SEEING SOUTH AMERICA

JOHN T. FARIS

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AVENIDA RIO BRANCO, RIO de JANEIRO

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By

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AUTHOR'S NOTE

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JOHN T. FARIS.

Philadelphia, Pa.

CONTENTS

ILLUSTRATIONS

INTRODUCTORY

THOSE who go to South America for the first time should give themselves the satisfaction of reviewing the remarkable story of how freedom from European rule was secured there. It is impossible to see South America with appreciation without this background.

The story, which involves two European nations, Spain and Portugal, appeals especially to the people of the United States because the movement for liberty that shook an entire continent came so soon after our own War of Independence, and because of the much discussed and often misunderstood Monroe Doctrine, which was actually formulated in accordance with the desire of many in South America.

Leaders in the Spanish countries were Antonio Jose de Sucre and Simon Bolivar, Venezuelans, and Jose de San Martin, who was born on the Uruguay River, while Lord Cochrane, a former British naval officer, was an outstanding figure in Chile's fight for independence.

The long struggle between Brazil and Portugal did not come to a successful issue until after freedom was enjoyed by other countries; but because Brazil is the largest country in South America, and because the writer of this volume paid his visit to Brazil before entering other countries, its story is referred to first.

In her earliest days Brazil was a sort of No Man's Land. The first organized government was established in 1532, when the country was divided by the king of Portugal into fifteen hereditary captaincies. Each of these extended for

fifty degrees along the coast, and inland for an indefinite distance. Of these captaincies ten were occupied by the owners, and only two of the lot were successful. Sao Vicente, near the present Santos, and Bahia were the two. After a time King John, wearying of the divisions, decided on a unified colonial administration, and in 1549 he appointed a governor-general. In the meantime, Spain had taken possession of much of the continent, but in 1581 Philip II of Spain became king of Portugal. For more than sixty years after that date Spain ruled all of the continent, but in 1750 and in 1777 the Portuguese were given control of much of South America.

Independence for Brazil was first spoken of in 1787, when a Brazilian student in Paris told Thomas Jefferson that his countrymen would like to follow the lead of the United States, and establish a republic. In the same year an ensign of Brazilian cavalry named Tiradente led a conspiracy, but this abortive attempt at revolution ended in the death of Tiradente, in 1792.

The next step was taken in 1807 when Napoleon invaded Portugal. Dom Joao VI, then prince regent, fled to Brazil for safety. There the colonists welcomed him warmly, and gladly followed his leadership in opening the port of Rio de Janeiro to the world's commerce, and in improving the city, which he found "a maze of narrow, uneven streets, lighted by tallow lanterns, when the citizens thought to hang them out." His efforts to change conditions received the hearty approval of the people who were eager to be counted subjects of him who ruled over "the United Kingdom of Portugal, Brazil, and Algervia." When the French left Portugal, revolution threatened them, and Dom Joao VI was sent for. After appointing his son Dom Pedro regent in Brazil, he set sail for Lisbon. Before leaving he gave this son sage advice as to his conduct in case of

emergencies—advice which led to the forming of a new empire.

Soon after his return, an attempt was made to set off Brazil once more as a dependent colony. Naturally the Brazilians were angry. Dom Pedro refused to return home when he was sent for, and on September 7, 1822, the independence of Brazil was proclaimed, he being made first emperor. A constitution, modeled after that of the United States, was adopted. In May, 1824, the United States recognized the new government. After six years the emperor abdicated in favour of his son, Dom Pedro Segundo, who was then five years old. After a regency that continued until 1840, he began the remarkable career of one of the most enlightened rulers of modern times, a friend of progress, liberty, literature, and education. His interest in the latter was indicated once when he said, "If I were not emperor, I would like to be a school-teacher."

The end of the reign of Dom Pedro came in 1888, largely because of his humanitarianism. The slaves were emancipated. Former slave-owners withdrew their support, and on November 13, 1889, the army revolted, Dom Pedro Segundo abdicated, and was banished.

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Next comes the story of Argentina, involving, of course, other nations as well.

May 25, 1810, is an all-important date in Argentina, for it saw the setting up of the Junta Gubernative that marked the beginning of the independence of Argentina, a movement made in protest on the coming to Buenos Aires of the French Viceroy Cisneros in May, 1809. The Declaration of Independence was not made until 1816, but the years between witnessed many striking events.

The overthrow of Ferdinand of Spain by Napoleon, and

his assumption of power over the Spanish colonies in South America, through his brother whom he placed on the Spanish throne, was the first signal for action. Why should South America be ruled by France? Nominally Spain continued to rule the colonies for several years, but her control was far from complete, and there were many changes.

One of the greatest changes was in trade. The restrictive principles of the past were no longer operative; English interests took advantage of the opening to begin commercial alliances. Foreign capital came in and great commercial houses were established, which became the basis of the marvelous commercial development of the portal city of Buenos Aires, far up the Rio de la Plata from the Atlantic.

The contrast with other days may be understood by those who read the words of Frederick L. Paxson:

> Exploitation and repression were the essential features of the Spanish colonial system. If Buenos Aires proved to be a competitor to the Spanish merchants, her olive trees must come down and her vines must come up by the roots, for it was clearly understood that Spain was to be protected, and her colonies existed only for the benefit of the mother country.

These things explain the reason for the expedition from Great Britain which came to Buenos Aires and Montevideo in 1806. A force of twelve hundred men under Popham was there to back up the plan to open South American ports to British commerce. Though Buenos Aires surrendered to the forces which opposed her, the people rallied and drove out the invaders. They were not yet ready for the events that came later. While the revolutionary movement in Argentina began in Buenos Aires, the interior cities joined heartily and quickly. They assisted in raising an

army which was sent to Upper Peru, to oppose the Spanish forces.

Visitors from the United States read with sympathetic thrill the manifesto issued to all natives by the General Constitutional Congress of the United Provinces of Rio de la Plata on October 25, 1816. How much the document sounds like our own Declaration of Independence! The closing bits, which recite the grievances complained of, are most stirring of all:

> We therefore, thus repelled by the Spanish and the King, having declared ourselves independent, and in self-defense against tyranny, have staked our homes, our lives and our fortunes. . . . This declaration is engraved on our hearts.

Another matter of decided interest to citizens of the United States is the copy of a letter preserved by the Historical Society of Pennsylvania, written in 1817 by an American to President Monroe, pleading for a correct evaluation of South America, and speaking of the intelligence, capacity for self-government, and patriotic efforts to free themselves, of the citizens of Buenos Aires and their neighbours:

> Should the South American patriots succeed at last in compelling the Spanish invaders to cease their attempts or to suffer them to remain in question, what will be the probable result? Their enemies will of course say, that they will fall to dissension and civil war, and finally destroy each other. The same friendly anticipation was continually repeated respecting the United States: as it turned out to be false in this instance, why may it not be false also with respect to South America?

The writer of the query then pointed out the fact that self-interest on the part of North America would call for seeking the success of the Spanish colonies in reaching for liberty. " There may be in many things a common Ameri-

can interest, in opposition to a European interest," he urged.

Followed arguments which were remarkably prophetic of the principle later stated in the Monroe Doctrine:

> We must be, and we shall not be afraid to be, the first to acknowledge the independence of South America, or any part of it, whenever it may be achieved, now, or ten years hence.

The first appeal was for the establishment of friendly relations with the republics of La Plata and Chile. The friendly attitude of the United States was shown in 1817, when the President sent in the U. S. Frigate *Congress* a commission to visit South America as an exhibition of friendly feeling. In Buenos Aires a popular leader in his address to the commission said:

> We have long been aware that the most friendly feelings and wishes existed toward us, on the part of your country and government. We have ever regarded your country with enthusiastic admiration. We appreciate fully its high character for justice, disinterestedness and suavity, and it is beyond the power of words to express, how gratifying to us all is the proof of its good wishes. That there should exist a real and unfeigned friendship and sympathy between us is natural. We inhabit the same portion of the globe, our cause has been once joined, and we are in pursuit of the same objects, which you have so happily achieved. We are a people that are just beginning to be.

Six years later, in August, 1823, the British Foreign Secretary wrote to the Minister of the United States in London, suggesting a joint declaration that the recovery of the colonies by Spain was hopeless; that neither country was aiming at the possession of any part of the continent, and that they could not see with indifference any portion transferred to any other power.

When Monroe asked the advice of Jefferson, he declared that the question raised was the " most momentous which had arisen since Independence." Then he added:

> Our first and fundamental maxim should be, never to entangle ourselves in the broils of Europe; our second, never to suffer Europe to intermeddle with Cis-Atlantic affairs.

Jefferson and Madison favoured the British suggestion, but John Quincy Adams was opposed to it, and on December 2, 1823, President Monroe issued the paper that has become famous as The Monroe Doctrine:

> We should consider any attempt to extend their system to any portion of this hemisphere as dangerous to our peace and safety. . . . It is impossible that we shall behold such interference, in any form, with indifference.

This story of the genesis and purpose of the Monroe Doctrine is necessary to a complete understanding of the friendly and brotherly attitude of the United States to its neighbours of South America. The United States seeks nothing but the privilege of uniting with them in things that promise their highest welfare.

Provincias Unidas del Rio de la Plata was the long name given to the new republic. How this republic was christened Argentina may be seen when this is translated, " United Provinces of the Silver River." Though the Rio de la Plata is not a river, it has been known as the Silver River almost from the beginning, a name given perhaps, rather as an expression of hope than as a memorial of discoveries. What more suitable than the use of the Spanish equivalent of silver? So the name Argentina was born.

A patriotic native historian wrote later of this country

which has more than one hundred towns larger than any Central American Capital:

> The Argentine Republic appears to be called to rival the United States of the North some day, not only by the area of its territory, but also by the activity of its inhabitants, the development of its industry, and the importance of its commerce. . . . Its Capital, Buenos Aires, would be the New York of the South if it were not for the political disturbances that are continually interrupting its agricultural and commercial life, but it is satisfied with being the American Athens, as it calls itself, proud as it agreeably is of its men of letters and poets.

But the day came long ago when stable government, real government by the people, brought to Argentina not only liberty, but boundless prosperity and wonderful growth. Now there are eleven million people in the republic, many of them immigrants from Europe, for Argentina attracts more of Europe's people than any other country of South America.

The building up of a great nation has been favoured by the ease of access to all parts of the large territory. No great mountain barriers exist, as in Chile and Peru. Yet no one must forget the wide extent of the country to the south of Brazil. As that great Argentinian, Sarmiento, wrote in 1868:

> Its own extent is one of the chief evils from which Argentine Republic suffers; the desert encompasses it on every side and penetrates its very heart; wastes containing no human dwelling are, generally speaking, the unmistakable boundaries between the several provinces. Immensity is the universal characteristic of the country, the plains, the woods, the rivers, all are immense, and the horizon is always indefinite, always lost in large and indistinct vapours which forbid the eyes to mark the point in the distant perspective where the land ends and the sky begins.

Chile comes now into the picture, not only because the country is next-door neighbour to Argentina on the west, but also because of General Martin's aid in winning independence for that country.

Prosperity attended the efforts of Spain to rule this land of the Araucanians until the movement that led to revolution in the north spread to Chile. In 1810 the Santiago Cabildo requested the resignation of the Spanish governor, and substituted rule by a board of seven members. Free trade was proclaimed at once, ports were opened, and within a year the custom house receipts quadrupled. Slaves were set free, and in 1812 the first newspaper, the *Aurora,* was printed. This beginning of a free press was a milestone in the history of Chile.

That same year, 1812, was of great importance in the history of Chile for other reasons, for then Consular Agent Poinsett from the United States unfurled the Stars and Stripes, and also a new flag which had three colours, and a single star in the center. Thus the flag of Chile was born. In Peru Jose de San Martin heard of the efforts made by the patriots to the south, and he made up his mind to go to their assistance, for he saw that the success of Chile must be the final downfall of Spain. The opportunity did not come until 1817—South America lacked a leader—but early in that year he persuaded Buenos Aires to help, and he succeeded in leading her army over the Uspallata Pass from Mendoza. Final victory over the Spaniards did not come until 1818, but in that year they were driven from North Chile. This was accomplished by the battle of Chacabuco. On the first anniversary of this struggle the declaration of independence was proclaimed. The battle of Maipu followed, and the declaration was made effective. Recognition by Brazil, Great Britain, France, and the United States helped to settle matters.

The head of the first permanent national government was Bernardo O'Higgins, son of an Irish governor of Chile and viceroy of Peru. O'Higgins was an associate of San Martin at the battle of Chacabuco and at Maipu. The time came when O'Higgins had to leave the country, but he is now looked on as one of the national heroes, as is San Martin. Once Chile caused the name of O'Higgins to be removed from the records of the country, but when Domingo F. Sarmiento of Buenos Aires learned of this he was so deeply stirred that he wrote a fiery story of the deeds of the leader. He succeeded in his attempt to win recognition for the man who, more than any other, was responsible for Chilean independence.

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Years were to pass before Bolivia's efforts against Spanish domination could be crowned with success. But it should be remembered that Sucre in Bolivia has the distinction of being the first city of South America to revolt against Spain. This was on May 25, 1809, when the Spanish authorities were deposed. But final success did not come until August, 1825, after General Sucre's victories in Lower Peru. Later he came to Upper Peru, and called an assembly of the people, who declared that Upper Peru had become the Republica Bolivar, so named in honour of General Bolivar, the Liberator. Later the name became, more simply, Bolivia.

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Quito, in Ecuador, made a vain effort for liberty in 1809, but it was not until 1822 that she was successful in breaking loose from Spain. Then Bolivar sent Sucre to help him against the Spanish, and victory was won by the republican forces at the battle of Pichinicha. Then

Ecuador, Venezuela, and Colombia were governed from Bogota, but for a century Ecuador has paddled her own canoe. In that time the state has had a dozen constitutions, but the last has triumphed since 1907.

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Peru, which was known as the royalist heart of South America, and long was the seat of the entire government of Spain on the continent, was the last of the colonies to throw off the yoke. More, that country was the meeting place for the two routes of freedom. The northern route was from Venezuela to New Granada, then to Ecuador, and south over the Peruvian Andes. The southern route was from Buenos Aires, over the Andes, to Chile and Peru.

In 1819 Vincente Pazos spoke of looking forward to independence, aided by the victorious armies of Buenos Aires and Chile. He made an appeal to the king of Spain to stop the shedding of blood. In this appeal he spoke of the fact that this monarch "has drawn his sword to maintain his imaginary sovereignty as King of the Indies; a title which can only be compared to that of king of Jerusalem, and which hangs as loose about him as a giant's robe upon a dwarfish thief." In that same year Pazos addressed a message to Henry Clay which ran as follows:

> The struggle which the Patriots of South America are making to establish their independence, has attracted the attention, and deeply interested the sympathy of the world. Until very lately the abundant resources of this country, and the unparalleled salubrity of climate, have been regarded, without being entirely disbelieved, as the fable of romance, rather than reality.

A year later, in 1820, Peru was approached by San Martin. A knowledge of the story of the ending, through him, of the Spanish rule, is necessary to those who would see with understanding Lima and its surroundings.

San Martin was assisted by Lord Cochrane, who blockaded the Peruvian coast and sailed from Valparaiso with forty-five hundred troops. After landing at the Bay of Pisco, the troops marched to Lima, and the city was taken in July, 1821. On July 15, proclamation was made from the Plaza: "From this moment Peru is free and independent, by the general wish of the people, and by the justice of her cause, which God defend." Then the republican flag of Peru was flung to the breeze, whereupon the Spanish forces retired into the interior, and were defeated a little later. Upper Peru took the name Bolivia in 1825.

In the spring of 1822 the Northern Liberator, Simon Bolivar, came from Colombia, where he had won great successes, to Guayaquil. San Martin retired in his favour, went to Chile, and disappeared from public view.

In March, 1823, Bolivar brought Bolivia's offer of aid to Peru. In September he came to Callao and was given command of the patriot forces. In the following February the Spanish troops reoccupied Lima, but in July Sucre, who had been given command of the army of the patriots, confronted the Spanish. On August 6 he administered a sound defeat to these last survivors of monarchical power, at the battle of Junin. Even then the Spanish commander was unwilling to admit defeat; he retired to Cuzco, there secured additional forces, and marched to meet Sucre, who, on December 9, overcame him at Ayacucho. Then followed the sorrowful departure of the Spanish from Lower Peru.

One of the most interesting parts of the story of the winning of South American independence is the account of the career of Simon Bolivar, who is credited with the leadership that won independence for what are now Venezuela, Colombia, Panama, Ecuador, Bolivia, and Peru.

I

WHY GO TO SOUTH AMERICA?

TO what country are you going this year? Would it not be well to think seriously of making a trip to South America? This is an easy trip to make, one full of thrill and satisfaction from the first day to the last. Many are insisting that South America should be seen by North Americans even before they see Europe, and for the very reasons that are offered for seeing Europe first. As a matter of fact, the reasons for going to South America first are more commanding than those for going to Europe.

But does the ordinary vacation period give time for a trip to South America? Why not? You would scarcely think of taking less than six weeks or two months for a trip to Europe, and a like period taken for South America will enable you to cover parts of the country thoroughly enough to make you wish to return at the first opportunity. Even if you have but a month at your disposal, this is sufficient to permit you to make the enticing sail to Rio de Janeiro, Montevideo, and Buenos Aires, or the alluring trip through the Panama Canal, then down the West Coast to Valparaiso.

But can South America be mentioned in the same breath as Europe for satisfying scenery, infinite variety, and restful experiences? Try it, and see! Is the voyage to the Southern Continent to be compared for satisfaction to the trip to Europe? Do you like Paris? Go to Buenos Aires. Does London please you? Try Rio de Janeiro and see if you are not satisfied. Do you want wild country?

Go into the back blocks of Brazil. Do you seek waterfalls? Look upon the grandeur of Iguassu, where the waters leap over precipices whose length is measured not merely by hundreds of feet, but by a large part of a mile. Would you see mountain lakes that rival anything in Northern Italy or in Switzerland? You will find them in Southern Chile.

Perhaps you enjoy travel over the dizzy roads in the Pyrenees, where there are such pointed contrasts between arid country and regions where water is plentiful? Let the railroad take you from the Pacific Coast far up into the barren country of Bolivia, or through the luxuriant verdure of Venezuela from La Guaira to Caracas. Are you one who talks of the joys of the steamer ride on Lake Geneva? Try the day's trip on Lake Titicaca, twelve thousand five hundred feet in the air, and have a new subject for conversation. Are you in raptures when you think of the wonders of the Norwegian fiords? A journey along the East Coast of South America and a study of the wonderful water approach to Rio de Janeiro will give a vision that will provide you with new standards of marine beauty. Is your special interest modern industry? Where could you find more absorbing sights than in the oil developments on Lake Maracaibo, or on the coffee plantations of Brazil? Or would you like to see copper mining, silver production, the extraction of gold, and the bringing of hidden hoards to light? Go to Peru and Brazil.

Are you interested in the development of modern cities like Berlin? Then East Coast cities will afford you ample satisfaction. Do the ruins of Rome and of Athens draw you irresistibly? Then you will know how to appreciate the mighty relics left by ancient peoples on islands in Lake Titicaca, in and about Cuzco, and beyond on the precipices

above the Urubamba River. Perhaps the Hill Towns of Italy draw you back to see once more the Etruscan walls and the quaint people, like those of centuries ago. The Italian Hill Towns *are* marvelous, but there are those who consider them to be surpassed by the mountain towns of Bolivia and Peru. Possibly the memory of the road over the Stelvio Pass or others of the mountain roads of Switzerland and Italy rejoices your heart. Give the highways in the Andes a chance to impress you. Would you see mountain railways that surpass anything Europe or North America has to offer? Cross the Andes from Argentina into Chile or climb up from the Pacific into Peru, or Ecuador, and know the real meaning of amazement. Are you fond of seeing picturesque peoples? Where will you find them of greater variety than in South America? Have you met Spanish-American students in North American colleges? Perhaps you would like to see them in their homeland. Do you like to go in the pathway of history? Then ample satisfaction awaits you in South America, where the story of centuries is unfolded before you as you go. You will see a land which, once exploited for gold, is now developed for the benefit of its people, for there is a natural turning away from the spirit of the administration of old Spain, which "made the colonial system a means for recuperating distressed fortunes, while the colonists utilized the cupidity of their rulers to develop an extensive illicit and profitable foreign commerce." If you find special interest in treading the pathway of liberty, there is nowhere so good an opportunity as in Venezuela, Argentina, Chile, Bolivia, or Peru.

