Britain, which provided that the canal should be open to all nations of the world - "on terms of entire equality".

2. The coastwise carriers have a monopoly in this trade because ships of foreign registry are denied the privilege of engaging in the coastwise trade of this country. To exempt American coastwise carriers from paying tolls would amount to a subsidy to which they do not need.

3. The benefits resulting from such exemption would tend to swell the income of the carriers rather than that of the consumer of the products carried, because there would be no certainty that the exemption would result in a substantial reduction of inter-coastal freight rates.

But there is yet another reason, and that is the effect such exemption would have upon the traffic of the transcontinental railroads in this country. If coastwise carriers were allowed to quote rates on all classes of commodities extremely lower than the railroads, they would be given greater competitive advantages and the railroads would be required either to seek a subsidy from the government or an adjustment of railroad rates incompatible

to the interests of producers throughout the country. Such an adjustment, under the present rate-making policy, would be beneficial to coastal shippers and detrimental to inland shippers.

All these reasons, particularly the first, are unquestionably sound; but it nevertheless seems inappropriate or perhaps unjust, considering the volume of coastwise traffic going through the canal, to charge coastwise carriers the same rate for using the canal, built with American capital, as that charged foreign carriers engaged in foreign commerce.

Again, the tolls amounting to $10,000,000 paid annually by coastwise carriers are included in the freight rates paid by American producers; and this charge, in turn, is paid by the consumers. An exemption would not only reduce the cost of production and distribution but also give producers more available working capital and consumers more purchasing power for other commodities.

The whole question, however, is an international one and because of its complicated character, it seems unlikely that American coastwise carriers will ever be exempted from paying tolls or receive any special reduction in the charges for using the Panama Canal.

VI - ECONOMICS OF OPERATION

The purpose of this chapter is not to analyze in details the financial operation of the Panama Canal and its subsidiary agency the Panama Railroad Company, (this information being contained in the many documents published by the government) but to show briefly the reward that the canal is receiving for its services as a commercial highway of the world. To do this, a condensed balance sheet of the canal and of the railroad for the year 1927 is given below:

PANAMA CANAL - 1927

ASSETS		LIABILITIES	
Canal fixed property	$236,674,901*	Com'l capital invest.	$273,273,818*
Equipment	4,504,489	Defense investment	113,122,892
Revenues due	235,862	Account payable	1,632,376
Cash	1,306,599	Canal credits	75,666
Account receivable	651,660	Amortization- unfunded	2,265,069
Business property	31,363,145	Depreciation -unfunded	2,838,815
Stores	3,970,192	Replacement- funded	3,023,792
U.S. Treasury	88,727,138	Repairs reserv.-funded	1,987,511
Nat. defense expense	113,122,892	Gratuity - funded	519,157
Business cap. credit	1,813,000	SURPLUS	79,953,875
	$478,743,883*		$478,743,883*

PANAMA RAILROAD -1927

ASSETS		LIABILITIES	
Capital fixed assets	$32,400,166*	Capital stock	$7,000,000*
Securities reserves	3,650,195	Capital liabilities	3,247,332
Materials & supplies	2,829,657	Reserves	7,788,264
Current assets	7,550,713	Current liabilities	1,046,470
Deferred assets	400,984	SURPLUS	27,701,537
	$46,831,717*		$46,831,717*

NOTE: * Fractions of the dollar omitted.

1927 Panama Canal Reports - page 99
1927 Panama Railroad Reports - page 33

1. Panama Canal

The commercial activities of the canal from 1914 to 1927 were as follows: The year 1927 is also shown separately.

FOR YEARS 1914-1927	REVENUES	EXPENSE	SURPLUS
Transit operations	$169,081,920*	$ 95,077,644*	$74,004,276*
Business operations	149,365,805	143,416,206	5,949,599
	$318,447,726*	$238,493,850*	$79,953,875*
FOR YEAR 1927			
Transit operations	$24,608,808*	8,997,715*	15,611,093*
Business operations	15,878,654	15,002,117	876,536
	$40,487,463*	$23,999,832*	$16,487,630*

NOTE: * Fraction of dollar omitted

1927 Panama Canal Report - pages 100 and 122

SUMMARY OF OPERATIONS

The capital investment of the canal is (in round numbers) $388,000,000. This amount is apportioned as follows: $275,000,000 for commercial purposes and $113,000,000 for military purposes. The bonds issued to finance the construction of the canal carried, in most cases, an interest of 3% per annum. The interest on this commercial investment would amount to $8,250,000 annually. However, the government does not deduct this amount from the operating income of the canal but, instead, has established an annual fixed charge of $350,000 for amortization of fixed property having a life of 100 years; $625,000 for property having a life of less than 100 years and $600,000 for general depreciation of property. Up to the year 1927, as shown above, the total surplus of both business and transit affairs of the canal

amounted to over $79,000,000. This amount includes the annual interest on capital of the commercial investment, amounting to $8,250,000 annually, which, like any other item of business, should be charged to expense and deducted from surplus. But as already explained, this is not done. For the thirteen-year period of canal operations, this charge, at simple interest, would amount to $107,250,000; and applying it to the accumulated surplus of $79,953,875 appearing on the balance sheet of 1927, would leave a deficit of over $27,000,000.

The canal, while not being operated at a loss, does not appear to be making a "profit" as that word is defined in economics. And even if all the amortizations are taken into consideration, they fall short of equalizing the annual interest on capital investment, figured at a minimum of 3%, of $8,250,000. Hence, the surplus of $79,000,000 standing to the credit of the canal's operations for the period 1914-1927, is not really an "economic profit" but merely an item which ordinarily would be absorbed in expenses. This would have been done if the canal were a private enterprise.

2. Panama Railroad

The functions of this organization, a New York Corporation controlled by the United States Government, comprise the operation of steamships, railroad, hotels, farms, and manufacturing and general merchandizing establishments. For political, legal and accounting

purposes, its affairs are conducted as a separate unit from the Panama Canal.

The items with which we are concerned are those pertaining to the Isthmus alone, but to show the scope of operation of this corporation, a general summary of income and expense will be given, followed by the income and expense of operations on the Isthmus.

