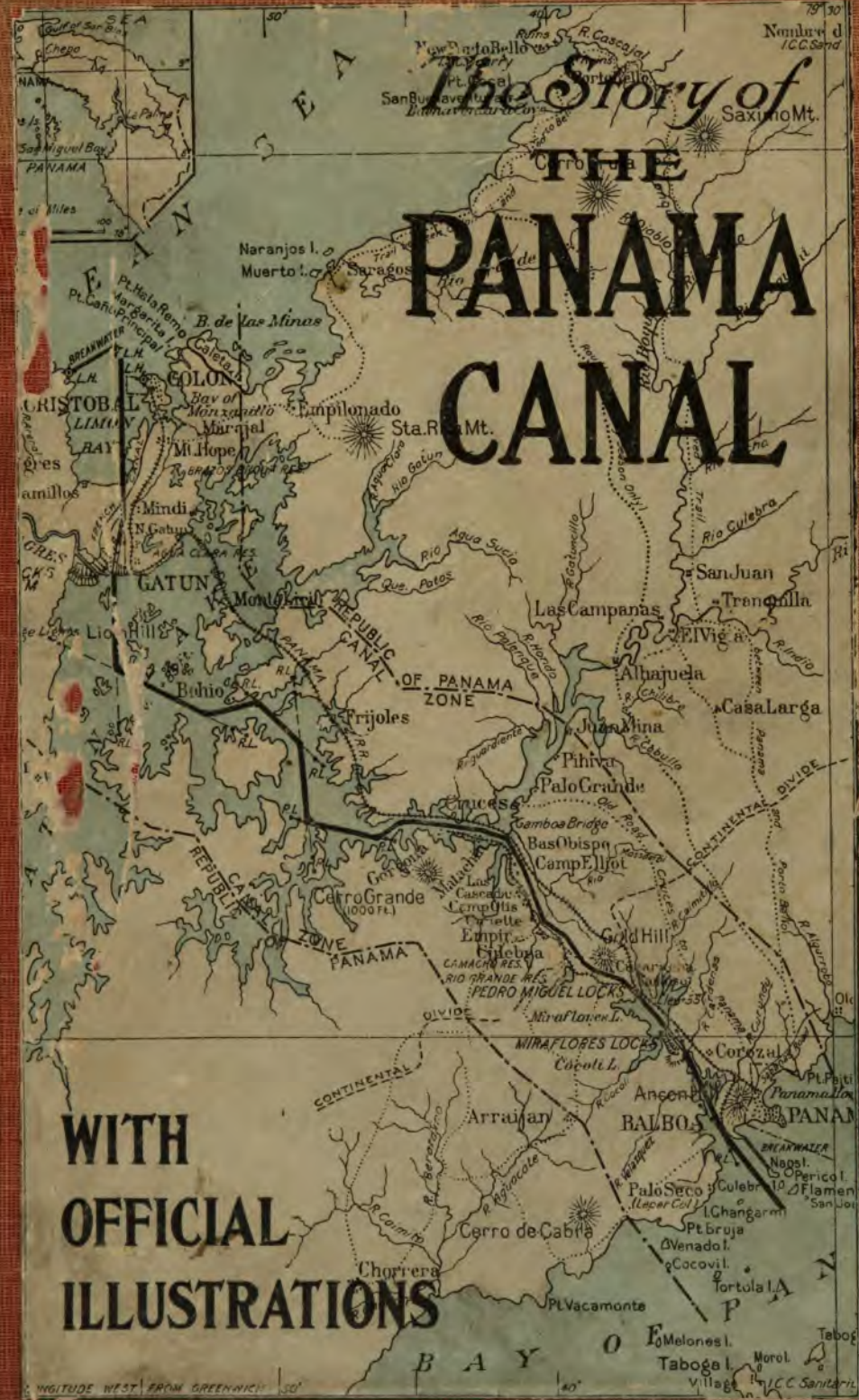


The Story of
THE
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PANAMA CANAL



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**THE STORY OF
THE PANAMA CANAL**





GATUN SPILLWAY.

Flood water is being discharged from Gatun Lake at the rate of 15,000 cubic feet per second

The Story of The Panama Canal

THE WONDERFUL ACCOUNT OF THE GIGANTIC
UNDERTAKING COMMENCED BY THE
FRENCH, AND BROUGHT TO
TRIUMPHANT COMPLETION
BY THE UNITED STATES

WITH

A HISTORY OF PANAMA FROM THE DAYS
OF BALBOA TO THE PRESENT TIME

By

LOGAN MARSHALL

Author of "The Story of Polar Conquest;"
"The Universal Handbook," Etc., Etc.

Illustrated

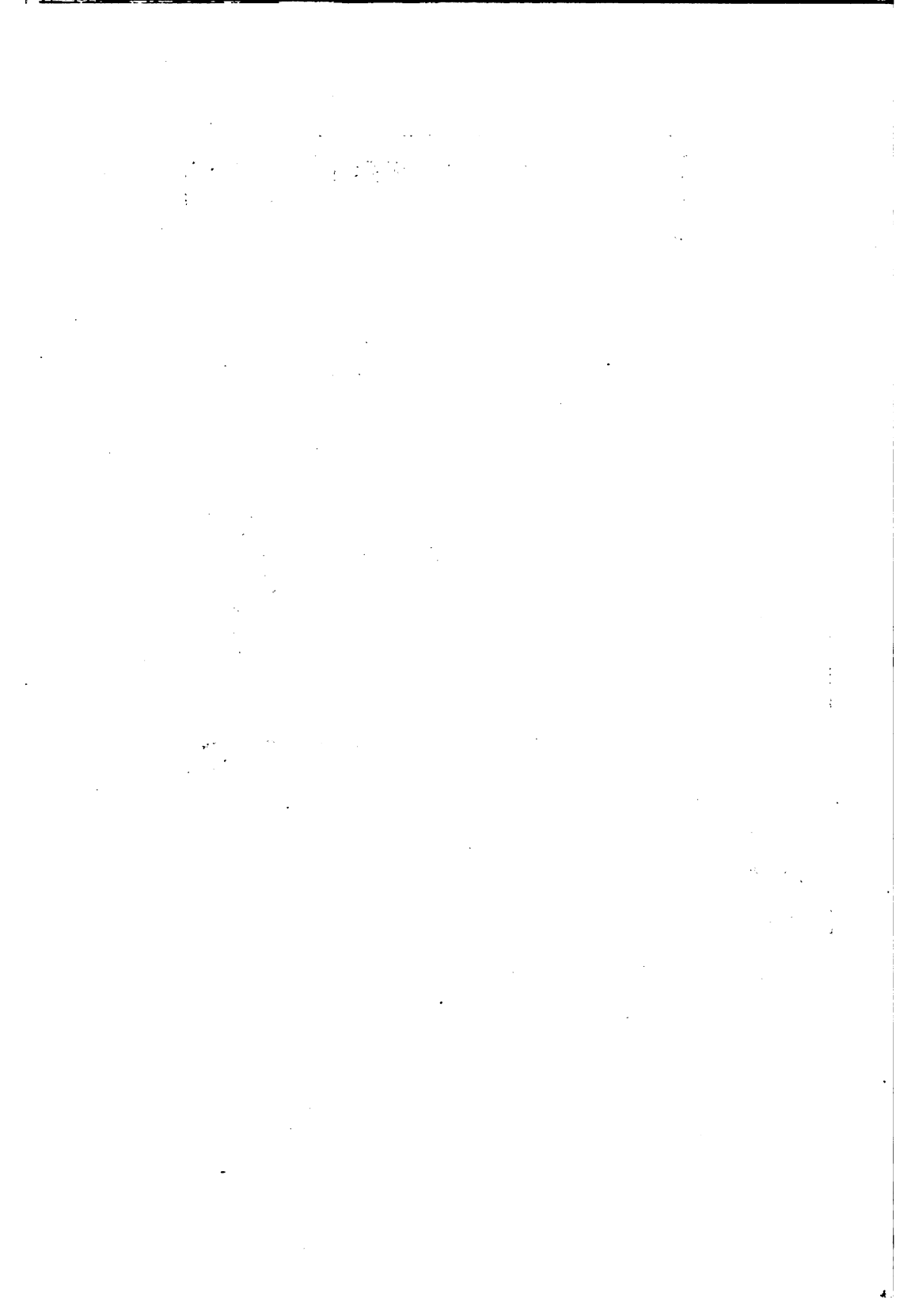
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By L. T. MYERS

PREFACE

No material work of man since the creation of the world has had so deep and widespread an influence upon the affairs of mankind in general as that which may calculably be expected to ensue from the achievement of the Panama Canal. The results will be seen in commercial, political, social, and even religious, effects. It will make and mar the fortunes of nations. Cousin, the French philosopher, has said: "Tell me the geography of a country and I will tell you its destiny." By creating important modifications in the geographical relations of certain communities the Canal will be the means of bringing about great and lasting changes which are beyond the range of accurate forethought. We can, however, predict an enormous gain to this country from the stupendous enterprise which has been brought to a brilliant and successful conclusion.

