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AND THE  
CANAL  
TO-DAY

BY

FORBES LINDSAY



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TO-DAY

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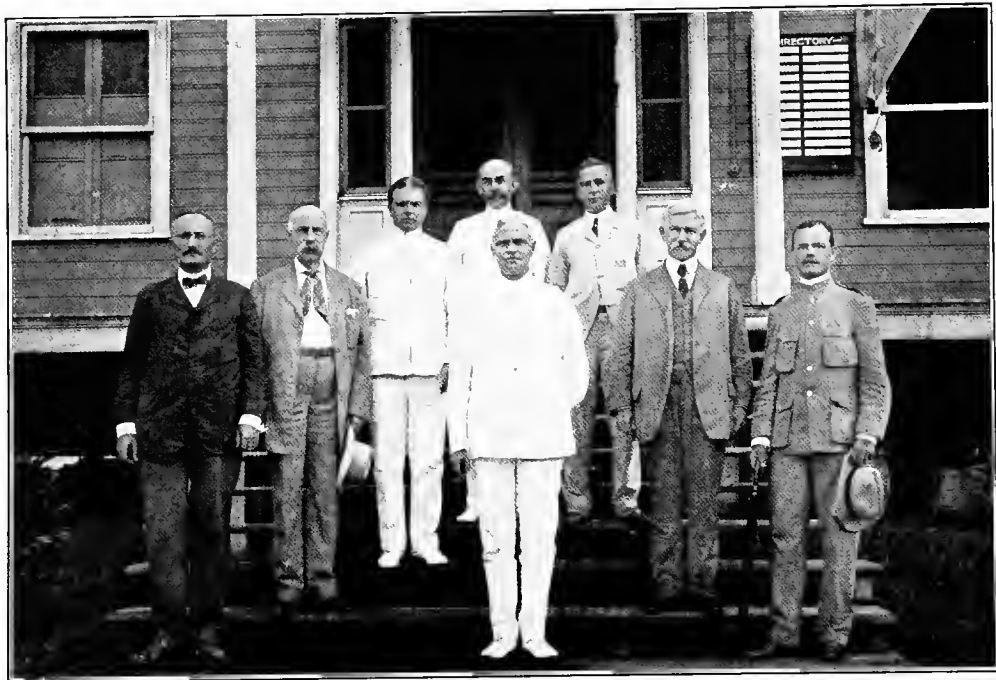


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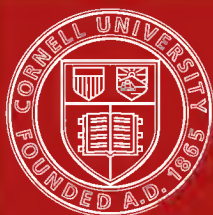


Sibert                      Rousseau    Bishop    Hodges  
Blackburn                  Goethals                  Gorgas                  Gaillard

THE ISTHMIAN CANAL COMMISSION.

*(See page 142.)*





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# PANAMA AND THE CANAL TO-DAY

AN HISTORICAL ACCOUNT

OF THE CANAL PROJECT FROM THE EARLIEST TIMES WITH SPECIAL REFERENCE TO THE ENTERPRISES OF THE FRENCH COMPANY AND THE UNITED STATES, WITH A DETAILED DESCRIPTION OF THE WATERWAY AS IT WILL BE ULTIMATELY CONSTRUCTED: TOGETHER WITH A BRIEF HISTORY OF THE COUNTRY AND THE FIRST COMPREHENSIVE ACCOUNT OF ITS PHYSICAL FEATURES AND NATURAL RESOURCES.

BY

**FORBES LINDSAY**

Author of "Panama, the Isthmus and the Canal," etc.

WITH FIFTY-THREE ILLUSTRATIONS FROM RECENT  
PHOTOGRAPHS, AND FIVE MAPS

*New Revised Edition*



BOSTON    ♣    ♣    L. C. PAGE  
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DEDICATED  
TO MY FRIEND  
**J. E. Durham**  
IN APPRECIATION OF HIS STERLING CHARACTER  
AND AMIABLE PERSONALITY



## PREFACE TO SECOND EDITION

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WORK on the Canal has moved with such rapidity during the twelve months since this volume first appeared, that the end is clearly in sight and the Administration is looking beyond construction to operation. The world at large joins in this prospective view with the keenest interest. There is a wide-spread desire to know the conditions under which the waterway will be operated, the facilities it will offer to traffic, and the charges it will impose upon vessels using it. Whilst these questions cannot be settled until Congress has taken action upon them, it is possible to give a statement of the plans and the recommendations of the Canal Administration in regard to them. An additional chapter in the present edition has been devoted largely to the subject.

The year just passed has witnessed a marked increase in the interest displayed in Panama as a field for investment and enterprise. The hundreds of enquiries received by the author

during the period in question are evidence of extensive desire on the part of American citizens for information regarding the natural resources and industrial possibilities of the country. Not a few of the writers contemplate settlement on the Isthmus, though hardly any of them have even the most superficial knowledge of the conditions to be encountered. In its original form, this volume afforded a certain amount of information upon these matters. That is now amplified and additions are made to it, so that the man contemplating investment or settlement on the Isthmus will find in the following pages answers to, at least, the questions which he would ask in preliminary enquiry.

The author takes this opportunity to acknowledge appreciation of the manner in which this book has been received by the press and the public, and to state that his knowledge of the interior of Panama is at the service of any serious enquirer.

FORBES LINDSAY.

GERMANTOWN, PA., *January 1, 1912.*



## PREFACE

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THE construction of the Canal recently entered upon its final stage. Up to this time the plans have been frequently changed; but it is hardly possible that any important modifications can be made in future. The present, therefore, appears to be a peculiarly appropriate time to publish an account of the work which has been done and a description of the plans upon which it will be finished.

In the past few years a widespread interest in the country of Panama has been evinced and capital, in constantly increasing volume, has turned to it as a field for investment. In the section of the book devoted to the interior I have given an account of the resources of this little known region, derived from careful personal investigation and information gained from experts.

In this volume I employ the word "Panaman" in place of "Panamanian." The latter, although it has the endorsement of Amer-

ican officials, is a clumsy and unscholarly construction. There is no more ground for it than there would be for "Americanian," or "Canadianian."

I acknowledge with sincere thanks my indebtedness to Colonel Goethals and several members of his staff for numerous courtesies and facilities extended to me in examining the work. I have always found the Commission willing to afford every assistance to investigators,—even though they approached the task in an inimical spirit,—and to furnish them with all the information and material available.

I wish also to acknowledge the courtesy of the War Department in permitting the use by me of the Department's new official map of the Republic of Panama.

The pleasure of my visit to Chiriqui was largely due to the kind attentions of Don Lorenzo Obaldia, for whom I shall always entertain a feeling of warm regard.

F. L.

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C A R R I B B E A N S E A

BAY OF PANAMA

PERLAS ISLANDS  
REY ISLAND

G U L F O F P A N A M A

MAP  
OF THE  
**REPUBLIC OF PANAMA**  
EASTERN SECTION  
PREPARED IN THE  
WAR DEPARTMENT  
OFFICE OF THE CHIEF OF STAFF  
SECOND SECTION

WASHINGTON, D.C.

APRIL 1909

SCALE OF MILES



**AUTHORITIES**

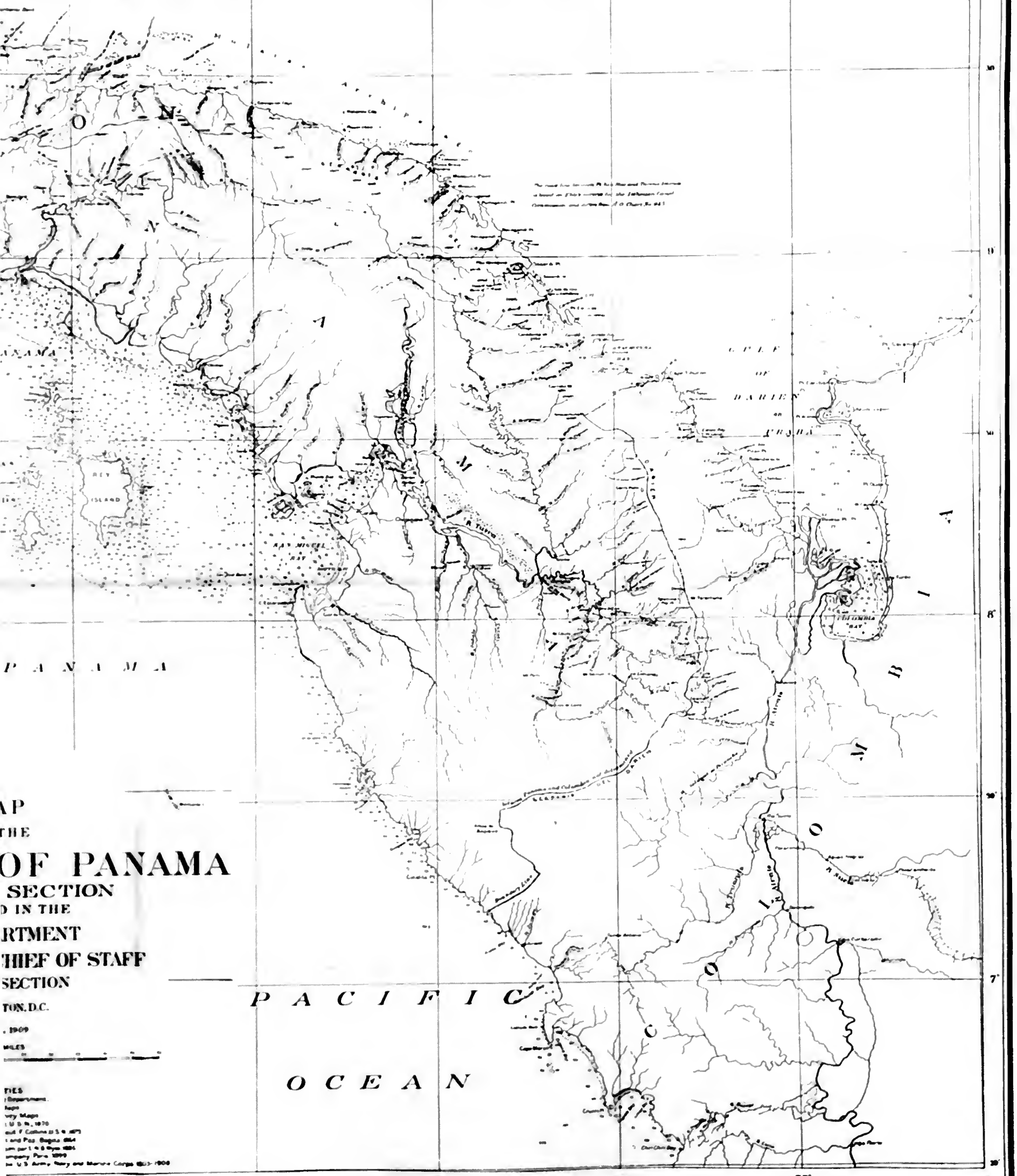
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Intercontinental Boundary Survey Maps  
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Reports of Comdr. E. A. Lull and Lieut. F. Collins to S. N. 1875  
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Carta Geografica de Panama Colombia por L. B. Reyes 1885  
Map by the New Panama Canal Company, Paris, 1899  
Reconnaissance by Officers of the U. S. Army, Navy and Marine Corps 1903-1908