GENERAL OPERATIONS:	Year	Revenue	Expense	Surplus
	1927	$6,959,057	$5,095,899	$1,863,157
ON THE ISTHMUS	1927	$4,623,079	$3,013,527	$1,609,552

The greater part of the surplus on the Isthmus, amounting to over $1,200,000, arises through the sale of products imported from this country and commodities produced on the Isthmus. The balance includes profits from steamships, railroad and miscellaneous functions. The total assets of the corporation in 1927 was $46,000,000 and surplus $27,000,000. (see balance sheet on page 104)

SUMMARY - INCOME OF CANAL AND RAILROAD

A summary of the commercial investment of the Panama Canal and the Panama Railroad Company in relation to the net income for the year 1927, is given below:

YEAR - 1927	CAPITAL INVESTMENT	NET INCOME
Panama Canal (commercial)	$273,273,818*	$16,487,630*
Panama Railroad (Isthmus)	32,400,166	1,609,552
TOTAL----	$305,673,985*	$18,097,183*

NOTE: * Fraction of the dollar omitted.

The purpose of this chapter, as already stated, is to show the reward that the canal is receiving for its services as a commercial highway and, according to the foregoing discussion, (except that which relates to the charge of interest on capital investment) it will be seen that the canal and railroad are returning to the government an annual net income of over $18,000,000 for services rendered on the Isthmus of Panama.

3. Is the canal a speculative venture?

Reference has already been made to the fact that the tolls levied on commercial vessels using the canal are:

> "On merchant vessels carrying passengers or cargo $1.20 per net vessel ton - each 100 cubic feet of actual earning capacity ....."

In addition, rates are made for ships in ballast as well as naval, collier and hospital ships. These rates were established in 1912 and, except for slight changes as to ships in ballast and naval vessels, have remained unchanged up to the present time. The rates were determined after the government had fully considered the volume of traffic expected, the revenue, and the service that the canal was expected to render to ship owners; with a fair return to the government after all expenses and other obligations are paid.

A glance at the figures shown on page 105 will show that the profits for the thirteen years operation of the canal proper (excluding the business activities) amounted

to $74,004,276 - or 43.7% of the gross transit revenues. But this is not strictly an economic profit because many items, one of which is interest on capital, are not included in expenses as would have been done if the canal were a private corporation operating soley for profits. If this item were added to expenses or deducted from surplus the canal would show annually a deficit rather than a profit until, of course, the volume of traffic is increased; and in the absence of such increase, until the charges for using the canal are increased.

The Panama Canal, therefore, was not constructed for the purpose of making profits. If this were so, the tolls would have been increased in line with the general rise of prices throughout this country and abroad. The purpose of the canal was,and still is, to economise transportation and facilitate commerce. With this as a goal, tolls are levied so that they may produce the least burden upon producers and at the same time provide a fair return to the government for its services. There is further evidence of this fact from the apparent permanent character of the rates. The charge of $1.20 per net ton on laden vessels was fixed fifteen years ago;and while the price of labor, materials and commodities in general have increased 100% since 1914, the charges for using the canal, with slight exceptions, have remained the same.

The economic function of the canal is subject to the law of "constant cost", and in order that the canal may

clear expenses it must secure an increasing volume of traffic. This it is endeavoring to do by maintaining low charges and encouraging vessels of all nations to use the canal. The canal, therefore, is not a speculative venture.

V11 - INFLUENCE ON THE REPUBLIC OF PANAMA

1. Purpose of study

The character of this study, so far, has been directed chiefly to the Panama Canal and its relation to the commerce of the world. The study would be found wanting if it did not include, at least, a brief survey of the political, social and economic changes of the Republic of Panama through whose territory the canal is built. This chapter, therefore, is intended to show briefly the effect of the canal and American influence in the Republic of Panama, and the potentiality of that country becoming the leading commercial centre of Central America.

2. Role of the U. S. in Panama's independence

It was pointed out in Chapter 1 that after the Colombian Congress failed to grant the United States the right to build the canal, Panama, then a province of Colombia, revolted against Colombian sovereignty and declared herself an independent state. The United States promptly landed marines, forced the Colombian troops to board ship for Colombia, and immediately recognized the independence of Panama. The Hay-Varilla Treaty of 1903 was thereafter entered into between the United States and Panama whereby Panama granted to the United States, among other things, a right to build the canal in return for the United States' guarantee of her independence, a cash payment of $10,000,000 and a promise of $250,000 annually after the canal was open.

It should be mentioned that this treaty was ratified with a supplimental agreement - the Taft Agreement of 1904, which contains certain provisions concerning jurisdiction, defenses, sanitation, quarantine, etc.

Because of strained political and economical relations between both countries in the interpretation and operation of the treaty and the agreement, the Taft Agreement was abrogated on June 1, 1924 and a commercial treaty supplanting it was signed by representatives of the United States and Panama on July 28, 1926. This commercial treaty provided, among other things, that the United States would not set up in the Canal Zone any business that would compete with the commerce of Panama. It also stipulates that:

> "Panama agrees to cooperate in all possible ways with the United States in the protection and defense of the Panama Canal. Consequently, Panama will consider herself in a state of war in case of any war in which the United States should be a belligerent, and in order to render more effective the defense of the canal will, if necessary, in the opinion of the United States Government, turn over to the United States in all the territory of the Republic of Panama, during the period of actual or threatened hostilities, the control and operation of the wireless... aviation.... navigation..... and the United States shall have the direction and control of the military operations in any part of the territory of Panama".

The National Assembly of Panama, on January 27, 1927, rejected this treaty and asked for further negotiations; but the United States Government has taken no definite action in this respect. In September 1927, Dr. Eusebio A. Morales, who took part in the negotiations, appealed to the League of Nations (of which Panama is a member)

to intervene and determine the status of the Canal Zone and the relation of the government there established to the government of the Republic of Panama. His appeal, however, has not produced the desired results; due perhaps to the jurisdiction of the League where the Munroe Doctrine is involved. So far as public information is concerned, the matter is still in abeyance; but it is presumed that negotiations are being conducted between both countries for a revision of some of the conditions contained in the treaty of 1903 and the agreements of subsequent years.

The foregoing is a brief resume of the part played by the United States in Panama's dramatic declaration of independence; and the existing political relations of both countries.

3. Effect of American influence

Without commenting on the political phase of America's presence in Panama or in such other countries as Haiti and Nicaragua (that being outside the scope of this study) it can nevertheless be said, with some degree of sincerity, that the influence of the United States and the presence of the canal in Panama have aided materially in the political, social, and economic development of the Republic. One has but to reflect on the conditions existing in Panama during the early part of the present century and compare such conditions with those of today to appreciate more fully the value of the Americans to the general development of Panama.