Not only are visitors to South America in the pathway of liberty, but in the midst of the continent of opportunity. After a visit to South America in the frigate *Congress,* in 1818, H. M. Breckenridge wrote:

No nation was ever possessed of an empire so vast as that of Spain in Americ a. South America alone is probably equal in importance to the rest of the habitable globe. The imagination is lost in contemplating the future destiny of this immense region, where the labour and enterprise of civilization will have scope for many years to come.

Those who go to South America with these things in mind will realize the necessity not merely of knowing about the South Americans, but of knowing them. The best place to get acquainted with them, to understand them, to appreciate them, to realize that they are people like ourselves, is to see them in their homes, to visit their cities, to go in and out daily among them. We need to appreciate the great odds against which they have been working as nation builders, because of the tremendous distances and the isolation of communities of culture. We are eager for better relations with South America. The way to bring these about is not to rest with the statement of our desire, but to prove by deeds that we of North America wish to be loyal friends and partners of our neighbours to the south.

This is a good time to have in mind the words written by Thomas Jefferson in his *Notes on Virginia,* more than a century ago:

The glimmerings which reach us from South America enable us only to see that its inhabitants are held under the accumulated pressure of slavery, superstition, and ignorance. Whenever they shall be able to rise under the weight, and to show themselves to the rest of the world, they will probably show that they are like the rest of the world.

Magnificently South America has been proving that the Sage of Monticello was a true prophet.

II

STEPPING-STONES OF THE CARIBBEAN

THE steamship route from New York City to East Coast ports of South America is so delightful and so quickly covered that many people prefer this as an approach to our Southern neighbours. Sometimes, however, a steamer is available that follows leisurely the route taken by many of the early explorers, the pathway of the buccaneers of early days, from island to island of the West Indies, the stepping-stones of the Caribbean. Such a steamer makes possible what many have found a desirable preliminary to a study of South America.

This is the route taken by dependable amphibian planes. The distance from the mainland of the United States to Trinidad and the coast of Venezuela is spanned thus in two days and a half, while in four days and a half more, the windings of the coast of Guiana and of the bellying coast of Brazil are followed down to Rio de Janeiro.

The trip by steamship, direct from New York, is one of the world's finest ocean voyages. The restful days spent on a comfortable vessel, with hurry forgotten in the midst of like-minded companions, will pay rich dividends in glowing health and in sparkling memories. The leisurely approach by way of the ports of the West Indies may not be so restful, but there will be pleasant experiences of a different kind and memories of a composite of unusual experiences.

This chapter treats briefly of things seen from the air.

These are not greatly different from those seen by the ocean voyager, although the scenes are much more kaleidoscopic, because of the divergent point of view.

One of the longest water-jumps between the continents is that from Florida to Cuba, over the water where, after long playing, the wily tarpon is caught by skilful anglers; where the sailfish and the barracuda provide sport for the fisherman who is fortunate enough to come this way. Here, too, is the habitat of the Gulf Stream, which makes its power felt on the vessels that navigate it, and on the Florida peninsula.

But yonder are the shores of Cuba, made known to the world by Columbus, October 27, 1492; the scene of prosperity and contentment during the eighteenth century, of misgovernment and discontent during the nineteenth, and of prosperity once more during the days of self-government in the twentieth. In 1634, Havana, the Capital of this island of prosperity, received the name, " Key of the New World and Bulwark of the West Indies." By that time the city had been removed from its first unfortunate location near Batabano to a site on the beautiful bay which was the starting point of Hernando Cortez when he set out for Mexico, of Ponce de Leon in his voyage to Florida, of De Soto and Balboa and Pizarro.

Havana and the picturesque old city of Santiago have been connected by a modern highway six hundred miles long that passes through regions of wonderful fertility, many of them redeemed from the blight that came from ten years of a war whose memories are growing dull, though the heroes of that conflict will long be honoured.

Near neighbour of Cuba is the island shared by Haiti and Santo Domingo, whose histories are one. At one time Spain ruled the whole, then France divided the island, and at length became mistress of all, though her claim to sov-

ereignty over Haiti was in 1801 disputed by Touissaint L'Ouverture, the slave who became a military leader. Three years later, Henry Christophe, "the Black King of Haiti," began the construction of the amazing citadel La Ferriere. For fifteen years he utilized the untiring labour of immense forces, in laying the stones of this almost inaccessible structure which was destined to be his tomb. The massive walls, in some places one hundred and thirty feet in height, and from twenty to thirty feet in thickness, may be reached by a three-hour climb through the jungle, up a winding trail from Cape Haitien, the port of the island. Those who look down from the air are saved the journey, and have an opportunity to study the citadel as no one else can. The great structure serves a good purpose: it may be seen by ships twenty miles at sea, so that it is a helpful object in taking sights.

Next of the stepping-stones is Porto Rico, the fertile island with its teeming population which Spain held from the time of its discovery by Columbus until the administration of the United States began in 1898. The chief survival of Spanish occupation is the splendid military road that crosses the island, while the benefits of later rule are seen in improved health conditions, roads that lead everywhere, and public schools that have transformed the island.

From Porto Rico to the South American coast the distance is spanned by the majestic curves of the Leeward and the Windward Islands—titles given because the former were farther down the trade wind than the latter. Of the Leeward Islands some prominence has been given to the Virgin Islands, long a possession of Denmark, but in 1916 brought by purchase under the United States flag. Once the chief city was called Charlotte Amalie, but to-day this fabled haunt of the pirate Blackbeard is known as

St. Thomas. The battlements of Christian's Fort and Blackbeard's Castle on Government Hill are landmarks from afar.

Antigua, with its beautiful harbour of St. John; Martinique, famous for the eruption of Mount Pelee, which destroyed St. Pierre in 1903; St. Lucia, largest of the Windward Islands, and one of the most beautiful of the West Indies, and Grenada, the British island where slaves were emancipated in 1837, are forerunners of the greater island Trinidad, which forms the eastern boundary of Venezuela's Gulf of Paria.

Trinidad is about as large as Rhode Island, and is remarkable for two wonders, Maracas Falls, three hundred and twelve feet high, and the great pitch lake, which covers about one hundred and twenty acres. This is one vast basin of asphalt, not the hard asphalt of the American roadways, but asphalt which is soft and spongy. It is rather forbidding in appearance; its dark brown colour leads visitors to turn away in disgust, after a brief glance.

Around the lake is a fringe of tropical vegetation. Here and there in the lake are islands where enough soil is mixed with the asphalt to make the growing of vegetables and pineapples a possibility. The asphalt seems to be a good fertilizer, though it has never been used for that purpose. Those who recount the earlier efforts to make use of the product tell of an attempt to spread crude asphalt on a roadway to keep down the grass, but to the disappointment of all the asphalt mingled with the soil and made the weeds grow more luxuriantly! It seems strange, then, that no attempts have been made to apply the asphalt to the soil.

An early governor of Trinidad tried to use the pitch as an illuminant. Gas was distilled from it, and a beacon on the tower of the cathedral was supplied with this.

The light was a success, but the odour was so great and offensive that the inhabitants of the city protested, and the beacon was suffered to become extinct.

A few shiploads of the product were sent from the island in early years, but no one seemed to know how to make the best use of it. It was 1886 before the Government made a determined effort to utilize the natural wealth at its disposal. Portions of the lake were leased to private companies, and, later, the entire lake was leased to one company, which has been so successful in creating a demand for the asphalt that the income of Trinidad from the tax on asphalt production and shipment amounts to several hundred thousand dollars a year.

It is possible to walk on the pitch without sinking, so labourers have no difficulty in digging the stuff with their pickaxes and shoveling it into buckets on a tramway supported on a road made of palm branches. These buckets, by means of an overhead cable, glide to the pier, where they are emptied into waiting vessels.

Prodigal nature has provided oil reserves also on the island, and the production, though recent, has already reached millions of barrels each year.

But six miles separate Trinidad from the mainland (of which it must have been a part at one time); the continuation of a chain of mountains on the island and the presence, in eastern Venezuela, near the coast, of the lake of Bermudez, which has a thousand acres of pure asphalt, seem to justify the contention of the geologists. But Venezuela's deposits of asphalt are not all in one place; they occur on the shores of Lake Maracaibo, in connection with oil. The value of the bitumen from Venezuela is appreciated in New York City, where the builders of tunnels and subways prefer this product to protect their structures from moisture.

But the casual visitor to Trinidad or Venezuela is less interested in asphalt lakes and oil wells than in the tropical luxuriance of the vegetation, the ruggedness of the sea coast, the beauty of the uplands, and the study of an interesting people who, in so many of their ways, are just enough unlike those among whom he spends his days at home to provide the final touch of charm and romance.

III

DOWN THE EAST COAST

BECAUSE of the twenty degrees of easting necessary for steamers bound from New York to Rio de Janeiro, your ship—unless you take a coasting vessel—will not pass close to the coast until you approach Cape Sao Roque, far below the Equator.

But even if the vessel is out of sight of land for days, every hour will have its pleasure. How can travel be monotonous for those who go from New York to Rio de Janeiro by the pleasant steamers of the Furness-Prince Line or the Munson Line?

The pleasures of a restful sea-voyage are intensified on these vessels, where there is every comfort for the passengers, as well as infinite variety of entertainment. Roomy cabins, pleasing lounges, and inviting dining saloons lure the traveler below, while spacious decks make him eager to spend every possible hour in the open air, seeing the reflection of the rising or the setting sun out on the broad Atlantic, watching the bathers as they disport themselves in the fascinating swimming pool, or yielding to the pleasant temptation to enter the waters that are renewed continually from the ocean. Soon comes the crossing of the Equator. Then there is another diversion—the old yet ever new ceremonial when tribute is enforced to King Neptune from those who are crossing the Line for the first time. And when, a few evenings later, perhaps after the festive Captain's dinner—which is usually given the

night before reaching Rio de Janeiro—diplomas are handed to those who have succeeded in passing Neptune's tests, the documents are put away carefully as delightful souvenirs of the trip.

The study at noon of the chart that shows the progress made during the preceding twenty-four hours is a daily ceremony that never loses its charm. The steady movement to the southeast, between the coast of South America and that of Africa—continents which, some geologists insist, once upon a time were one—leads to curious questions.

"Captain, where are we now?"

"Fifteen hundred miles off the coast of the Guianas," perhaps is the reply given by the gracious officer who is always so ready to make life pleasant for his passengers.

No, you can't see these fascinating triplets on the north coast of South America. But you like to think for a few moments of the tropical country called Guiana, between the Orinoco and Amazon Rivers. A portion on the west belongs to Venezuela, and that on the south, next the Amazon, is a part of Brazil. In between lie the triplets—the only territories on the South American continent belonging to European nations. Holland, France, and England share the 175,000 square miles where perhaps 500,000 people live. Many of these people have their homes on the bit of plain along the Coast, though many are on the plateaus, and a few are still farther back in the highlands, where tropical forests thrive.

The Guiana coast of Brazil is the curtain for some of South America's wildest and most unknown country. Gradually, as the traveler goes south, evidences of civilization increase. When the first airplane companies began to send passengers and mails to South America, they found that contact with the natives in the country was impossible. Even as far south as Belem (Para) the people would run

in terror when an airplane approached. Soon, however, they proved their hardihood by giving assistance in refueling the machines.

A question frequently heard from curious passengers is, "I wonder when we will be off the mouth of the Amazon!" And then is sure to come the further word, "I wish I could see the mighty river!"

When court is paid to Neptune, your steamship is hundreds of miles off the mouth of the Amazon. Belem, on the Para, is the nearest port that gives access to the river. The Para, on which Belem is built, is really a part of the great Amazon estuary, for it is separated from that giant stream only by an island. This mouth is two hundred and seven miles wide, or, if the Para be not included, one hundred and sixty-seven miles. Even those who do not see the mouth of the Amazon like to think of the huge river, which drains nearly three million square miles of country. In flood-time the stream rises so high that the natives are able to pluck Brazil nuts from the tops of the tallest trees. These natives make clearings along the stream, but on the slightest excuse the jungle reasserts its right to them, and they revert to primitive conditions.

The honour of discovering the mighty river belongs to Vincente Pinson, who, in 1500, noted how the water continued fifty miles into the ocean. So he called it the Rio Santa Marie de la Mar Dulce, though the name was shortened to Mar Dulce. Another name given to it was the Rio Grande. But the privilege of bestowing the permanent name fell to Francisco de Orellana, who, in 1541, was sent by Gonzales Pizarro from Quito to look for the fabled El Dorado which lured adventurers who entered South America on the West Coast, from the Caribbean, or from the Atlantic. Gonzales, taking with him two hundred and twenty Spanish horsemen and footmen, went far into the

interior from the Andes. Then, when provisions were short, he sent Orellana down the Amazon to the Atlantic, in search of provisions for the explorers. The story of his venturesome journey, as well as the narrative of the adventures of Pizarro, is full of novelty and stirring incident.

On his way Orellana found—so he said—a nation of female warriors, near the mouth of the Trombitas, or River of Trumpets. These were responsible for the name given to the Amazon. It has been suggested that perhaps the women he saw were merely long-bearded men.

The first ascent of the Amazon was made in 1636, by Pedro Texeira, the Portuguese, who finally reached Quito. These early navigators of the Amazon were attracted by the strange phenomenon known as the bore, or Pororoca, due to the shallow water near the mouth and the half-submerged islands. This bore, we are told, commences with a roar, which continually increases, and advances at the rate of ten or fifteen miles an hour with a breaking wall of water from five to twelve feet high. Thus the ocean and the river are continually at war. The ocean eats into the land, and prevents the Amazon, in spite of the immense quantities of silt it carries down on its flood, from building up a delta.

Regular lines of ocean steamers ascend the Amazon, whose valley Humboldt said, a century ago, would some day support the world's densest population. They pass through the tropical forests of Maranhao, where, in the eighteenth century, many clearings were made from tropical forests. These clearings were well manned until the discovery of cacao trees in the forests attracted the labourers. And the cacao trees lost out in their turn when, during the nineteenth century, the clarion call of rubber was heard.

Those who ascend the river are lost in amazement at

the town of Santarem, near the mouth of the river Tapajoz. It is related that, after the Civil War in the United States, certain of the courtly Southern gentlemen, unwilling to bow their heads to defeat, and to live without slaves, sought out these far reaches of the Amazon. While some of them afterward returned to North America, others remained. It is said that, in many a hut along the Amazon, may still be seen the Stars and Bars.

A passenger, lounging in his easy chair on the boatdeck, in his hand the book from the ship's library which spoke of these descendants of sons and daughters of the old South, turned to his neighbours, a bride and groom who, he thought, hailed from New York City, and exclaimed, in the easy manner of shipboard conversation with casual acquaintances:

" May I read you this rather odd statement? It sounds all right. But I doubt that anything of the kind happened. Yet if there was an immigration like that, I question the possibility of tracing the families to-day."

Smiling at his wife, the bridegroom drawled: " Then perhaps you would be interested in knowing that both my wife and I come from two of the families that author wrote about. We have been in the States long enough to complete our education; now we are going back home."

Another interesting passenger on the ship had received his education in a technical school in Massachusetts, and was returning to Brazil after his first visit in twenty years to the American home. He had spent these years in the employ of the Government of Brazil as an expert in botany.

" Yes, I have been up the Amazon," he said. " I cannot count the number of times I have made the trip from the coast, past Santarem, on to Abidos, five hundred miles from the mouth of the river, where the influences of the

tides are felt, a town which came into being because of a fortress erected there by Brazil to guard the river region against invasion. Then we went on to Manaos, four hundred miles farther, a town where poetic mystery is mingled with twentieth century progress."

He told how Manaos is built ten miles up the Rio Negro, one of the chief affluents of the Amazon. "Did you know that the Negro is named because of the water, which is black as pitch?" he asked. "Where the two rivers come together, they are as distinctly marked as where the blossoms of one of the brilliantly flowered trees of the jungle mingle with those of a neighbour whose colour is altogether different. For the water of the Amazon is yellow.

"You would not expect a city of a hundred thousand people so far from the coast," the botanist continued. "And what would you say when I tell you that this city, which was founded in 1660, is conducting a very modern commerce with New York City? Steamers load their cargoes of nuts, cacao, rubber, dried fish, and hides, at floating wharves, because the river there rises and falls thirty-three feet."

This "jewel lost in the wilderness," as Manaos is called by the Brazilians, the Capital of the great State of Amazonas, is in the heart of the jungle; those who walk half a mile from town find themselves involved in the intricate forests. And near at hand is a lake which contains fifteen hundred species of fish. In all Europe but two hundred and fifty species are known.

But what an up-to-date city it is, with its great domed opera house, its tree-bordered central square, where mosaic stone pavements tell of lovers of beauty who planned the city! And on all sides there are great half-finished palaces. These—like the opera house, built in 1916—are monu-

ments to the rubber boom that went wrong. Manaos grew millionaires like gourds. They began to build. But the day of sorrow came too soon, and the palaces were unfinished. The price of rubber rose to $2.25 per pound during the height of the boom. This bonanza did not bring with it any lasting benefit, for the money received was spent quickly. The Amazon country is suffering still from the results of the crash to eighteen cents a pound. Some day, when rubber is raised on plantations, instead of being tapped from trees in the forest, prosperity will return.

This glimpse of the Amazon must suffice, unless the traveler has time for the fascinating excursion up river on one of the leisurely steamboats. He will then find that there is no limit to what he can do, what he can see, and the time he can spend. But there is an end to all good things, and eventually he will return to the mouth of the river, at Para. In 1910, when rubber was at its height, Para was one of the world's foremost and busiest ports. Those who see it to-day will not find it so busy, but they will note the beauty of its tropical growth.

Down the coast, on the eastern bulge of the Continent, is Parahyba, on the river of that name, the starting point for an important part of the Great Western Railway of Brazil. This town, founded in 1585, is obstructed by a reef in the mouth of the river. So is Pernambuco. Another name for the latter city is Recife, or Reef. " You would like Parahyba," our botanist passenger declared. " They call it ' The Venice of America,' because two rivers unite there and form a lagoon. An island called Antonio Vaz is the site of the city, though it extends also to the mainland, and bridges connect the two parts. Five miles distant is Olinda, founded in 1535, of which Recife is the port. The tide rises six feet before the town, which is but ten feet above the ocean. This, one of the most important

ports of Brazil, a landing place for cables, exports rich products that come to the coast on railroads that go into the interior."

Several hundred miles below Recife is the mouth of another of Brazil's great rivers, the Sao Francisco, which is one mile wide at a distance of twenty-two miles from the sea, and is navigable to the Falls of Paulo Affonzo, one hundred and ninety-three miles from the coast. In several leaps these falls descend two hundred and sixty-five feet. A government railroad, built at the falls, with Brazilian enterprise, makes possible bringing down to the coast the products of the region drained by the stream.

Two hundred miles more, and comes Bahia, on All Saints' Bay, by many thought to be nearly as beautiful as the bay of Rio de Janeiro. In reality the name of the town is Sao Salvador; the name Bahia belongs to the province of which it is the Capital. This city, founded in 1549, was for two hundred and fifty years the Capital of the country. It is built picturesquely in two parts; the lower town looks up to the heights which are reached by elevators as well as by winding roads.

Those who land here may be able to take the railroad that leads inland three hundred and fifty miles to a port on the Sao Francisco River.

A journey to the diamond country may be made from here, either by the railway into its beginning, or by steamer to the island Itaparica, in the bay, then into the estuary of Paraguassu, a river which comes from the highlands of Bolivia. After railroad or steamer comes a trail, followed by a trusty mule. One who took the trip told of seeing two canoes moored in the middle of the Paraguassu, covered with a flat platform. From this divers descended, and collected diamond-bearing ground from among the boulders of the bottom.