P A C I F I C

O C E A N



R I B E A N S E A



The canal line between Panama and Colon is shown  
in bold in this section of the Isthmus Canal  
Commission and is on the basis of O. Chart No. 941

MAP  
OF THE  
**PANAMA**  
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SECTION  
TON, D.C.

1909  
MILES

**SYMBOLS**  
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9. U. S. Army, Navy and Marine Corps 1913-1928

P A C I F I C

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79° 30' 78° 30' 77° 30' 76° 30'

PART I

THE CANAL







# PANAMA AND THE CANAL TO-DAY



## CHAPTER I

### THE DREAM OF THE STRAIT

WE are on the eve of the consummation of five centuries of effort to find or make a direct westerly route from Europe to the Orient. The task which the oldest kingdoms of Christendom essayed and failed to accomplish, is nearing its completion at the hands of the youngest of nations. When, a few years hence, the Panama Canal shall be opened to the fleets and the merchant marine of the world, the dream of Columbus to sail from Spain to Cathay, with his prow ever pointing into the eye of the setting sun, will have become a possibility.

Among the ancient Greeks the theory was entertained that the shores of Asia might be reached by a comparatively short sail to westward from the mainland of Europe. But it was

## 2 Panama and the Canal To-day

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not until the fifteenth century that navigators and the sovereigns, upon whom they necessarily depended for the means and permission to make distant expeditions, were sufficiently impressed with the idea to put its truth to the test. Columbus was only one of many who, in his time, believed that the lands visited by Marco Polo could be arrived at by a voyage to the west, and that an open passageway lay between them and the countries of Christendom. Columbus alone, however, among the adventurers of his day, seems to have had the courage of his conviction. His ideas on the subject were very vague and faulty, being derived from the rude maps of the day and from the wild conjectures of others, and often based upon mere imagination. His conception of the size of the world was widely at variance with the truth and, like the ancients, he imagined the distance between Europe and Asia to be several thousand miles less than it actually is. When, after having persuaded Ferdinand and Isabella to support his venture, he embarked on his first voyage to America, it was with the confident expectation of gaining the eastern shores of the Old World in less than two weeks' time. The discovery of one after another of the



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islands of the West Indies did not disconcert him nor dampen his ardor. He took it for granted that they were outposts of the mainland which he sought. He describes them as "the Islands discovered in the Indian Sea," in his report of the voyage to his royal patrons. The developments of the second voyage only confirmed and amplified these delusions, from which the great explorer was never freed. Cuba, along the southern coast of which only he sailed, was readily accepted by him and by his officers as a part of the mainland of Asia, and, when his next expedition touched the shores of South America, near the delta of the Orinoco, the land was unhesitatingly pronounced to be another portion of the same continent. This self-deception Columbus sustained and increased by his too-ready habit of confusing the names of places mentioned by the Caribbean Indians with those referred to by Marco Polo in his account of his Oriental travels. Columbus set out upon his last and fourth voyage with the design of discovering a strait which should enable him to pass through Terra Firma, as he had named the mainland of South America, to India. And here was the first nebulous idea of the Panama Canal. Accord-

ing to Gomara, Columbus, on this occasion, discovered the " River of Crocodiles, which is now called Rio de Chagres, which hath its springs near the South Sea, within four leagues of Panama." Had the intrepid navigator sailed up that river he might justly have been accorded the distinction of having been the first explorer of a trans-Isthmian canal route. He died without realizing the true import of his great discoveries, and still believing that his momentous cruises had been in the seas and along the coasts of Asia.

In the meanwhile, Vasco de Gama, sailing under the flag of Portugal, had rounded the southern point of Africa and reached the Malabar Coast of India, returning safely toward the end of 1499. This exploit stimulated Spain to renewed efforts to discover a western passage. Amerigo Vespucci made important discoveries along the coast of South America which he, like Columbus, believed to be the continent of Asia. On the first map to show America, that of Waldseemüller, published in 1507, a narrow strait between the continents is shown in place of the existing isthmus. In the book which accompanied this map, Waldseemüller credits Vespucci with the discovery of the newly de-

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pected region and suggests that it should be named the Land of Amerigo, or America. The claim was not a justifiable one, but there is good authority for the statement that Alonzo de Ojeda, with Vespucci as the pilot of his expedition, landed upon the mainland of South America within a year of the occasion when Columbus discovered the land near the delta of the Orinoco. Amerigo Vespucci made two more voyages during the succeeding ten years in a search for the strait. At this time many other adventurers were engaged in the same quest, or in the hunt for gold, large quantities of which were secured by the early comers without the trouble of mining for it. The natives held it in no great value and readily exchanged it for articles of European manufacture of trifling value.

The decade following the last voyage of Columbus was a period of eager exploration by navigators of various nations. The coast of the Americas, from Labrador to Brazil, was scoured in the hope of finding a waterway to the ocean beyond. With continued failure, it began to be believed that no such channel existed. This view was greatly strengthened in 1513, by the discovery of the Pacific Ocean. Vasco Nunez de Balboa was one of the early govern-

ors of the Province of Darien. He had married the daughter of one of the Indian chiefs and was on the best of terms with the natives. From them he learned of a vast sea, only a few days' march beyond the mountains, that divided the continent. He collected a force of Spaniards and Indians and sailed to a point near Caledonia Bay, whence he was informed the crossing could be most easily effected. The route adopted is the shortest passage from ocean to ocean, although it does not pass over the divide at the lowest level. Progress through the dense jungle was difficult. It was nineteen days after starting when, on September 25, Balboa saw the Pacific Ocean from the summit of the divide. Four days later he entered the water and formally claimed the "South Sea," as he called it, in the name of the King of Spain.

Meanwhile, Balboa had been the subject of the usual intrigues at the Court of Spain, and, at the time of his great discovery, Pedrarias was preparing to sail for Terra Firma with authority to supersede him as governor. The news of Balboa's important exploit did not reach Ferdinand until after the new governor had sailed, but a royal warrant was immedi-

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ately issued confirming the former in his position and conferring upon him the additional honor of Adelantado of the lands upon the new sea that he had discovered. This order was doubtless delivered to Pedrarias and he seems to have kept it to himself, after the high-handed manner of viceroys in the American possessions of Spain at that period. The first act of Pedrarias on landing in America was to order Balboa's arrest and trial on a charge of treason. The result was an acquittal, and for a while the rivals, each with a formidable body of followers at his back, maintained an armed truce. At length Pedrarias resorted to subterfuge in order to get his enemy into his power. He was aware of Balboa's keen desire to explore the coast southward on the other side of the continent, prompted by the stories of the Indians, who declared that a country abounding in gold and other precious metals lay far away to the south. Pedrarias feigned a revulsion of feeling toward Balboa and assured him of his future friendship, at the same time giving his consent to the proposed expedition.

With the wonderful energy that characterized him, Balboa set about carrying out his cherished project, which involved nothing less than

a journey to Peru. Suitable trees for the construction of vessels were to be had only on the Atlantic side, or at least that was the impression of the commander. He conceived and carried out the daring task of fashioning all his material at the starting point of his former expedition and conveying it overland to the point of departure. This stupendous undertaking was accomplished with the aid of thousands of Indians. After months of labor the timbers were put together on the Pacific shore, and the fleet was on the eve of departure, when a messenger from Pedrarias reached Balboa with an urgent request for his return. Leaving his followers with the ships, the impatient leader hurried back to Aclas. He was seized at the instant of his arrival, put through a hurried trial by a court composed of the governor's creatures, and beheaded.

Balboa was the first of a numerous line of able men who fell victims to the jealousies and differences that kept the Conquistadores constantly embroiled with one another and at odds with the Crown. If we may judge from what he accomplished in the few years that were afforded him, Balboa was one of the most able of that group of remarkable men who contrib-

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uted so greatly to the brilliancy of Spain's history at this period. He appears to have been more humane than the majority of his fellows. That he was more ingenuous and less self-seeking may be inferred from the ease with which Pedrarias outwitted him. His bravery, resource, and fortitude under misfortune were frequently exhibited in the course of a romantic and eventful life.