These conditions are commented on below.

(a) Politically

By guaranteeing the independence of Panama, the United States has made it possible for the Republic to be free both external invasions and internal insurrections, so common among the small Latin-American countries. Any attempts in these directions would tend to jeopardize the security and neutrality of the canal, a duty which the United States has undertaken to maintain. And as the development of a country depends largely upon the stability of its government, Panama, in this respect, is greatly secured through the influence and guarantee of the United States.

(b) Socially

The social status of the Republic has changed considerably since the introduction of American ideas in Panama, although many of the native traits and customs of the people still persist.

The spread of American social ideas, especially in the cities, and the gradual adaptation of the people to many of them is, however, producing both favorable and unfavorable results. Some of the reforms which the natives have been led to adopt are those which may be called, in general terms, American Southernism. This is lamentably quenching the spark of inter-racial friendliness so inherently distinguished and pronounced in Latin-American peoples.

In sanitation, public health, and education; Panama

has undergone a complete revolution. This was made possible not only because of the introduction of the civilization and culture of progressive Americans into the Republic but also because of the expenditure the United States government has made toward these ends. The fixed capital investment of over $10,000,000 and annually expenditure of $250,000, chargeable to the Republic for public health, municipal engineering and general sanitation, are some of the contribution of the United States to the social improvements of Panama. The results are shown by comparing the vital statistics of 1905 and 1927, given below:

VITAL STATISTICS*	1905	1923	1927
Panama City	65.82	18.55	20.26 per M.
Colon City	49.48	12.56	13.65
Canal Zone	-	-	6.84

For the entire republic - the 1920 census show:
Birth rate - 26.4 and Death rate - 15.4 per M.

4. Economic progress of Panama

Panama, as an independent republic, is only twenty-five years old. During this period her economic status has grown in accordance with the character, customs and general policies of other Latin-American countries. But she is nevertheless far behind the position she should have reached, being a country pregnant with natural resources and favored with many economic advantages for the development of these resources.

See - * The Golden Book - page 172
1927 Panama Canal Report - pages 48-49
1926 Commerce Yearbook - page 427.

The area of Panama, excluding the Canal Zone, is 32,385 square miles. Comparing her size with that of other smaller and more progressive countries, Panama is about three times the size of Haiti, ten times the size of Porto Rico, three times Belgium, larger than Ireland and about three-quarter the size of Cuba. Notwithstanding her size, however, the population of Panama, according to the 1920 census, is less than 500,000; with an average of about 13.8 per square mile.*

Agriculture is the leading economic function of the Republic. Mining and manufacturing are relatively unimportant. Transportation and communication are highly developed in the terminal cities of Colon and Panama; and are gradually being developed in the interior regions of the country. The principal commodity exported is the banana - amounting to about 70% of the total exports; while her imports consist mainly of manufactured textiles, machinery, groceries, and general merchandise; including automobile and supplies. The relation of her imports to exports for the period 1906-1910 was 8 to 1 and for the year 1925 7 to 1. See exhibit "S" page 118.

(a) Agriculture

Panama, like other Latin-American republics, is an agricultural country; but extensive or intensive cultivation is virtually neglected. With exception of the banana, cultivated on a large scale by the United Fruit Company

* See 1926 Commerce Yearbook - page 427/

in the province of Bocas del Toro and on a moderate scale by the Panama Railroad Company and other private corporations, no other agricultural product is exported in large quantities. The value of the bananas exported amounts to about $2,000,000 annually; or about 75% of the total export trade of the country.

Panama has a vast amount of fertile lands available for cultivation, a favorable climate and plenty of rivers for irrigation and power. With all these advantages added to the development of transportation, the use of modern agricultural methods, and the accessibility to the principal markets of the world by reason of the canal; Panama could become a prosperous agricultural country and an important commercial centre in Central America. This is the view of both local and foreign financiers. Last October, the general manager of the Chiriqui Coffee Company, a company operating large farms in Panama, visited the coffee district of a neighboring republic and expressed the opinion that Panama could become one of the leading coffee-producing countries of the world if proper methods of production and distribution were adopted.

(b) Industry and commerce

Manufacturing and general industrial pursuits are relatively unimportant in Panama; and what is being done is confined chiefly to articles for local consumption.

The manufacturing industry from which the government

receives its largest revenue is the liquor industry; and although the Americans on the Canal Zone have endeavored to educate the Panamanians to the social and economic disadvantages of the liquor industry, the trade continues to expand with increasing vigor. The financial statement of the Republic for the year 1922 shows that $2,000,000 or one-third of the total revenue came from taxes on the importation, manufacture, and sale of liquor. The year 1925 shows that from a total revenue of about $12,000,000; about $3,000,000 or one-fourth came from the liquor trade.* So important is this liquor item in Panama's industrial pursuits that the tax on it was pledged as interest on the two-million dollar loan secured through Kissel, Kinnicutt Company of New York in 1926 as well as the twelve-million dollar loan secured through the National City Company of New York in 1928.

The industrial and commercial pursuits of Panama, so far as international or foreign trade is concerned, are confined chiefly to the exportation from Panama of her leading product, the banana; and the importation to Panama of many articles for consumption.

* See - "The Republic of Panama" by Panama Chamber of Commerce - published in 1924 - pages 51 to 55.

General liquidation of Panama - Statistics published by Panamanian Government years 1925-29.

EXHIBIT - "S"

FOREIGN COMMERCE OF PANAMA *

Principal commodities

IMPORTS	EXPORTS
Manufactured textiles	Banana
Silk, manufactured	Cocao
Wheat, flour, rice	Balata - hardwood
Machineries	Cocoanuts
Automobiles and supplies	Hides
Lumber	Gum
Footwear (leather)	Tortoise shells
Tobacco products	Ivory nuts
Refined mineral oils	
Electrical supplies	
Groceries, all kinds.	

VALUE OF FOREIGN COMMERCE

(in thousand dollars)

YEAR	IMPORTS	EXPORTS
1906-10	8,707	1,625
1911-15	9,951	3,507
1920	17,562	3,522
1921	11,372	2,495
1922	10,268	2,487
1923	12,674	2,390
1924	13,769	3,008
1925	14,605	2,796
1926	14,289	-

During the last three years the United States has been supplying about 65% of Panama's imports and taking about 85% of her exports.