Once upon a time, Sao Salvador, the port of the diamond-bearing country, was the greatest slave port of South America. One of the most successful of the traders in human flesh who visited these waters in the middle of the eighteenth century spoke of his work as an attempt " to enlarge my fortunes by honest means." Moreover, he regarded himself as being guarded by God in his journeys, for one day he wrote of " the help of patience and God's assistance who has Miracllously preserved me from the dangers attending a seafaring life." In another place he spoke of his gratitude, because " the Great Disposer of all things " had conveyed him safely in all his undertakings.

IV

IN BRAZIL'S REGION OF MYSTERY

THAT government botanist was an interesting talker. At every opportunity passengers, fascinated by the modest evidences of his knowledge of the country, urged him to tell more about it. With fine good nature he responded to every request.

"But there is one thing I cannot get him to do," a young woman from Chicago said ruefully. "He won't talk about himself. I know he has had some fascinating adventures during those twenty years in the jungle country. He drops a hint now and then. Remember what he said about being lost in the jungle, without companions, and without food for four days? Will he talk of that time? When I ask him, he smiles, and begins to tell of something else."

But he was generous with his information about the country. On a day when the sub-equatorial sun made the swimming pool even more than usually delightful, and that constant breeze on the upper deck was so refreshing, he urged us, if possible, to go back into the interior if we could possibly do so.

"Even if you cannot make anything but the short journeys provided by the railroads," he said, "you will soon come to the realization that an immense country lies back of Rio de Janeiro, and Bahia, and Pernambuco. The territory of Brazil is larger than that of the United States by two thousand square miles. And of this vast area comparatively little is known of more than two million square miles!"

In this unknown country there are all sorts of extremes, from the hot, stony desert of the north, toward the Guianas, to the huge plateau region at the heart of the country, a region seven times as large as France, and the Matto Grosso, or Big Woods, where hundreds of thousands of square miles are covered by a forest that is in many places impenetrable. The Indians have a picturesque name for it, " The Green Hill." But perhaps more expressive is the description given by an explorer who flew for hours and even days above the trees. " A forest ocean," he called it. Then he explained that the experience

> seemed like flying over a rolling ocean, its green waves formed by leafy tree tops and climbing vines. But even in the thick green mass of vegetation variety was provided by trees here and there, stronger than others, as they thrust their big arms above the ocean forest about them. Seizing the chance to reach the sun, tangles of vines and parasites climbed up with the trees, rising till the whole formed a great green dome.

In these forests there are scattered groups of Indians. These residents of the forests are descendants of the natives who were dispersed when the Jesuits were expelled in 1767; for many years prior to that time they had been herded by their leaders in villages, each surrounded by a fort and a stockade, with gates and guards and artillery.

In most countries the banks of the rivers are settled first, and the bulk of the population is apt to remain there. But this is not the case in Brazil for, while there are twenty-five thousand miles of waters navigable for ocean steamers, the banks of the rivers are so covered with thick jungle that there is little possibility of gaining a foothold there. How a majority of the few Indians along these streams live was discovered by an aviator who saw from clearings in the jungle at some distance from the main

river he was exploring. To these clearings they gained access by means of a tributary whose mouth was hidden by the dank growth. Thus they secured immunity from attack by their enemies. The astonishment of the hidden ones can be imagined when they saw the hydroplane above them. Soon, however, they overcame their terror and brought their canoes out from hiding places and looked up from the river, as the men in the air circled above them. Even from that distance the explorers could see their ocher-painted faces, and the long sticks which pierced their ears.

Many of these forest Indians live in the maloca, or long house. The beams and rafters of pine wood are bound with withes of split bamboo. There is a steep roof, built to shed the copious rains of the region. Through the thatch of palm leaves no arrow can penetrate. Inside there is room for a dozen families, each of which has a separate apartment, opening from the main hall, where the chief has his raised seat.

These jungle Indians have a method of rapid communication with one another that is like that described by travelers in parts of Africa; signals are given by beating on a six-foot section of a tree hollowed out by fire, a rude drum whose voice proves most effective. Those who would hear the message must place their ears on like drums. So the radio of the jungle does its work.

One day the explorers looked down on a country of immense ant hills. Often the heaps of clay were higher than a man on horseback. Those who looked said that there were so many they felt as if they were riding over a cemetery with white tombstones.

These gigantic ants do not interfere with the comfort of people in the country, although they are a nuisance in the cities. One of the odd sights of some of the populous

centers is that of men armed with hand-blowers for sending sulphur down where the ants live.

"But I must not give you the idea that the vast interior of Brazil is inhabited only by ants and Indians," the botanist said, after telling some of these things. "In fact, the population is increasing rapidly, in many parts of the country, especially by reason of immigration, most of which comes from Italy, Portugal, and Spain.

"Most of these immigrants are wise in going to the agricultural regions, though some go to the mines in the State of Minas Geraes (Great Mines). Once mines were of first importance in attracting colonists to South America, but nowadays people are realizing the contrast between the two hundred million dollar annual production of coffee in Brazil alone, and the twenty-five millions which is the extreme annual value of all the gold, silver, platinum, and precious stones produced in the whole of South America."

But naturally interest is great in the diamond mines of Minas Geraes, which were opened about 1725. One story is that the discoverers saw diamonds in the hands of negroes, who were using them as counters in card-games. They told where they found the stones in plateau deposits and in river gravel. Other discoveries followed, and the industry flourished. But long ago the production of the African mines far surpassed those of Brazil.

Some day, the Capital of Brazil is to be built in the plateau of diamond mines, of agricultural products, of varied industries. For in the state of Goyaz a Federal district has been set aside which is to displace the Federal district where Rio de Janeiro reigns. They may succeed in taking the Capital to the interior, but the wonder and the glory of Brazil's chief city can never be taken away.

"Are there mountains back in the country where they talk of taking the Capital?"

That question almost succeeded in persuading the man who knew his Brazil so well to tell an interesting adventure. He spoke of the mountains on the plateaus, as of others farther back in the interior; all of them small—"none over ten thousand feet!"

"On one expedition I went into the country of these loftier mountains," the botanist said, reflectively. "You'll find them if you go back to the headwaters of the Amazon in the Andean plateau, through which they have cut deep valleys. One of these valleys showed our party the way into the mountains, which we then climbed that we might go on to the Pacific."

That was interesting. The trouble was, he stopped just there. Surely he would tell us of his adventures on that long and arduous climb up the slopes of the Andes! But he would not.

"It's much more interesting to talk of what others have done," he insisted. "In this country we never tire of telling of Theodore Roosevelt's expedition in 1913, after his service as President of the United States.

"You remember he was in Brazil, delivering lectures. He became much interested in the efforts of the government to learn more about the unknown parts of the basin of the Amazon, and the rivers of that part of the interior where the rubber gatherers might go to satisfy the rapidly increasing demand for rubber.

"His enthusiasm grew as he was told of the surveys of the Brazilian explorer, Colonel Rondon, who had traveled far into the plateau of Matto Grosso, and especially when he heard of a new river that appeared on Rondon's map. Because Rondon was uncertain whether this river bent to the east or to the west, or whether it flowed directly to the Amazon, he had called it Rio de Duvida—River of Doubt. Nothing would satisfy the Colonel but a complete survey

of this doubtful river, so arrangements were made for an expedition.

"But you will find in the ship's library the famous book in which the story is told—the ascent of the Paraguay, the crossing of the highlands to the headwaters of the Amazon, the visit to Salto Bello Falls on the Rio Sacre, and then to those other wonderful falls on the Utiarity which aroused all of Roosevelt's well-known enthusiasm, and finally the adventurous journey down the River of Doubt, in seven dugout canoes.

"Famine and fever, rapids and jungle made progress difficult, but finally the party reached their goal and returned to the coast. If you go to the mouth of that River of Doubt, you will find a monument to the explorer; on it is inscribed 'Rio Roosevelt.' That name has been changed; now they call it the Rio Teodoro."

Yes, the botanist felt at ease when he was telling of the achievements of others. But not one story would he tell of himself!

Some people are like that.

V

IN AND ABOUT RIO DE JANEIRO

THERE is nothing like the first sight of Botafogo, the Bay of Rio de Janeiro. The writer entered the harbour before dawn—past the islands, past Sugar Loaf, just as the full moon was dropping behind Corcovado. The marvelous curved beaches—five of them —were outlined by brilliant lights. The heights beyond the city also were picked out by the lights. In the bay the early morning ferry-boats were slipping back and forth between the city and Nictheroy, Capital of the province of Rio de Janeiro.

The dawn came on quickly. The lights went out in sections, and the early glow in its turn outlined the billowing line of the mountains beyond Nictheroy. Gradually the outline of the regal heights, from Sugar Loaf, across Flamengo Beach, to Corcovado, became plain. And the watchers on the ship's deck could only gasp in wonder. At length the curious outline of the Organ Mountains appeared. How the rising sun glorified the bay, the heights, the city!

Said a resident of Rio de Janeiro, " I've lived here for years, but I've never seen the city and the bay from this matchless point of view at this hour."

Then he went on to speak of some things that were especially timely as we stood looking in wonder at the glorious bay and its magnificent surroundings. He spoke of the time when the proposal was made to call the South American Continent, *Terra de Brazil.* Not until 1550 was

the name South America proposed. Then the name Brazil was retained for the great country of South America so much of which is drained by the Amazon River. This name was applied because of the tree of the jungle that produced a deep red dye. This tree resembled the European tree known as " brasil."

In 1502 the bay of Rio de Janeiro was discovered by Gonçalves. In 1531, the Portuguese Affonso de Sousa entered its waters. He thought he had found the entrance to a great river, so he called it Rio de Janeiro, River of January, it being at that time of year.

It is difficult to tell whether to prefer the view of the matchless city that has grown up through the centuries—though its modern grandeur did not begin until the closing years of the reign of the last emperor, Dom Pedro II—as it is seen from the harbour, to the panorama of the harbour as seen from the city. Yet the traveler first sees the harbour as he enters it from the sea, with all its beautiful inlets and islands, its beaches, and its matchless formations which make the bay unlike anything else on earth. Pao de Assucar, the half-mile-high Sugar Loaf, at the entrance to the bay, and the precipitous Corcovado, which rises two thousand two hundred feet above the city, are enough in themselves to make the scene memorable. Yet they are only a portion of the manifold attractions of the bay that looks off to the Organ Mountains—so named because, from a distance, they look like organ pipes.

This was the scene spread out before the party from the United States which, on January 26, 1818, rounded Cape Frio in the U. S. Frigate *Congress*. They described what they saw as follows:

The noble basin, scarcely surpassed by any in the world, resembling a large lake rather than a harbour, expanded ma-

jestically, bounded by high, woody mountains, interspersed with rocky peaks and precipices; the ridges sloping down to the water's edge, in some places terminating abruptly, in others leaving narrow valleys and a thousand beautiful coves and recesses, with sandy beaches. . . . The harbour of New York alone can bear any comparison to this place, in indications of commercial prosperity.

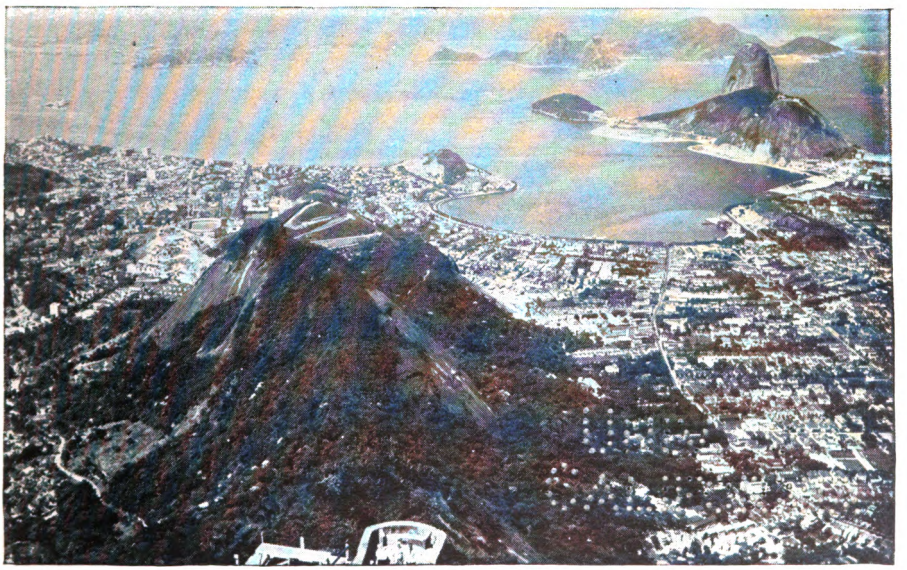
Even more enthusiastic was Lord Bryce, when, many years later, he entered the harbour:

Suppose the bottom of the Yosemite Valley, or that of the Valley of the Auronzo, in the Venetian Alps, filled with water, and the effect would be something like the Bay of Rio. Yet the superb vegetation would be wanting, and the views to far-away mountains, and the surge of the blue ocean outside the capes that guard the entrance. . . . Other cities there are whose mountains rising around form a noble background, but in Rio the mountains seem to be almost a part of the city, for it clings and laps around the spurs just as the sea below laps around the capes that project into the Bay.

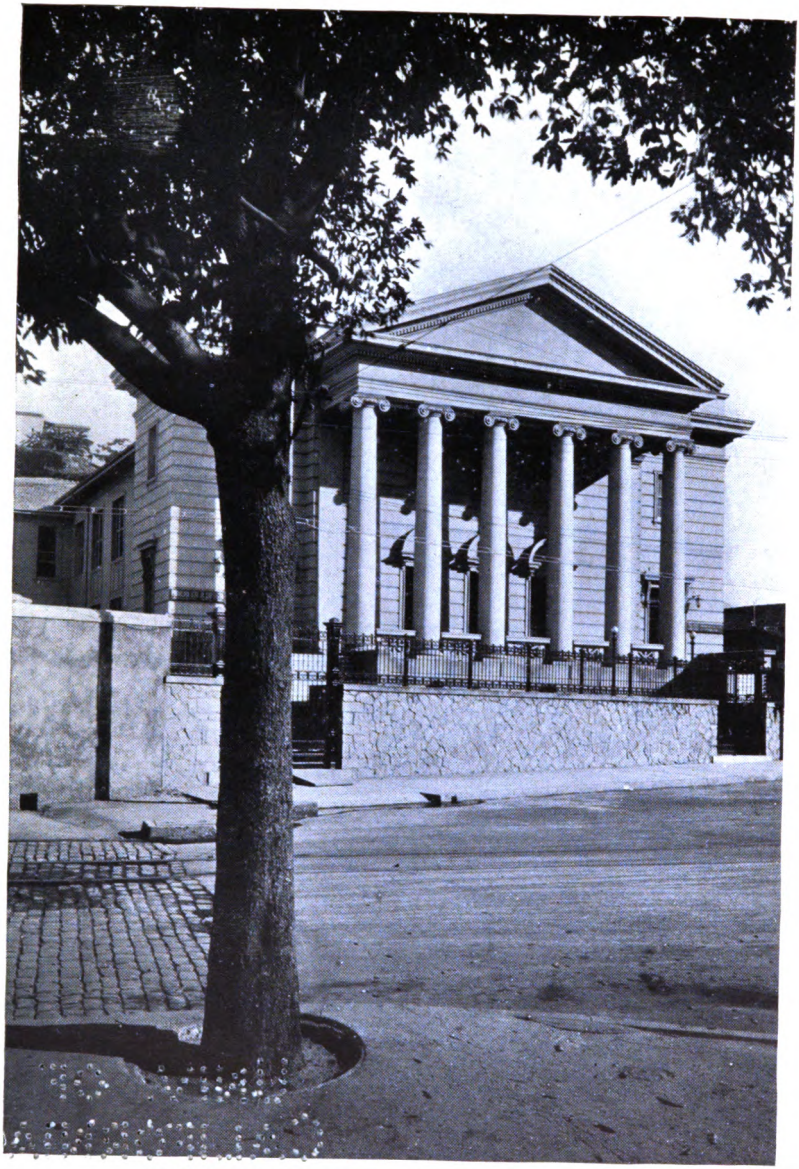
No visitor to Rio de Janeiro can be content until he has surmounted the two great rocks in the harbour, and has viewed from the water the city, and its guarding mountains. Corcovado, the Hunchback, may be ascended by electric cog-railway, and by a flight of steps to the summit. This is so much easier than the method taken by the Agassiz party in 1865. They went by horseback through the forest, up a winding, narrow path. But what a view they had upon the summit! "The immense, landlocked harbour, with its gateway open to the sea, the broad ocean beyond, the many islands, the arch of mountains with soft, fleecy clouds floating about the nearer peaks."

The story is told of a British sailor who conquered Pao de Assucar, the Sugar Loaf, and planted the Union Jack

THE AUTHOR STUDIES THE CURIOUS PAVEMENTS OF RIO de JANEIRO
Municipal Theater in the Background



RIO de JANEIRO, FROM CORCOVADO



A PROTESTANT CHURCH IN RIO de JANEIRO

aloft, and of a girl from the United States who took with her the Stars and Stripes. But their successors have only to take the aerial ropeway to the rock Urca. What a fine ride in a surging cable car they will have! Twenty passengers can compare notes with each other as they look across to the rock which, in the early days of the city, was called " Dog Face." There is a great series of views from the summit—off to the city and the mountains; to the bay and the islands; to the ocean; below, to the site chosen by Estacio de Sa, founder of Rio, for his first settlement.

The sunset hour is preferred by many for seeing this panorama from Sugar Loaf, for then they can marvel at the colouring of the city and its surroundings as the sun drops behind the mountains and casts a glow on the sky and the water. A brief wait, and darkness descends. The coming on of the lights which outline the city and the beaches is positively thrilling.

Next should come views of the city from various other points of vantage. Many think that the best of all views is secured from the air. Both city and bay can be seen from the airplane. The plan of the city can be appreciated best in this way, especially how Rio Branco cuts through the heart of Rio.

A ride by street car to the summit of the range of hills between the ocean beach and the city may well follow. Through the bordering frame of tropical vegetation the eye takes in the water and islands of the bay, and in the background, the ocean. Urca, the rocky hill that helps the observer to gain Sugar Loaf, provides a splendid view of odd-shaped hills and rounded rocks, of the sea beaches and the Botafogo shore.

From Carioca Square a trolley ride of less than half an hour may be taken to the hills, along the old Carioca Viaduct of forty-two arches, seventeen meters high, built dur-

ing the seventeenth century, and repaired during the eighteenth century, for the purpose of conducting the spring water from Corcovado to the city. Once the water passed through an open trough, but now modern pipes have succeeded, and the top of the aqueduct is a way for the electric street cars. From the cars at this elevation the view is superb. But it is nothing to that afforded from the destination, Santa Teresa Hill. There the observer, standing in a riot of tropical vegetation, looks off to the wonderful beaches, including Vermilion Beach, where the buildings of the great exposition of 1920 were erected, to Urca, and to Sugar Loaf beyond.

When the Viaduct of Santa Teresa is left behind, there is still in reserve the famed Chinese View, from which the ocean beaches may be seen from another angle. Not much of the city is visible, but just enough comes before the eye to make the visitor hungry for the next view.

Some of these heights above the city enable the traveler to look beyond Sugar Loaf and the bare ridges that separate the waters of the bay from the ocean, to the entrance of the harbour, where is Fort Lage, crowning a rock near the entrance, with Forts Santa Cruz and San Jose, a mile apart, guarding the entrance to the bay.

There is bewildering opportunity for bus rides about the city. And what comfortable buses they are! And how surprisingly cheap the fare! A zoning system makes possible travel over pleasant miles for as little as two cents. The tram-cars, too, provide easy transportation with comfort. And some genius has routed the lines to the downtown section so that most of them pass under a covered section of a central hotel. What a meeting-place for friends that is! And how easily transfers are arranged! The stranger in the city finds this central depot a great convenience. Delightful days may be spent in taking one

car after another, for each new choice is apt to go to scenes splendidly worth while.