Twenty years after Vasco de Gama rounded the Cape of Good Hope Ferdinand Magellan made his famous voyage through the strait that bears his name and demonstrated the existence of a continuous waterway between Europe and the Orient. This feat rather stimulated than retarded the efforts to find a more direct passage, but thenceforth the search was mainly confined to the isthmian section of the American continents, where it had been definitely ascertained that the oceans lay least widely apart. Under the directions of Cortez, de Soto, de Cordova, and others, these explorations were carried on, and, although the principal object of them was never attained, they led to important discoveries and resulted in the establishment of overland routes from the Atlantic to the Pacific. The most important of these was

the post road, constructed about 1521, between the old city of Panama and the settlement of Nombre de Dios on the Pacific Coast. At the close of the century the latter terminal was abandoned and one at Porto Bello took its place. Fifty years before this change was effected a route for light draught boats had been established from Nombre de Dios up the Chagres to Las Cruces; thence by land to Panama. This line of communication was in use at the time that the gold seekers from the United States made the journey to California by way of the Isthmus, and many of them travelled by the Chagres route.

The line of communication between Panama and the Atlantic port rapidly grew in importance after the conquest of Peru. Vast quantities of gold and silver were transported over it by the relays of horses that were constantly kept in service for the purpose. On the other hand large shipments of various commodities for the use of the colonists and articles to be bartered with the Indians were carried over the same road, and from Panama distributed to the settlements in the north and south. In time the trade of Panama extended to the main land of Asia and the Spice Islands of the Pacific.



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The search for a strait, which Cortez took up after he had completed the conquest of Mexico, led to the discovery of facilities for the transit of the Isthmus in the Tehuantepec region. A route was established up the Coatzacoalcos, across the divide, and down the farther slope to the Pacific. Terminal ports were created, and, in a few years, a considerable trade was built up with the mother country on one hand and the countries of eastern Asia on the other. At the same time the explorations of Davila paved the way for interoceanic traffic in the Nicaraguan country.

Meanwhile the idea of a ship canal had already arisen in more than one mind, and each successive failure to find a natural channel connecting the oceans added to the advocates of an artificial waterway. Alvaro de Saavedra, a kinsman and follower of Cortez, seems to have been the first to broach this proposal. What a daring project it was we can better understand than did the men who originally entertained it. In fact, it is doubtful whether they had anything like a just appreciation of the difficulties in the way of consummating it. Even though no more than an eight-foot channel had been attempted, the excavation through the divide

would have presented a stupendous task in those days.

It is said that as early as 1520 Charles V ordered the Isthmus of Panama to be surveyed, with a view to ascertaining the best route for a canal across it. There is no record of this mandate having been carried out, and, indeed, it would have been no easy matter at that time to have made even the roughest kind of survey of the region in question. The mere passage across it, through the virgin forest, involved weeks of toil and danger. In the following decade the ship canal scheme was widely discussed and Saavedra made detailed plans for it in 1529. Five years later the King of Spain issued a more definite decree regarding the matter, and one more easy to comply with. This required that the territory between the head of navigation on the Chagres and the Pacific should be carefully examined by men of experience, to ascertain the feasibility of connecting the navigable waters of the river with the ocean. This was done, and the governor, Pascual Andagoya, reported that the difficulties in the way were insurmountable. He expressed the opinion that it would be practically impossible to construct a canal through the Isthmus at that or any other

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point, and declared that the undertaking would exhaust the richest treasury in Christendom.

Nothing further was done in pursuit of the project during the remainder of the reign of King Charles, and the accession of his son Philip to the throne, at the close of the century, marked the inception of an entirely new policy towards the Spanish possessions in Terra Firma. Philip shrewdly decided to leave well alone. He realized that the stream of precious metals that then flowed into the coffers of the Crown from America would not be increased by improved methods of shipping, and that the contemplated facility for direct communication by water to the farther coast of the continent would be of greater benefit to other nations than it would to Spain, by enabling the former to reach the sources of supply with comparative ease. So strongly did King Philip maintain this view, which we must admit was a sensible one, that he strictly forbade all public advocacy of the mooted waterway and prohibited all exploration in connection with it. At about this time the navigation of the Atrato was opened up, and led to the discovery that the upper reaches of that river were comparatively near to the Pacific littoral. This, of course, suggested a

canal at that point, and it began to be talked about. Knowledge of the project no sooner came to the King than he ordered the navigation of the river to be abandoned and the penalty of death to follow disobedience.

For two centuries after the death of Philip II the attitude of the Crown of Spain toward water communication between the two great oceans remained adverse. Discussion of the subject could not, however, be suppressed, and explorers in the Isthmian region could not fail to consider it in connection with the new surveys that were constantly being made. Any new light that may have been cast upon the question in this manner was promptly extinguished. All maps and documents bearing on the point which reached the mother country were jealously guarded from the public, and stowed away in vaults from which the majority of them never emerged.

During the reign of King Philip the activities of English privateers and pirates became a serious detriment to the commerce of Spain. Their attacks upon the vessels carrying treasure from the Isthmus at length led to the temporary abandonment of the Panama-Porto Bello traffic and the substitution of the route by

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way of Cape Horn. Only brief respite was gained by this measure, however. The freebooters promptly transferred the scene of their operations to the Straits of Magellan and beyond. Sir Francis Drake inflicted on the Spanish fleet in the South Sea a series of blows that practically destroyed it. For a short while a return was made to the Panama line of transit, but that of Nicaragua soon took its place. Little was gained by this change, for in the middle of the seventeenth century English adventurers began to lead raiding parties against the Spanish posts in Nicaragua, and before the end of the century trade in that region was destroyed.

In the meantime the diversion of the Spanish shipping from the lower Isthmus had laid the settlements there peculiarly open to attack. The opportunity thus afforded attracted the attention of Henry Morgan, the most daring and unprincipled buccaneer of his day. In 1671, encouraged by the success of an attack made a few years previous, he reduced Porto Bello and then marched across the isthmus and captured Panama. The city was sacked and burned to the ground. It was never rebuilt on the original site, and Spanish commerce at this point died at the hands of a brutal pirate.

The repeated success of the English in their attacks upon the Spaniards by land and at sea stimulated their aggression. Jamaica had been seized, and attempts were made at settlement in Nicaragua. Just before the close of the seventeenth century a Scotchman named William Paterson, the same who founded the Bank of England, launched an ambitious project, involving a colony in Darien and the ultimate establishment of a trade route between the oceans. The ill-fated enterprise, which was authorized by an act of the Scottish Parliament and sanctioned by King William of England, was known as the Darien Expedition. Three ships carried a party of colonists, numbering one thousand two hundred, from Leith to the New World. The site chosen for the settlement was near the old city of Aclas, where Balboa was executed, and the point from which he began his journey across the Isthmus. The proximity of the oceans in this locality was a decided advantage, but otherwise the situation was ill-chosen. The Indians in that section were implacably hostile to the whites, and have ever remained inimical. The location was very unhealthy and disease attacked the unfortunate colonists as soon as they landed. In eight

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months' time their number had been reduced to a few hundred, and this remnant of the expedition, which started out with such great promise, abandoned the colony and returned to Scotland. On the way they passed, without being aware of it, two ships bringing a reinforcement of emigrants. These landed at the deserted settlement under discouraging conditions, which rendered them even more ready prey to the climate than had been their predecessors. They were reduced in force and weakened by sickness when the Spaniards sent a military detachment to dislodge them. The settlers made a gallant resistance and repulsed this attack, but they had neither the strength nor the heart to repeat the effort when another body came against them shortly afterwards. They surrendered, and were allowed to embark in their vessels and sail for their native country. Thus the much vaunted Darien Expedition, which its promoter declared would make Great Britain the "arbiter of the commercial world," came to an end, with the loss of two thousand lives and much money.

During the century following Paterson's disastrous venture little was done towards promoting interoceanic communication and inter-

est in the question of a ship canal seems to have waned. A royal commission, authorized by the Crown of Spain, surveyed the Nicaraguan route more thoroughly than had been done before. The report was decidedly unfavorable, but two British agents who had accompanied the expedition represented to their government that a waterway in that region was quite feasible, and that the undertaking would not be attended by extraordinary difficulties. This secret report no doubt influenced Great Britain, when war was declared against her by Spain in 1780, to send an invading force into that part of the Spanish possessions. Horatio Nelson, then a post captain, had charge of the naval operations in connection with this expedition. In a despatch from the scene he made the following statement, which betrays the purpose of his superiors and shows his own appreciation of the importance of a trans-Isthmian waterway: "In order to give facility to the great object of government I intend to possess the Lake of Nicaragua, which, for the present, may be looked upon as the inland Gibraltar of Spanish America. As it commands the only water pass between the oceans, its situation must ever render it a principal post to insure passage to



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the Southern Ocean, and, by our possession of it, Spanish America is divided in two." This plan was entirely frustrated, not by the Spaniards, who were overcome at every point, but by the climate. The force had entered upon the campaign in the rainy season and the men fell victims to fever in appalling numbers. Of the full complement of Nelson's ship, the "Hinchinbrook," two hundred in number, all but ten were buried in Nicaragua, or soon after the arrival of the expedition in Jamaica. Nelson himself suffered a long illness, that enfeebled him for years and permanently impaired his health.

Up to the close of the eighteenth century, no actual progress had been made toward the establishment of water communication between the Atlantic and the Pacific. The discussion of the subject had been vague and the plans proposed quite impracticable. Of the numerous surveys that had been made, not one threw any valuable light on the matter. Indeed, they rather befogged the consideration of the subject by disseminating the wildest theories and the grossest falsehoods regarding the conditions. As late as 1788, Manuel Milla, a Spanish engineer, surveyed the Darien route and reported to





C A R R I B B E A N S E A

BAY OF PANAMA

PERLAS ISLANDS  
REY ISLAND

G U L F O F P A N A M A

MAP  
OF THE  
**REPUBLIC OF PANAMA**  
EASTERN SECTION  
PREPARED IN THE  
WAR DEPARTMENT  
OFFICE OF THE CHIEF OF STAFF  
SECOND SECTION

WASHINGTON, D.C.