No task has ever been undertaken before which can compare with it either in magnitude or difficulty, and the great waterway will stand forever a monument to the dauntless courage, infinite resourcefulness, ingenuity and administrative ability of the American people. Ten years have passed since the United States undertook the work, years of struggling against all the forces of nature, hard-

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vaguest ideas of the extent of the globe, and with none but the most faulty charts for guide, thought to find Cipango, where he ran across Cuba and died without knowing that he had added an enormous continent to the map. First in the West Indies and later on the mainland of America he hoped to reach the capital of the Grand Khan, to whom he bore letters from Ferdinand of Spain. When, upon his last disastrous voyage, Columbus beat down the coast from Honduras to Darien seeking a strait through the massive barrier that stayed his farther progress to the west, he little dreamed that at a point which he passed in his disheartening search a caudal cut would one day separate two great continents and unite two vast oceans. Though Columbus was not actually the discoverer of the Isthmus, yet his matchless courage in sailing into uncharted seas in 1492 was chiefly responsible for its subsequent discovery. It is altogether fitting that the great bronze statue of Columbus and the Indian maiden should stand at Cristobal overlooking the Atlantic entrance to the canal which is to materialize his vision of a direct route to Asia. The statue is life size and stands upon a marble pedestal ten feet high, an imposing tribute to the great discoverer. It was the gift of the Empress Eugenie to the Republic of Colombia in 1868 and stood for a time in the railroad yards at Colon. Count de Lesseps, however, had it removed and placed it in front of his palace, where it now stands, beholding at last the New Route to India! That to his dying day Columbus persisted in his belief that there was a strait through to the Western waters and the lands he sought is shown in the map inspired by him which was published soon after his death. Balboa, who followed Columbus, also believed this legend of the Indians. Explorers who followed them failed to find the strait, but out of this idea grew the project of cutting a canal across the Isthmus first proposed by Hernando Cortez, Spanish conqueror of Mexico to King Charles V of Spain in 1523, about two hundred and fifty years before the birth of the United

THE AMERICAN ISTHMUS UNDER SPAIN 15

States of America, the nation destined to complete the project.

EARLY SETTLEMENTS OF THE SPANISH MAIN

Amongst the horde of adventurers who followed in the wake of the Great Discoverer was Rodrigo Bastidas. He was in command of an expedition that, in 1500, coasted the Spanish Main from some point on the Venezuelan littoral to almost as far south as Porto Bello. Balboa, a lad of twenty-five, received his first taste of adventure upon this occasion. On the return voyage the weather-worn and worm-eaten ships of Bastidas were barely able to make Hispanola before they sank. Balboa, who possessed little or no means, turned his attention to agriculture on the island. The spirit of the rover was strong in him, however, and, in order to indulge his desire as well as to escape his creditors, he concealed himself in a cask and caused it to be carried on board a ship bound for Tierra Firme. At this time Spain had two sparsely settled provinces on the Isthmus of Darien and an important stronghold at Cartagena.

Balboa was successful in his scheme of escaping his creditors and seeking once more the new lands which had aroused his curiosity and love of adventure. The ship upon which his cask happened to be carried was that of Encisco, which was bound on a relief expedition to the Gulf of Darien. As soon as the ship reached the open sea Balboa was discovered and had difficulty in persuading Encisco not to throw him overboard, thus ending a very promising career. The fact that he had previously visited the Isthmus and would probably be of value to Encisco through his knowledge of the country, turned the tide in his favor, however, and he was made a member of the expedition. During the year before, 1509, an unlucky expedition had been undertaken by Ojeda and Niqueza, who had been appointed governors of all the mainland from Cape de la Vela on the Venezuelan coast to Cape Gracias á Dios on the coast of Honduras. The Gulf of

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Darien was the line of division between them and they held dominion over the entire region. Ojeda had preceded Niqueza on this expedition with four ships and three hundred soldiers. When Niqueza arrived with seven ships and eight hundred soldiers he found Ojeda suffering greatly from attacks by Indians. Joining forces they routed the natives and then proceeded to occupy the region, founding several towns, among them Nombre de Dios. This town, though unhealthful and having but a poor harbor, remained the chief port on the Atlantic side of the Isthmus for nearly a hundred years. Ojeda and Niqueza both died during this enterprise and were succeeded by Pizarro, who later on was destined for an important role in Isthmian affairs.

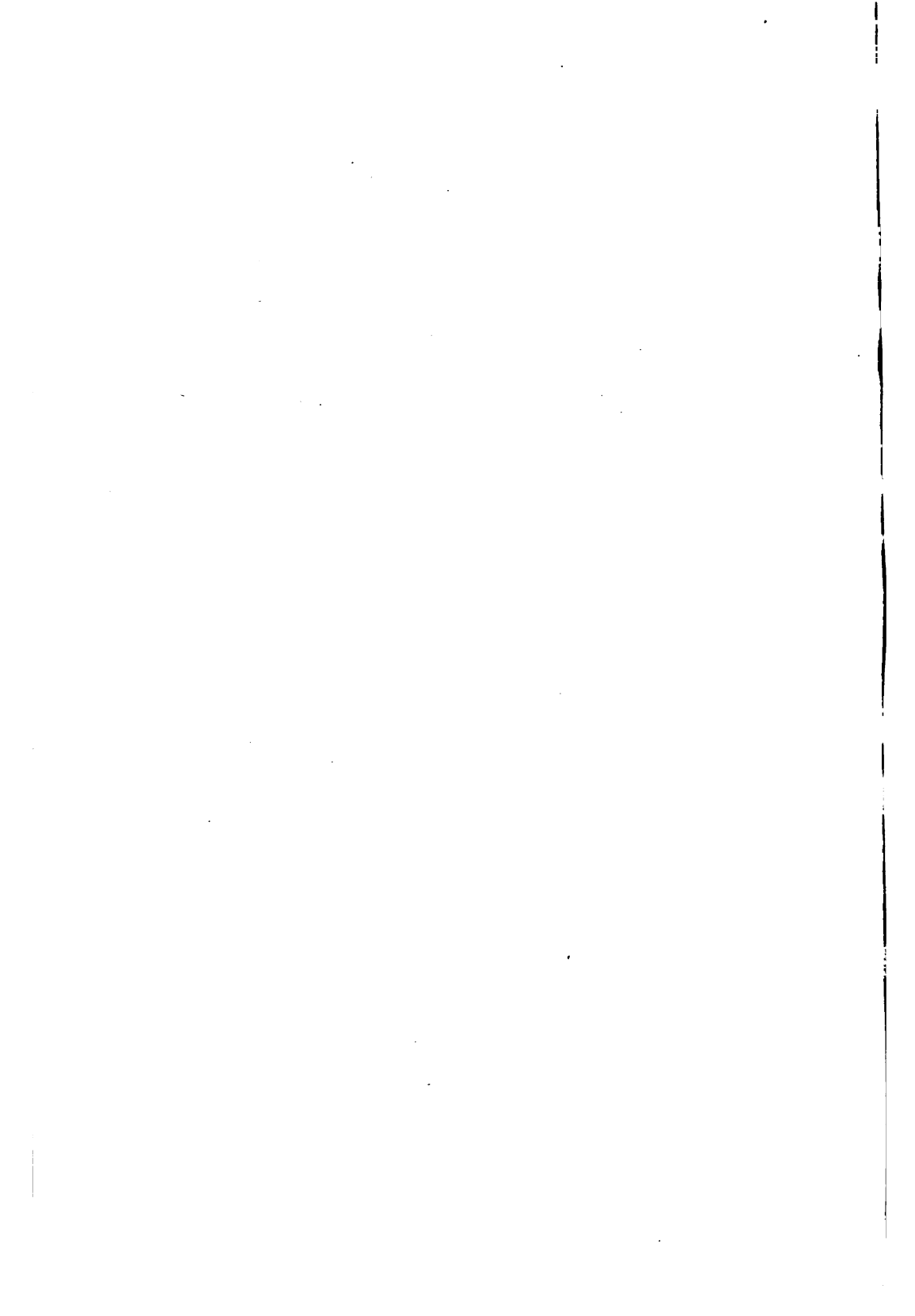
At the time of the arrival of Balboa and Encisco, Pizarro was in desperate straits and the town of San Sebastian almost destroyed. Encisco was proclaimed as governor to succeed Niqueza and established the town of Santa Maria de la Antigua del Darien. It had the distinction of being the first Episcopal see upon the mainland and of containing the oldest church on the American continent. Balboa was made *alcalde* of the new town. Soon afterward he quarreled with Encisco and managing to gain the upper hand, deported the former governor to Spain.