* 1926 Commerce Yearbook - page 427
*"The Republic of Panama" by P/Chamber of Comm. page 57
1929 World Almanac - page 650

(c) Finance

The unit of currency of Panama is the "Balboa" which is equivalent in value to the United States dollar. In order to stabilize the value of currency and prevent unlimited inflation, the government, during the early years of its independence, deposited in this country a sum equivalent to 15% of the currency in circulation and which ratio it planned to maintain. No government paper money or bank notes have been issued as a circulating medium. Instead, silver coins of fractional denomination of the "balboa" were issued and freely circulated. At one time, fully two million dollars of "pesos", having a size similar to that of the American silver dollar but with a value of fifty cents, were in circulation. As a result of the high price which silver attained during the war and the higher percentage of pure silver contained in the Panamanian "peso" than that contained in the American silver dollar, the money of the Republic became the object of speculation and a large quantity of it were smuggled out of the country with the result that there now remains only a small amount of Panamanian currency in circulation. The currency now in circulation throughout the republic consists almost entirely of United States currency in its several forms and denominations; about $5,000,000 of which are in actual circulation.

(1) Revenues and expenses

The financial status of the republic has been very progressive since the opening of the Panama Canal. The government has been able to receive more revenues from taxation and spend more for the development of the country. The chief sources from which the government receives its revenues are: taxes on the liquor industry and duties on imported merchandise, usually 15% ad valorem. The principal items of expenditure of the government are: public works (including road building) and municipal improvements. The following table shows the revenues and expenditures of the government for the years 1908-22, with estimates for the years 1925-9.*

Years	Revenues	Expenses
1908	$4,867,741	$5,102,184**
1914	8,031,179	8,436,684**
1919-21	12,699,912	9,294,598
1922	5,299,999	4,969,878***
-	-	-
1925-7	$12,258,700	$12,258,700****
1927-9	14,302,488	14,302,488****

This statement is not in itself conclusive evidence of the financial status of the republic for the national debts are not mentioned; but it adequately serves the purpose of estimating the annual income and expenses of the republic and the extent of her capacity to assume foreign obligations.

* Statistics published by the Government of Panama
See also 1929 World Almanac - page 650
"Panama" by Panama Chamber of Commerce - pages 51-57

** Shows a deficit byt covered by foreign loans

*** Does not include expenses for road-building

**** Estimates for all departments, including road-building.

(2) Reserves and investments

It will be recalled from a previous discussion that the United States, in 1904, paid Panama $10,000,000 for the right to build the canal. The government has invested $6,000,000 of this amount in bonds purchased in this country and kept as a reserve against national obligations, and has used the balance for public improvements. The government has also invested $1,050,000 of its surplus in the capital stock of the National Bank of Panama, the income of which is devoted to the general development of the country. These are the principal investments of the government and are maintained as a standing reserve against national obligations.

(3) Foreign debts

The foreign obligations of Panama consists chiefly of loans for building roads, general public works and other improvements. The government has been able to liquidate its obligations as fast as they arise from the income received through import duties, taxes on liquor and lottery, interest on investments, and the annuity of $250,000 from the United States during the life of the Hay-Varilla treaty.

With an annual revenue of over $5,000,000 and certain invested reserves, the government has found little difficulty in securing loans from the United States in an amount commensurate with its ability to pay.

The table shown below, with certain qualifications to follow, were the outstanding foreign obligations of Panama:-------:

1914 - Due Colombia before secession	$1,000,000
1914 - Due U.S. for water and sewer systems	2,500,000
1914 - 33 years 5% bonds sold in U. S.	2,272,750
1923 - 30 years 5½% " " "	4,500,000
1926 - 6½% bond floated by Kissel,Kinnicutt Co. NY	2,200,000

Payment of the interest and principal of these bonds (except that due Colombia) have been made annually until the total indebtedness in 1928 amounted to about $4,000,000. However, a recent abligation has been incurred, namely:

1928 - 35 years 5% bond - bought by National City Company of New York - - -	$12,000,000

This 1928 loan is of importance because it gives a clearer picture of Panama's foreign debt. Negotiations were concluded last June between the Government of Panama and the National City Company of New York whereby the latter agreed to purchase Panama's bonds amounting to $12,000,000 - thirty-five years - 5%, to be secured by customs, liquor and stamp taxes, lein on annuity paid by the United States Government for use of the canal and the constitutional fund of the republic on deposit in this country. The proceeds from the sale of these bonds are intended to be used for the redemption of the republic's outstanding bonds of 1914, 1923 and 1926 and the balance expended for the construction of roads and other public works. The funds are available monthly after the old obligations are extinguished and the collection from the revenues of Panama are to be made through the supervision of a fiscal agent appointed by the United

States government and who is to reside on the Isthmus of Panama.

Thus, it may be properly stated that with the exception of the sum due the United States Government for original sewer and water works in Panama and the amount due Colombia before Panama seceeded from the union, the foreign obligation of the republic in 1928 - was approximately $12,000,000.

(3) Internal debt

The internal debts of the republic are relatively unimportant in amount to the foreign debts. However, two important items should be mentioned, namely:

Balance due United Fruit Company in 1924 for making improvements in the province of Bocas del Toro. - - -	$475,760
Balance due in 1924 on loans received during boundry war with Costa Rica in 1921	$407,475

From the foregoing analysis of Panama's financial status, it can readily be seen that the United States, by reason of the Panama Canal, has aided materially in shaping Panama's financial policies and of improving her financial conditions.

See: "Panama etc." by Panama Chamber of Commerce - pages 51-57
1929 World Almanac - page 650
Jamaica Daily Gleaner - issue of June 19, 1928
Panama Star and Herald - issue of May 18, 1928.

(d) Potentialities

The possibility of Panama becoming a highly developed and prosperous agricultural country is very promising. Located, as she is, at the commercial gateway of the two American continents, the chances of her becoming the distributing centre for foreign manufactured goods and her own agricultural products, are measured only by a matter of time. With more than five thousand commercial vessels passing annually through the Panama Canal enroute to ports in various parts of the world and with the direct interest of the United States in Panama's political and economic affairs, Panama could readily secure rapid transportation to foreign countries, a ready market for her products and enjoy economic prosperity. However, the racial peculiarities of the people, personal greed, political machinations and social defilements are some of the factors which are contributing to the lethargy of the people and operating as a barrier to the general progress of the country. The more active and energetic leaders in the republic are gradually becoming educated in the principles of government and sound economic policies introduced by the Americans; and it should not be long before the people realize the economic potentialities of their country and strive to develop the recources along these lines. It might be well to mention, in passing, that the government is now inducing colonizers and capitalists to the country by making attractive concessions.