APRIL 1909

SCALE OF MILES

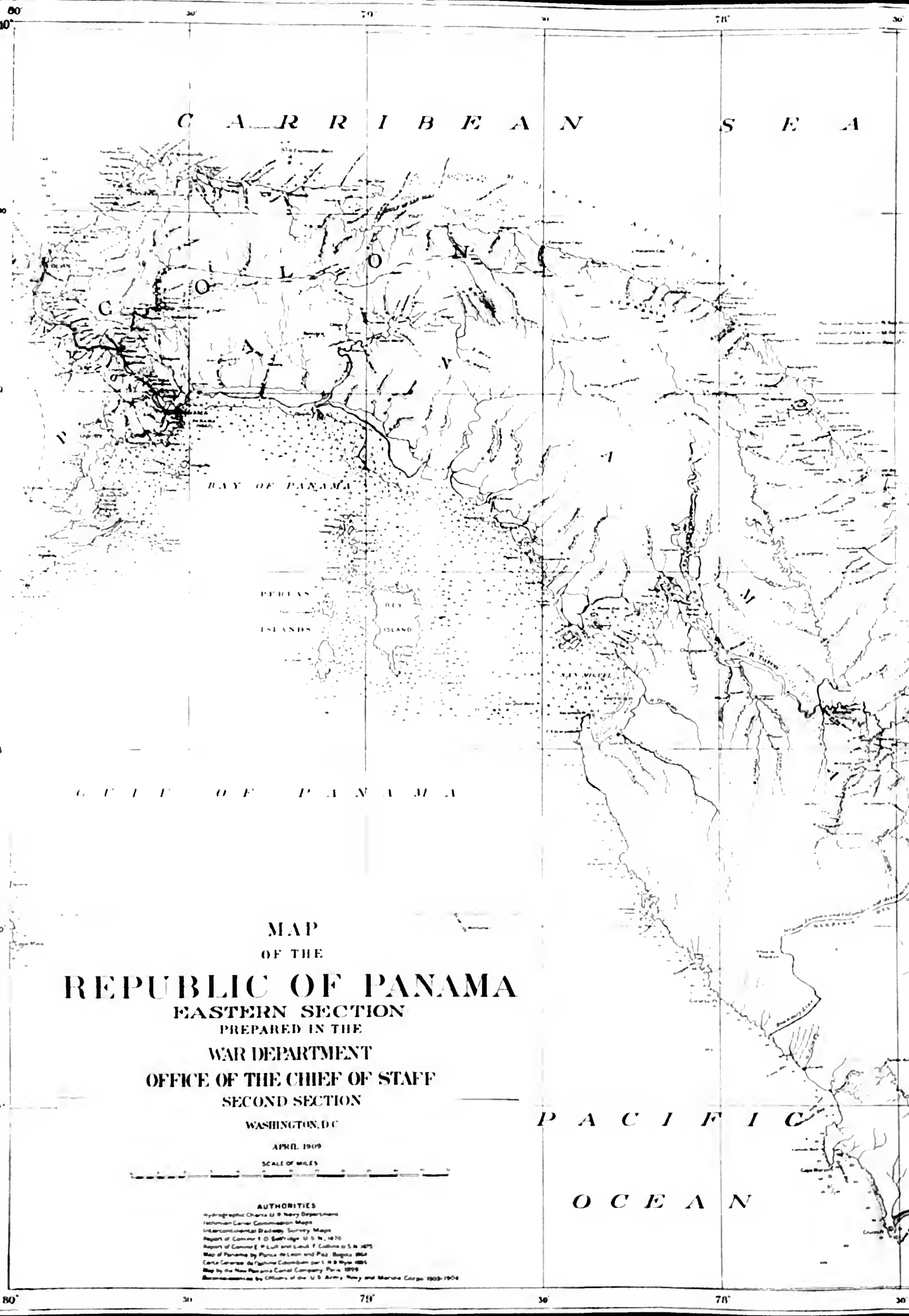


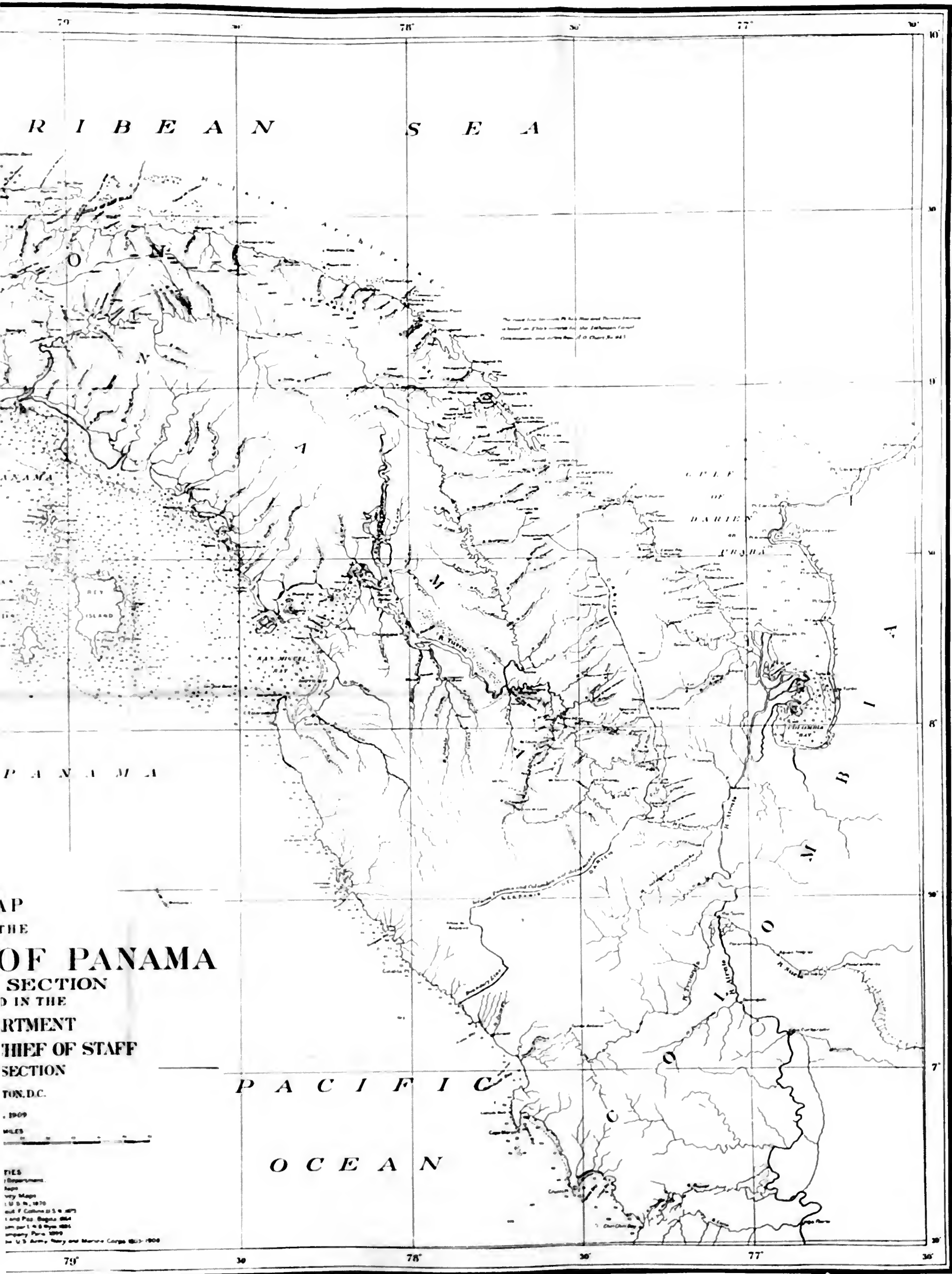
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P A C I F I C

O C E A N





CARIBBEAN SEA

The canal line between Panama and Colon is shown in bold lines  
as laid out in this report by the Isthmian Canal  
Commission and in the Plan of O. Chaney, No. 441

PANAMA

PANAMA

# MAP OF PANAMA

SECTION  
D IN THE  
DEPARTMENT  
CHIEF OF STAFF  
SECTION

WASHINGTON, D.C.  
1909  
MILES

PACIFIC

OCEAN

FILES  
1 Department  
2 Maps  
3 City Maps  
4 U.S. G. S. 1870  
5 and 7 Copies of S. G. 1870  
6 and 8 Copies of S. G. 1870  
9 and 10 Copies of S. G. 1870  
11 and 12 Copies of S. G. 1870  
13 U.S. Army, Navy and Marine Corps 1870-1908

79° 30' 78° 30' 77° 30' 76° 30'



## CHAPTER II

### PRACTICAL PROJECTS

THE problem of an interoceanic ship canal began to be studied with the precision of scientific investigation at the beginning of the nineteenth century. The interest of all Europe was aroused by the publication of Humboldt's "Political Essay on New Spain," in which he strongly urged the prosecution of the project. He suggested no fewer than nine routes, but, strangely enough, omitted mention of one of the most obviously feasible, that which would have its Atlantic terminus in Caledonia Bay. One of Humboldt's waterways would have extended through the Mississippi, Missouri, and Columbus rivers. As a passage for the small vessels of his time, it was not so extravagant a proposition as it appears to-day. Although the scientist did not express any individual preference, it may be inferred from his remarks that he especially favored the route up the Chagres

River and thence to the city of Panama. All the routes advocated by Humboldt, with one possible exception, involved some river, and he seemed to think that the idea of a canal throughout, even though facilitated by locks, should not be considered as within the bounds of practicability. Later experience has shown that he was right in his estimate of the possibilities at that time.

The publications of Humboldt relating to the Isthmian canal question, and a visit which he made to Spain shortly after their appearance, aroused the government of that country to renewed activity in the matter. In 1814, the Cortes passed a law providing for a waterway capable of accommodating the largest vessels, and authorizing the formation of a company for the purpose of carrying out the work. The undertaking hung fire for some years, and, with the revolutions that shortly after broke out in Spain's American possessions and ultimately led to their freedom, the last chance of Spain having the glory and advantage of constructing the canal expired. In fact, Spain was almost the only European nation that had no part in the negotiations which from this time on assumed a practical aspect.