Balboa soon rose to a position of importance among the colonists of Tierra Firma. He learned from the Indians that a great sea lay beyond the range of mountains that traversed the Isthmus, and lost no time in investigating the statement. With a small force of Spaniards and Indian guides Balboa succeeded, not without great difficulty, for the whole way was through dense jungle and over swamps, in reaching the ocean, of which he formally took possession in the name of the King of Spain. During this journey across the isthmus the Spaniards heard of a rich land to the south abounding in precious metals. Balboa planned the conquest of this country, and it is more than probable that Pizarro, who was his companion on this occasion, shared his designs. Had the former lived to pursue his energetic



STEAM SHOVELS MEETING AT CULEBRA.

An important epoch in the history of the Canal was marked when the steam shovels shown met opposite the town of Culebra, both working on the floor of the Canal and completing a channel at its bottom level extending the entire length of Culebra Cut.



and ambitious career Pizarro might never have found the heroic place which he occupies in history.

In 1515, Balboa received the reward of his enterprise in the form of the appointment of Adelantado of the Southern Sea, as the Pacific had been named. The same ship which brought this news, unfortunately for Balboa, carried also the new governor, Pedro Arias de Avila, better known as Pedrarias. Of this monster and his atrocities so much has been written that it need not be dwelt upon here. As soon as he arrived Pedrarias had arrested Balboa, but had failed to convict him. So a truce was arranged between them, giving Pedrarias the governorship of the Atlantic side and Balboa the Pacific or "South Sea" with freedom to continue his explorations.

PREPARATIONS FOR EXPLORING THE PACIFIC COAST

In the following year he prepared to organize an expedition to the south by way of the newly discovered ocean. The problem involved in the undertaking was one to daunt a less bold spirit. Trees suitable to the construction of ships were to be found only upon the Atlantic side of the divide, which necessitated the tremendous task of transporting timbers over a route that presented great difficulties to the passage of an unencumbered man. The terribly onerous labor of collecting the material and carrying it on their backs to its destination was imposed upon the Indians, of whom thousands were gathered together for the purpose, and impelled to the unaccustomed work by the merciless severity of their taskmasters. Many months were consumed in this grim struggle for a passage of the Isthmus, which, in many respects, foreshadowed the endeavors of the modern successors of these hardy pioneers. Hundreds of the wretched aborigines, Las Casas says their number fell little short of two thousand, lost their lives in the undertaking, but it succeeded, and four brigantines were carried piecemeal from sea to sea and put together on the Pacific coast.

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The work of fitting out the ships proceeded rapidly and Balboa was upon the eve of departure when his arrest was effected by order of the Governor.

Pedrarias had entertained a jealous hatred of Balboa for years and could not endure the thought of his achieving the further successes that promised to follow his expedition to the south. The Governor pretended to have received information that Balboa purposed the creation of an independent kingdom in the countries that he might discover. Balboa was tried, condemned on evidence of an *ex parte* character, and executed. Thus fell, in the prime of life, the first of that trio of Spanish explorers whose brave deeds excite our admiration whilst we deplore the cruelties with which they were accompanied. Balboa, more than any of the early explorers except Columbus, deserves recognition in this day. It is altogether fitting that the name of the Pacific entrance to the canal should have been changed from La Boca to Balboa in tardy appreciation of his great achievements.

THE SEARCH FOR A STRAIT THROUGH THE ISTHMUS

Three years after the death of Balboa, Magellan passed through the Straits of Tierra del Fuego and opened up a western waterway to the Orient. The attempts to find a strait through the continent were not abandoned, however, Charles the Fifth taking a keen interest in the prosecution of these efforts. He instructed the governors of all his American provinces to have the coast lines of their respective territories thoroughly examined and every river and inlet explored. The orders addressed to Cortes were especially explicit and urgent, for at this time the hope began to prevail that a solution to the problem would be found in the territory of Mexico. It was in accordance with this idea that Gil Gonzales was despatched from Spain to the New World. Gonzales had authority to use the vessels which had been built by Balboa, but Pedrarias refused to deliver

them to him. Gonzales was not to be balked by this denial, however. He immediately took to pieces the two caravels with which he had arrived and transported them to the Pacific coast by the route which Balboa had when out. The reconstructed ships were soon lost and the party built others, in which they proceeded north in January, 1522, to Fonseca Bay. At this point the leader, with one hundred men, continued the exploration by land. Lake Nicaragua was discovered and a settlement was shortly afterwards made upon its shore, the Indians having been subjected. The new discovery awakened fresh ideas and projects relating to the much desired interocean route. It was at first reported that an opening existed from the lake to the South Sea, but an immediate examination failed to reveal any water connection. In 1529, Diego Machuca, in command of a considerable force, carefully explored Lake Nicaragua and its eastern outlet. He found the navigation of the San Juan River, at that time called the Desaguadero, extremely difficult, but eventually emerged from its mouth with his ships and continued down the coast to Nombre de Dios. At a later period an important commerce was conducted over this route by vessels making ports in Spain, the West Indies and South America. Thomas Gage, the English priest who visited Nicaragua in 1637, mentions this traffic as in existence at that time.

The early exploration of the Isthmus was quickly followed by settlements and then the establishment of towns inhabited by traders and connected by trade routes, for this was the beginning of Spain's golden age in her colonies, and for more than a hundred years a constant stream of gold, pearls, and other products of Spain's island possessions flowed across the Isthmus. The towns became cities with royal storehouses guarded by slaves, merchants' warehouses, great stone stables for the mules of the treasure trains, beautiful convents and monasteries and residences built in the Moorish style either of stone or carved native cedar. Soon the necessity for a permanent highway to take the place of the Indian trails which were poorly

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adapted to the traffic which had now begun to move over them became apparent.

THE ESTABLISHMENT OF OVERLAND COMMUNICATION

Pending the discovery of a maritime channel between the two oceans, the Spanish authorities had decided to establish permanent land communication across the Isthmus of Darien. Under Charles the Fifth a line of posts was maintained from coast to coast. Nombre de Dios was made the Atlantic port and the Pacific terminus was located at Old Panama, which was created a city in 1521. A road was at once constructed between these two points, which crossed the Chagres at Las Cruces. Great difficulties were surmounted in building this highway. Much of the route lay over swamps that had to be filled in. Several streams were spanned by bridges and vast masses of rock were removed to facilitate the passage over the mountains. The way was paved and, according to Peter Martyr, was wide enough to accommodate two carts abreast. There is little left of this road, once the richest highway in the world, but it is still possible to catch a glimpse of it at Old Panama, though it is quickly lost in the deep jungle before the visitor has followed it more than a few yards. The city of Old Panama, which is now marked solely by ruins, was erected about five miles from the modern city of Panama. Founded in 1519 by Pedrarias, it quickly attained the position of the most important Spanish city in the New World, and at the time of its destruction by Morgan had a population of about thirty thousand.