5. Conflicting interests - U. S. and Panama

While previous discussions have been centered around the contribution and influence of the United States in the economic development of Panama, there are, nevertheless, certain conflicting interests between both countries which should be mentioned.

The Hay-Varilla Treaty of 1903 and the Taft Agreement supplimented thereto, entered into between the United States and the Republic of Panama, gave to the United States certain rights in Panama in return for the United States' guarantee of Panama's independence. During the process of time, these rights and priveleges, like the Munroe Doctrine, have been subject to many interpretations apparently conflicting to the interests of both nations. As already mention (page 111) an attempt has been recently made to revise the agreement but up to the present writing a new treaty, conducive to the interests of both parties, has not been agreed upon. The crux of the deliberations are political and commercial; centered chiefly on the duty of Panama to the United States in any war in which the United States is a belligerent, the granting of concessions by Panama to private concerns or other nations which tend to affect the security of the Panama Canal, and the right of the United States government on the Canal Zone to engage in competitive commercial activities detrimental to the commercial interests of Panama.

It is not intended, in this treatise, to touch upon the political questions involved nor to discuss in details the commercial problems. A brief resumé of the most important commercial questions should satisfy the purpose of this study.

(a) Transportation across Isthmus

The treaty between Great Britain and the United States (Hay-Pauncefote Treaty of 1901), part of which is incorporated in the treaty between the United States and Panama, provides that the canal shall be open to all nations of the world on terms of entire equality and, indirectly, places a duty on the United States to protect and neutralize the canal for the benefit of all nations. To this end, an Isthmian railroad of private ownership, a highway or other transportation facilities tending to jeopardize the security of the canal would reflect unpleasantly to the United States in regard to her duty toward the security of the canal.

In securing from Panama the right to build the canal and those rights possessed by the Panama Railroad Company under that company's concession from Colombia in 1867, the United States acquired the exclusive right to construct and operate in certain regions of Panama, a railroad and "any class of carriage roads from one ocean to the other". This right did not, therefore, confine itself to transportation within the ten-mile strip granted the United States under the Panama Canal Treaty but also to territories

coming under the jurisdiction of Panama, namely; any class of roads "west of Cape Tiburon on the Atlantic and Point Garachine on the Pacific". This is further evidenced by the fact that the transportation concession was originally granted by the Province of New Granada in 1849 and later by Colombia in 1867 to the financiers of the Panama Railroad long before the canal was built; and the United States having purchased the Panama Railroad with consent of Panama under the treaty of 1903, took also the rights and privileges enjoyed by the Panama Railroad Company.

Having thus premised the analysis by showing the rights and duties of the United States in the matter of security of the canal and transportation in Panama, we shall now consider the conflicting interests of both nations in regard to transportation across the Isthmus.

The two principal seaports and important cities of the republic, Panama and Colon, are located one at each terminal of the canal and are separated by a distance of about fifty miles. The only direct transportation available, connecting both cities, (except the canal itself) is the Panama railroad which is controlled and operated by an agency of the United States and located within the ten-mile strip of territory granted to the United States. Roads are built within this area but are not connected to become one continuous trans-Isthmian route.

A railroad or vehicular highway constructed on Panamanian territory adjacent to this ten-mile area and

connecting the terminal cities of Panama and Colon, would have three direct and major effects:

1. Jeopardize, perhaps, the security of the Panama Canal.

2. Compete with the Panama Railroad which is owned and operated by the United States.

3. Develop the interior regions of Panama and produce general prosperity in the terminal cities.

Within recent years, several suggestions have been made by private concerns in Panama that another railroad be built or direct vehicular transportation established between Panama and Colon but the matter has always been met with the contention either that a continuous highway would jeopardize the security of the canal or that the Panama Railroad concession of 1867 has given the United States an exclusive right to build or assume direct control over all trans-Isthmian roads within a prescribed area of the Republic.

As recent as April 1928, there was much hullabuloo over the suggestion of a representative of the Panama Corporation Limited, a British corporation having a mining concession in Panama amounting to over one-sixth the area of the republic, that a road be built across the Isthmus of Panama connecting the cities of Panama and Colon. In fact, the upheaval extended even to this country for U. S. Senator Borah is reported to have denounced the corporation and the proposed Isthmian highway as a menance to the safety of the Panama Canal. *

* Jamaica Daily Gleaner - April 19, 1928.

Last year, also, the Panamanian government granted a concession to the Tonosi Fruit Company (a subsidiary to the United Fruit Company) which provided for the construction of a railroad across the Isthmus and while no objection was made at the moment by the United States Government on the Canal Zone, a note was sent to the Government of Panama calling attention to the fact that the lack of objection to granting this concession without the consent of the United States was not to be considered in any way as indicating that the United States relinguished any of the benefits enjoyed by the Panama Railroad Company under the latter's concession of 1867.

Notwithstanding the viligance of the United States in the matter of Isthmian transportation, the National Assembly of Panama, in 1928, passed a law authorizing the government to grant a concession to anyone constructing a trans-isthmian vehicular highway, connecting the cities of Colon and Panama, the cost of which to be borne by the concessionaire in return for 500 hectares of land for every mile of road built and the right to charge tolls for its use. Naturally, objections will arise if the United States finds that the road interferes with the safety of the canal.

This is one of the conflicting interests between the Republic of Panama and the United States. It tends to prevent and greatly embarrass the economic development of the country. If private capitalists are willing to make

investments in Panama, their actions and process of operation would become a prey to the whims and caprice of the United States in matters of transportation.

This is also one of the problems that prompted the late Dr. Morales last year to seek the assistance of the League of Nations for the purpose of establishing the status of the United States Government on the Canal Zone in its relation to the Republic of Panama. As already mentioned, negotiations are being conducted by both nations with the view of settling this transportation question.