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The emancipation of the Spanish American colonies, while it destroyed all prospect of canal building for the mother country, opened up the field to other nations. The new republics, needing money and anxious to build up commerce, saw in an interoceanic waterway the greatest advantage to the region they occupied and particularly to that country which should be so fortunate as to secure the prize. Each of them welcomed proposals and, in their eagerness, granted concessions without due consideration.

In 1824, Aaron H. Palmer, of New York, on behalf of an American syndicate, made overtures to the Central American Republic. These were favorably received, but, before acting decisively upon them, the government of that country sought to enlist the United States in the enterprise, at least to the extent of formally endorsing it. The political representative of the Republic suggested to Henry Clay, then Secretary of State, a treaty between the two countries embodying an agreement on the subject of a canal at Nicaragua. Mr. Clay in response expressed his appreciation of the importance of the matter and undertook to have an investigation made for the purpose of determining whether the proposed route was en-

titled to preference over all others of those available. In case of the enquiry leading to such a conclusion, he promised to bring the subject to the attention of Congress.

The matter does not seem to have ever advanced beyond the stage of correspondence. In June, 1826, the Republic of Central America decided not to wait longer for action on the part of the United States and entered into a contract with Aaron Palmer and his associates. Twelve months from the date of the contract work was to be commenced on a canal equal to the accommodation of the largest vessels of that day. The American interests were to retain their control until they should be reimbursed for all the capital invested, together with ten per cent interest, and for a term of seven years thereafter they were to receive one-half of the net proceeds from the operation of the canal. The waterway was to be strictly neutral, and under no circumstances were any privileges to be granted to one nation to the exclusion of any other.

The concessionaires then attempted to organize a corporation with the cumbersome title of The Central American and United States Atlantic and Pacific Canal Company, and the totally

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inadequate capital of \$5,000,000, for the purpose of effecting the construction. In America, capitalists were disappointingly slow in responding to the proposal and the promoter went to London, where he spent the best part of a year with no better result. Twelve months after signing the contract with the Republic of Central America, Palmer and his associates were in no position to enter upon the work, and the project was abandoned.

After a futile effort to secure the co-operation of the Netherlands in a canal project, the Republic of Central America again approached the United States on the subject. This led the Senate to pass a resolution which prompted President Jackson, in 1835, to send Charles Biddle to the Isthmus with instructions to examine the various canal and transisthmian railroad routes. The outcome was not satisfactory, and two years later the President sent a message to the Senate expressing the opinion that it was not at that time expedient to enter into any negotiations with regard to an interoceanic canal. In the following year, however, the matter was extensively discussed in Congress and the President was requested to open or continue negotiations with foreign nations in ac-

cordance with the Senate resolution. Complying with the wishes of Congress, President Van Buren sent John L. Stephens to the Isthmus for the purpose of examining the question. Mr. Stephens' report recommended the Nicaraguan route in preference to any other, and estimated the cost of a canal there at \$25,000,000, but he deemed the undertaking inadvisable at that time on account of the unsettled state of the country.

Meanwhile, other nations had become interested in the canal project. The King of the Netherlands was only deterred from accepting the offer of the Republic of Central America by the intervention of the United States, which was, at that time, disposed to take the ground that no European nation could undertake the work without violation of the principles of the Monroe Doctrine. A British company sent John Bailey to Nicaragua to survey a route and to secure a concession, if possible. Simon Bolivar gave a franchise for a canal at Panama to a Frenchman. In 1844, Nicaragua, which had become a separate republic, sent an envoy to Louis Philippe with a view of inducing him to establish a protectorate over Nicaragua and construct a canal through the country. The pro-

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posal did not meet with a favorable reception, but Louis Napoleon, at that time a State prisoner, took up the latter feature of the scheme with enthusiasm. He petitioned the French Government on the subject, begging to be released in order that he might proceed to America and devote himself to the enterprise, and promising never to return to France. When, shortly afterwards, he escaped to England, he issued a monograph relating to a waterway at Nicaragua and advocating the line that had been marked out by Bailey in 1837. In this pamphlet the author urged England to undertake the work for political considerations. A few years later the distinguished exile returned to France as President of the Republic, and in his plottings for the revival of the Empire the canal project was forgotten.

In 1838 the Republic of New Granada granted to a French company a concession for the establishment of a transit line from the city of Panama to any desirable point on the Atlantic coast by road, rail, or water. Several years were spent by the company in making explorations and surveys. The purported results were conveyed to the French Government in the hope of inducing its aid. The representations, which

were recklessly false in many particulars, drew the most alluring picture of conditions at the Isthmus, and concluded the statement that a passage through the mountains existed at an elevation of less than 40 feet above mean sea level. M. Guizot was sufficiently impressed by this report to send an engineer officer to make an investigation on behalf of the Government.

Napoleon Garella, the agent of the French Government, found a very different situation from that which the concessionaires had represented as existing. The lowest pass through the divide was seven or eight times higher than the fanciful depression which had been reported and offered so serious an obstacle that he advocated a tunnel more than three miles long, rather than a cut through it. Nevertheless, Garella reported favorably to the project and submitted a detailed plan for a canal capable of accommodating vessels drawing twenty-one feet of water. This canal was to have thirty-six locks and its estimated cost was \$25,000,000.

The Garella report showed the undertaking in so much more formidable a light than had that of the projectors that the French Government hesitated to embark upon it. Disappointed

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in this source of assistance, the company which had secured the concession allowed it to lapse.

About the middle of the nineteenth century, several events occurred that had the effect of increasing the importance to the United States of more direct maritime communication between the coasts of the continent. In 1848, Oregon definitely became a territory of the United States, and in the same year California was ceded to it. The discovery of gold in the latter region immediately stimulated transisthmian travel to great proportions. The favorite routes were those through Nicaragua and across the Panama isthmus. In 1848 a treaty between New Granada and the United States was ratified, giving to the latter nation a right of way for its troops and transport trains.

A similar convention with Nicaragua was desired, and the negotiations were entrusted to Elijah Hise, the representative of the United States in that country. Hise secured from the Republic an extremely favorable agreement which involved the exclusive right to construct roads or waterways through Nicaragua. But these privileges depended upon the United States binding herself to defend Nicaragua

against foreign aggression. This was more than the Government at Washington cared to undertake, and the treaty arranged by Hise was not ratified.

At that time Great Britain was advancing the contention that the boundaries of her territory on the Mosquito coast included the mouth of the San Juan River, which was the terminus of practically every Nicaraguan canal route that had been suggested. At the same time the British began to execute designs for securing possession of Fonseca Bay, the most favorable terminal on the farther coast. The United States exerted diplomatic activity to checkmate these plans, and in the prosecution of their conflicting interests, the two nations came to the verge of war.

The famous Clayton-Bulwer Treaty of 1850 provided for an adjustment of the difficulty. The principal points of the agreement were that each of the contracting powers should do all in its power to promote the construction of a canal at Nicaragua by rendering support and aid to any company, with sufficient capital, that might secure a concession for the purpose; that they should mutually protect the neutrality of the contemplated waterway and that neither



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should seek to secure exclusive control of it, nor erect any fortifications along it.

An American company had, in the previous year, obtained a franchise from Nicaragua for a ship canal through its territory, and a clause in the Clayton-Bulwer Treaty made provision for the protection of its rights. Leaving the construction of the canal in abeyance for the time, and seeking to meet the immediate demand for transportation as expeditiously as possible, the members of this company formed another organization named the Accessory Transit Company, and secured for it the right to operate a combined water and land line in connection with steamships on either coast. In the year 1852 the Accessory Transit Company began the operation of this line and maintained it for many years until the disturbances consequent upon Walker's filibustering expeditions led to its abandonment.

No work was ever done by the American Atlantic and Pacific Company upon the canal for which they had obtained a franchise, but Colonel Childs was employed by them to make an instrumental survey of the route and locate a line for the waterway. The survey by Colonel Childs was the first reliable one of consequence

that had been made in the Isthmian country. It proved of great value in later investigations, and was the basis for after operations at Nicaragua.

At the close of the year 1848, an American syndicate secured from the government of New Granada a concession for a railroad to connect the oceans in the Panama country. This road was vigorously pushed, to meet the pressing demand on the part of Americans migrating to the newly opened gold fields in California. Despite enormous difficulties, the line was completed in 1855 from Colon, or Aspinwall as it was then called, to Panama, a distance by rail of 48 miles. The railroad was a great step in the direction of establishing easy communication between the oceans, but it was far from a consummation of the design and served to stimulate, rather than allay, the desire for a waterway.

The surveys at Nicaragua and Panama, made by Childs and Totten respectively, had revealed many unsuspected difficulties in the way of the construction of a canal. In the hope of finding an easier route than either of these, explorers began to turn their attention to the Darien country, where the first passage of the Isthmus



PANAMA FROM THE SEA.



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was made by Balboa. The governments of the United States, Great Britain, and France were most active in these explorations, some of which were promoted by private individuals, or companies.

In 1866 the Senate called upon the Secretary of the Navy for all the information at his command, relating to rail or water routes across the Isthmian territory between Tehuantepec and the Atrato River. In response, Admiral Chas. H. Davis made a report in which nineteen canal and seven road projects were enumerated. The eight routes in Nicaragua were pronounced impracticable, and the opinion was expressed that "it is to the Isthmus of Darien that we are first to look for the solution of the great problem of an interoceanic canal." It should be understood that at that time the term "Isthmus of Darien" was used to include what is now the country of Panama.