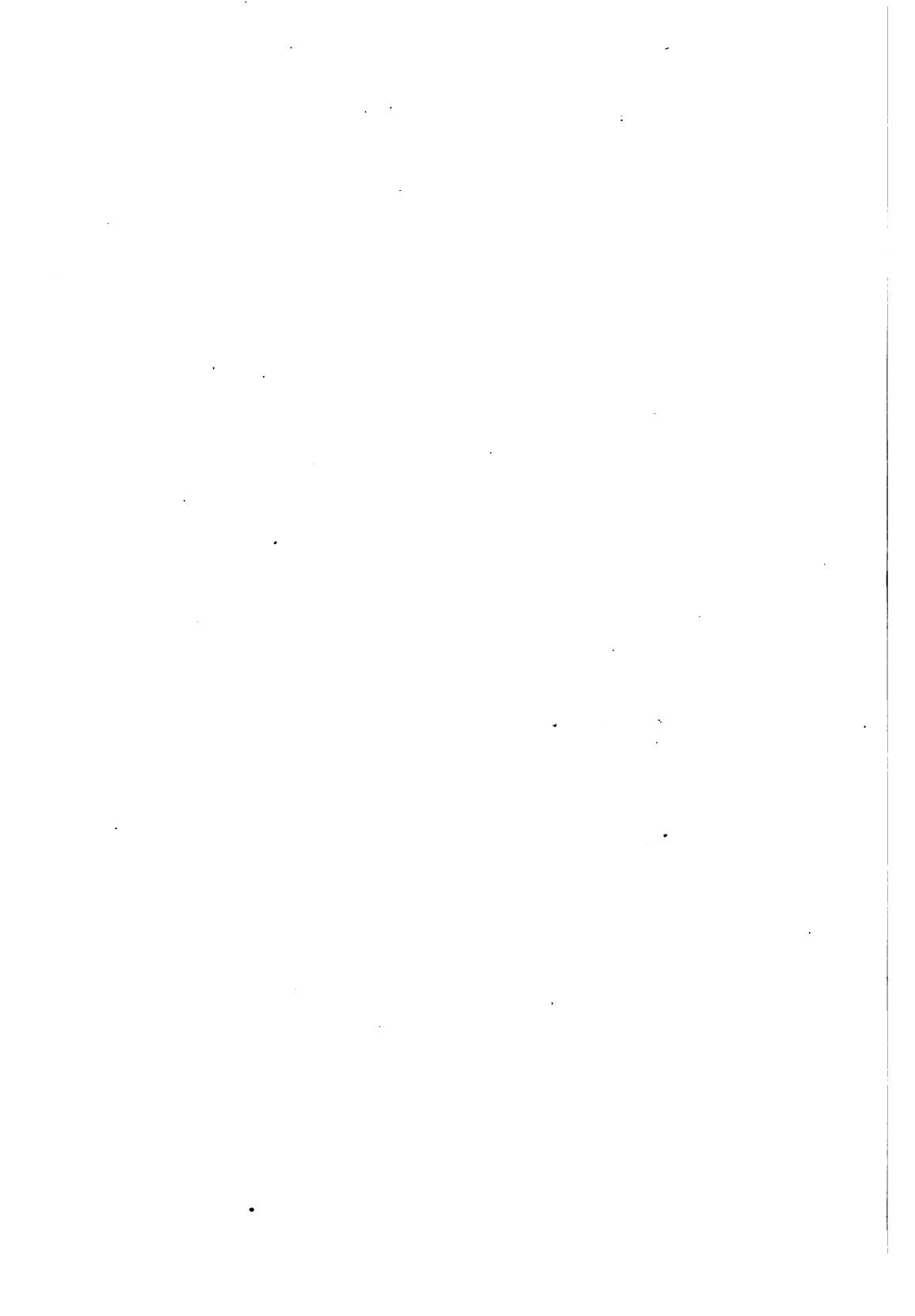
About ten years after the establishment of this route a modification of it came into use. Light draft vessels began to sail from Nombre de Dios along the coast and up the Chagres as far as Cruces, where the road met the stream, and thence the journey was completed by land. In the closing years of the sixteenth century, Nombre de Dios, which had been repeatedly condemned in memorials to the Crown, as "the sepulcher of Spaniards," was abandoned in favor of Porto Bello, with a location and other natural



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COLONEL GEORGE WASHINGTON GOETHALS, U. S. A.

The genius of the Canal. After the successive resignations of John F. Wallace and John F. Stevens as Chief Engineer, President Roosevelt decided that the time had come to turn the work over to the U. S. Army Engineers. His decision has been abundantly justified by the remarkable results achieved.



advantages decidedly superior to those of the former terminus.

EARLY TRADE OF PANAMA

This interoceanic communication was of the utmost value to the Spanish Crown after the conquest of Peru, and the isthmian territory grew in importance year by year. The vast treasure that was extracted from the mines of the south came to Panama in the first stage of transit to the Royal Treasury. From the Pacific port it was carried to Porto Bello on pack-animals, and thence was shipped to Spain. Upon the arrival of vessels from the mother country, fairs were held at Cartagena and Porto Bello. Thither came merchants from far and near and caravans from Panama. An extensive trade was conducted at these periodical marts and the goods brought from Spain found their way through Panama to South and Central America and even to the mainland and islands of Asia. Thus was demonstrated at an early stage the logical trend of trade and the great advantages of a trans-isthmian route.

A CHECK TO CANAL PROJECTS

The policy of Philip the Second with regard to the American possessions was very different from that of his father. The former was averse to the expansion of his empire in the New World and distinctly antagonistic to the plans for an isthmian canal. He reasoned with astuteness that the existence of a water route through the continent of America would give easy access to his new possessions on the part of other nations and in time of war might be of greater advantage to his enemies than to himself. This policy of Philip was maintained for two centuries after his death by succeeding rulers.

During this period of quiescent policy on the part of Spain the most notable event in the history of the Isthmus was furnished by the disastrous attempt of William Paterson to establish a colony in the province of Darien. In

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1695 the Scotch Parliament, with the approval of William the Third, authorized the formation of a company to plant colonies in Asia, Africa and America and to carry on trade.

THE ILL-FATED DARIEN EXPEDITION

Paterson cherished a scheme of stupendous colonial commerce, the Darien Expedition being but the initial step in the enterprise. Toward the close of the year 1698, five vessels, having on board twelve hundred Scottish settlers, anchored in a bight which they called Caledonia Bay, a name it retains at this day. The colonists were received in friendliness by the Indians and purchased from them the land upon which the settlement of New Edinburgh was made. It was Paterson's design, based upon sound enough reasoning and knowledge previously acquired from the buccaneers of the West Indies, to extend his posts to the Pacific Ocean and open up a trade with the countries of the South Sea and Asia, in the manner which had been so profitable to Spain. He had not, however, anticipated the effect of the climate upon his northern-bred emigrants. Before any steps could be taken towards the contemplated extension of the operations, the colony was decimated by disease. The misery of the settlers was increased by the loss of the supply-ship on which they had depended for fresh provisions, and, eight months after the landing, a pitiful remnant of the original expedition abandoned the settlement and returned to Scotland. But before this disaster had become known at home other vessels with additional emigrants were despatched to the new colony. These made an effort to revive and maintain the settlement, but with no better results than those which had befallen their predecessors. The numbers of the later comers had become sadly reduced when they were attacked by the Spaniards. After a feeble resistance they capitulated. So weak were the survivors that they could not reach their ships without the aid of their enemies.

Thus ended the Darien Expedition with the loss of more than two thousand lives and the expenditure of vast sums of money.

In this section of the country the Spaniards completely failed to secure the friendship of the Indians or to effect their subjection. Their amicable reception of the Scotch immigrants and their invariable readiness to assist the buccaneers in their incursions against the Spanish settlements indicated the persistent hatred with which they regarded the first invaders of their land. The Darien region was wild in the extreme and abounded in secret passes and safe retreats. From their fastnesses the Indians made frequent raids upon the Spanish posts and retired by trails which were known only to themselves.

In the latter half of the eighteenth century, during the governorship of Andres de Ariza, a determined effort was made to establish permanent communication between the coasts at this part of the Isthmus. Plans were laid for a line of military posts to be connected by a road which should run from a point on Caledonia Bay to a terminus on the Pacific Ocean. The project was put into operation, but met with such formidable resistance on the part of the inhabitants that the Spanish authorities became convinced of the futility of their endeavors. In 1790 they entered into a treaty with the Indians, agreeing to disband the garrisons and withdraw from the country.

CORTES ESTABLISHES A TRANSCONTINENTAL ROUTE

It will be remembered that in the first quarter of the sixteenth century Cortes received implicit instructions from the Crown to use every resource at his command in a search for the longed-for strait. In pursuit of this object the coast of Mexico was carefully examined and the Coatzacoalcos River explored. Montezuma afforded valuable assistance in this investigation by furnishing descriptions and maps of certain portions of the country. Whilst these efforts