These rides may be taken by day or by night. At any time the trip along the succession of beaches is tremendously impressive. Sugar Loaf is ever the companion of those who take such beach-trips. It is behind, before, alongside—you simply cannot get away from it. And those beaches! Here is a perfect crescent. It ends, a point is turned, and another beach is begun. This, too, is finished, and again a beach. Finally the rocky mountain wall interposes—but there is a dash through this by tunnel, and the most wonderful beach of the series spreads out before the amazed traveler. How the waters sparkle in the moonlight! How the fountains, with their rainbow colours borrowed from the lights within, dazzle the beholder!

What delight is taken by the people of Rio de Janeiro as they trot down into the water for a morning dip in the surf! Guards perched aloft on concrete pillars look after the safety of the bathers, who are watched also by those who stroll along the mosaic pavement, so designed as to give to the walkers the impression that they are traveling on the waves themselves.

The last of the beaches, along the Rio Neimeyer, should be reached in a roundabout way by Tijuca Hill, an auto drive of rare splendour and beauty, up to a point where a waterfall slips down the face of a precipice, then to Furnas Cave and the Devil's Rocks, where great boulders are piled on one another in cyclopean grandeur. Intricate paths lead under the gigantic rocks. Along these Agassiz used to wander as he gloried in the rare beauty of the hills.

From Furnas Cave the road leads down rapidly to Rio Neimeyer, and to the beach that is the climax of marine beauty about Botafogo Bay. How these beaches and their surroundings give to the visitor the feeling of ample space,

of room to spare, that satisfies so completely dwellers in confined places!

The desire for the feeling of spaciousness was in the minds of those who, in 1892, began to plan for the new Rio de Janeiro. In the carrying out of their plans they replaced, in 1904, the old Avenue Central by the Avenue Rio Branco, named in honour of Baron Rio Branco, the man who settled boundary disputes without resorting to arms. In its construction hundreds of houses were torn down, and 3,000 men worked night and day for six months in the building of the street. The result of their efforts is seen as the Avenue, more than a mile long, reaches away through the central district of the city, with three rows of trees along its length, one row on each side, another in the middle, past fine business houses, hotels, and public buildings. One of the objects of the builders of the Avenue was to supply cool air to the city. This was accomplished, for the breezes sweep through from waterfront to waterfront.

On either side the Avenue is met by narrow streets which give a picture of the business section of the city before modern improvements were made. On many of these streets there is no provision for wheeled traffic; foot-passengers fill the available space from building to building. On one side street fronts the Candelaria church, successor of a shrine built by Portuguese sailors, shipwrecked in the bay, who vowed to build a church if they were rescued. The frescoes within the dome and on the walls, which tell the story of the shipwreck and the vow, are of great interest.

Toward the south end of Rio Branco the restaurant proprietors have placed their tables on the sidewalk. The sight of the diners there makes the visitor think of Paris or Venice. And how these diners enjoy the look out into

the bay to the rocky island, now a fortification, where in 1555 came the Huguenots who were the first men who attempted a settlement in these waters!

In this southern end of the Avenue there is the Monroe Palace, occupied by the Senate—the only building in South America which honours the much misunderstood Monroe Doctrine. This was the Brazilian building at the St. Louis Exposition in 1903. Near neighbours to it are the luxurious Municipal Theatre, the National Library, and the Academy of Fine Arts. Before the theatre, in a setting of colourful verdure, in Floriana Peixotto Plaza, is a memorial to a former president. At its base are four statues, one of which pictures the freeing of the slaves. About the statues is a pavement of Portuguese mosaic, built by imported workmen, who taught the art to men of Rio, that later they might build the pavements without recourse to Portuguese workmen. There are miles of such pavements along Rio Branco, a different design for each square.

Within a short distance of this central plaza are a number of the city's best moving-picture theatres where, as a rule, films from the United States of America are shown. Usually these are talkies, and English is the language. Brazilians seem especially partial to English. And it is a pleasure to attend the theatres, because of the rule that the house must be emptied after each performance. When a new crowd is in the seats, the doors are closed. Those who come late must wait in the spacious lobby until the doors open once more. Think of the added pleasure of an evening when no one will ask you to rise while he passes to a seat; where there will be no standing between you and the picture for moments that seem interminable!

Those who leave the theatres, and pass by the Monroe Palace to the end of Rio Branco, come to the Avenue Beira Mar, to the left, along the bay. This follows the shore

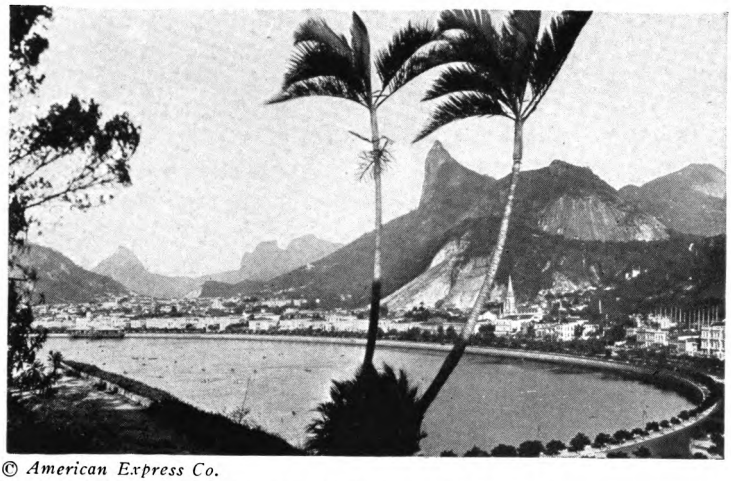
for several miles, providing an eligible site for the spacious United States Embassy, and passing the Praia de Gloria, the beautiful open garden at the foot of the Mount of Glory.

The presence of beautiful gardens, reminders of Portugal, the land of gardens, will be marked at once. These old walled gardens surround houses that were built in the days of the empire. So often the houses are at the head of a hill. Many of the walls about the gardens are faced with Dutch tiles, which were brought to Brazil when Hollanders came to South America in the seventeenth century. Many of the gates which lead through the walls are ornamented with blue or yellow pineapples from Portugal, placed aloft precisely as the horseshoe is perched on the walls of northern gardens, for good luck.

Some of the houses in these gardens are reached by flights of steps, or by elevators, or by ramps. And how flowers bloom and birds sing about the houses! Butterflies, too, are everywhere. To see these wonderful species of Brazil it is not necessary to go to the jungle. Here they are! These gorgeous butterflies gave to Harriet Chalmers Adams a simile when she said that the metropolis of Brazil is "as multicoloured and varied in beauty as the butterflies of the tropics."

The colouring is not simply of butterflies and of birds, but of flowers and of trees. Breadfruit trees, mangos, parana pines, tamarind, sapucaia, ceibo, jacaranda, and other trees from the Brazilian wilderness, purple bougainvillea, rich poinsettia, hibiscus, golden shower—these supply some of the garden glory that makes the visitor think of Honolulu.

The royal palm is everywhere. The first specimen was brought from the Antilles by Dom Joao VI when he came from Portugal in 1808. This original palm tree is in the



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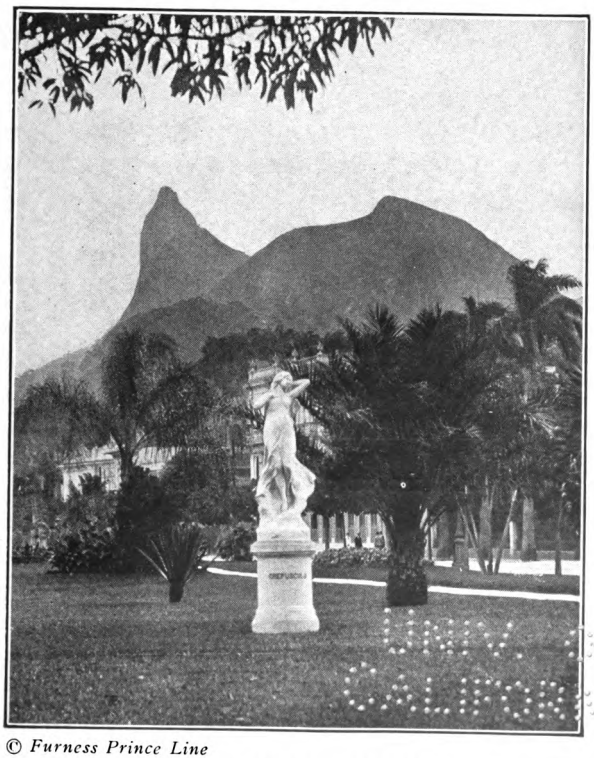
THE BAY AT RIO de JANEIRO



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CORCOVADO, RIO de JANEIRO

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AVENIDA RIO BRANCO, RIO de JANEIRO

Botanical Garden. The city boasts the finest palm avenue in existence—a roadway with two rows of palms on each side of the Mangue Canal, which was dug to drain an unhealthy section of the old city. Thus were the plague spots turned into beauty.

Those who go about these colourful streets of Rio de Janeiro, studying the houses of the colonial period, the old city palace, once the residence of the fugitive Dom Joao VI, will find pleasure also in looking at the oxen, yoked by the shoulders, and the picturesque vendors here and there, as they deliver the wooden shoes still worn by the work people of Rio, and those who carry bread and chickens and ducks for their customers in this city of Italians and Portuguese and Spanish, the chief city of a republic which has close to forty million population.

VI

GLIMPSES OF INTERIOR BRAZIL

THOSE who go to Rio de Janeiro find it by no means easy to make the decision to leave. And the longer they remain the harder will leaving become. But to all comes the moment for that final glimpse of Botafogo Bay which will be a fresh reminder of the Creator's glory. Let that last look be taken at night; if you would gaze in reverent awe on the garment of God, look up from the waters before Rio de Janeiro when the full moon silvers the bay, or see the stars of the Southern Cross sparkling in the sky. Only then will you realize why those who see Botafogo once are not satisfied until they come back. Absent, they will see it in their dreams; and when dreams take them again to Brazil, they will rejoice that He who laid the foundations of the earth, who stretched forth the heavens like a curtain, delighted in beauty and in planning for the happiness of the people who would look on these works of His hands.

If possible, the departure from Rio de Janeiro should be made by automobile or by train for a few glimpses of the interior, rather than by steamship. Of course the steamship is the accepted way for the traveler who would go to Santos, then to Montevideo and Buenos Aires. But if there is no more time to spare than is required for the ocean voyage, better use this for the railway journey, and for the glimpses of towns and cities along the route. If there are a few extra days, so much the better; there will be no lack of opportunity to use them to advantage.

If there is time, two days at least should be devoted to the railway trip up the coast to Victoria, Capital of the State of Esperita Santo. The journey is through fascinating country, and the destination is at a harbour which many have compared for beauty to Botafogo Bay itself.

A shorter journey—a day is sufficient for the round trip—may be made to Petropolis, the mountain suburb which was the favourite resort of the court in the days of the empire, and is still the chosen summer home of diplomats and the abode of fashion. The two-hour journey begins after a rather long but pleasant drive—Rio de Janeiro drives are always pleasant!—which includes the royal-palm-bordered Mangue Canal.

For an hour the Leopoldina railway goes through suburbs, then over rapidly rising ground to a junction where the comfortable train is broken up into sections for the steep climb by rack rail for another hour. The entire distance is only forty miles, much of it through swamps and jungle, where once was cultivated land. Then comes the last stage of the climb of two thousand four hundred feet, up steep ledges, above deep valleys, turning and twisting about the shoulder of the mountains, with frequent vantage points from which may be seen the distant waters of the bay, or, nearer at hand, the trees growing so thickly with glorious orchids in the branches. And the fare for all this superb forty miles is much less than a dollar!

Petropolis is a cool and pleasant resort where flowers and bamboo flourish, where rambling streets climb the hills, and a mountain stream is restrained by roadside walls. There is pleasure everywhere, as the visitor looks at the rambling houses in their sightly grounds, at the trees that border the streets, or at the teamsters in their picturesque conveyances. Not so pleasant, however, are the ruins of an unfinished church, begun by the unpopular

Princess Isabella, daughter of Dom Pedro Segundo, whose erection was interrupted by the revolution of 1889.

When Louis Agassiz was in Petropolis in 1865, he wrote: "I could not but think how easy it would be for anyone who cares to see tropical scenery to come here, when the direct line of steamers from New York is established, and, instead of going to Newport or Nahant, to take a house in Petropolis for the summer."

Agassiz went beyond Petropolis to Juiz de Fora, in the Province of Minas Geraes. He was captivated by the beauty of the way, the wonderful South American forest, "so matted together and intertwined with gigantic parasites that it seems more like a solid, compact mass of green than like the leafy screen, vibrating with every breeze, and transparent to the sun, which represents the forest of the temperate zone."

On his return to Rio de Janeiro he met a young Brazilian woman. Full of what he had been enjoying, he asked her if she knew the wonderful scenery. Her reply was an illuminating commentary on the loss that comes through inability to appreciate the beauty of God's world: "I am young and very happy," she said, "and I do not wish to die yet."

For the journey to Sao Paulo it is necessary to return to Rio de Janeiro. But that necessity is by no means unpleasant, for it makes possible another chance to see the sun set beyond Corcovado and rise next morning over the pinnacle in the Organ Range poetically named "the Finger of God."

That sunrise begins the day set apart for the journey of three hundred miles to the Capital of that richest and most populous of the states of Brazil, Sao Paulo, city of nearly a million people, metropolis of a district with seven times that population. The well-built government railroad takes

the passenger, by a decidedly comfortable train, first through an upland dairying country, to the city several thousand feet above the sea, where the climate is temperate and everything is so beautiful.

The eastern boundary of the tableland on which Sao Paulo is built is the Serro do Mar, a mountain range which follows the coast for perhaps one thousand miles, toward the south quite close to the seacoast, but falling back into the interior above Rio de Janeiro. Because this railroad finds the mountains farther from the sea, the ascent is in some ways more picturesque and always more gradual than it is between Sao Paulo and Santos, where the ridge is conquered by the only other railroad to the plateau. But this road from Rio de Janeiro is a road of curves and climbs, mighty grades and glorious vistas that are remarkable, when it is remembered that the height conquered is not so great as mountain railways are measured.

While this mountain barrier has hindered the development of the vast interior, it has been a friend to the country, for it has lifted high lands that would have otherwise been intolerable for toilers, since they are within the tropics. Elevated as they are, the climate there is frequently not only healthful but pleasant.

Of course, the product of some of these plateau lands, of which all visitors to Brazil think at once, is coffee. For this country raises more than three-fourths of the world's coffee, in spite of the fact that the coffee-plant is not indigenous. We are told that it came to South America from Abyssinia, where it secured its name from the district in which it grew—Kaffa. To-day, in Brazil, hundreds of thousands of acres are given over to the cultivation of the bean. A study of one of the coffee estates near Sao Paulo, a *fazenda,* it is called, should be a feature of the visit to the country. Fortunate are those who are able to go to a

fazenda in October, when they can enjoy the fragrance and the beauty of coffee in bloom! But at any time the sight of the plants that grow from fourteen to eighteen feet high, and the study of those who tend them, gather the berries, and take them to market are absorbing. More than a thousand of the plantations have more than two hundred thousand trees each. There are eight hundred million trees on these thousand plantations.

Once the labourers on the coffee plantations, as in the fields of cotton and sugar cane, were, most of them, negroes, for slavery flourished in Brazil from the middle of the sixteenth century until well into the nineteenth century. The slave trade was forbidden in 1831, but the slaves were not freed until May 13, 1888. At that time Dom Pedro II was in Europe, and his daughter, Donna Isabel, was Princess Regent. The pen with which she signed the order giving freedom to a million slaves may be seen by visitors to the hall of archives in Rio de Janeiro. Set with diamonds and emeralds, it looks its importance, though it does not bear the mark of the fateful influence of the decree on the fortunes of the family of the pitying woman who wielded it. For it is not unlikely that the act had much to do with the fall of the Brazilian Empire; it was unpopular with many, but to-day the people rejoice that the merciful deed was done.

The descendants of the slaves still toil in the fields, but as negroes they are disappearing. There is no colour line in Brazil, and it has been prophesied by many who claim to know that in another century the negro will have disappeared.

Those who travel to Sao Paulo realize that the day of the vanishing negro is still in the future. When the visitor steps from the train in the coffee capital of Brazil, he will find the descendants of the slaves all about him.

"Take this map with you to Sao Paulo," was the parting injunction of a friend in Rio de Janeiro. "You'll need it, unless you taxi everywhere. You'll find the streets delightfully irregular. The plan of the city—or its lack of plan—will make you think of Boston."

He gave information correctly. For the stranger who tries to walk from the railroad station to his hotel, unless he follows the map, is apt to be lost in a maze of streets that twist in every direction. Why run the risk, especially when taxis are so abundant and so cheap? Because there is real enjoyment in finding your own way about a strange city. The more intricate the plan the greater the pleasure!

The wandering streets, which seem to go hither and yon without purpose, emphasize the beauty of Sao Paulo, especially in the rather contracted business center with its unexpected twists and turns. Of course these are due to the lay of the land. Advantage is taken of one great depression between the hills for the construction of a marvelous sunken garden, whose terraces lead up to the fine Municipal Theatre. This sunken garden is crossed by two viaducts which take streets over on the level, and so to more spacious avenues in the residential districts, past houses where there is evidence of bountiful hospitality, and gardens which adorn the homes of coffee kings. One of the finest gardens is on the grounds of Mackenzie College, once known as *Escola Americana,* now one of the famous schools of South America, with fourteen hundred students. The graduates of Mackenzie are recognized by Brazil, while they receive diplomas from the University of the State of New York.

"Wouldn't you like to visit the Instituto Butantan?" asked Mackenzie's President Stewart.

"And what is the Instituto Butantan?" he was asked.

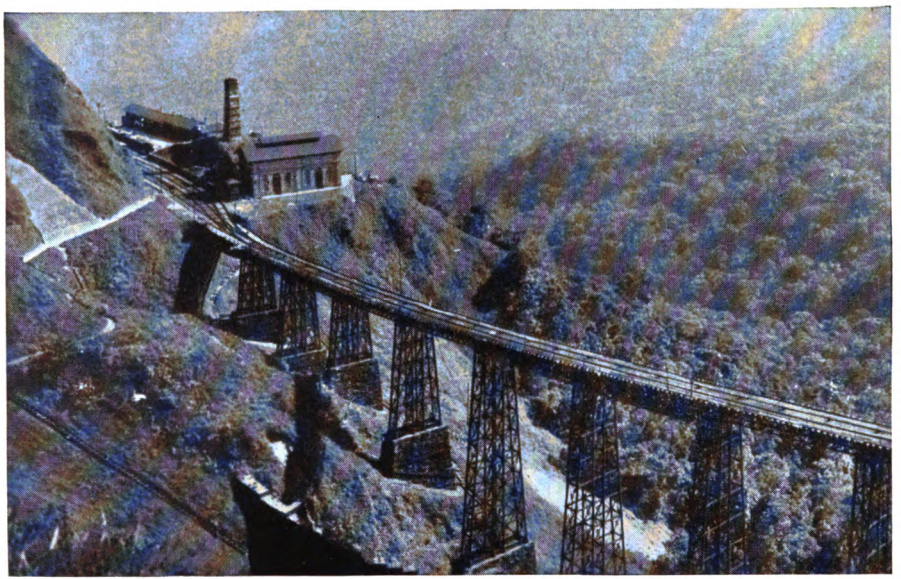
"Our snake farm," was the explanation. "And if you wish, you will be taken there by one of our brightest young men, an engineering student."

When the proposed guide came into the college office, the would-be snake farm visitor was looking on plain proof of the statement that there is no colour line in Brazil, for the young man was a coal black negro. He proved a splendid guide, through miles of residence streets, then up a steep hill to the farm of which Theodore Roosevelt wrote so enthusiastically. Until assurance is given that the snakes at large are harmless, the visitor is apt to shrink from the serpents that loll here and there on the walks. Brazilians move among them without concern, but it is a brave visitor who can imitate the Brazilian guide at first, especially if he catches sight of a particularly fierce-looking specimen whose open jaws look like the mouth of a great catfish.