Following the succession of General Grant to the Presidency, a number of expeditions were sent to the Isthmian country by the Government and a great deal of valuable data was collected. In 1875, the Secretary of the Navy assigned Captain E. P. Lull, with A. G. Menocal, a civil engineer, to the task of investigating the



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secured from the Colombian Congress a concession for a canal through the San Blas country in which the Atrato and Tuyra Rivers were to be utilized. A number of speculators and politicians were attracted by Gorgoza's proposition and a company was formed under the title of "*La Société Civile Internationale du Canal Interocéanique.*" Count Ferdinand de Lesseps, whose fame as the projector and constructor of the Suez Canal was then undimmed, General Etienne Türr, and his brother-in-law, Lieutenant Lucien Napoleon Bonaparte Wyse, were the most distinguished of the early promoters of the scheme.

Lieutenant Wyse was despatched to the Isthmus for the purpose of surveying the proposed route. It was not found satisfactory, nor was any feasible alternative route discovered in the territory covered by the concession.

In this dilemma Wyse turned to the Panama route, but a serious obstacle was in the way. The contract of the Panama railroad with the Colombian Government gave to the former the exclusive right of transit in that territory. Nevertheless, Wyse proceeded to Bogotá and laid before the authorities there a proposition to commence work on a canal through the Isth-

mus of Panama in two years' time and to finish it within twelve years after the date of commencement. He secured a concession conditional upon his obtaining the consent of the Panama Railroad to it.

At this time there was pending before the Legislature of Nicaragua a bill to authorize the construction of a canal in that territory by another French company. After carrying his point at Bogotá, Wyse went to Nicaragua and succeeded in defeating the efforts of his rivals to gain a concession. He then went on to New York and effected an agreement with the Panama Railroad Company.

Whilst Wyse was engaged in these negotiations, Lieutenant Reclus made a perfunctory survey of the proposed route. On the return of these officers to Paris, they submitted a roseate report to their principals and the *Société Civile* promptly adopted the route.

The contract with the Colombian Government provided that whatever route the *Société* might propose should have the endorsement of an international body of engineers and other scientists. In accordance with this requirement, De Lesseps convened at Paris in May, 1879, the "International Scientific Congress." It con-



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sisted of one hundred and thirty-six members, of whom seventy-four were Frenchmen. The body was largely composed of men friendly to De Lesseps and his scheme. Fewer than fifty of them were engineers, or scientists, a greater number being speculators and politicians. De Lesseps presided over the gathering and dominated its proceedings.

Fifty-four members were appointed by De Lesseps, who nominated all the committees to consider the question of the route. At the outset considerable opposition to the line chosen by the promoters was shown. The San Blas route was advanced by one of the American delegates; the Darien route by another. The partisans of De Lesseps showed the deepest resentment at the opposition and a pronounced disinclination to submit the matter to open argument. They made it so plain that they intended to carry their point, regardless of every consideration but their own interests, that a number of the members of the committee declined to take further part in the proceedings. Immediately after their withdrawal, the remainder of the body cast a vote in favor of the Panama route and the Congress ratified it without debate, although in the final

declaration not more than one hundred of the members went on record.

The methods of the promoters in this Congress created the distrust of the foreign governments that had interested themselves in the project and even aroused unfavorable public opinion in France. De Lesseps was acutely alive to the bad impression that had been made and promptly set about counteracting it. In September, 1879, he went to the Isthmus and made an investigation. Although he was not an engineer, his opinion in the matter carried great weight, on account of the prestige attaching to him as the builder of the Suez Canal. He confirmed the favorable reports of Wyse and Reclus and published plans for a canal at sea level to be twenty-eight feet deep and to cost \$132,000,000.

In the meantime, adverse feeling against the French project had grown in official circles and amongst the business men of the United States. Prominent capitalists and engineers, including Admiral Ammen and Lieutenant Menocal, the official delegates to the International Congress, organized the Interoceanic Canal Company, with the design of constructing a waterway at Nicaragua. In the spring of 1880, the latter

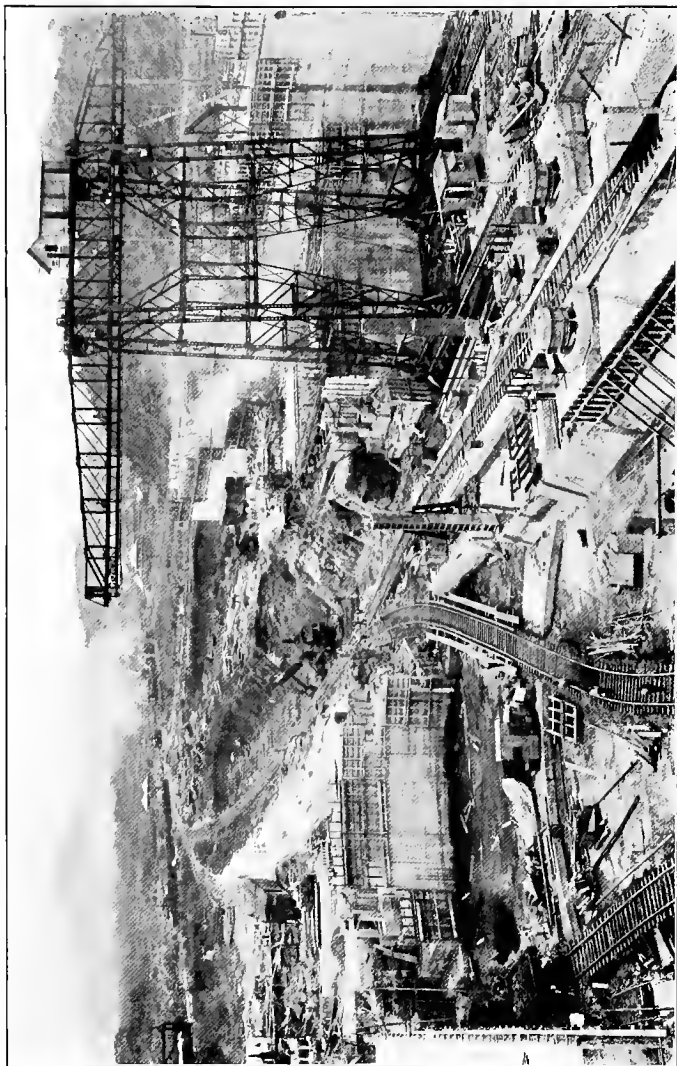
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officer secured a concession from the Nicaragua government, on the condition that work should be commenced within two years.

De Lesseps, realizing the great importance of propitiating the Government of the United States and securing the good will of its people, visited New York and Washington in March, 1880. He was treated as a distinguished guest and cordially received by President Hayes, but the latter shortly afterwards sent a message to the Senate in which he gave it as his opinion that an interoceanic canal by any route should properly be controlled by the United States, and that the United States could not consent to the surrender of the control of such a waterway to any European power. This was a direct slap at De Lesseps' programme, which involved a canal whose neutrality should be guaranteed by a concert of European nations. The Frenchman was shrewd enough to yield on this point with seeming cordiality, but he set about trying to secure his ends by less direct processes. An American board was created, with prominent men composing its personnel, and some of the leading banking houses of the United States were engaged as fiscal agents. Large sums of money were placed at the disposal of these agen-

cies for the purpose of influencing public opinion through the medium of subsidized newspapers. The immediate result was a campaign against the adoption of the policy advocated by President Hayes and an organized opposition to the Nicaraguan project.



MIRAFLORES UPPER LOCKS, LOOKING NORTH FROM BERM CRANE, SHOWING FOREBAY AND CONSTRUCTION OF LIFT SILLS, JULY 25, 1911.



## CHAPTER III

### THE PANAMA RAILROAD

WITH the sack and abandonment of the old city of Panama, which is described elsewhere in this volume, its once great commerce expired. The new site enjoyed no such facility as the "paved road," which had connected Panama Viejo with its Atlantic port. The need of convenient interoceanic communication was recognized before the discovery of gold in California made it urgently desirable. In 1848, John L. Stephens, W. H. Aspinwall, and Henry Chauncey applied to the government of New Granada for a concession to operate a transit line. It was granted two years later, by which time developments in the newly acquired territory of the United States upon the Pacific coast had created a promising outlook for what, at the time of its inception, was generally regarded as a wild enterprise. At best the undertaking was a hazardous one, fraught with enormous difficulties and beset by innumerable uncertainties.

In 1849, surveys were made for a railroad, and it was decided, though why it is difficult to understand, to locate the Atlantic terminus on the Island of Manzanillo. In May, 1850, the work of construction was commenced. "No imposing ceremonies inaugurated breaking the ground. Two American citizens, leaping, ax in hand, from a native canoe upon a wild and desolate island, their retinue consisting of half a dozen Indians who clear the path with rude knives, strike their glittering axes into the nearest tree; the rapid blows reverberate from shore to shore, and the stately cocoa crashes upon the beach. . . Thus, unostentatiously, was announced the commencement of a railway, which, from the interests and difficulties involved, might well be looked upon as one of the grandest and boldest enterprises ever attempted."<sup>1</sup>

Then commenced a splendid fight against tremendous obstacles, — a long, wearing struggle with unfamiliar conditions that was to end triumphantly five years later. A two hundred ton vessel brought Chief Engineer Totten and his assistants to the Isthmus. The craft was an-

<sup>1</sup> "Handbook of the Panama Railroad," F. N. Otis. Out of print.



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chored off Manzanillo and furnished the headquarters of the force. For a long time it was impossible for them to sleep on shore and they made their home on the boat. Here they were able to escape the mosquitoes that harassed them through the day, but the cockroaches which swarmed over the ship were hardly less annoying. The country through which the line had to be carried was wild and covered with jungle. The way had to be cut through the tangle of vegetation, and in this work the men were exposed to the attacks of noxious insects and reptiles. Often they had to labor waist-deep in the mire of swamps. The construction had been begun at the beginning of the rainy season, and, for the following eight months, heavy downpours and humid heat were added to the other difficulties. Not one of the party escaped the wasting *calentura*, as the jungle fever of Panama is called. Soon they were all thin and pallid, but not one gave in until he had reached the last extremity of endurance.