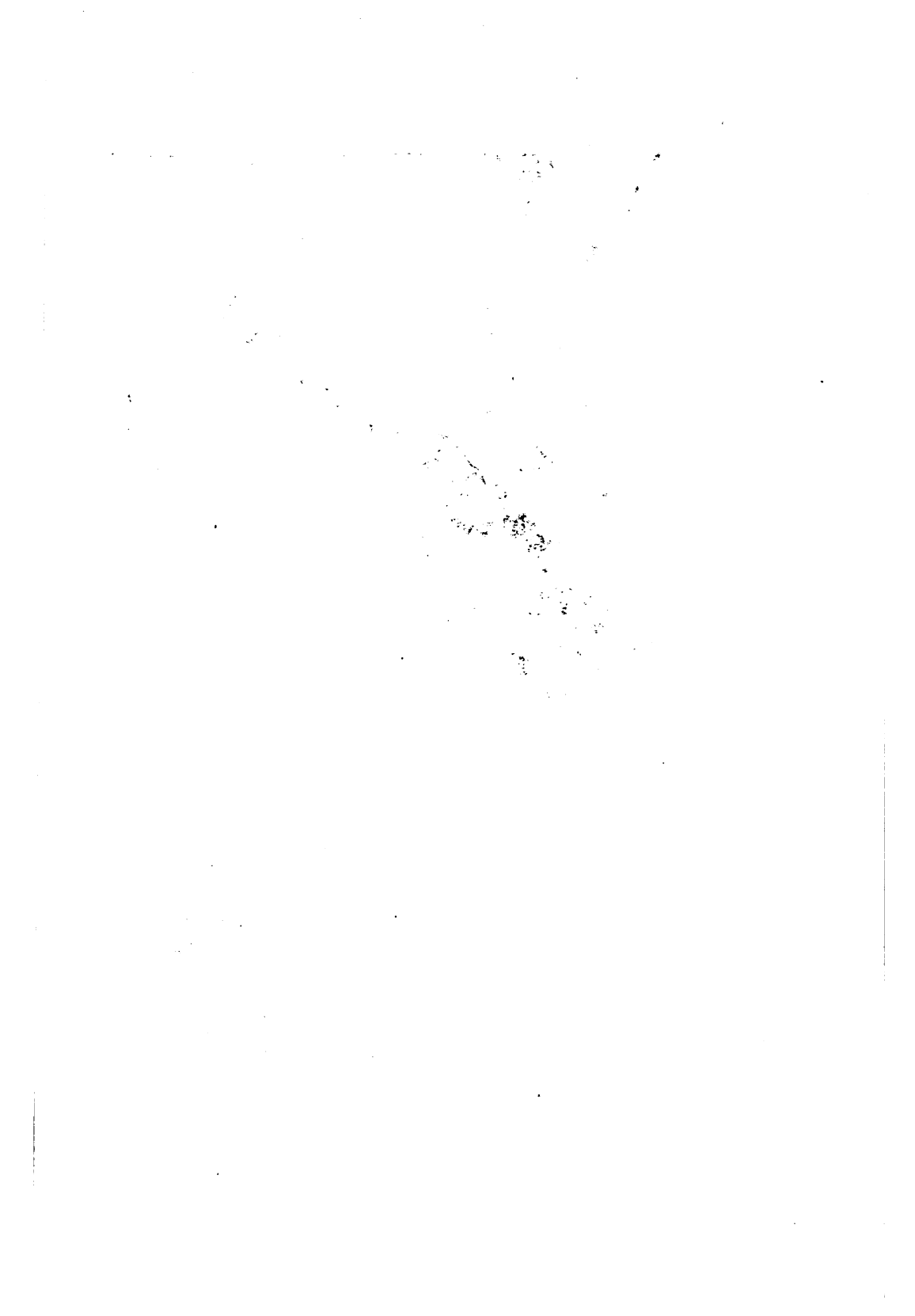
failed of their principal object, they had important results. Cortes established a transcontinental route along the course of the Coatzacoalcos, over the divide, and down the Pacific slope to Tehuantepec. This line of communication soon gave birth to an extensive trade between Spain and her provinces on both coasts of America as well as some parts of Asia. The Ead's ship-railway of modern days was planned to follow practically the same line as this early route of Cortes.

Towards the end of the eighteenth century there were discovered at Vera Cruz some cannon of ancient date which bore the mark of the old Manila foundry. This discovery aroused speculation as to how the pieces of artillery had been brought to the Atlantic coast of Mexico. It seemed improbable that they had been transported around the continent, especially when it was remembered that the only commercial intercourse with the Philippines had been through the Pacific port of Tehuantepec and over the route established by Cortes. This trade-way had long since been abandoned, but interest in it was at once revived by the incident which has been recited, and a remembrance of its former importance prompted the viceroy of Mexico to institute an investigation.

By this time it had become an accepted idea that maritime communication between the oceans could only be secured by the creation of artificial waterways. Two engineers were directed to explore the country from the mouth of the Coatzacoalcos to Tehuantepec with a view to ascertaining the practicability of a waterway from ocean to ocean. This was the first canal project entertained for this region.

INVESTIGATION OF THE NICARAGUA ROUTE

The report on this exploration, which included a cursory survey, was not such as to encourage the institution of operations. It had the effect, however, of stimulating the interest in the subject and in 1779 the feasibility of connect-





THE GREAT LOCK GATES AT GATUN DURING CONSTRUCTION.

These huge gates weigh from 390 to 730 tons each and are built with air chambers so that they will float, to save weight on the hinges.

ing the Nicaragua lakes with the sea was investigated by royal command. Manuel Galisteo, to whom the task had been intrusted, passed an opinion unfavorable to the project. Nevertheless, a company was formed in Spain, with the patronage of the Crown, to carry out the undertaking, but nothing effective ever came of it.

Galisteo's expedition had been accompanied by the British agents at Belize in a private capacity. Upon their return they made highly favorable representations to their Government, stating that the project was entirely feasible and not accompanied by any difficulties that the engineering capabilities of the day need fear to encounter. This report made a deep impression in England and when, in the following year, war broke out between that country and Spain an effort was made to gain possession of the Nicaragua country. In 1780, an invading force was organized at Jamaica. Captain Horatio Nelson was in command of the naval contingent, and in his despatches stated the general purpose of the expedition as follows: "In order to give facility to the great object of the 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 the Southern Ocean, and by our possession of it Spanish America is divided in two." The English were successful in their encounters with the Spaniards, but in the climate they found an irresistible enemy that forced them to abandon the enterprise. Of the crew of Nelson's ship, the *Hinchinbrook*, numbering two hundred, more than eighty fell sick in one night, and only ten survived the return of the expedition to Jamaica. The hero of Trafalgar barely escaped with his life after a long illness.

At the beginning of the nineteenth century Spain retained possession of the entire territory embraced in the question of interocean communication, but she had made no practical progress towards its settlement. Neither had

CHAPTER II

CANAL EXPLORATION

Early in 1825, the Republic of Central America, through its representative at Washington, conveyed to Henry Clay, then Secretary of State, a desire for "the co-operation of the American people in the construction of a canal of communication through Nicaragua, so that they might share, not only in the merit of the enterprise, but also in the great advantages which it would produce." Clay was fully alive to the importance of the project, the execution of which, he said, "will form a great epoch in the commercial affairs of the whole world." He returned a favorable answer to the proposition and promised an investigation on the part of the United States of the claims advanced in favor of the Nicaragua route.

CONCESSION TO AN AMERICAN FROM NICARAGUA

In 1826, the Republic of Central America, having grown impatient of the delay on the part of the United States, entered into a contract with Aaron H. Palmer of New York for the construction of a canal capable of accommodating the largest vessels afloat. The work was to be started within a year from the date of the agreement. The contract was to remain in force as long as might be necessary for the reimbursement of the capitalists engaged, in the amount of the money invested, together with ten per cent per annum, and for seven years after such reimbursement the company was to receive one-half of the net proceeds of the canal. At the expiration of the seven years in question the property was to be transferred to the Republic. It was expressly





Photograph, Underwood & Underwood, N. Y.

GENERAL VIEW OF THE CITY OF PANAMA.

In the foreground is one of the reservoirs built by the United States Government to supply the city with clean water.

stipulated in this contract that the passage should at all times be open to the ships of friendly and neutral nations without favor or distinction.

Having secured his concession, Palmer endeavored to organize a construction company with a capital of five million dollars. The utter inadequacy of this amount is illustrative of the lack of explicit information which characterized all similar enterprises until quite recent times. Palmer failed both in America and in England to enlist the necessary financial aid and the contract was never acted upon.*

After an abortive attempt to complete arrangements with a Dutch company, the Central American Republic again addressed the Government of the United States with an offer to grant to it the right to construct a canal. In response to a recommendation of the Senate growing out of these overtures, President Jackson commissioned Charles Biddle to visit Nicaragua and Panama, with instructions to examine the different routes that had been contemplated and to gather all the information and documents procurable bearing upon the matters in interest. No satisfactory results followed this mission. A message was sent to the Senate to the effect that it was not expedient at that time to enter into negotiations with foreign governments with reference to a trans-isthmian connection. The truth is that the Government and its agents were not sufficiently assured as to the stability of the new republics and feared to create relations that might lead to political embroilment.

BAILY'S EXPLORATION OF THE NICARAGUA REGION

Meanwhile the active interest in the canal question was not confined to the United States. In 1826 an English corporation sent John Baily to Nicaragua for the purpose of securing a concession. In this object Baily was forestalled by the American, Palmer, but he remained in the

* House Report No. 145, 30th Cong., 2d session.

country, and about ten years later was employed by President Morazán to determine the most favorable location for a cutting.

Baily threw valuable light upon the Nicaragua route and made a very able report. He recommended a route from Greytown to Lake Nicaragua, across the lake to the Lajas, and thence to San Juan del Sur on the Pacific coast. With the termini he expressed himself as well satisfied. He proposed to utilize the entire length of the San Juan, which would necessitate blasting the rocks at the rapids, diverting the Colorado into the San Juan and deepening the latter river. He found the four principal rapids within a stretch of twelve miles, formed by transverse rocks, with a passage on either side affording a depth of from three to six fathoms. The river was navigated at the time by *piraguas*, large flat-bottomed boats of as much as eight tons burden, which passed the rapids without serious hazard.