Most of the snakes live within one of several enclosures where beehive-shaped cement houses are planted on the green, with cement walks where his snakeship may sun himself to his heart's content until he is wanted to give up some of his poison for the preparation of the serum for the treatment of snake-bite. The anti-toxin is prepared from the poison of the most venomous reptiles, and calls for it are made continually, especially from the jungle where the danger from the furtive foe is omnipresent.

After the visit to the snake farm came the introduction to the genial president of the Paulista Railway, which was built and is controlled by Brazilians. "I wish you would try us," he said. "Let me send you up to Rio Clara. You'll find our trains and our roadbed excellent. Of course I cannot promise you as easy a trip as you would have on your Pennsylvania Railroad or your New York Central, but I think we can equal anything else you have.

RESIDENTIAL STREET IN PETROPOLIS, BRAZIL



ON THE ROAD FROM SAO PAULO TO SANTOS, BRAZIL

They tell me you have some fine railroads in North America; I haven't seen them, but I am promising myself the pleasure of a visit some day soon."

That president, whose desk is lost in one corner of a great palace-like room, was altogether too modest. For not only is the Paulista roadbed superb, but the equipment is of the best—steel coaches, sturdy locomotives, fine dining cars. And the country through which the railway passes is as interesting as the roadbed and equipment are satisfying. On the plateau estates along the road oranges and sugar are grown. One station fed by those estates attracts especial attention—Villa Americana, one of the villages of men from the Southern States of North America who, after the Civil War, moved to South America.

"Some of them went back to the States after they learned that North and South fought together during the Spanish-American War," explained the only other English-speaking passenger on the train. "But after six months in the homeland they returned to Brazil, homesick for Villa Americana and the estates which they had sold so eagerly. These they rebought, and there they still raise sugar, though no more by the aid of slave labour, the attraction that first led them to Brazil."

"What are those bits of forest along the right-of-way?" the accommodating man who spoke English was asked.

"Eucalyptus plantations," he replied. "They are all in charge of a superintendent who lives at Rio Clara, where you are going. There he has the largest plantation of all, where his seven million trees are a surprising object-lesson in up-to-date forestry."

On arriving at Rio Clara, a typical inland town, which boasts that it was the first place in Brazil to have electric lights, the writer took his seat in a taxi whose driver knew no English, while his passenger was as ignorant of Por-

tuguese. But the man who could not speak Portuguese wished to visit the eucalyptus grove of which he had been told. Sign language proved effective, and in a few minutes he found himself bowling swiftly along an avenue bordered by straight, tall trees which, as he learned later, were only ten or twelve years old. Because of this rapid growth and the adaptability of the eucalyptus tree for ties and other railroad purposes, the Paulista management has developed these groves along its lines.

"Now you must see our nurseries," invited the English-speaking Brazilian superintendent. With what pride he led the way to the buildings that have been planned by him since he began the Rio Clara plantations on ground where there was not a tree! There he showed amazing samples of various kinds of eucalyptus wood which takes the finest polish, and is good for furniture or interior finish.

The best of Rio Clara was still to come—a visit to the home of the hospitable principal of an academy who could speak no English. An hour was spent there, first in the dining-room where the table was set for all, though the family had eaten lunch within the hour, then in the sitting room where it was proved how much could be said without a common language. At length some one thought of turning to the radio during a period of music. There was language for everybody!

Finally the Ford car, one of the finest in the town, was brought from the garage, and the visitor was taken over all the good roads that Rio Clara afforded.

Back now, to Sao Paulo, for the forty-mile ride over what is the best paying railroad in the world, length considered. This shows the way to Santos, the port from which more than half of the world's coffee supply is shipped.

This railroad ride, like that from Rio de Janeiro to

Petropolis, is in two parts: the first half of the route is interesting, but rather ordinary. Not so the second half! For in this section the railroad within six miles makes the descent of three thousand feet to sea level. This is done with remarkable ingenuity by means of cables, the power being supplied by stationary engines. This road, begun in 1867, made so much money for its stockholders that the Government limited its earnings. So an enormous amount is spent on upkeep from year to year. For instance, the entire right-of-way has been paved massively, as well as the mountainside above and below the tracks, wherever there is likelihood that torrents may descend after a rainstorm. Then a duplicate road—not merely a double track—has been built within sight of its parent. Yet with all these extraordinary charges the earnings continue large.

What a splendid view down into the valley and over to the opposing ridge there is as the train sweeps down the slope! Trees below in the depths, trees across the way—green, green everywhere, except where the fleecy clouds kiss the tree tops with their transforming mass of white! When the final level is reached, the railroad leads across the plain, just above the sea, through the luxuriant foliage of banana trees.

Santos, the terminus of the remarkable railroad, is an old city, for it was founded by the Jesuits in 1553. Yet its one hundred thousand people live in an atmosphere of bustle and beauty. Perhaps the greatest evidences of hustling are in the palatial Bolsa de Café, or coffee board of trade, and at the very modern docks, where bags of coffee are sent on board ship by many endless chains.

The height of beauty is found by those who take the long drive over the hard beaches where automobiles move so rapidly, where golf might easily be played. Here and there are rocky islands, close to shore, or on the beach

itself. One such rocky pinnacle on the Praia Sao Vicente, an island at high tide, carries a lone tree like an umbrella on its crest, while another rock is close to one end of the Ponte Pencil, a low-hung suspension bridge by which automobiles cross an inlet that stretches back toward the mountains.

Beyond these mountains lies Sao Paulo. Most people who see them would like to make the climb back over the crest.

But the time has come to take the Furness-Prince steamship for the two-day journey down to Montevideo.

VII

FROM MONTEVIDEO TO A CUP OF MATÉ

"BUT is it necessary to take the steamship from Santos to Montevideo?" came the question from a man bound south.

"No," he was told. "You can use the railroad. But you won't save any time, for those who travel by land must stop over night in more or less comfortable hotels along the way. During the World War, the railroad was preferred by travelers between Rio de Janeiro and Santos and Montevideo and Buenos Aires, because of the fancied danger from submarines. But to-day the steamship has resumed first place in the affection of travelers."

And no wonder! For the comfortable journey to the south enables the traveler to take a brief rest from sight-seeing, or to spend an evening reading books from the library of the *Eastern Prince,* as he sits in the lounge, with its colourful hangings by the warm-looking fireplace that is not without attraction even in a region where in winter the temperature averages 52°, and in summer 71°. Or he may prefer to dream of the pleasures of the past and to look forward to those before him, as well as to make the acquaintance of passengers, more than one of whom is likely to be able and willing to tell worth-while things about the country.

"So you're on your way from the largest republic in South America to the smallest," a resident of Montevideo, a traveler on the *Eastern Prince,* said to the writer. "You

have a delightful experience ahead of you as you go to a country that is twice as large as your own Pennsylvania, and larger than all of New England. The well-tilled lands, the wide spreading pastures, and the dense forests assure you in this comfortable country a visit well worth while, not only in Montevideo—accent on the 'de,' pronounced day, if you please—but in the interior which is so easily accessible by rail or by the Parana River."

"Montevideo is a giant's head on a dwarf's body!" a proud resident of the city of six hundred thousand inhabitants said, as he drove the writer about the attractive streets of Uruguay's capital. "Once, however, we were part of a great country, for Uruguay was joined to the viceroyalty of La Plata, which was, in part at least, a land claimed by both Portugal and Spain. For years, as the province of Cisplatina, called also the Banda Oriental, Uruguay was a part of Brazil. But after the disastrous war between Brazil and Argentina, it was given independence by the treaty of 1828, made after mediation by Great Britain."

The beautiful Capital, Montevideo—it has been called both "the little Paris of Uruguay," and (in early days) "the dreaded, powerful rival of Buenos Aires," has a pleasing site on the northern shore of the Rio de la Plata estuary. But one hundred and twenty miles separate it from Buenos Aires, a condition unusual on the continent of magnificent distances.

"See that hill yonder?" the friend who acted as guide about the city asked. "It is recorded that, in 1520, when Magellan, the Portuguese navigator, then in the service of Spain, visited the site later chosen for our city, one of his men, noting that hill so close to the site, exclaimed, 'monte-vi-eu.' That was a most convenient exclamation for the purpose of those who later selected a name for the

settlement made in 1726 by the governor of Buenos Aires, who was disturbed by the advance to the south of the Portuguese of Brazil. He called the new city San Felipe de Montevideo.

"At first the site of Montevideo was that low rocky headland yonder between the estuary and the bay which is the harbour," the explanation continued. "The primitive town was surrounded by walls, which have disappeared. The memorial of them is the Calle de la Ciudadela, a street which marks the site of the old ramparts, and separates the old city from the new."

For many years trade was restricted because of the prohibitions that caused all traffic to go through West Coast ports, but in 1778 the port became free, and its importance increased rapidly. Growth was checked by the siege of the city conducted by the dictator of Buenos Aires from 1843 to 1852, and it was not until Brazil's kindly offices in 1864, when the president of Uruguay was restored to his place, that the modern growth began.

Now visitors, after leaving their vessel at the modern dock—a great contrast there to the methods in use when anchorage in the exposed roadstead was a necessity!—are amazed as they walk the marvelously clean streets. They soon realize that Montevideo is a restful city. Perhaps one reason for this is the lunch period of an hour and a half; during this time all business ceases, by legal enactment, which is enforced. And it is a prosperous city. The people have been described as sturdy. Edward Albee speaks of them also as self-reliant, confident, independent:

> They do not put on airs. There is no effort at gaudy display of any sort. There is no vain boasting. They mean business; they are earnest, honest, competent, and they know it. They are thorough, and dependable. That is what makes the Uruguayan

bonds in demand in the money centers of the world. Uruguay's credit is high, for her integrity is like her currency—it does not fluctuate. A promise to pay made by the Uruguayan Government means that it will pay. The whole nation is proud of its record in this respect, and any government that failed to live up to its sacred tradition of integrity would be of short duration.

It is not difficult to believe that Montevideo was one of the first South American cities to install an electric lighting plant. How well the streets are lighted to-day! And how well worth lighting they are! The business buildings are substantial and pleasing, and the residences, most of them of a single story, are set back at least four metres from the street. Each house has its own inner court, where flowers grow in profusion.

A good beginning for Montevideo sightseeing is made when Cerro, four hundred and eighty-six feet high, is climbed. This is the hill seen by that mythical Spaniard who remarked about the view. A glance downward shows what seems to be a much larger city; it is so spacious and roomy. From the city spread out below the eyes turn to the ruin of the old Spanish fort. The walls should be climbed for a further study of the neighbourhood. While the fort is deserted, within the walls rises a lighthouse whose beacon is visible twenty-five miles at sea.

In the city the visitor will pause on the Plaza Independencia, with its enshrouding palms, and the Government Palace on one side. Colonnades on the four sides are a feature of the square, which is at the center of the city's life, and is located just where the old city and the new city join. What a sight that square presented in August, 1930, on the occasion of the writer's visit, when the flags of the nation were outlined in electric light about this historic center, as a part of the decoration for the celebration of the centenary of Uruguay's independence!

"We are proud of our many miles of paved streets," was the very proper boast of a resident of the city. "But we are prouder still of our wonderful Capitol building. See how glorious it is from without! And when you go inside you will agree that the outside does not promise enough. We like it that way; we enjoy seeing the surprise of visitors who see the various halls."

The Plaza Matriz, one of the twelve squares in the city, presents a wealth of tropical foliage, while the Paseo del Prado, three miles distant, is one of the most beautiful recreation areas to be found anywhere. Glades and gardens, lakes and groves, rose gardens, arches covered with climbing roses, distinguish this home of a German citizen who devoted his life to creating this place of beauty.

Close to the city are the resorts to which the people throng, including the appealing bathing beach at Pocitos, with its Casino Municipal, where the city conducts a gambling house de luxe. Gambling and the lottery, which, too, is under strict control, are features of the life of the city. The three miles which separate Montevideo from this resort are passed quickly because of the fine trees and large estates by the wayside.

When the city has been seen to advantage, inland journeys are waiting for the tourist. What may be done by those who go inland from Montevideo depends much on the time at their disposal. They can go to Buenos Aires, then by rail in thirty-six hours to Asunción, the Capital of Paraguay. How is this for contrast to the one hundred and thirty days required by Vaca for the trip in the early sixteenth century? As they travel over the line it will be of interest to recall that the Central Paraguayan Railroad was building in 1856, eleven years before the beginning of the Union Pacific Railroad, and that the first trains were running in Paraguay in 1861, six years before

the opening of that road. This journey of more than five hundred miles is well worth while. One of the interesting features is the transfer to a ferry. In fact, there are two ferry journeys. One of these, over the Parana River, requires five hours. It is easy to take a rather slow steamer on the Parana, which enters the La Plata estuary. On the way will be seen Corrientes, where oranges are shipped to Buenos Aires, a town of huts with grass roofs, where calves and dogs have free access not only to the yards but to the interior of houses open on one side.

Beyond Corrientes the Parana becomes broad and shallow, and navigation is difficult. The steamer passes into the Paraguay, which enters from the north. As it glides through the jungles of Paraguay it provides enchanting views. Alligators are in the stream and parrots are in the branches. The river is the western boundary of Paraguay, the tableland republic, whose people, so many of them Guarani Indians, cultivate the land well.

The history of Paraguay was long bound up with that of Buenos Aires. Separated in 1620, both were dependent on Peru until 1776, when Buenos Aires was made a viceroyalty, with Paraguay, then called the province of Guaira, a dependency. Independence of Spain was declared in 1811. Prosperity was interrupted by war with Brazil which lasted for some years, to end in 1870. In this war, in which Uruguay and Argentina combined with Brazil against Paraguay, Paraguay's population was reduced from one million, three hundred and fifty thousand, to less than two hundred thousand. Boys as young as twelve fought in the ranks, and the women joined the army to take the place of horses and oxen.

To-day the people are doing well under the constitution adopted in 1870, when Brazil was thinking seriously of annexing the little republic. However, desire to maintain

the balance of power led to continued independence of a people who want no more war, so have decided to arbitrate the long-standing dispute with Bolivia as to the boundaries.

Less than a week on the river after leaving Montevideo brings the pilgrim to Asunción, the city founded on Assumption Day in 1536—hence the name—opposite the wide stretch of the Paraguay River which is called the Bay of Asunción. The ground is low, for the elevation is but two hundred and fifty feet, but hills rise close to the city of one hundred thousand people.

On the arrival in 1524 of Sebastian Cabot, the first visitor to Paraguay, he found the mysterious Guarani people, whose origin is shrouded in a legend that once two brothers lived in Brazil. Their names were Tapi and Guarani. They lived harmoniously for a long time, but one day a bitter quarrel led Guarani to take his people westward through the jungle. When they came to what is now Paraguay they made their abode.

Asunción is a city of gardens and orange groves, across the river from the great impenetrable jungle wilderness of the Chaco, which is six times the size of Illinois. There are many evidences of primitive life, but there are also evidences of progress—for instance, the Paraguay Central Railway station. This structure is beautiful, with its rows of columns on the front, and its tower. It looks out on a park rich in foliage.

Before leaving the city the pilgrim should see the Avenida Espana, with its rich shade, its beautiful homes, its pleasant gardens, and San Bernardino, on the shore of Lake Ypacarai, a popular resort which takes advantage of a lake fifteen miles long. He should climb to the hills back of the town, from which he can see the steamer on its way up or down stream—one thousand miles from the sea!

But what are a thousand miles to the distance up stream

to Corumba, a city of eighteen thousand on the banks of the Paraguay, six hundred miles farther north! This, one of the important inland cities of Brazil, is in the midst of great cattle ranches, and in the center of the trade of the great State, Matto Grosso.

The trip de luxe from Asunción—or from Posadas, where the railroad from the south crosses the Parana—is to the mighty Salto del Iguassu, the Falls of the Rio Iguassu, on the Rio Grande de Curityba, on the border of Paraguay, Argentina, and Brazil. At high water the river tumbles down in many cascades over a ridge more than two miles long, sometimes in several leaps to a level two hundred and ten feet below, again in cascades that divide the distance. For beauty and grandeur the spectacle is held by many who have seen the various great waterfalls of the globe to be without a rival. And to think that here are seven million potential horse power, or one-eighth of all possible horse power in the United States!

Failure to visit Iguassu Falls has been a source of lasting regret to those who have been to Montevideo, but have not gone far enough.

"To think that I went to Asunción, and failed to go overland to this wonderful spectacle!" one traveler said to the writer. "If I go again I shall not make that mistake. If you have any influence with other visitors, urge them to go to Iguassu, even at cost of a few days' extra time. They will never regret the visit."

"Of one thing I am glad when I think of my trip to Asunción!" said another traveler. "I learned to drink maté, the peculiar Paraguayan tea which has so many good qualities, and so few qualities that disagree. It is a beverage far more delightful and far more beneficial than chocolate, coffee, or tea."

"What is maté?" the natural question followed. The

HALL OF LOST STEPS IN THE LEGISLATIVE PALACE, MONTEVIDEO

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INDEPENDENCE PLACE, MONTEVIDEO

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JULY EIGHTEENTH AVENUE, MONTEVIDEO

reply came so quickly and so fully that it was evident the convert to maté had been studying up to some purpose.

"Maté is made from the leaves of a tree of the same name—a species of holly. This tree is ordinarily from fifteen to thirty feet high, and has glossy green leaves like the orange. More than fifteen million people use it daily. Until a few years ago it was almost unknown in Europe. In the United States the dried leaves may sometimes be found in a drug store, or in a few select grocery stores. Some years ago a government report showed that but three hundred and thirty pounds had been imported during the year. Yet during the same year Uruguay, but little larger than the State of Missouri, consumed twenty-eight million pounds, while Argentina called for nearly a hundred million."

When the first Spanish visitors went to the interior of South Africa, they noted that the most popular drink of the natives, which they called *caa*, or "the plant," was maté. The explorers tried it and they indicated their delight by calling it yerba, or "the herb." There were thousands of herbs in the new land, but for them there was only one, the herb that produced the delightful beverage. The enthusiastic Spaniards soon decided to introduce it to European markets. They persuaded thousands of Indians to gather for them the leaves of the tree. This enforced service caused great suffering. As a result of the efforts of these early exploiters of the Indians, maté became familiar to London and continental markets nearly two hundred years ago. But in England it did not find a welcome, and imports ceased.

The gathering of the herb by the natives begins in May. The leaves are from six to eight inches long. The gatherers travel in companies of about twenty-five, build wigwams, and are ready for work that continues six months.

Usually it is sold as a pulverized leaf, and looks somewhat like tea. But there is an extract mixed with sugar for use at a minute's notice. It dissolves easily, and a teaspoonful of it in either hot or cold water is said to give instantly an ideal beverage.

It is stated that when maté is used by the natives, drunkenness is practically unknown. Among the *gauchos* of Brazil it takes the place, to a great extent, of bread and vegetables. If the labourer has nothing but a handful of maté leaves, he is willing to row or work all day long. During the war between Brazil and Paraguay, a Brazilian general said that during twenty-two days his army was almost exclusively nourished by maté. The herb is so stimulating that a traveler can go, if necessary, two days on a single cup.

Have you tried maté? Ask for it when you go to Paraguay; when you return home inquire for it of your grocer, or call for it at the hotel. Frequently it appears on the bill of fare.

" What is this maté? " a diner asked the writer not long ago.

" Try it and see! " she was told.

With fear and trembling she did as she was told. Then she set down the cup with a sigh of satisfaction, but only after the last drop was drained!

VIII

BUENOS AIRES AND SOME OF ITS NEIGHBOURS

THOSE who, when approaching Buenos Aires from the sea, look for a beautiful stream, will be disappointed in the Rio de la Plata, for, even if it is immense, it is only a muddy inlet, after all. To right and to left of the buoy-marked channel there is a waste of water, as on the ocean. Now and then, to the south, may be seen rows of trees on the low-lying shore.