(b) Transportation across canal

By reason of the Panama Canal and the ten-mile strip of land granted the United States, the Republic of Panama is divided into two parts. That is to say, the whole isthmus which formerly comprised Panama, is now geographically divided into three sections as follows:

1 - Panama: 2 - U. S. territory: 3 - Panama.

Within the second or central section, is the Panama Canal and the Canal Zone. This is a strip of land five miles on either side of the axis of the canal from the Atlantic to the Pacific oceans, with an area of 553.8 square miles including land and water and, according to the 1928 census, with a population of 28,002 persons. *

While there is reciprocity in the use of roads and other conveniences in the territories of Panama and the Canal Zone, there is, however, a growing necessity for

* 1929 World Almanac - page 452.

adequate transportation across the canal from one Panamanian territory to the other, along the fifty-mile route of the canal.

The roads constructed in the Canal Zone were designed for military convenience and not for commercial necessity. And so far as laying them out in the interest or for the convenience of Panamanian farmers is concerned, that was far from being considered. The same is true in regard to transportation across the canal itself. The few ferries operating across the canal do not provide connecting links between both sections of the republic in a manner to produce a comprehensive net-work of roads. The products of either section of the republic are carried over roads to seaboard and then shipped in small vessels to the cities followed by re-shipment over the Panama Railroad, depending of course upon the destination of the products.

The agricultural interests of the republic have repeatedly shown the necessity for satisfactory transportation across the canal but the old cry "security of the canal" has always been heard to quench the idea.

(c) Supplying ships in transit

Panama's annual imports amount to approximately $14,000,000 about 45% of which are sold to employees of the canal, members of the army and navy, tourists, travellers, and ships in transit.* While this percentage appears

* 1926 Commerce Yearbook - page 427.

somewhat large, it is very small when compared with the volume of sales made by the canal stores to these persons. There is a reason - and this reason is the basis for the conflicting commercial interests between the Republic of Panama and the United States Government on the Canal Zone.

Most of the commodities imported into Panama are subject to an ad valorem duty of 15% while importations into the Canal Zone are allowed duty free. The logical consequence of this is to make it impossible for the Panamanian merchants to compete with the Canal Zone stores; thus seriously affecting native trade. With the exception of tourists and travellers, the purchases from Panama's merchants by the persons mentioned above are made, therefore, not as a result of lower prices but by reason of convenience to stores, and the distinguished characteristics of the articles purchased.

Attention is directed to the commercial activities of the Canal Zone (pages 85 to 89) from which it will be observed that the sale of coal, materials and general merchandise to steamships alone, amounted to nearly $4,000,000 for the year 1927. The sale to this class of purchaser alone, if it were made by merchants in Panama, would amount to nearly 25% of the total annual imports of Panama. It would appear, therefore, that if importations were not allowed into the Canal Zone "duty free", Panama merchants would do a much larger volume of business not only

with staamship companies but also with employees of the canal and residents of Panama. This, in turn, would increase Panama's import trade and the revenues of the government.

It is not the purpose of this study to comment on the competitive function of the Canal Zone Government with the merchants in Panama with the view of determining its justification, but it should not be harmful to say that the ability, convenience, facilities and capital available by the canal authorities place them in a position to render much better service to ships in transit than could the merchants or government of Panama. Furthermore, as most of the ships arrive and leave the Isthmus from the Canal Zone ports of Balboa and Cristobal, there is every reason to expect that the Canal Zone authorities could render very adequately all other services required by these ships in addition to locking them through the canal.

(d) Sales to employees and non-employees

What has been said in the early part of the preceeding chapter concerning sales by the Canal Zone Government to ships in transit holds equally true in regard to sales to private individuals and corporations. But there are certain significant features which further aggravate the conflicting commercial interests between merchants in Panama and the United States Government on the Canal Zone. These

interests may be divided into five groups:

1. Sales to employees of the canal and railroad residing in the Canal Zone.

2. Sales to employees of canal and railroad residing in the Republic of Panama.

3. Illicit transportation of duty-free purchases from the Canal Zone to the Republic.

4. Sale of such purchases to merchants in Panama for re-sale to the public.

5. Legitimate sale of duty-free commodities to non-employees such as steamship companies and certain residents in the Canal Zone and Panama.

There appears to be no dissatisfaction concerning sales to employees of the canal and railroad when made to those residing in the Canal Zone and when the commodities sold are consumed or used in the Canal Zone. What has been the source of dissatisfaction and one of the causes for the delay in ratifying the treaty now pending between the United States and the Republic of Panama, is the question of sales to non-employees whether residing in Panama or in the Canal Zone, and the use of duty-free goods by employees in the Republic or the transportation of such goods by them for illicit sale in Panama.

Attention is again directed to page 89 showing the commercial activities of the Canal Zone. From the figures given, it will be seen that the sale of general merchandise alone to employees and non-employees amounted to nearly $7,000,000 for the year 1927. This figure, added to the sale of merchandise and other commodities to steamship companies, amounts to nearly $11,000,000, or about 80% of Panama's annual imports.

It should be noted that the figures given above do not represent all the business transaction of the canal and railroad but mainly those which involve the merchandising of imported commodities or goods produced in the Canal Zone from which the government of Panama receives no revenue through taxation.

The main contention surrounding these commercial activities is that the Canal Zone Government is competing directly with the merchants in Panama when duty-free goods are sold to non-employees and when goods sold to employees find their way in Panama. Furthermore, it is very difficult to determine the ultimate disposition of all commodities even when purchases are made legitimately. And finally, the government of Panama is deprived of the revenues on all duty-free articles brought into the republic.

Both the Panama and Canal Zone governments have been active in preventing the illicit transportation of duty-free goods from the Canal Zone to the Republic of Panama. However, in view of the fact that goods imported into Panama are generally subject to a 15% ad valorem duty and those imported into the Canal Zone are allowed duty-free, there seems to be some justification for the contention that the government of Panama is annually deprived of a large amount of revenue, and the trade of merchants greatly handicapped by the sale in the Canal Zone of duty-free commodities to non-employees and the transportation of such commodities by employees and other to the Republic of Panama.

A commission, having as its members officials from the Canal Zone and Panama, was established last November for the purpose of studying methods for conducting sales and for combating the smuggling of goods into the republic. It is hoped that this and the treaty now pending will effectively settle the commercial and political conflicts which have been, for many years, the source of unrest between the United States Government on the Canal Zone and the Republic of Panama.