Baily's line from the mouth of the Lajas, which he proposed to use for three miles of its length, was seventeen miles. This he thought might be reduced to about fifteen and a half miles. His summit level was 487 feet above the lake and the canal was to accommodate ships of twelve hundred tons with a depth of eighteen feet. He offered an alternative plan which would reduce the summit level to 122 feet above the lake but would necessitate the connection of two of his stations by a tunnel over two miles in length. The report frankly estimated the difficulties involved in the undertaking, and closed with the statement that although he could not speak confidently as to the feasibility of the route, which had never been surveyed, he believed that a continuation through the Tipitapa into Lake Managua and thence to the port of Realejo was worthy of serious consideration. Whilst these investigations were proceeding in the north, examination of other probable routes was being made. In 1827 President Bolívar commissioned J. A. Lloyd to survey the Isthmus of Panama with special regard to the possibilities of rail and water

communication. Despite the fact that this was the first transcontinental route, the scientific knowledge of the territory was most significant. The geography of the strip was imperfectly known and the relative heights of the oceans or the altitude of the mountains separating them had never been ascertained.

THE FIRST SURVEYS OF THE PANAMA LINE

Lloyd made a careful survey from Panama to a point within a few miles of the mouth of the Chagres. He seems to have considered plans for a canal premature, but said that should the time arrive when such a mode of communication might be favorably entertained the route of the Trinidad River would probably prove the most desirable. He recommended for immediate purposes a combination rail and water route to take the place of the roads then in use from Chagres and Porto Bello to Panama. His plan contemplated a short canal from a point on the Bay of Limon to the Chagres, the use of that river along its tributary, the Trinidad, to a favorable spot for a junction, and thence a railroad to the coast. As to the terminus he was divided in opinion on the relative advantages of Cherrera and Panama. The former had the merit of shortening the distance, whilst the latter was the capital and an already well-established port.

The Republic of Colombia was disrupted in the year 1831 and the Panama region became a part of New Granada. In 1838, that Republic granted a concession to a French company authorizing the construction of highways, railroads, or canals from Panama to any desired point on the Atlantic coast. This company spent several years in making surveys and forming plans. The results were submitted to the French Government with a view to enlisting its aid in carrying out the undertaking. The project was presented in an extremely optimistic light and as one comparatively easy of accomplishment. The concessionaires claimed to have discovered a depression in the mountain range which

would permit of a passage at no greater height above the average level of the Pacific than thirty-seven feet. The company's statements excited extraordinary interest, and in 1843 Guizot, then Minister of Foreign Affairs, instructed Napoleon Garella to proceed to Panama, to investigate the company's statements, and to make an independent examination of the entire situation.

Garella's report,* which was an able treatment of the subject, heavily discounted the claims of the Salomon company and led to its failure. An interoceanic canal was recommended as the only means of communication that could adequately meet the future demands of commerce. Garella agreed with Lloyd that the Atlantic terminus should be in the Bay of Limon rather than at the mouth of the Chagres. That river would be met by his canal near its junction with the Gatun. The reported low depression which had raised hopes of the practicability of a sea-level canal at a reasonable cost, could not be found. Garella suggested the passage of the divide by means of a tunnel more than three miles in length. The floor of this tunnel was to be 325 feet below the summit, 134 feet above the ocean, and the water level 158 feet above extreme high tide at Panama. The canal was to have a guard lock at each entrance and the summit level was to be reached by eighteen locks on the Atlantic slope and sixteen on the Pacific. The water supply was to be derived from the Chagres through two feed-canals. The Pacific terminus was placed at Vaca de Monte, about twelve miles south of Panama. Garella estimated the cost of a canal on these lines at about twenty-five million dollars. For an additional three millions he calculated that a cut might be made in place of the tunnel.

DEVELOPMENT OF THE UNITED STATES AS A FACTOR IN THE CANAL QUESTION

“About the middle of the century a succession of great events vastly increased the importance of a maritime con-

* Reprinted in House Report No. 322, 25th Cong., 3d session.

nection between the two oceans to the United States. The dispute with Great Britain as to the boundary line west of the Rocky Mountains was settled by the Buchanan-Pakenham Treaty in 1846, and in August, 1848, an act of Congress was passed under which Oregon became an organized territory. The war with Mexico was commenced early in 1846, and by the terms of the Guadalupe-Hidalgo Treaty, which closed it in 1848, California was ceded to the United States. Before the treaty had been ratified gold was discovered there, and in a few months many thousands from the eastern part of the country were seeking a way to the mining regions. To avoid the hardships and delays of the journey across the plains or the voyage around the continent, lines of steamers and packets were established from New York to Chagres and San Juan del Norte and from Panama to San Francisco, some of the latter touching at the Pacific ports in Nicaragua. For a while those traveling by these routes had to make arrangements for crossing the isthmus after their arrival there, and were often subjected to serious personal inconveniences and suffering as well as to exorbitant charges.

THE UNITED STATES INSTITUTES NEGOTIATIONS FOR A RIGHT
OF WAY

“The requirements of travel and commerce demanded better methods of transportation between the Eastern States and the Pacific coast, but there were other reasons of a more public character for bringing these sections into closer communication. The establishment and maintenance of army posts and naval stations in the newly acquired and settled regions in the Far West, the extension of mail facilities to the inhabitants, and the discharge of other governmental functions, all required a connection in the shortest time and at the least distance that was possible and practicable. The importance of this connection was so manifest that the Government was aroused to action before all

the enumerated causes had come into operation, and negotiations were entered into with the Republic of New Granada to secure a right of transit across the Isthmus of Panama."* This object was effected by a treaty that was ratified in June, 1848.

In the following year, Elijah Hise, the representative of the United States in Nicaragua, negotiated a treaty with that republic. By its terms Nicaragua undertook to confer upon the Government of the United States, or a corporation composed of its citizens, the exclusive right to construct and operate roads, railways, or canals, or any other medium of communication by means of ships or vehicles, between the Caribbean Sea and the Pacific Ocean and through the territory of the former state. The concessions made by this treaty were extremely liberal, but in consideration of them it was required that the United States should pledge itself to the protection of Nicaragua and should hold its army and navy and any other effective resources it might be able to command available for the defense of the Latin-American republic against foreign aggression. Nicaragua was prompted in this negotiation by the desire for aid in withstanding the policy of Great Britain, which at that time appeared to be directed toward extending her control of the Mosquito coast to the lower waters of the San Juan.

The United States Government was not prepared to assume the responsibility involved in this treaty, in making which Hise had exceeded his authority, and it was not ratified. Another convention was formulated with the object of furthering the plans of The American, Atlantic and Pacific Ship Canal Company, composed of Cornelius Vanderbilt and others. Although this fell through, its purpose was effected by the Clayton-Bulwer Treaty of 1850.

THE VANDERBILT COMPANY IN NICARAGUA

This agreement required the contracting parties to support such individuals or corporation as should first commence

* Report of the Isthmian Canal Commission. Washington, 1899-1901.

a canal through Nicaragua. It practically insured the interests of the company in whose behalf the negotiations of the year before had been conducted. The Republic granted to the Vanderbilt company the exclusive right, for a period of eighty-five years, to make a ship canal from any point of the Atlantic coast to any point on the Pacific coast of Nicaragua, and by any route. The contract also gave to the company the exclusive right to construct rail or carriage roads and bridges and to establish steamboats and other vessels on the rivers and lakes of the territory as accessories to its enterprise. It was also provided that in case the canal or any part of it should be found to be impracticable, then the company should be privileged to substitute a railroad or other means of communication subject to the same conditions. In order to facilitate the operations, the company was incorporated by the Republic of Nicaragua in March, 1850. In the following year the arrangement was modified for the convenience of the company, by the granting of a new charter to enable the subsidiary operations on the inland waters to be separated from those connected with the canal proper. Under this charter the Accessory Transit Company immediately established a transportation line from Greytown up the San Juan and across Lake Nicaragua, by steamboats, to Virgin Bay on the western shore of the lake, and thence by stage coaches, over thirteen miles of good road, to San Juan del Sur. In connection with this route regular steamship communication was maintained with New York on one side and San Francisco on the other. This line proved a boon to the gold-seekers and was traveled by thousands on their way to and from California. It was obliged to close, owing to the disturbed condition created by the Walker expeditions, but at a later date was reopened under a new charter by another company.