The width of the Rio de la Plata gives it distinction; for forty-five miles it extends from the shores of Uruguay to those of Argentina. Nor are the surroundings of Buenos Aires altogether pleasing. Yet the city builders have done their work so well that visitors can only marvel as they study this greatest city of the Southern Continent, a hundred and twenty-five miles from the ocean, and sixty-five feet above the sea. Mendoza did not realize how strategic was the site he chose. Not only does the city command the navigation of rivers that drain a vast interior, but it is a natural converging point for steamship routes both from Europe and from New York City. The people of Buenos Aires have every right to be proud of their city of two million seven hundred thousand. Their pride is evidenced by their interest in the award made each year for the most attractively designed residence and the most pleasing business building erected during that year. That the city has benefited by the policy is apparent.

It is difficult to realize that Buenos Aires is much nearer

to Europe than to the United States, and that the city is in a latitude corresponding to that of Charleston, South Carolina, though of course below the Equator. Half-way between Rio de Janeiro and Cape Horn, it has a delightful climate. The summer months, December, January and February, are pleasant, while the coldest months, June, July and August, are not unpleasant. There is much rain, yet not so much as out on the pampa to the west of the city.

Buenos Aires is in a Federal District of seventy-two square miles. It is not the Capital of the province; this distinction belongs to La Plata. The relationship between these cities is precisely that sustained by Annapolis, Capital of Maryland, to Washington, Capital of the United States.

The writer was fortunate in having as his guide about the beautiful Capital Captain Eduardo Bradley, the pioneer aviator to whose feat of crossing the Andes in a balloon in 1916 a tablet has been placed on the Uspallata station on the railway crossing the Andes. North Americans are even more interested in him because of his serious accident at Terre Haute, Indiana, in September, 1929, when a thunderstorm sent him to the ground in too great a hurry.

The streets and squares of Buenos Aires are like the inhabitants of the city, hospitably generous and inviting. The principal business street, the Avenida de Mayo, one hundred and twenty feet wide, is famous everywhere. This broad thoroughfare begins at the Plaza Mayo, with the Government Palace, the Banca de la Nacion, and the cathedral, in which is interred the body of the hero General San Martin. Then the avenue terminates in the Plaza Congresso, on which fronts the Palacio de Congresso, the beautiful Capitol building, with its dome of fine proportions that makes citizens of the United States think with pride

of the Capitol at Washington. Before the Capitol are flower-beds and trees, a glorious setting for the unusual building and the stately monument erected to celebrate the nation's independence.

Those who pass along the avenue note the uniformity in height of the business buildings. A stepped sky-line may be attractive, but these buildings in Buenos Aires are so restful to the eye! At night, when the double row of lights in the center of the street blazes out triumphantly, this uniform height is emphasized most pleasantly.

A city might well be satisfied with one such avenue, and two such squares. But Buenos Aires has outstanding avenues in abundance, and nearly a hundred squares and parks, with buildings of note on all sides. The National Theatre, where good opera is produced, and the Faculty of Law and Science of the University of Buenos Aires, with its noble entrance, its triple window above the door, its central tower, and the subsidiary corner towers, each with its own pinnacle, are representatives of scores.

" But whatever other sights you see, you must not allow yourself to miss Rio Florida between the hours of four and seven in the afternoon," insisted one who knew the city. He was right. For then, with traffic on the narrow street entirely suspended, it is the parade ground for men and women, fashionably attired, who display the latest Paris styles. An hour on Rio Florida at that period of the day is a taste of the gay French Capital, and it affords superb opportunity to study national customs as well as the fashions. For Buenos Aires prides herself on being at least six months ahead of New York in the display of the latest costumes from Paris.

On the avenues and in the plazas are monuments whose beauty leads to examination that arouses interest. Yonder, in Palermo Park, where beautiful homes are abundant, is

the monument generously given by Spain to Argentina, at the centennial celebration of independence from Spanish rule. Near at hand is the statue to George Washington, presented in 1913 by the North American colony in the city.

"Now I want you to see a club of the people, which I challenge you to equal anywhere," said Señor Bradley, as he led the way farther into Palermo Park. "Here is the Club de Gumnasia, where wonderful provision has been made for the people. Think of thirty thousand members, who pay less than two dollars a month each to enjoy the property that cost more than a million dollars, and will cost double that sum! The government has helped by contributing the prizes in the lottery uncalled for by the holders of tickets."

Then he led the way into a marvelous club-house, with a beamed ceiling that would delight an architect anywhere and a gymnasium where boys and girls are under the direction not only of skilled instructors, but also of physicians who keep records for them that, in many cases, show remarkable development in a comparatively short time. Close to the gymnasium is a well equipped hospital, while a few rods away, in the open air, are swimming pools whose sanitation, comfort and beauty all are remarkable.

From the club it is a short distance to the beautiful monument to William Wheelwright, the native of Massachusetts, whose ship *Rising Sun* was wrecked on the Rio de la Plata. This wreck, pictured on the monument, led Wheelwright to resolve to give his life to the improvement of navigation in South America. He wanted safe harbours, and he worked for them, in his private capacity, and later when he was United States Consul at Guayaquil. He also started lines of steamers, including the Pacific Steam Navigation Company. He was responsible for the build-

ing of the railroad from Valparaiso to Santiago, and he planned a railroad which led to the building of the Transandine railroad. Other railroads in Argentina were built by him. During his long life he gave to benevolent purposes six hundred thousand dollars. After his death, September 26, 1873, a portrait of him was placed in the Merchants' Exchange in Valparaiso.

But perhaps the outstanding monument in Buenos Aires is that to Domingo Faustino Sarmiento, one of the greatest men of the nation. This, too, is in Palermo Park. He had little education, he was a political refugee in Chile, many times he returned to his home city to oppose dictators, and in 1852 he succeeded in overthrowing Dictator Rosas at the battle of Mt. Casero.

It will be of interest to many to read more of Rosas. In his book, *The Voyage of H. M. S. Beagle,* Charles Darwin told of meeting General Rosas in 1833, when on the Rio Colorado, south of Buenos Aires. The scientist was much impressed by the General, so much so that he spoke of him as "a man of an extraordinary character, who has a predominant influence in the country, which it seems probable he will use to its prosperity and advancement." Then he went on to tell something which may have made the lover of animals feel that General Rosas was a man of character:

> He is a perfect horseman, an accomplishment of no small consequence in a country where an assembled army elected its general by the following trial: a troop of unbroken horses being driven into a corral, were led out through a gateway, above which was a cross bar; it was agreed whoever should drop from the bar on one of these wild animals, as it rushed out, and should be able, without saddle or bridle, not only to ride it, but also to bring it back to the door of the corral, should be their general. The person who succeeded was accordingly elected, and doubt-

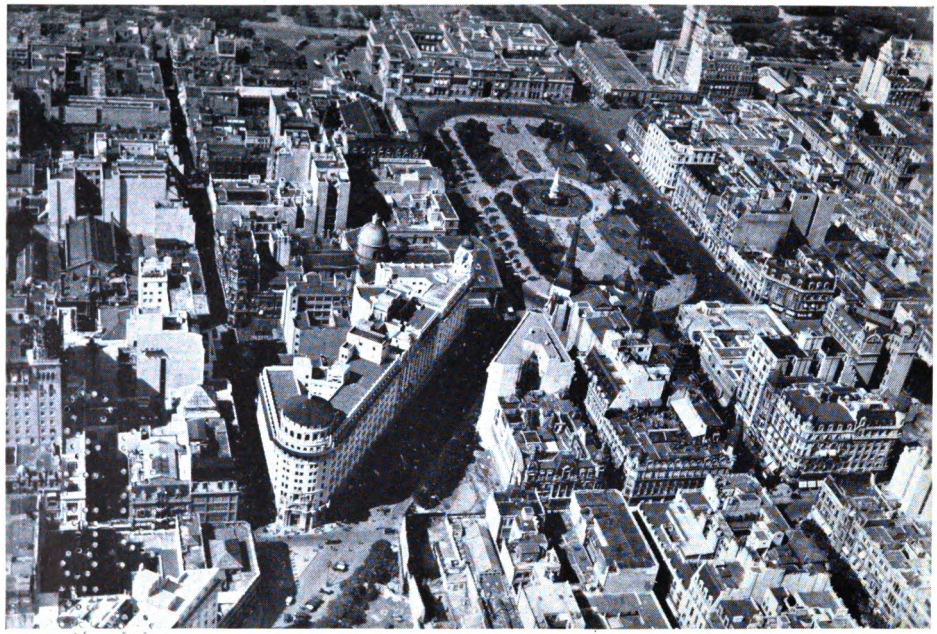
less made a fit general for such an army. This extraordinary feat has been performed by Rosas.

But alas! when the second edition of Darwin's book was printed, in 1846, the writer was compelled to add a footnote which stated, "The prophecy has turned out entirely wrong." It should be added, however, that, with all his tyrannical qualities, Rosas, the hero of the *gauchos* of the pampa, succeeded in doing much for the unification of his country.

To go back to Sarmiento. As a journalist he conducted a far-sighted campaign for public education. He was minister to the United States in 1868, when he was elected President. During his term of office great progress was made. He led in events that preceded the ending of the War of the Triple Alliance against Paraguay, and he reorganized and completed the national system of public education. Later he was director of education in the province of Buenos Aires. And at seventy he became superintendent of public schools. In all his educational work he sought to be governed by the system in the United States, which he thought was ideal. Teachers were imported by him from that country. He wrote some of the first schoolbooks used in Argentina. He was author of fifty-two books, and was himself a great reader. He said that his greatest inspiration from reading came from perusing the Autobiography of Benjamin Franklin. It is fitting that on one of the reliefs of his tomb he is represented as a schoolmaster, with the children of the republic about him.

In 1868, when he was president, Sarmiento made the following prediction:

Buenos Aires is destined to be some day the most gigantic city of South America. With a benignant climate, mistress of the navigation of a hundred streams flowing past her feet, cover-



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AN AIR VIEW OF BUENOS AIRES

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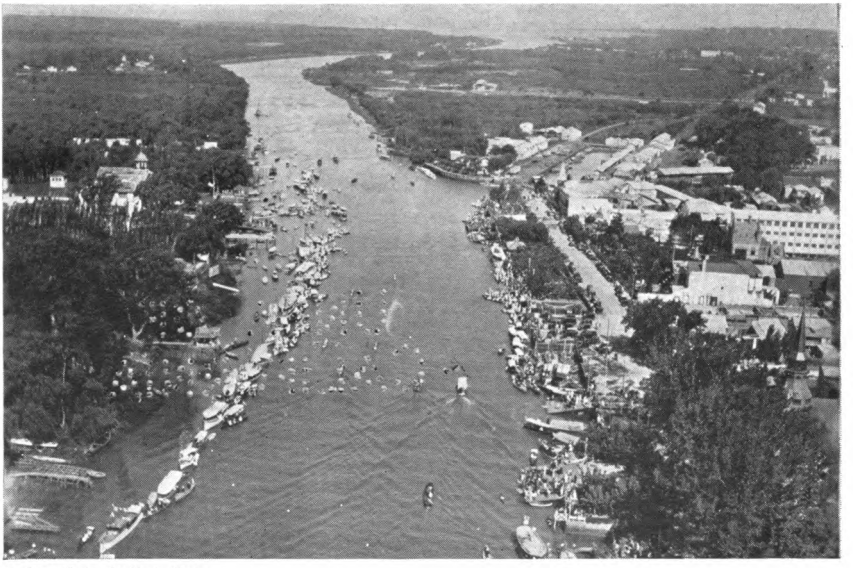
A LAKE IN PALERMO PARK, BUENOS AIRES



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TIGRE, A PLEASURE RESORT NEAR BUENOS AIRES

ing a vast area, and surrounded by inland provinces which know no other outlet for their products, she would even now have become the Babylon of America if the Spirit of the Pampa had not breathed upon her, and left undeveloped the rich offerings which the several provinces should increasingly bring.

The vast country which he loved so much is now criss-crossed by railroads which reach into many sections. On the pampa are about twenty-five thousand miles of track. Many of the roads are broad-gauge, five feet and six inches. Those who travel by these roads can think with gratitude of the contrast with the days of the famous overland transcontinental route from the Rio de la Plata settlements to Lima, by way of the mining centers of Bolivia and southern Peru. Cattle would be driven over the route to the mining towns. And what privation and suffering were entailed by that long and wearisome journey!

In those days the method of travel employed by many was the river steamer; the popular trip was four hundred and ten miles up the Parana, to Parana, a city founded in 1730, and from 1852 to 1861 the Capital of Argentina. Ocean-going steamers drawing twelve feet of water are able to ascend to the city's port, two miles distant on the Parana. In the same year Rosario was founded on the Parana. This second city of Argentina is one hundred miles nearer Buenos Aires than is Parana. Though it is not even the Capital of a province, the interesting city of the wheat raisers on the pampa has some of the most notable public buildings in South America, including the graceful court house and the bank buildings. The population has been growing so rapidly that statistics are apt to be out of date before they are printed.

One of Argentina's most important cities is not north but south of Buenos Aires, Bahia Blanca, whose one hun-

dred thousand people live in the far south of the province of Buenos Aires, four hundred miles from the Capital. Though the city was founded in 1828, the modern development of this outlet for wheat and wool did not begin until 1885, when the railroad from Buenos Aires reached there. It boasts one of the best bays on the entire Argentine coast.

Still farther south are the provinces of Argentina's portion of Patagonia, the country of the Patagones or Big Feet. Their feet were not so large, but when on horseback —and they were always on horseback—they wore wide boots.

Argentina has set apart in the most attractive region of Patagonia the Argentine National Park. This lies to the north of Lake Nahuel Huapi, which is sixty miles long, and reaches up into the heart of the Andes. This is easy of access, by reason of a railway from Valdivia in Chile to Puerto San Antonio. The road skirts the shore of the lake, on the side opposite the range of which Mount Tronador is the highest peak. Eleven thousand four hundred feet may not seem so high for a peak of the Andes, but it is a very respectable height, just the same.

IX

ON THE PAMPA OF ARGENTINA

"YOU'LL find the journey westward across the pampa a long siege of deadly monotony! " is the warning given frequently to those who plan the trip from Buenos Aires across the Andes to Santiago. But those who permit the warning to discourage them make a huge mistake. For there is real fascination in the sweeping leagues of the boundless pampa, " the image of the sea on the land," as the region has been called; " a sea of grass, grass, and still more grass, a great green ocean that the waves sweep over." So the twenty hours spent on the comfortable train by the railroad traveler between Buenos Aires and Mendoza will be thought of afterward as one of the choicest experiences of the South American sojourn. Once the *gauchos* were able to make the distance, by a great effort, in seven days. Now the notable railway journey consumes twenty hours.

The distance is covered by the passenger in the air in five and a half hours. The swiftly passing vision from the airplane makes a joyful memory. The hasty glimpses of the towns! The peep from aloft into the great dovecotes! The sight of the cattle thronging to the corrugated water containers! The glimpses of scampering ostriches, as they mingle with the cattle, mute witnesses to the change in fashion which made the ostrich farms unprofitable, and the turning loose of the huge birds a necessity!

For a time after leaving Buenos Aires these things could not be seen—nothing but a floor of rolling whiteness, which was the fog between the plane and the ground. Now and then, for an instant, a gap in the white floor was beneath, and fields, people, towns could be seen. Then once more the white veil was drawn.

"You'll have the fog with you for an hour," said the man on the landing field at Buenos Aires as he gave the signal to start. Then he added, comfortingly, "But you'll be out of the fog before you get to Junin."

Usually Junin was not a stop for the plane, but on this occasion instructions were given to land there, that mail might be received from the plane from Montevideo. Usually the transfer was made at Buenos Aires, but on that day the fog was too thick to allow the plane from the north to approach the city. So the people near Junin were given heart failure as they saw the Buenos Aires plane drop from the sky and scamper across the field near the humble house of an old man. That the old man had many hangers-on about his place was evident when boys and girls of all ages ran eagerly to inspect with curiosity the visitors from the outside world. The stay was longer than had been anticipated, for the pilot of the second plane lost his bearings in the fog, and flew in at last from a direction entirely different from that from which he was expected.

When the mail had been transferred, the air called once again. By this time the fog was all gone, and the boundless pampa was below. Of course, there are trees on the pampa. But these trees are not natural; they were planted by settlers who wished to make the surroundings of their homes attractive. For this is the section of Argentina farthest removed from the great forests of the north, where boughs are so inextricably interlaced above ground that the sunlight never penetrates to the earth below. Between

these forests and the pampa there is a region where plain and forest contended for the mastery, but, in the words of Sarmiento, who wrote with real affection of the country, " Finally the victory remains with the plain, which displays its smooth, velvet-like surface unbounded and unbroken."

These sweeping miles on miles of richest land are typical of Argentina's wealth. For they have been built up of the deposits from the mountains which, through the ages, have swept down their rich alluvium on the plain, and so have made ready hundreds of thousands of square miles where herds of cattle roam, in blissful ignorance of the fact that they are to supply with chilled beef the markets of unnumbered towns; where sheep cluster in great flocks, as they grow the wool that will warm a multitude; where Indians drive the four, six, ten, or even sixteen oxen which draw the carts whose wheels are six, eight, ten feet or even more in height, in order that their axles may rise above the deep mud that follows the torrential rains, or above the ruts two feet deep left when the tracks dry.

In the days before the building of the railroad, when the crossing to Mendoza required several weeks, the journey of these ox-driven wagons was a tremendous adventure, to be compared with that of the pioneers who traversed the North American plains. Read the word-painting of a narrator of these days of heroism:

> When the sweating caravan of wagons, as it sluggishly traverses the pampa, halts for a short period of rest, the men in charge of it, grouped around the scanty fire, turn their eyes mechanically toward the south upon the faintest whisper of the wind among the dry grass, and gaze into the deep darkness of the night, in search of the sinister visages of the savage horde which, at any moment, approaching unperceived, may surprise them.

But the day has passed when the onset of the Indians is feared, for they are peaceable, for the most part. It is interesting to meet them and listen to their strange language, so similar to that of the natives of Australia that students of anthropology have talked of a migration from the Antipodes to South America, by way of the Antarctic, many thousands of years ago.

The most picturesque dweller in the pampa is not the Indian, however, but the *gaucho,* the cowboy of Argentina, who rides in and out among the cattle; indeed he is so accustomed to his horse that he does everything but sleep on the animal's back. Even after he has succeeded in killing a partridge by a blow from the hunting-rod with which frequently he is armed, he does not alight to gather in his prize, but picks it up by means of a notch in the end of the rod.

Those are fortunate who are able to ride for a few hours with the *gaucho.* Perhaps they will see the skilful Argentinian throw another weapon of offense, the *boleadora.* This consists of three thongs at the end of which are two heavy balls. It is used for throwing at an animal, after a wild whirl about the head of the thrower. So often the *guanaco,* the South American woolly camel, a beast perhaps four feet high, finds the leather thongs so tangled with his legs that he falls to the ground. Then the *gaucho* proceeds to tame the animal and break him until he endures a ride.

Frequently the *gauchos* ride for a cattle owner who has as many as thirty or forty helping him. At the close of a busy day they gather about their canvas house on wheels. After they have eaten they take their musical instruments —the *gaucho* would be lost without the means of making melody in the midst of the lonely pampa—and are ready for a noisy evening.