It was as daring a piece of engineering work as the world has ever seen, and it was carried out with superb heroism. The eldest of these men, Col. G. M. Totten, was a veteran in experi-

ence, though not more than forty-five years of age. His youngest assistant, James L. Baldwin, was barely thirty but he displayed such remarkable ability and enterprise that it was not long before he became the right hand man of his chief. It was Baldwin to whom the extremely arduous task of locating the track was entrusted. Plunging into the wilderness with a small band of Indians and two or three American aides, he accomplished the work in a surprisingly short time.

Among the engineers who were conspicuous for the part they took in this pioneer undertaking, were J. C. Trautwine and J. J. Williams. It is claimed for each of them that he had the honor of breaking the first ground, but however that may be, both did their fair share in the trying labors that ensued.

Parties of gold-seekers had already begun to cross the Isthmus on their way to California, and the work on the road was pushed with feverish activity in order to meet the needs of this traffic as soon as possible. When the contracts were placed for the construction it was hoped that the line might be completed in two years. But the calculations had been made, and necessarily so, without any definite knowledge

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of the work to be accomplished or the expense of doing it. The contractors experienced unexpected difficulty in securing suitable labor. The natives of the country were not equal to the labor, either in the matter of intelligence or physique. The cost proved to be vastly in excess of the estimates. At the end of the second year, instead of having the road finished, the contractors had reached the end of their resources and threw up the sponge.

This was a severe blow to the directors of the Company, but they did not falter in their purpose. The bankrupt contractors were promptly released, and the construction was taken into the hands of the Company. Enthusiastically backed by the officers, the engineers attacked the task with redoubled zeal, but they were constantly retarded by unexpected setbacks, and the climate was a perpetual obstacle. Every kind of labor available was tried. Whites from the United States, though picked for their stamina, quickly succumbed under the trying conditions. Negroes were little better. A contingent of Chinese was enlisted in the work. They soon sickened, and a large proportion of them committed suicide in despair. So many laborers were constantly on the books of the

hospitals that in order to keep things moving with anything like satisfactory expedition it was necessary to employ a force three times as great as that actually engaged on the work. The mortality during five years was slightly more than 6,000.

On the first day of October, 1851, the single track was opened to Gatun, a distance of seven miles from the starting point. A few weeks later it happened that two steamers carrying passengers bound for California by the Isthmian route, were caught in one of the northers that frequently strike the Atlantic coast of Panama at that time of the year, and were obliged to take shelter in Navy Bay. This occurrence gave the new railroad its first business and a valuable advertisement. The passengers, who should have been landed at the mouth of the Chagres, were brought ashore at Manzanillo, and the railroad company undertook their transportation to Gatun. There was not such a thing as a passenger coach on the Isthmus, but the voyagers and their baggage were carried on flat-cars and construction trucks and transferred to boats which took them up the river to Las Cruces.

The traffic over the finished portion of the

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line increased steadily, encouraging the Company and furnishing it with funds for the construction. In a few months, the rails had reached Barbacoas, the half-way point. Here the Chagres had to be crossed. A contract had been made for a bridge, but after about a year's work the contractor abandoned the undertaking and the Company was obliged to assume it. When this vexatious delay had been overcome, the work went forward briskly and without any further serious mishaps. On the 27th of January, 1855, the last rail was laid and the railroad, which has had a remarkable history, was opened throughout its length. It had cost \$140,000 per mile, or a total of \$7,000,000. The next question was, would it pay?

At the moment that well-deserved success attended the efforts of the Company, its coffers were empty and its prospects appeared to be dark. Its funds had been exhausted in the task of completing the road, and the greatest difficulty was experienced in securing an adequate equipment of motive power and rolling stock. But the directors were full of hope and courage, and good fortune rewarded them from the outset. With poor and limited facilities for handling traffic it was shrewdly determined to

put the tariff rates at what were believed to be prohibitive figures for all but the most urgent business. The first rate sheet issued was as follows:

FOR PASSENGERS

First class . . . . .	\$25.00 gold
Steerage . . . . .	10.00 gold

FOR FREIGHT

Personal Baggage . . . . .	\$0.05 per pound
Express . . . . .	1.80 per cubic foot
Ordinary First class . . . . .	.50 per cubic foot
Second class . . . . .	1.50 per 100 pounds
Mails . . . . .	.22 per pound
Coal . . . . .	5.00 per ton

The Company was fully prepared to make considerable reductions in these rates as soon as it should be on its feet and in a position to handle all the business offering. To its surprise, however, the extraordinarily high charges did not prove to be in any degree prohibitive. The traffic demand was so great and insistent that the schedule was adopted as permanent and it remained in force for more than twenty years. Money began to pour into the Company's treasury in a steady stream. Improvements were made all along the line, terminal wharves and other needful structures were erected, and the road was furnished with ample cars and engines.

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Almost immediately dividends on the original fifty thousand shares were paid, and soon amounted to twenty-four per cent, while large sums were carried to the sinking fund. In the early years of the Company's operation its stock came to be regarded as one of the very best investments in Wall Street. It ran up to more than one hundred per cent over par and had such stability that, although a stock dividend of forty per cent was declared to cover the amount of earnings that had gone toward the construction of the road, the shares sold the following day without decline. In fact, during the first ten years of its history, the road's prosperity was marvelous. The management, under the presidency of David Hoadley, was strictly honest, and conservative, perhaps to a fault. The business world became accustomed to look upon the Panama Railroad as one of the most prosperous enterprises in existence and one whose prosperity was fixed upon an unshakable foundation.

During the ten years ending with 1861 the total receipts exceeded \$11,000,000. A large proportion of this sum was used in improvement, but quarterly dividends of six per cent were paid and the stock issue was raised to

seventy thousand shares, making the capital \$7,000,000, whereas it had originally been \$5,000,000. It was confidently expected by the public that the natural increase in traffic would result in corresponding increase in profits.

There were, however, two or three serious drawbacks to the continuance of the road's remarkable prosperity. The chief of these was the fact that the contract made with the Government of New Granada was for a very short period, when the character of the enterprise is considered. The concession was to expire at the end of forty-nine years from 1848, and it had been agreed that on the expiration of the first twenty years after the opening of the line, the Government of New Granada could take possession of it by making a payment of \$5,000,000; or, if the Government should waive that option, at the end of thirty years it might secure the property by making a payment of \$4,000,000; or at the end of forty years of \$2,000,000. With the expiration of the term of the concession, the road and all its assets were to pass to the Government of New Granada free.

Before half of the first term had expired, the



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enterprise had established itself as the best paying railroad in the world. The directors were fully alive to the advantage of securing unhampered possession of it, and the Government of Colombia, which had succeeded New Granada, was equally appreciative of the value of its reversionary interest in the property. There was no doubt about Colombia's availing herself of the first option to acquire the line and its appurtenances.

With this dread contingency in view, Colonel Totten and William Nelson were sent to Bogotá as representatives of the Company to negotiate a new contract at any cost. After several months of dickering, an agreement, superseding the old one, was signed by the interested parties in August, 1867. It was not as favorable as had been hoped for, but considering that Colombia clearly had the whip hand of the situation, the Company's representatives probably did as well as was possible.

The new franchise had a life of ninety-nine years from the date of its execution, but a number of additional obligations were imposed by it. One million dollars in gold was paid at once as a *douceur*, and the annual payment of \$250,000 in gold was stipulated for during the

continuance of the concession. The Company was bound to "extend the railroad on the Pacific side to the islands of Naos, Culebra, Perico, and Flamenco; or other place in the Bay of Panama where there may exist a permanent depth of water for large ships." This was an onerous condition that could only be carried out at the expenditure of many millions. The contract also provided for the recession of the Island of Manzanillo, on which Colon stood. The original agreement conveyed it to the Company in perpetuity; under the later terms it was to be restored to the Government at the same time that the road should revert. There was also a provision for the carriage of Government troops and munitions free. This did not, at the time, appear to be of considerable consequence, but in later years it proved to be a heavy burden, as, for instance, in 1903, when, with only 4,633 first-class paying passengers, there were transported 6,601 troops who rode free.

When it became known in New York that the Panama Railroad had weighted itself with such heavy liabilities, the shares dropped from three hundred to eighty in a few days. This was the beginning of evil days. Other unfortunate cir-

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cumstances shortly arose. In 1862, Congress had passed an act authorizing a railroad and telegraph line across the continent. For years the project languished, but at length it was taken up by men of energy and determination with the result that in May, 1869, the last rail of the "Overland" was laid at Promontory Point.

This development robbed the Panama Railroad of the best of the California business on which its prosperity had been built up. But there remained an even richer source of profit in the trade of Central and South America. This was obviously the most desirable field for the directors of the road to cultivate, and an opportunity to secure a good hold upon it shortly occurred to them.

For some time the Pacific Steam Navigation Company had complained that their business on the Pacific Coast was hampered by the lack of adequate facilities afforded by the Panama Railroad, whose share in the division of rates for through traffic was unsatisfactory to the steamship company. When the loss of the California traffic became assured, Colonel Center, the superintendent of the railroad, probably acting without the authorization of

his directors, met the Manager of the Pacific Steam Navigation Company and made an agreement covering the matters in which both corporations were interested. This provisional contract provided that the rates for passages and freight should be made by the company with whom the business originated, and the total charge should be divided equally between the Panama Railroad and the steamship companies on either side of the Isthmus.

Colonel Center had reason to believe that the officers of his company would be delighted with the result of his negotiation, for the agreement was equitable and quite advantageous to the railroad, while it involved the extremely desirable feature of an amicable alliance with the Pacific Steam Navigation Company. That corporation was one of the most prosperous and best managed in the world. Its business was well-established and free from competition. It had twelve good vessels running between Panama and Valparaiso, and calling at twenty-eight intermediate ports.