The American, Atlantic and Pacific Ship Canal Company did not deem any of the surveys or reports that had previously been made of the Nicaragua country sufficiently reliable to determine their route upon, and Colonel Orville

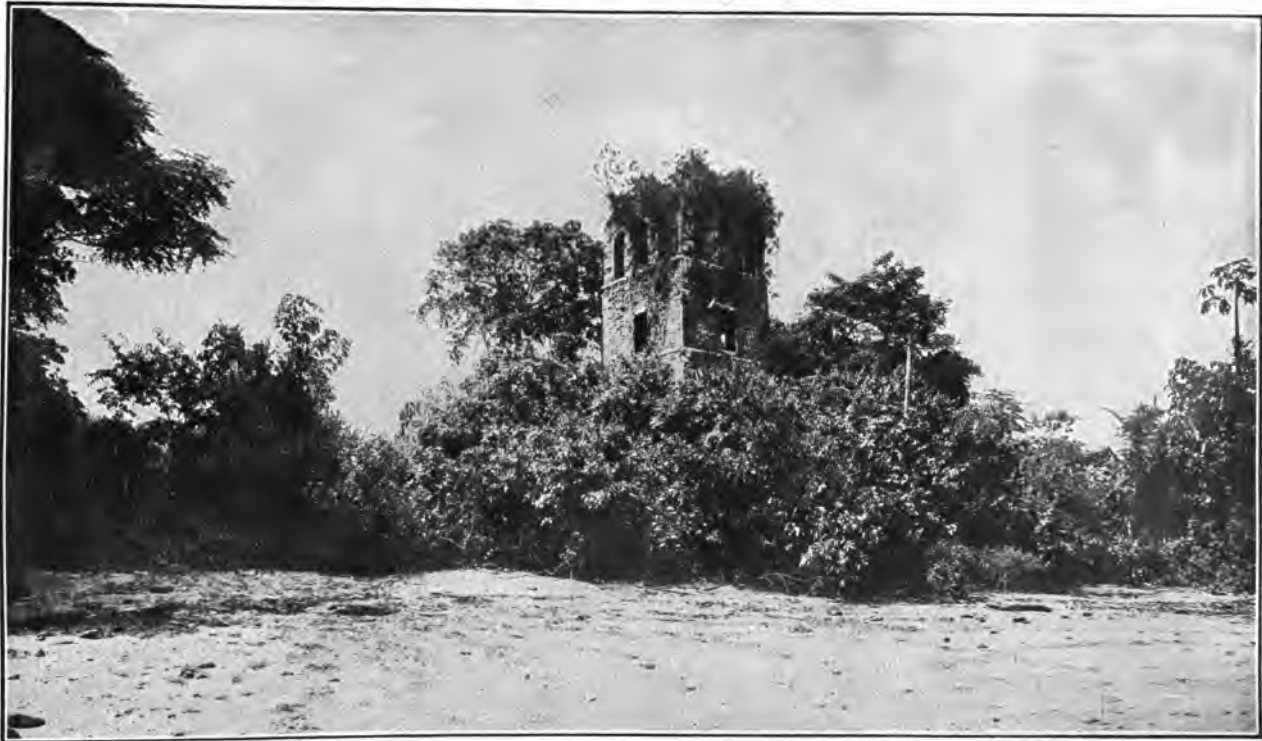
Childs of Philadelphia was engaged to direct a thorough instrumental survey of the entire region.

AN ABLE SURVEY OF THE NICARAGUA ROUTE

Colonel Childs' report was submitted to President Fillmore in March, 1852, and by him to two United States army engineers, by whom the plan was pronounced as entirely practicable, although they recommended some modification of its details. In view of the fact that the British Government was jointly pledged with the United States to protect the enterprise, the plans were subjected to examination by English experts. These concurred in the opinion of the American engineers.

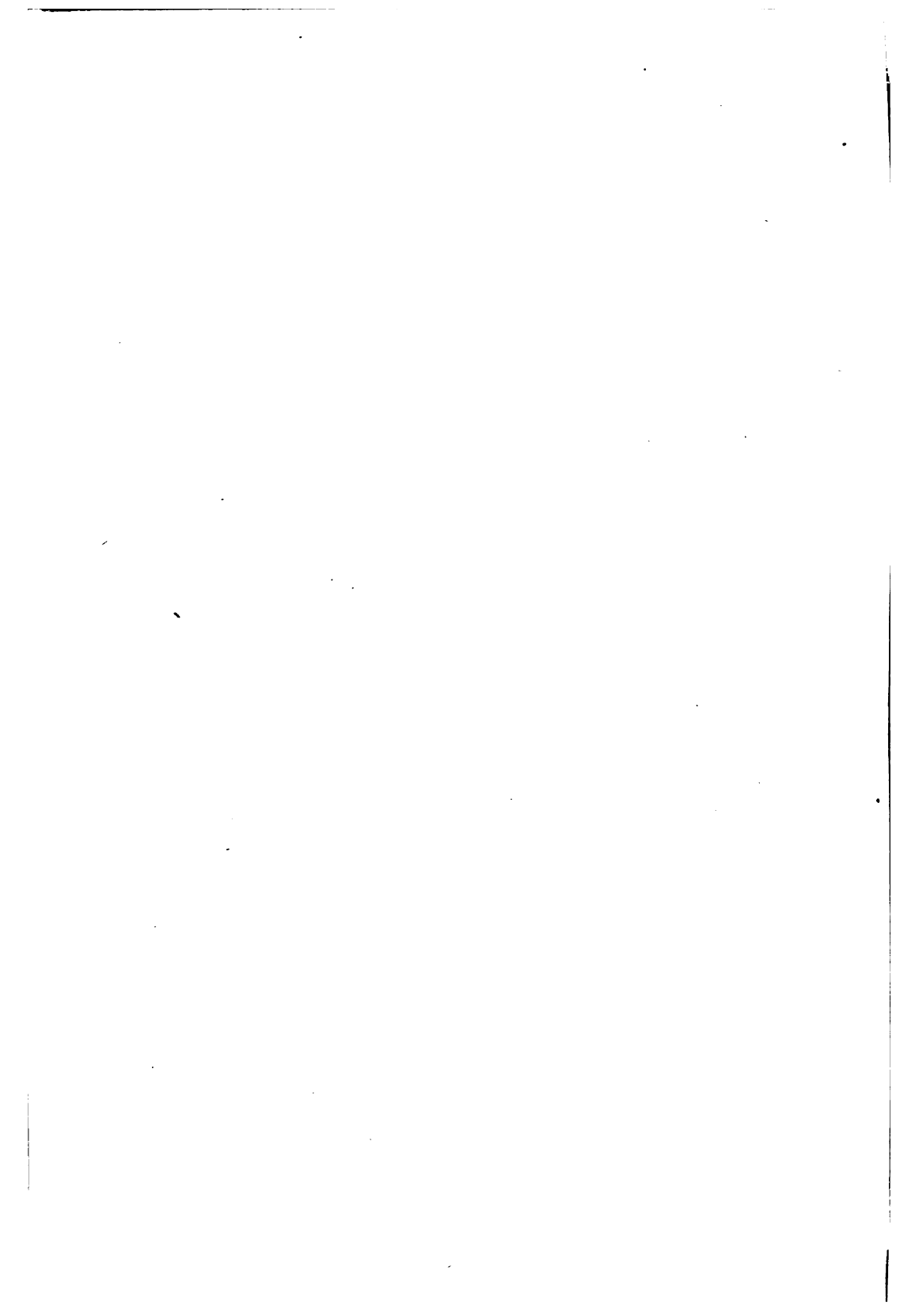
Nothing further was done by the Vanderbilt company towards the construction of a canal, but the Childs' report has always been of great value to later investigators in an examination of the subject. In 1856, Nicaragua declaring that the company had failed in the performance of certain clauses of the contract, revoked the concession, annulled the charter, and abolished the corporation. The company disputed the right of the Republic to take this action and made several futile attempts to re-establish its status.

In 1858, despite the continued protest of the former concessionaries, the Government of Nicaragua considered itself free to enter into a new contract. This it did jointly with Costa Rica. The grantee in this case was Felix Belly, a citizen of France. The rights and privileges accorded to him under this agreement were very similar to those which had been enjoyed by the Vanderbilt company, and the organization which he proposed to create for the purpose of accomplishing the work was to be similarly protected by the terms of the Clayton-Bulwer Treaty. But the contract with Belly contained a clause insuring to the French Government the right to keep two ships of war in Lake Nicaragua as long as the canal remained in operation. This novel feature in the agreement no sooner came to the



RUINS OF ST. ANASTASIO, OLD PANAMA.

The Cathedral of St. Anastasio was one of the noteworthy of the magnificent buildings of Old Panama. Only the ruins remain as a silent reminder of the glory of a bygone age.



knowledge of the United States than that country lodged an emphatic protest with the Governments of Nicaragua and Costa Rica. The proposed arrangement was characterized as obnoxious. It was pointed out that "the neutrality and security of these interoceanic routes constitute a great portion of their value to the world, and that the exclusive right to any one nation to exercise armed intervention would be just ground for dissatisfaction on the part of all others." No attempt was made to enforce the offensive clause and, as the company failed to put its project into execution, the grant was cancelled. More than once negotiations have been blocked by political obstructions and for many years American statesmen have been averse to the idea of a waterway across the American Isthmus under foreign control.