Many of the *gauchos* are real troubadours, who are

A RURAL SCENE IN PARAGUAY

INDIANS DRIVE CARTS WITH HUGE WHEELS

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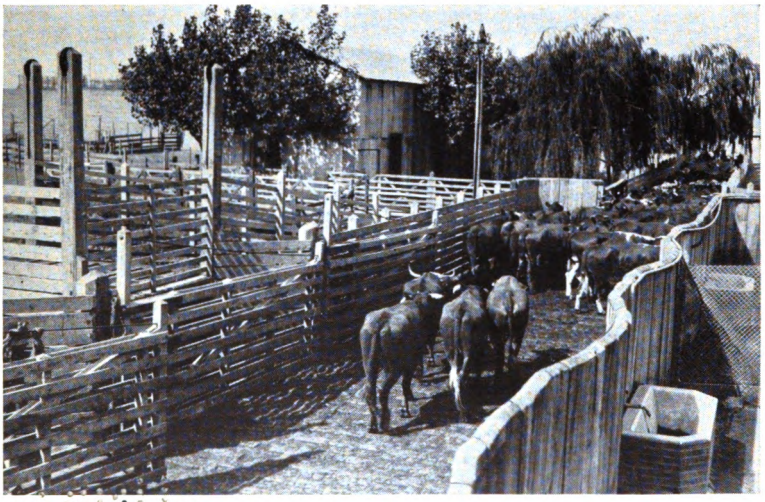

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CATTLE AND SHEEP ON THE PAMPA

welcome in every scattered house of the pampa, or in the rare store where a guitar is waiting for the fingers of a chance visitor. He dances the *cielito,* a dance of the pampa which shows its descent from the alluring movements of the Spanish Andalusian.

Sometimes the *gaucho* troubadour becomes a *cantor* or *payador,* who has the gift of improvising in verse as he plays the guitar. Of him Sarmiento says:

> He has no fixed abode; he lodges where night surprises him; his fortune consists in his verses and in his voice. Wherever the wild mazes of the *cielito* are threaded, wherever there is a glass of wine to drink, the cantor has his place and his particular part in the festival.

In this country of the *gauchos* a familiar sight is the windmill that has transformed a country where there are no running streams. Once the cattle perished in dry weather, but now the wind that billows the long grass draws life from the rivers that flow far beneath the surface of the ground. These windmills are especially noticeable about the *estancias,* the ranch houses of the lords of the cattle, many of whom live in splendour that is almost regal. Those who are fortunate enough to be guests in one of these palaces on the pampa will not soon forget the experience.

At length the pampa is left behind. The train rises, until it meets the Transandine railroad at Mendoza, the center of the region that has been called the Southern California of Argentina because of its irrigation, its vineyards, its garden produce, cared for by Italians who prepare the produce for shipment to the United States. Now for a vision of glory and grandeur. That vision begins already, for, as a traveler has written:

Near Mendoza the mountain slopes are serrated and fluted and are rich in varying tints and colours that change and shade into each other as the sunlight and range of vision shift, so that the rocky walls appear luminous and lit by a hidden fire. But higher up the rocks and strata are actually of sharply contrasted hues, brown and red and yellow and blue, with black and grey lava and tufa rock and long slopes of gravel and sand stretching down from the banded polychrome cliffs.

This is the city where aviators make a landing for refueling before beginning the rapid ascent of from eighteen thousand to twenty-one thousand feet, made necessary in crossing the Andes to Santiago, Chile. On the day when the writer was a passenger, advantage was taken of the stop to deposit those who, in August, midwinter there, could not be carried over the mountains with the assurance of safety which the Panagra insists is absolutely essential in their service. "Caution for safety's sake is the first thing impressed on us by the management," said a pilot, about to rise for the flight "over the hill," as he rather disrespectfully called the final stage of the journey from the Atlantic to the Pacific. "'There is always another day!' we are told. So we run no risk in storm or fog, but wait until conditions are more favourable."

X

ACROSS THE ANDES FROM ARGENTINA INTO CHILE

NOW comes a journey that will always be remembered, on one of the highest railways in the world, over mountain torrents, crossing bridges from which the traveler looks far down into the depths, within sight of tremendous mountain peaks, through tunnels that help in the conquest of the main Cordillera of the Andes. Forget that journey, if you can!

The beginning is at Mendoza, the little city of seventy thousand people, seventy-five years older than Boston, where the ride across the pampa ends. This town, founded by Mendoza in the sixteenth century, was destroyed by an earthquake in 1867, when ten thousand people were killed. It is the center of a great wine-growing country where unbelievable quantities of grapes are the product of the vineyards that are everywhere.

A day, or even a few days, may be spent at Mendoza with profit and pleasure, for it is an up-to-date little city, even if some of the streets are sprinkled with water dipped from the irrigating ditch by the roadside. Not only are the vineyards worth a visit, and the bodegas, as the wineries are called, but the unusual Parque San Martin, of which Mendozans have a right to be proud, with its rose garden, its palm trees, and its views of the distant snow-clad peaks that rise above the nearer foothills, and stand out with cameo-like distinctness against the sky.

The country about Mendoza is watered from the river Mendoza, which tumbles down the slope from Mount Aconcagua, the giant of the Andes, highest peak in the western hemisphere, twenty-three thousand three hundred feet high.

While at Mendoza an easy trip should be taken to the Cerro de Gloria, the Hill of Glory, which stands green above barren surroundings. On its crest is the memorial to San Martin, the Liberator, who, in 1817, led his army from Mendoza over the Uspallata Pass, into Chile, after receiving from the women of Mendoza gifts of jewels for the purchase of supplies. The bronze statue of "the Hannibal of the Andes," by Ferrara, rises above representations of the grenadiers, who wore uniforms much as may still be seen in the army of Argentina. Bas-reliefs tell eloquently the story of the conqueror. Those who look up to them see one of the world's most beautiful statues. Those who look down from the statue to the spreading pampa see what has been called one of the most beautiful views in South America.

Those who ride in the palatial cars provided by the railroad must think with appreciation of the indomitable courage of the man who took his liberators by the Uspallata Pass over the summit into Chile where, three weeks after leaving Mendoza, he defeated the Spaniards at the battle of Chacabuco. "One of the most remarkable operations ever accomplished in modern warfare," the feat has been called.

The track followed by the soldiers may be traced in many places from the comfortable railway cars. During the centuries before Martin's passage, traders whose journey called for months of painful effort followed the trail, as well as slaves who, after being landed at Buenos Aires, were led to Chile and Peru for service in the mines. In

later days the journey was made by pony or by stage in four or five days.

That the distance of one hundred and fifty-five miles from Mendoza to Los Andes is covered to-day in ten or twelve hours is due to the determination of leaders in Chile and Argentina, far-sighted investors in Great Britain, and railroad builders like the Anglo-Chilean brothers Clark who, in 1869, had the dream of a railroad over the Andes by the Uspallata Pass. In 1887 Argentina began the line westward from Mendoza, while in 1889 Chile began the construction of the line from Los Andes. But seventy miles in an air line separated these points. Between, however, is the main range of the Andes, crossed at the Uspallata Pass, which is thirteen thousand feet high, though a tunnel cuts down the elevation reached.

The final work was completed in 1910, and in April of that year the road was opened. At first snow blockades interfered with traffic; sometimes the line was closed for from five to six months in a year. But the building of snowsheds and tunnels has conquered the snow. Then the journey was made more difficult by the rack and pinion method of track construction, necessitated by the grades that range up to eight per cent. The electrification of the entire road in 1929 made possible the elimination of the rack-rail.

In 1910, when the road was opened, President Montt went from Chile to Buenos Aires that he might celebrate with the president of Argentina the anniversary of the struggle for independence by the countries. A return celebration at Santiago was planned, but the death of President Montt prevented this.

This Transandine line is the highest main trunk line in the world, and it traverses mountain ranges and provides views of mountains close at hand which are the highest

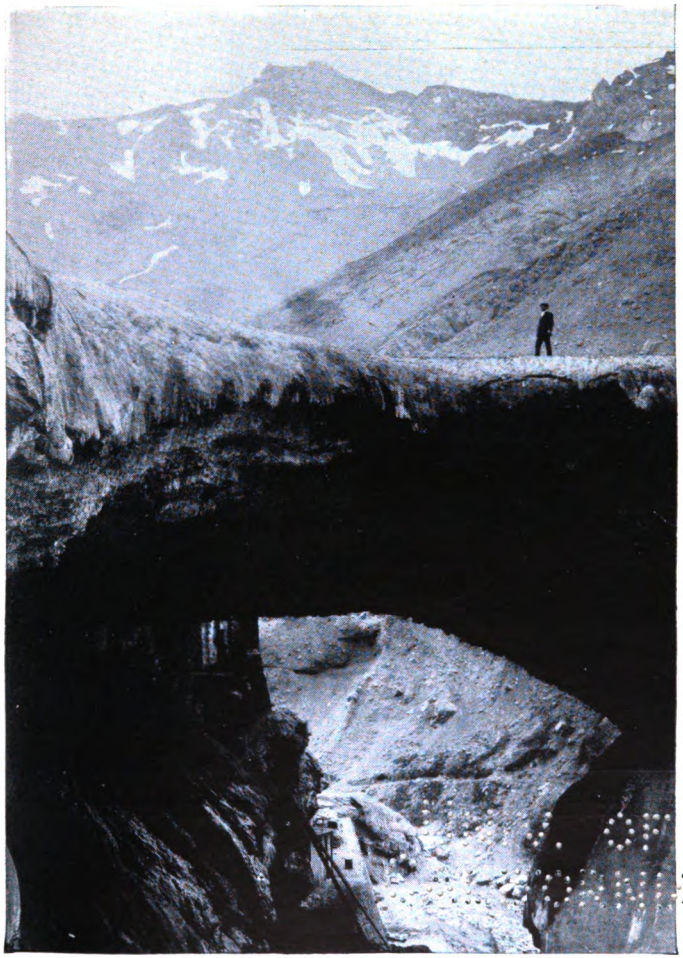
on the American continent. The distance from Mendoza to the summit is one hundred and ten miles. The rapid climb is through a dry and parched country, for the clouds borne by western winds drop their moisture on the Chilean side. But while the plateau crossed is harsh and barren, the beauty of the mountain slopes, by reason of their unusual colouring, makes the journey a succession of pleasures.

Through irrigation, the country about Mendoza, as has been said, is not unlike Southern California. But when the journey is continued above the town, within sight of the great, bare peaks of the Andes, the impression is entirely different. Lord Bryce had said, "One feels at a glance that this is one of the great regions of the world, just as one feels the great music in the first few chords of a symphony."

After following the river Mendoza for many miles, the road leads by the side of Las Cuevas. From the junction of the two rivers there is a tremendous view of Mount Tupungato, twenty-one thousand four hundred feet high. Just beyond are Los Penitentes, crags that seem to climb one above another to a great height, "like a procession of cowled monks slowly wending their way up the slope toward an ancient Gothic cathedral."

A pause at Uspallata station gives opportunity to read the tablet on the wall which records the feat of two men who were the first to pilot a balloon across the Andes. What a thrill came with the actual sight of the name of Captain Bradley, who was the writer's friendly guide in Buenos Aires!

After a few miles comes the point from which there is the marvelous view of Aconcagua, which has been compared to the Jungfrau, though it is more like a great wall than a peak. Snow-covered, cloud-enshrouded, the mass



NATURAL BRIDGE AT PUENTE del INCA

MOUNT ACONCAGUA, HIGHEST PEAK IN THE WESTERN HEMISPHERE

rises majestically into the blue dome above. It was never climbed until, toward the close of the nineteenth century, Sir Martin Conway succeeded where many had failed.

Here again the observant Lord Bryce has a helpful message:

> Only in the Himalayas and the Andes can one see a peak close at hand soar into air nearly fifteen thousand feet above the eye, and I doubt if there be any other peak even in the Andes which rises so near at hand and so proudly above the spectator.

This traveler's prospect of the monarch Aconcagua is gained from the valley of the Puente del Inca, which is about nine thousand feet high. The valley is sought by travelers and health-seekers who are attracted by the hot springs as well as by the matchless views on every hand. A comfortable hotel makes pleasant the stay here where everything is on such a colossal scale.

In the midst of the overwhelming grandeur is the Puente del Inca, a natural stone causeway over a deep chasm, named for the Inca warrior, Tupac Yupanqui. This is one hundred and sixty feet long, and eighty-three feet wide, while the arch is thirty feet thick. The stone span is eighty-five feet above the river. No better description has been given of this natural phenomenon than that by Charles Darwin:

> When one hears of a natural bridge one pictures to oneself some deep and narrow ravine, across which a bold mass of rock has fallen; or a great arch hollowed out like the vault of a cavern. Instead of this, the Inca Bridge consists of a crust of stratified shingle cemented together by the deposits of the neighbouring hot springs. It appears as if the steam had scooped out a channel on one side, leaving an overhanging ledge, which was

met by another stone falling from the opposite cliff. Certainly an oblique junction, as would happen in such a case, was very distinct on one side.

The Horcones Valley, which leads to the base of Aconcagua, is within reach of the hotel. If you climb to the top, and if the day is clear, you will be able to see both the pampa of Argentina and the blue waters of the Pacific!

From the hotel near the bridge a journey may be made to the summit of Uspallata Pass, on the boundary between Chile and Argentina, to see the famous "Christ of the Andes," the statue erected in 1904 in commemoration of the signing of a treaty between the countries which provided for the arbitration of disputes, for naval equality for five years, and for limitation of armament. The first arbitration called for in accordance with the treaty was by the king of England, who decided the vexed question as to the boundary line in Patagonia between the claims of Argentina and Chile.

The inscription on the majestic figure of Christ, which stands on a pedestal hewn from the rock, reads:

> Sooner shall this mountain crumble into dust than the people of Argentina and Chile break the peace which they have sworn to maintain at the feet of Christ the Redeemer.

Once the railroad passed through a ridge close to the statue, so that the sight of it was secured easily. Now, however, that passage through the summit is by way of a tunnel nearly two miles long, the easy journey from the hotel to the statue must be made, though passengers can see it from the train immediately after emerging from the tunnel. Before the road was completed, it was necessary to leave the train for a ride of five hours. The slow-going coaches were trying, but what splendid prospects were

spread out before the long-suffering rider! One who traveled that way spoke with longing of the day when the road would be finished. He did not stop to think that the tunnel would deprive travelers of one of the most superb views on earth.

Frequently the journey was undertaken even on foot. This gave still greater opportunity to enjoy the splendour of the mountain top.

Now the road passes easily, at an altitude of ten thousand five hundred feet, through the Cumbres tunnel, to the more precipitous Chilean side, with its culmination of mountain glory, which led Lord Bryce to say:

> If any other trunk line of railroad in the world traverses a region so extraordinary, it has not yet been described. Until one is run from Kashmir to Kashgar, over or under the Karakoram Pass, the Andes line seems likely to hold the record.

At Las Cuevas, on the Argentine side of the tunnel, the operator of the All American Cable Company supplies forecasts for the daring aviators who pilot passengers and carry mails between Buenos Aires and Valparaiso. " Before they start from either side," one who rode in a plane has written, " a message goes to Las Cuevas. Almost instantly, rarely more than a couple of minutes, the answer is back. On it depends whether the attempt shall be made. At that height the approach of storms can be seen with reasonable certainty."

The suddenness of the changes in weather at this summit was realized by the writer, when a delay of five hours was occasioned by the rising of the wind, which speedily made great drifts of snow across the track. Until these were removed, further progress was impossible. But the passengers on the train that day were fortunate; a few days

later the railroad was shut down for days, and passengers who had booked for steamers at Valparaiso were compelled to let the vessels go without them. Those five hours at the summit were by no means dreary. To be sure, the wind was blowing fiercely, and the fine snow was in every blast. But it was so well worth while to leave the warm parlour car from time to time, for a walk along the tracks, and a glimpse by the way of a station which looked like a dugout in the snow. Nothing but the front door was to be seen, for the snow hid the walls and the roof.

After leaving the tunnel at the summit, the train clings to a shelf of rock, in a gorge above the crags which have come close together, while glimpses are given now and again of a little settlement so far down that an hour passes before the train stops at the station. Below a torrent dashes against the cliffs at the place called the Soldier's Leap. This is close to Juncal, where, in days before the tunnel, the ride over the summit of those who crossed the ridge was ended.

Along the valley—if the border of a mountain stream can be called a valley—of the river Aconcagua the road leads to Laga del Inca, the Lake of the Inca, in a basin two thousand feet above Juncal, where the water is always frozen, a gem of a lake that has been compared to the Tottenzee of Switzerland, though the surroundings are far more harsh. "A scene more savage in its black desolation would be hard to imagine," was the judgment of one who passed this way.

The fifty miles from the tunnel to Los Andes, the terminus of the Transandine, are characterized everywhere by prospects that call for gasps of surprise and admiration. This western slope is far more abrupt than that toward Argentina. More high peaks, different views of those already passed, visions of valleys and of lofty crags,

pursuit of waters that dash among the bowlders as they seek the valley—how these make the three hours' journey memorable!

At Santa Rosas de los Andes, a town founded in 1791 by Ambrose O'Higgins, the two sections of San Martin's army joined after crossing the Andes. One part had taken the Uspallata Pass, as related, while the other followed the route to the somewhat lower but much colder Los Putos Pass. The Spanish force was not there to oppose him, for the commander had scattered his men in the effort to guard all the passes to the south which might be used. So the united army moved on toward Santiago, and to victory at Chacabuco, and a year later, at Maipu.

At Los Andes a change of railroads made necessary the purchase of a ticket to Santiago. An experience with the agent in the railway station is illuminating; it tells much of the people of Chile and their courtesy, especially to visitors from the United States. There was a crowd at the window, and it was not possible for all to make sure that they had the correct change before making way for the new purchaser. Counting the coins and notes took the writer even longer than the others, and he had returned to his seat in the coach before he discovered that he had not received ten pesos which should have come to him. At once he returned to the window, and by signs told the official his trouble. The man could not understand until the complainant pointed to a ten-peso bill in the hands of the agent. Then he pointed to himself. At first the man shook his head. Then, as the departing signal was given for the applicant's train, he passed over the bill, but with a puzzled look!

In Santiago the story was told to a business man. "Do you know why the railroad man gave you the money you demanded?" he asked. "Not because he was convinced,

but because he saw you were from North America. He had confidence in you because of your nationality. Under such circumstances a Chilean would probably have been turned down."

One of the first sections of the road constructed was that between Los Andes and Llallai over an old trail to the Uspallata Pass. The trail was used for years by travelers and mule trains as they crossed to Mendoza and Buenos Aires. This is a region of orchards, where pears and peaches and plums grow luxuriantly in the well-watered country. It is a goodly preparation for the branch road to Santiago, in a valley setting, where the journey is well interrupted before going on to the seacoast and Valparaiso, with its view of Aconcagua that is so different from that obtained from a point nearer the mountain.

XI

FROM SANTIAGO AND VALPARAISO TO TIERRA DEL FUEGO

CHILE is a surprising country. Look at the map. Twenty-seven hundred miles long, and ninety miles wide, she has been called " The Shoe String Republic," a ribbon of a country, an emerald and gold strip stretching between the snow-crowned wall of the Andes and the blue waters of the Pacific. In this long country there is the greatest variety of climates to be found in any country in the world. On the north are barren deserts where no rain falls, while to the south is a land of emerald lakes and forests of evergreen. One man has written:

> It is a land of furious gales and cruel seas, where turquoise glaciers creep into the deep fiords. Eastward stands the great barrier of the Andes, snow-covered for half the year, with proud peaks rising at least five thousand feet higher than the head of Mont Blanc. To the west Chile looks out upon a waste of water, with New Zealand the nearest great country.

Four hundred miles out in the Pacific, in waters through which sailed Balboa, Magellan, Cook, Drake, and other explorers, as well as pirates and despoilers of defenseless coast cities, is the island of San Fernando, Robinson Crusoe's Island. This is three hundred and sixty-five miles west of Valparaiso. A tablet has been erected to the memory of Alexander Selkirk, who lived on the island from

1704 to 1709. To this visitors like to go by steamer from Valparaiso, to spend a few days among the lobster gatherers who live in the midst of the tropical luxuriance of which the boy's classic tells so well.

But travelers do not need to go to San Fernando to find beauty. If they go to Chile's Central Valley they will be in the midst of it. For there they will be in the great garden of South America, where they are surrounded by some of the most glorious beauty to be experienced anywhere in the world. This valley, five hundred miles in length, between the Coast Range and the Andes, to the south of Santiago, does not know drought. Wheat fields and vineyards are everywhere. The residents are proud of their country. There is a little city in the valley called Talca, whose people show their pride when they name the great cities of the world: "Talca, Paris, London," is their order!