When the tentative agreement that had been arrived at between Colonel Center and Manager Petrie was laid before the directors of the Panama Railroad, they flatly declined to en-

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dorse it, declaring that their company would collect such charges as they might see fit to make, and would not submit to dictation in the matter from any source. This suicidal action can only be accounted for on the supposition that the officials of the Company were ignorant of the resources of the Pacific Steam Navigation Company and believed that the management of the latter would be obliged to concede the point insisted upon. In this they were utterly mistaken. As soon as the ultimatum of the railroad company was made known to the steamship company, it began preparations for conducting its business independently. In 1868 regular voyages were commenced by its vessels between Liverpool and Valparaiso, and later extended to Callao. By 1874 a fleet of fifty-four boats, with a gross tonnage of 120,000 tons, was operating on this line. The smaller vessels only were sent to Panama and they carried no more than was necessary. The large repair shops and coaling station were removed from the Island of Toboga to Callao. Thus an opportunity was thrown away which the Panama Railroad never had a chance to recover. There is no doubt that had the agreement with the Pacific Steam Navigation Company been ef-

fecting the fortunes of the road would have been greatly influenced for the better.

The year 1868, that in which the Pacific Steam Navigation Company began running its ships round Cape Horn, saw the prosperity of the Panama Railroad reach high water mark. The following statement was made in the annual report for that year.

Total receipts from all sources . . . . .		\$4,337,668.48
Total expenses, including the new Colombian subsidy . . . . .	\$2,030,185.52	
Four quarterly dividends of six per cent each on \$7,000,000 . . . . .	1,680,000.00	
Surplus . . . . .	627,482.96	
		<u>\$4,337,668.48</u>

It is questionable whether any railroad ever made such a showing as this. Upwards of four millions earned in a year by forty-seven miles of single track, netting more than one hundred per cent profit!

At the end of a few brief years a great change was indicated in the directors' report. The annual statement for 1871 showed:

Total Receipts . . . . .	\$1,284,418.98
Total Disbursements, exclusive of dividends . . . . .	997,875.44
Surplus . . . . .	<u>\$286,543.54</u>

This was a pitiful falling off, but there was worse to come.

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In the following year, the Panama Railroad fell into the hands of an adventurer in the field of finance, who commenced his meteoric career by marrying an heiress while the steward of a Hudson River steamboat. Alden B. Stockwell saw the stock of the road declining, and conceived the idea that it would be a likely property to acquire and loot. Early in 1872 he secured a large number of the shares and a sufficient proportion of the voting proxies to elect himself president of the company. For several years thereafter the securities of the corporation were manipulated by Wall Street speculators without regard to the interests of the property, or the shareholders. In 1874, Russell Sage was the president, and, soon after, Trenor W. Park obtained control. The last named held a majority of the shares at the time that the line was transferred to the Panama Canal Company.

The total receipts of the road from 1851 to 1898 were \$94,958,890.36 and its total expenditures \$57,036,234.46. On a capital of \$7,000,000 it had paid dividends aggregating \$37,922,655. Splendid as this showing is, it might have been very much better if the directors had exercised more foresight, and but for the gross misman-

agement, during the seven years of French control.

When the French canal project was launched, the railroad company was in a position of extraordinary advantage. Its consent was necessary to the granting of the canal concession by New Granada. Its line paralleled the proposed channel and the French were obliged to transport their supplies over it at the regular rates. This was such an enormous tax on their treasury that they were forced to buy the road at the price asked for it by the shareholders. It was a providential opportunity to dispose of a fast deteriorating property at fancy figures. For 68,534 of the 70,000 shares the Canal Company was forced to pay \$18,094,000, or at the rate of \$250 a share. But this was not all, for a dividend of fifty-two per cent was paid shortly before the transfer, and a treasury fund of \$1,700,000 was retained by the sellers.

In 1904, all the property of the French canal company passed to the United States by purchase. Of the amount paid, \$6,800,000 was allotted as the pro rata value of the railroad. Omitting the fact that the line is a necessary adjunct to the construction of the Canal, the price paid for it was low. The assets, aside



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from the franchise, were about seventy miles of track, thirty-five locomotives, thirty passenger coaches, nearly one hundred freight cars, and a quantity of other rolling stock. In addition, there were a number of repair shops, wharves, and other buildings at Panama and Colon, the greater part of the Island of Manzanillo, a considerable amount of real estate along the line, a half interest in the islands of Naos, Perico, Culebra and Flamenco, and three steamships running between New York and Panama.

The road has been improved in every respect since it came into the hands of the United States. It is now a double-track line which was re-located last year to conform with the plans for the Canal. It handles an enormous amount of traffic in connection with the construction work and is, considering its mileage, by far the busiest railroad in the world. The engineering department of the Isthmian Canal Commission operates about three hundred miles of construction trackage and the Panama Railroad acts as a clearing-house for its traffic. It receives the loaded dirt cars and returns them empty. As soon as the trains come upon the Company's tracks they fall under their jurisdiction and

responsibility. From seven hundred to eight hundred of these dirt cars are operated daily with unfailing regularity. The material handled in this manner last year by the road brought its freight movement up to the enormous figure of 280,000,000 tons, with which the traffic of no fifty miles of railroad elsewhere can compare. The contrast is all the more marked when it is considered that the movement of the Panama Railroad is restricted to nine hours of the day, whereas an ordinary road operates during the entire twenty-four. In addition to the spoil referred to above, the road carries a large quantity of supplies for the Commission and handles a considerable volume of commercial freight.

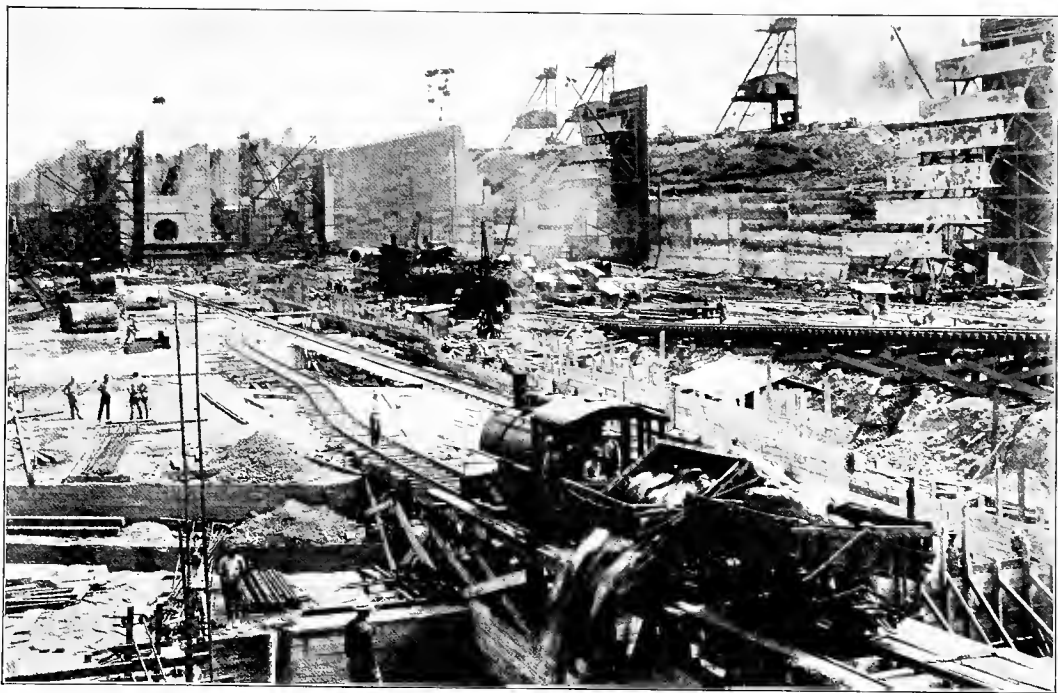
The passenger traffic of the Panama Railroad is also extraordinarily great. Four passenger trains are run in each direction daily and their coaches are always crowded with laborers and gold employes, who get on and off at the twenty-four stations strung along the line. During last year, 1,385,645 passengers were carried, and the earnings from that source alone exceeded half a million dollars.

The new, or re-located line of the Panama Railroad is 46.2 miles long, or about one mile

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shorter than the old road. From Colon to Mindi, 4.17 miles, and from Corozal to Panama, 2.83 miles, the old location is used, but the remaining 36 miles are entirely new. From Mindi, the Atlantic terminus of the Canal, to Gatun, the railroad runs in general parallel to the Canal, and the maximum grade of the line,  $1\frac{1}{4}$  per cent, is in this stretch, where the ascent from nearly mean sea level to 95 feet above is made. At Gatun, the road leaves the vicinity of the Canal and runs east along the valley of the Gatun River to a point about  $4\frac{1}{2}$  miles from the centre line of the Canal, where it turns southward again and skirts the east shore of Gatun Lake to the beginning of Culebra Cut, at Bas Obispo. In this section there are several large fills, and the maximum elevation of the line is reached, 210 feet above mean sea level. Through Culebra Cut the road runs on a berm on the east side, ten feet above the surface of the Canal. From the south end of Culebra Cut, at Paraiso, it will run practically parallel with the Canal to Panama. The maximum grade between Gatun and Panama is 0.45 per cent, and the maximum curvature is six degrees. Where the road crosses the Gatun River, a bascule steel bridge is to be erected, and a steel

girder bridge one-quarter mile long, with a 200-foot truss channel span, is in use across the Chagres River at Gamboa. Smaller streams are crossed on concrete culverts. Near Miraflores a tunnel 736 feet long has been built through a hill. The cost of the new line is estimated at \$7,225,000.



GATUN LOWER LOCKS, SHOWING PROGRESS OF CONSTRUCTION, AUGUST 5, 1911.