V111 - CLOSING REMARKS

1. Summary of essential facts

The necessity of establishing transportation across the Isthmus of Panama was first realized in the fifteenth century when Columbus was searching for a continuous water-way to Asia and after Balboa had crossed the Isthmus and discovered the Pacific Ocean.

With this discovery, came the expansion of trade between Europe and the countries in the Pacific; and it was not long thereafter before surveys were made for the construction of a canal across the Isthmus. These were followed in later years by more surveys and attemps to construct an inter-oceanic waterway; all of which ultimately gave way to an Isthmian railroad as the first modern means of transportation established across the Isthmus.

That the United States was destinied to construct a canal across the Isthmus can be realized from the fact that the Isthmian railroad was built by American capitalists. They were the ones who provided economical transportation in Panama, thus enabling the development of trade between countries in the Pacific and Atlantic oceans. Further evidence of America's destinied rolé in the Panama Canal can be gathered from the failure of the French Canal Company, which had previously succeeded in building the Suez Canal, to build the Panama Canal after years of trial, and the ultimate completion of the canal by the United States.

What seems to be a coincident or a contrast between constructive and destructive economic and political ideals, is the fact that the Panama Canal was open in 1914 - the year in which the World War began. The canal sought to promote economic and political unity among the nations of the world while the World War sought to destroy it. And a mere reflection to the motives underlying early attempts to establish transportation across the Isthmus will show that throughout the four hundred years of efforts the motives were commercial - not military.

It was pointed out that some of the principal contributions of the canal to the economic development of nations were economy of time, of distance, and of cost of transportation. The extent of its services in these directions can be measured by the volume of traffic passing through the canal since it became an international highway. From 1914 to 1927, the commercial traffic through the canal totals 40,377 ships; 174,577,954 Panama Canal net tonnage carrying capacity; 185,655,490 tons of cargo; and $166,363,228.06 tolls collected by the United States Government. As a reward for the services rendered, the canal has accumulated a surplus of over $74,000,000 for the thirteen-year period. These figures represent canal operations proper and do not include incomes received by the civil government on the Canal Zone or the business activities incidental to the canal trade.

Two questions were considered in dealing with the financial transactions of the canal - first; that the World War, begining the same year in which the canal was open, greatly affected commercial traffic through the canal, and second; the canal not being a speculative venture operating soley for profits, has maintained low transit charges so as to encourage international trade. //

2. Economic, social and political values.

Apart from creating time and place utilities with lower transportation costs, the Panama Canal has exercised a commanding influence in promoting the domestic and foreign commerce of the various nations of the world. To increase production, there must be a market for the goods. This market the Panama Canal has helped to create by bringing countries more closely together and stimulating the demand for the products of the respective countries.

Statistics have been presented to show the expansion of the domestic and foreign commerce of the United States since 1914. The trade between the two seaboards of the United States has increased enormously since the opening of the canal in that year. This is true also in regard to trade between the United States and countries in the Pacific. Europe has been similarly benefited by the Panama Canal in the expansion of her domestic and foreign commerce, even though this commerce has been disrupted by the war.

The influence of the canal upon the social status of many countries is very far-reaching indeed. The benefits arising from closer contact with many countries, reduced cost of commodities, and increased international trade, have produced a higher social status of wage-earners and the general population. The more progressive nations have introduced their ideas in the less progressive countries, thus awakening the conscience of backward peoples to the higher ideals of modern civilization and culture.

Politically, the Panama Canal has assisted in establishing goodwill and friendship between commercial nations, the distance to which has been reduced by the international waterway. This arises by reason of more frequent financial and commercial tradings and a clearer understanding of each country's economic and political functions.

3. Contribution to progress of Panama

It was pointed out that Panama owes her existance as a Republic to the services rendered by the United States. While the motives of the United States in securing and guaranteeing the independence of Panama are not entirely philanthropic, nevertheless, Panama has been greatly benefited not only by the trade incidental to the canal itself, but also by the introduction of American political, economic and social ideas in the republic.

The general progress of Panama has not been commensurate with her opportunities. However, she is making gradual improvements in her agricultural and general economic pursuits; and after the adjustment of certain conflicting political and commercial interests with the United States she will be more able to concentrate her efforts to the development of her natural resources.

4. Future usefulness of Panama Canal

The canal was open to traffic in 1914 but owing to the war its use by commercial nations was greatly embarrassed. Since the close of the war and the gradual return of all nations to political and commercial stability, commercial traffic via the canal has been continually increasing. Each year the volume of traffic is increased and, as recent as last November, the canal authorities reported that that month broke all previous monthly records in the number of vessels using the canal.

It seems, therefore, that so long as the commercial activities of the many nations continue to expand, the demand for canal transits will continue to increase. But the question may well be asked: Will the canal become obsolete by reason of improved aviation - if not, will it be necessary to build another canal to relieve congestions or to compete with the Panama Canal?

To answer accurately these questions, it will be necessary to study problems which would obviously extend

beyond the scope of this work. However, a summary of pertinent factors ought to throw some light on the future utility of the Panama Canal as a commercial highway of the world.

(a) Aeroplane

There is unquestionably greater economies in time, distance, and perhaps cost of transportation in the use of aeroplane than in that of steamships. This being so, producers would resort to this method of shipping their products rather than any other method. It can safely be said, however, that the aeroplane or transportation by air has not yet reached the point where it can compete effectively with steamships or railroads in the carriage of general merchandise. At the present time, the aeroplane as a commercial carrier is limited to the carriage of commodities whose weight and size will not embarrass the safety of the plane. And while its services in this respect are being gradually improved and utilized it is still far behind the standard of perfection and safety. In this respect, therefore, it is not a competitor of ocean carriers, and there is no threatening possibility of the Panama Canal's becoming obsolete by reason of commercial aviation.

But those interested in the development of commercial aviation are not inactive in perfecting the plane for safe commercial travels in the Americas, in Europe, Asia, and

and between Latin-America and Europe. The Pan-American Airways Company with which the famous Lindberg is actively connected, has been operating a line of planes between Florida and Havana; and has just perfected plans for regular commercial air service between the two seaboards of the United States and between the United States and South America - with Panama as one of the intermediary stations. In fact, the first actual step toward this South American service was made in February 1929 when the colonel made a flight from the United States to Panama, carrying mails for both countries. Such a route, if commercial aviation were perfected, would ultimately reduce commercial traffic via the Panama Canal, provided cost of transportation and other factors would not operate as a deterrent to shippers.