In the meantime the demand for transcontinental transportation created by the discovery of the gold-fields of California led to the building of the railroad across the Isthmus of Panama. A concession was obtained for the road by three Americans. This concession contained the important proviso that no canal might be constructed there unless the consent of the company be obtained. This line was opened early in 1855 and, whilst it afforded very valuable service, it stimulated rather than satisfied the desire for a ship canal. Exploration and survey were actively prosecuted in the Darien region by the governments and private citizens of the United States, Great Britain and France. By this time precise information was available as to the conditions obtaining along the Nicaragua and Panama routes, but the interior of the eastern section of the Isthmus was still unknown except to the Indians, although it had often been traversed by Spaniards.

EXPLORATIONS IN THE DARIEN REGION

This region had the obvious advantage of short distances between the oceans and there were good harbors available on either coast. So, when the difficulties of the tested

routes had been proved, attention turned to the southern extreme of, what may be called, the canal area, in the hope that the physical features of that region might present difficulties of less magnitude than those existing in the sections already surveyed. This hope found justification in the common report that the mountains of the interior offered a low depression which had long been used by the Indians as a portage for their canoes when traveling from one ocean to the other. Indeed, there was a tradition of a long-existing uninterrupted waterway from coast to coast which was said to have been effected by cutting a short canal from the upper reaches of the Atrato to a small stream, the San Juan, emptying into the Pacific.

In the examination of this region three general lines were followed—those of San Blas, Caledonia Bay, and the Atrato River. Each of these names indicates the Atlantic terminus of the route, but there were many variations in the courses followed and the contemplated points of termination at the Pacific ranged over three hundred miles of coast. These investigations, in which the United States freely lent its assistance to private endeavors, had good results in the extension of topographic and geographic knowledge of the country and seemed to warrant further efforts in the same direction.*

AN IMPORTANT SENATE INVESTIGATION

In the year 1866, the Senate, with a view to determining the scope and direction of further investigation of the inter-oceanic canal question, requested the Secretary of the Navy to furnish all the available information pertaining to the subject and to ascertain whether the Isthmus of Darien had been sufficiently explored.

Secretary Welles responded, in the following year, with a voluminous report† by Admiral Charles H. Davis. This

* Details of these expeditions in the Darien district may be found in Senate Ex. Doc. No. 1, 33d Cong., 2d session, and House Ex. Doc. No. 107, 47th Cong., 2d session.

† Senate Ex. Doc. No. 62, 39th Cong., 1st session.

document enumerates nineteen canal and seven railroad projects in the isthmian country extending from Tehuantepec to the Atrato. It excludes from consideration the plans relating to Tehuantepec and Honduras as being infeasible and meritless.

With reference to the eight proposed routes through Nicaragua, Admiral Davis says: "It may safely be asserted that no enterprise, presenting such formidable difficulties, will ever be undertaken with even our present knowledge of the American isthmuses. Still less is it likely to be entered upon while such strong and well-founded hopes are entertained by the promoters of the union of the Atlantic and Pacific oceans of finding elsewhere a very much easier, cheaper, and more practicable route for a canal in every way suited to the present demands of commerce."

He condemns a project that had strong advocates at the time, with these words: "The examination of the headwaters of the Atrato, of the intervening watershed, and of the headwaters of the San Juan, satisfactorily proved that nature forbids us altogether to entertain an idea of a union of the two oceans in this direction." The Admiral gives a general description of the other lines in Panama, Darien, and the Atrato valley. He states that "the Isthmus of Darien* has not been satisfactorily explored," and 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. For these reasons and because "there does not exist in the libraries of the world the means of determining, even approximately, the most practicable route for a ship canal across the isthmus," he recommends the further investigation of the subject in this region.

ESTABLISHMENT OF THE INTEROCEANIC CANAL COMMISSION

President Grant, in his first message to Congress, recommended an American canal. That body promptly

* Until quite recently the words Darien and Panama were used interchangeably with reference to the strip of land now more generally designated as the Isthmus of Panama. It is in this broader sense that Admiral Davis uses the term "Isthmus of Darien."

adopted a joint resolution providing for more extensive exploration by officers of the Navy, and the chief of the Bureau of Navigation was authorized to organize and send out expeditions for this purpose. In 1872 the Interoceanic Canal Commission was established. Its members were General A. A. Humphreys, Chief of Engineers, United States Army; C. P. Patterson, Superintendent of the Coast Survey; and Commodore Daniel Ammen, Chief of the Bureau of Navigation of the Navy. Under the directions of this commission explorations were conducted in various parts of the isthmian territory.

The Tehuantepec route was surveyed by a party of which Captain Shufeldt had charge. It was found that under the most favorable conditions a canal along the Tehuantepec line would be more than one hundred miles in length, with a summit level at least 732 feet above the sea and requiring one hundred and forty locks. This report, confirming as it did the conclusions of Admiral Davis and other experts, put the Tehuantepec route out of the question for all future time.

At about the same time (1872), an expedition under Commander Edward P. Lull, assisted by A. G. Menocal, as chief civil engineer, surveyed the entire Nicaragua route, following the line taken by Childs, except for a slight deviation in the passage of the divide beyond the lake. Commander Lull's report was favorable. It included a detailed plan for a canal at an estimated cost of \$65,722,137.

Whilst this work was progressing in the north, Commander Selfridge and other officers of the United States Navy were engaged in surveying the most promising lines in the Darien region. In 1875 the Panama route was minutely surveyed by Lull and Menocal. They reported in favor of a course 41.7 miles from the Bay of Limon to the Chagres, ascending its valley and that of the Obispo to the divide, and descending the Pacific slope by the valley of the Rio Grande to the Bay of Panama. The line as marked out in this report has been followed in general in

subsequent plans without deviation except in minor details.

REPORT OF THE INTEROCEANIC CANAL COMMISSION

The Interoceanic Commission now had before it the reports of the expeditions which have been mentioned and, in addition, plans and surveys relating to every route in any degree practicable from one end to the other of the canal country. Its report,* which was unanimous, was returned in February, 1876, and embodied the following conclusion: "That the route known as the Nicaragua route, beginning on the Atlantic side at or near Greytown; running by canal to the San Juan River, thence . . . to . . . Lake Nicaragua; from thence across the lake and through the valleys of the Rio del Medio and the Rio Grande to . . . Brito, on the Pacific coast, possesses, both for the construction and maintenance of a canal, greater advantages and fewer difficulties from engineering, commercial, and economic points of view than any one of the other routes shown to be practicable by surveys sufficient in detail to enable a judgment to be formed of their respective merits."

Meanwhile Lieutenant L. N. B. Wyse, as the representative of a French syndicate, was negotiating with the Colombian Government for a concession, which he secured in 1878. An account of this important contract and of the Panama Canal Company, which operated under it, will be given in a later chapter.

VARIOUS SHIP RAILWAY PROJECTS

Whilst the report of the Interoceanic Commission was generally accepted with regard to the infeasibility of the Tehuantepec route for a ship canal, it appeared to James B. Eads to offer special advantages for a ship railway, and in 1881 he secured a charter from the Mexican Govern-

* Senate Ex. Doc. No. 15, 46th Cong., 1st session.

ment conveying to him authority to utilize it for that purpose. Eads' plan was entirely feasible and no doubt would have been carried to a successful conclusion had he lived, but with his death in 1887 the project was abandoned.

In 1860 Sir James Brunless and E. C. Webb proposed to Napoleon the Third a ship railway across the Suez Isthmus instead of the projected canal, but the proposition was rejected by de Lesseps. The same engineers prepared plans for the Government of Honduras, in 1872, for a similar transportation line from Puerto Caballos to Fonseca Bay, to carry ships of twelve hundred tons. The Republic failed to obtain the money necessary to carry out the plans.

The year after Eads' death the celebrated Chignecto Ship-railway was commenced, after years of preparation. It is now in successful operation over seventeen miles between the Bay of Fundy and the Gulf of St. Lawrence. The projected Hurontario Railway, of a similar character, will be sixty-six miles in length. Mere distance, however, whilst it enhances the cost of such an undertaking, does not necessarily increase the difficulty of it.

Eads' proposed line adhered in general to the course mapped for a canal. The length of the railway was to have been 134 miles. The summit of 736 feet is reached by easy grades, the heaviest being less than fifty-three feet in the mile. The railway was designed to carry vessels up to seven thousand tons, and the total cost of the line, lifting-docks, harbors, stations, shops, machinery and all other equipment was estimated at less than fifty millions.

In 1884 a treaty had been negotiated between the United States and Nicaragua for the construction of a canal by the former, to be owned by the two states jointly. Whilst it was under consideration in the Senate the treaty was withdrawn by the President for the reason that it proposed a perpetual alliance with Nicaragua and, like the Hise treaty, imposed obligations on the United States for the protection of the former country which it was inadvisable to assume.

In April, 1887, Nicaragua granted a concession to A. G. Menocal for the construction of a ship canal from Greytown to Brito. Thus far the story has been a recital of plans, projects, and theories. When we take up the thread of it in a later chapter it will be to recount active operations.