Again, in March 1929 another aviation corporation, headed by Graham G. Grosvenor of New York, was organized as a holding company to engage in commercial aviation in the United States and South America. What seems to be significant to foreign and domestic commerce, is the fact this corporation has on its board of directors, the presidents of many leading railroads and steamship companies engaged in the coast-to-coast trade of the United States. This is one of the trade whose expansion has been greatly stimulated by the Panama Canal.

It is reported that last October a contract was entered into between Spain and Argentine for the carriage

of mails by air between the two countries; the carriage to be done by the Spanish Trans-Aerial Company, making flights at least once a month. Such a route could later be extended to countries in the Pacific and ultimately affect traffic via the canal if commercial aviation were perfected to a degree of safety and reliance.

It will thus be seen that commercial transportation by air is being gradually developed and expanded, but the Panama Canal will still continue to be an indispensable commercial highway so long as steamships continue to be the leading ocean carriers.

(b) Nicaraguan canal

There is more liklihood of another canal being constructed to relieve congestions of the Panama Canal than the obsolescense of the present canal by commercial aviation. It is a debatable question, however, as to the time when the Panama Canal will reach its maximum capacity and become unable to accommodate all demands for transit. The opinions of experts vary from ten to thirty years from the present year. But regardless of an accurate prediction, there is evidence to show that the number of ships using the canal has been increasing every year and, accordingly, it will not be long before the maximum capacity is reached.

The United States was very mindful of this condition. In 1914, the same year in which the Panama Canal was opened,

the United States entered into an agreement with Nicaragua (Bryan-Chamora Treaty of 1914) whereby the United States paid Nicaraguq $3,000,000 and secured a right to build a canal in that republic and to establish a naval base in the vicinity of the canal. In fact, even before the Panama Canal was built, American engineers had investigated the project of building a canal in Nicaragua; but this was later abandoned for the Panama route. The necessity for another canal, however, is now gradually being felt and to this end, the United States Congress in February 1929 passed an act authorizing the expenditure of a large sum of money for the purpose of investigating and making a survey for a canal route in Nicaragua. It would cost about a billion dollars to construct a canal in Nicaragua at the present time, a figure more than 50% higher than that required to build the Panama Canal; due principally to the present cost of labor and materials.

What would be the effect of a Nicaraguan canal upon the traffic and serviceability of the Panama Canal? A canal in Nicaragua would result in further reductions in the time and distance between Atlantic and Pacific ports located north of the Panama Canal. For instance, ships trading between the two seaboards of the United States would save about two days in using the Nicaraguan route instead of the Panamanian route. The reason for this is that Nicaragua is situated north of Panama and

nearer to the United States and there would be more economy in taking the shorter route via Nicaragua than by passing Nicaragua, going down to Panama (on the Atlantic coast) and after going through the canal, turning north and passing Nicaragua again (on the Pacific coast). The same would be true in a voyage from Pacific to Atlantic between ports located north of Panama.

The effect of a canal in Nicaragua upon the traffic and serviceability of the Panama Canal would, therefore, result in a reduction of the traffic via Panama, especially that portion which moves between ports north of Panama; and leaves the serviceability of the Panama Canal to traffic between ports south of Panama.

It will be seen, then, that the Panama Canal will continue to be the commercial highway of the western world until it is rendered obsolete by perfected commercial aviation or until excessive demands for transits force the construction of another canal.

5. Value of this study

An effort has been made to present in this volume a comprehensive summary of essential data dealing with the Panama Canal as a commercial highway of the world. The main theme has been focused upon the economy of transportation and the benefits resulting from such economy to the commercial interests of the world, especially those of the United States.

To give a clearer picture of the influence of the canal upon the various topics discussed and its importance to the commercial world, an historical survey has been made of prior projects to build a canal in Panama as well as the relation of the present canal and its owner, the United States Government, to the Republic of Panama through whose territory the canal is built.

What is the value, therefore, of this study? The answer is, to show the importance of transportation (time and place utility) in the economic, political and social development of nations; to show the effect of reduced costs of transportation and commodities on the general welfare of progressive peoples; to show how the Panama Canal has contributed to the expansion of the domestic and foreign commerce of the United States and other countries; to give a clearer picture of the social and political changes made possible by closer contact with foreign countries; to give students of foreign trade an idea of conditions in Latin-America and the role of the United States in foreign commercial and political affairs; and finally, to justify, conditionally, the introduction of American ideas in Latin-American countries. All these conditions are entwined in the services rendered by the Panama Canal and an analysis of them is the value of the present study.

The United States, by building the canal, has accomplished a task of great worth. It is the realization

of a dream that has existed since the discovery of the Americas four hundred years ago. And what is of even greater significance is the fact that the Panama Canal is not a speculative venture operating soley for profits. The policy of the canal is to give service, to attract the attention of the commercial world; not to secure abundant rewards. Already the economic, social, and political status of nations have been greatly improved by reason of this international waterway. For the nonce, the canal stands as an indispensable highway through which the commercial nations of the world pass to and fro in order to exchange their wares with each other. What the future will bring, as new methods of transportation are developed, cannot be accurately forecasted; but until the canal becomes obsolete or unimportant, the Canal Zone Government of the United States will always maintain its cherished motto:

"The land divided - the world united".

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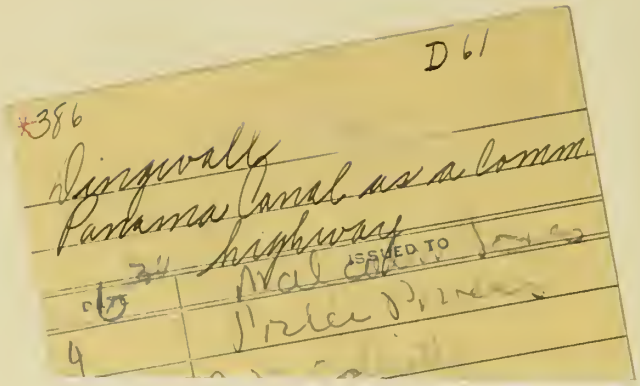
D61

*386

Dingwall

Panama Canal as a comm.

highway

ISSUED TO

6	Neal Cole
4	Walter Dinsmore