Yet no one should leave Chile without seeing also some of the barren country which is so rich in marvels—the deserts with their nitrates, the silver and copper mines of Atacama, the odd copper mine within the rim of the crater of El Teniente, near Rancagua, in central Chile, and that other famous copper mine at Chequicamba which is said to have a greater product annually than all the mines of precious stones and other metals in all other regions of South America!

Through the land runs a system of railroads that is peculiar because of the nature of the country. One main line of fifteen hundred miles has many branches from thirty to fifty miles long. The first of these Chilean railroads, begun in 1852 by Wheelwright and completed by Henry Meiggs, was between Santiago and Valparaiso, a distance of one hundred and fifteen miles through most delightful country.

Cultivated land includes only twenty thousand square kilometers of the seven hundred and fifty thousand square kilometers in area. The population of four millions is largely homogeneous, though there are now many German emigrants. Most of the people are descendants of the Spanish and the Araucanians, and they are famous for their steadiness, their reasonableness, and their industry. " By reason or by force " is the motto of Chile engraved on her coins.

Concerning the country that parades this motto, a Chilean historian once wrote proudly:

> Of all the republics which were formed in our America on the emancipation of the Spanish Colonies, Chile has had the least chequered existence. A period of prolific tranquillity has, for a long time, succeeded the first crisis. The stability introduced into its institutions in good time has made Chile a prosperous commercial nation, essentially agricultural and pastoral, and with a natural inclination for material progress. The character of its inhabitants, tranquil, reflective, little inclined to excitement, too punctilious, perhaps, has been favourable to internal quietness. Among the nations of South America, the Chileans most resemble Europeans; their customs and institutions, still rather aristocratic, have a certain analogy with those of England.

In this enterprising country the United States is securing a prominent place. A London publication, *Economic Conditions in Chile,* says that American influence is being more and more felt in general banking, as in most other phases of financial and commercial activity. An evidence of the growing interest in the United States was given in one of the Santiago dailies, *El Mercurio,* on July 4, 1930, which devoted the first page to an article on the United States, entitled " The Glorious Origin of a Great People."

A portrait of Washington was displayed prominently, as well as a table of dates which told how July 4 has been prominent in the history of Chile as well as of the United States.

Another evidence of friendship between these great nations was the institution by the University of Chile, of two fellowships for study by citizens of the United States in the Normal School and the National University, the selection to be made by the Institute of National Education in New York City. The Chilean Government also gives fellowships to a number of students for study in Columbia University, New York City.

Santiago, the metropolis of this pleasing country, which Don Vincente Pazos in his history called St. Jago, is in a beautiful valley, through which wanders the Mapoche River. On the west side of the stream rises stately San Cristobal Hill, from whose summit, reached by a funicular railway, the regular streets of the fair city may be traced until they fade away into the distance.

But a much more intimate view is secured from the park Santa Lucia, a steep hill to the east of the river, almost in the business district. Along winding flower-lined pathways and through groves of eucalyptus trees the visitor may climb to the summit of this rocky eminence where Don Pedro de Valdivia encamped with his soldiers on December 18, 1540, two months before he founded the city. From its height, with one hundred and fifty Spanish soldiers, he confronted the Araucanians, and won the victory that gave Chile to Spain.

On the hill is the tomb of Vicuna McKenna, the mayor of Santiago who made of the hill a public resort, as well as a statue of Caupolican, the Araucanian Hercules.

Once this Santa Lucia Hill was the site of a cemetery for Protestants. To-day a tablet in Spanish tells of this:

TO THE MEMORY
OF THE
EXILES FROM HEAVEN
AND EARTH
WHO IN THIS PLACE
LAY BURIED
FOR HALF A CENTURY
1820–1870

When G. T. Stokes had seen these beautiful offerings of Santiago, he wrote, thinking of the fortunate people who can look on them daily:

> What a change in the condition of life in London would be at once brought about could the scenery surrounding Lucerne be transported to the world's metropolis, and the toiler in Fleet Street and the Strand be enabled to look amid his daily labours upon cloud-piercing mountain peaks clad in a robe of virgin white!

Such visions, seen by one visitor who stood on one of the business streets, looking west to the Andes, led him to remark that, at the end of the street, was the most wonderful drop curtain he had ever seen. Only those who pause for the same vision can appreciate the accuracy of his words.

The view from the hill is a splendid preparation for a study of the spacious streets and goodly buildings of the city which has placed the telephone and telegraph wires underground, and has constructed plazas and avenues of rare beauty. Visitors from the United States will be delighted to find that one of the handsomest residences is that of the Ambassador to Chile from that country. Both outside and inside this residence is a splendid illustration

of what should be provided for the representatives of the United States in many of the world's Capitals.

When a visitor leaves this home of the Ambassador, where visitors are received so graciously, he will be in the proper mood to appreciate one of the finest of the city's chief arteries of trade, residences and public buildings. The Avenida de las Delicias is true to its name, the Avenue of Delights. Amazement is caused by some of the magnificent buildings on this avenue, for instance, the Club de la Union, which is one of the finest structures in the world devoted to such use. Across the way is the University of Chile, once the University of San Felipe. Fortunate is the visitor who gains access to the hall in which are displayed the portraits of the successive rectors of the University. Near by is the building of the Army and Navy, while across the street from it is the Palacio de la Monedas, an ancient building in one of whose courts are two brass cannon, cast at Lima in 1732. The President of Chile occupies a suite in one wing of the vast structure. This was built here by mistake. It is related that in early days Spanish architects prepared plans simultaneously for a mint for Santiago, and for a great government building for Havana, Cuba. But the plans became mixed, and Santiago gained at Havana's expense!

On the Avenue of Delights there is what seems to be a palatial private house, a museum where all sorts of relics are on view. An introduction is necessary to gain entrance there. After wandering through the apartments, and looking at wonders gathered through many years by a lover of the old and the picturesque, it is a surprise to learn that he will consent to part with almost any of his possessions for a sufficient consideration.

But there is more pleasure in finding curios and artistic bits in some out-of-the-way odds-and-ends shop on a back

street. In one such place the writer found a brass candlestick, covered with the grime of many decades, but showing still its possibilities. The shopkeeper was asked about it.

"That?" he said. "It isn't anything. You want old Chilean things? That is English. More than a century ago they brought out much of that ware from England."

He did not realize that, instead of making the shopper turn to more tawdry ware, he was making the purchase of the candlestick a necessity.

The stroll that led to the curiosity shop on the back street was taken when the boys and girls were on their way to school. School children always make a pleasing appearance, but this is especially true in Santiago, where the girls are dressed in uniform black, and the boys, too, have their simple costume. This is so also in most other South American cities. The children walk the streets most sedately. Is this because they are so well trained? But after the boys and girls had been observed in a school-yard at recess, a query was put to a resident of the city.

"I have always been troubled because the boys and girls do not play more," was the answer. "So often I am saddened by the sight of the unsmiling faces of the children and their subdued ways!"

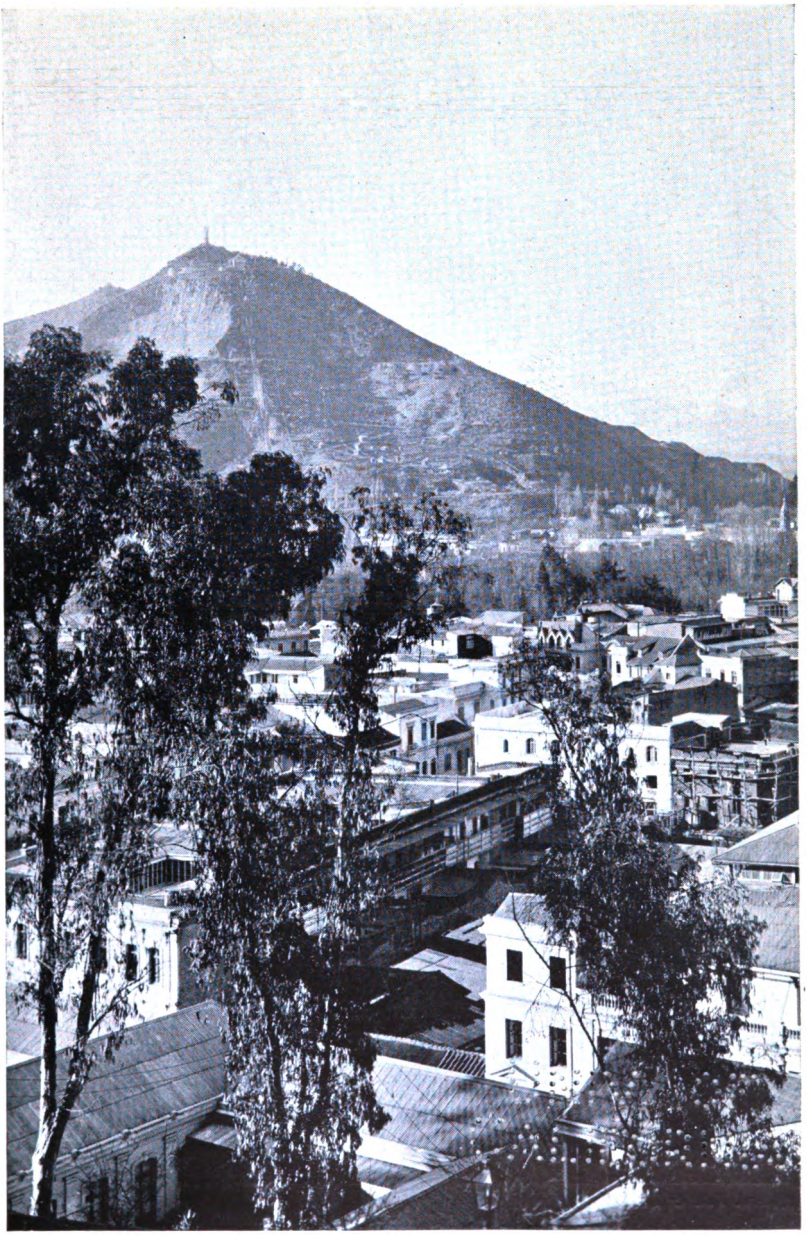
Before leaving Santiago the visitor should take the delightful drive to San Bernardo. And he should go—passing on the way the new buildings of the famous Instituto Ingles—into the foothills from which he can look down on the city far below. The best time for that climb is in the evening, when the lights begin to illumine the streets of the Capital. The writer will not soon forget his first evening on these slopes. A little before sunset he took a pony to pasture in the foothills, where the Boy Scouts of Instituto Ingles have built an attractive summer

camp. The upward ride was delayed by many pauses, to look back on the city as it lay bathed in the light of the setting sun, while the swift dusk fell, and the fairylike lights flashed out until the whole city was like an upland field where a million gigantic butterflies danced. So much time was lost in gazing that no attention was paid to a very moist cloud that covered the hillside until the lights of the city were blotted out. Then it was time to leave the pony in the pasture, and to find the way down the long hill, in the rain and the darkness. That evening's experience was worth while, if only to show what Santiago's rains are like in midwinter August!

The one-hundred-and-fifteen-mile long road between Santiago, the Capital, and Valparaiso, its port city, has been spoken of as providing " a journey of railway gymnastics, for the line curves, climbs, winds, and plunges, into the blackness of many tunnels, on its way down from the plain, eighteen hundred feet in altitude."

The bay of Valparaiso, almost a semicircle, is three miles across. The city of a quarter of a million people is built about the bay, on the slope of a spur of barren hills which reach out into the Pacific, terminating in a peninsula that leads to Punta Angeles. At the extremity of the bay is Punta Gruesa. The city built on the beach is strongly fortified. But this portion reaches back up the short slope into the valleys of the many hills, so that the upper city is from a thousand to fourteen hundred feet high. Connection between the two parts is easy, not only by roadway, but also by inclined passenger elevators.

Since its founding in 1536, by Juan de Saavedto, the city has had a chequered career by reason of earthquakes, pirates, besiegers, bombarding fleets, victorious soldiers in civil wars who sacked and robbed. But in spite of these things it has prospered. The earthquake of 1906 cleared



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SANTIAGO FROM SANTA LUCÍA HILL

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SANTA LUCÍA HILL, SANTIAGO

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UNITED STATES EMBASSY, SANTIAGO

the ground for vast improvements, and the city was not slow to take advantage of the opportunity to modernize the buildings and broaden the streets. The port has been developed, until now it is possible to land from steamers at the dock. The necessity of transshipping goods, by way of the Transandine Railway to Buenos Aires, in order to avoid the Straits of Magellan, has been responsible for much of the development of the greatest port on the Pacific south of San Francisco.

"Valpo," as the people of Chile call their great seaport, is full of attractions. There is the Plaza Victoria, with its music stand in the center, where military bands delight the citizens. Overlooking the bay and the lower city is the Chilean Naval Academy. The slopes which lead from the street to the Academy are beautifully landscaped, and the grounds about the Academy afford a pleasant, wide-spreading view.

From the heights behind the city there is always a rich prospect of the busy harbour, dotted with ships. And from the harbour, on one of these ships, the view of the shore is something to glory in. In winter the slopes are especially beautiful, for then they are green. On one slope, to the south, is the city's beautiful cemetery. To the north and west are the snow-clad mountains. The semicircular harbour, the business buildings and hotels clustering on the water front, and the hills at the rear, make a combination that is unique. That prospect should be seen in the evening. It is worth while to enter the harbour by day; but to leave it at night as the lights are bursting out on the upward-looking streets!

Six miles from Valparaiso is beautiful Vina del Mar, a seaside resort, called the Newport of Chile, where, from January to March, men of wealth take their families to escape the hot days. Luxurious villas, club-houses, golf

courses, tennis courts are everywhere. Looking on these a traveler wrote:

> As we first saw the shore line and foliage of the beautiful suburb Vina del Mar, in the soft light of a late evening in April, and in the clear light of the following morning glimpsed the wide arch of the open harbour and the gleaming white houses of the city, pyramided one upon another above the sapphire-like Pacific, the name " Vale of Paradise " seemed appropriate.

The blue waters of the Pacific invite the visitor to Vina del Mar to trust himself to them that he may visit some of the mysterious regions to the south. He can go there by rail also, but when there is time who wants a dusty train instead of a ship on the rolling main? More than four hundred and fifty miles south of Valparaiso he comes to Concepcion, with its sightly wooded hill, known as the Caracal. This is a thousand feet high, and is utilized as a park. The city is on the Bio-Bio River, the stream made famous by the Araucanians, who, when Pizarro in 1535 sent an expedition to conquer the country, resisted successfully, though in 1541 they were driven back to the Bio-Bio. From there they made a long series of raids even as far as Santiago. Once they captured Valdivia and put him to death.

These mighty Indians, who succeeded in resisting the Spanish where the Incas had failed, continued for two hundred years their enmity to the new possessors of the country, in spite of treaties and agreements. Not until 1882 did they acknowledge defeat. To-day more than one hundred thousand of them live south of the Bio-Bio. They are characterized by friendliness to the Chileans, and by pride in their heritage from ancestors of long ago. Many Chileans are glad to think that Araucanian blood is in their veins.

Concepcion, on the Bio-Bio, the commercial center of a rich agricultural region, has perhaps seventy-five thousand population, and a trade that makes the near-by port Talcahuano an important place. Pedro de Valdivia is responsible for this city also; in 1550 he came this way and founded it on the bay where the minor port of Penco now stands. Repeated earthquakes discouraged the inhabitants, and they removed to the present more sheltered site, though their judgment was not entirely vindicated, for in 1835 an earthquake ruined the new town. The story of its destruction, given by Charles Darwin, in *The Voyage of H. M. S. Beagle,* is a South American classic.

The railroad which leads from Santiago to this metropolis of the country of wool and wheat and wine, of coal and cattle and timber, moves on to the south, until it comes to Valdivia, Capital of the mountainous province of the same name, a city of about thirty thousand population. In this province live many of the German immigrants who have been attracted to Chile. They are proving good pioneers in a frontier region.

The terminus of the railroad is at Puerto Montt, the primitive port at the head of the picturesque fiord-like Corcovado, also the terminus of transportation by air as conducted by the Chilean Government. Travel by these routes is increasing, for Valdivia and Puerto Montt are means of access to the marvelous Chilean Lake Region, called the Switzerland of Chile. These lakes nestle in the peaks of the Andes. Llanquihue and Todos los Santos, two of these remarkable bodies of water, have been compared to the lakes of Scotland and England, as well as to those of Switzerland. From the waters of the latter the view of snowy Mount Puntiagudo is magnificent.

But comparisons are always unsatisfactory. The lakes must be seen. Fortunate is the visitor to Chile who can

take the additional week needed to enter the country of the Araucanians and study the lakes and the mountains about them. The summer months—December, January and February—are best for the visit. Then the mean temperature at Puerto Montt is but 58°. Yet in July the mean temperature drops only to 45°. Rain falls here nine months in the year.

The geologist explains these mountain gems by telling that "a line of recent volcanism begins a little south of Santiago, and is outlined on the Cordilleras to about 35° south, when it gradually departs from the Cordilleras until in the south it stands well out on the central plain and forms a less continuous but higher chain west of the Cordilleras proper. The southern part of the plain is filled with recent geological deposits, and forms the fertile Vale of Chile. South of 39° it is sown with glacial lakes or depressions usually occupied by lakes. Not only because of the greater precipitation on the western side of the Cordilleras due to the belt of the westerly winds south of latitude 39°, but also because of the great condensation of moisture caused by the line of volcanoes, the glaciers advanced much farther from the water-divide on the western slope than on the eastern, with the result that the grand lakes on the Chilean side of the Cordillera are at a much lower level than on the Argentine side, and part of them, as for instance Roanco and Llanquihue, lie completely separated from the Cordillera."

However, south of Lake Alumine the lakes are not glacial, but have been dammed up by lava flows. Of Alpine form, they reach back like fiords into the mountains. From Lake Nahuel Huapi to the north most of the lakes still drain into the Atlantic, but to the south they drain into the Pacific through deep canyons in the Cordillera.

Just below Puerto Montt, and facing the western

boundary of the Gulf of Corcovado, is the large Chiloe Island, mentioned by Robert J. Payro in *Nosostros,* a Buenos Aires publication, in July, 1927, as he told of the lost cities of Chile. He explained how, from the first decade of the sixteenth century, the Spanish believed that mysterious and wealthy cities existed in remote and inaccessible parts of South America. Whether these were inhabited by descendants of the Incas, by those who had come in a migration before Columbus, or by shipwrecked mariners from Holland or Great Britain, was uncertain.

This is the Patagonia country, a region popularly thought of as containing nothing but ice. There is ice, two great fields of it, from about 46° to 51°, but there are also great regions where the sheep and cattle industries flourish, where agriculture is followed with profit by colonists from the Argentine and from Chile, as well as by immigrants. They raise wheat, rye, and potatoes, not only for their own needs, but they have a surplus for export. To this agricultural country a broad-gauge railroad eight hundred and sixty-six miles long leads from Buenos Aires. There are also other railroads.

For many years there were disputes between Argentina and Chile as to Patagonia. The king of England arbitrated the dispute early in the twentieth century. Now Argentina has four territories south of the Rio Negro, while Chile has three. In 1843 Chile founded on the Strait of Magellan Punta Arenas, now known as Magellanes, the most southerly city on the continent. Twenty-two thousand people look across to Tierra del Fuego, and watch the ships make their difficult way through the Straits which Magellan threaded in 1520. Here, in 1916, Sir Ernest Shackleton made his way in an open boat, from the Antarctic regions, seeking relief for his men.

XII

FROM VALPARAISO TO THE BORDER OF BOLIVIA

IN the days of sail the sea journey from Valparaiso to New York required about one hundred days. Then came steam, and the marvelous time of thirty-eight days, by way of the Straits of Magellan. In 1918, after the completion of the Panama Canal, this was reduced to twenty-one days. Now the journey requires sixteen days.

There are those who talk of the monotony of the journey north from Valparaiso. They do not know what they are talking about. There are those who have heard so much of the joy of Pacific travel on the steamships of the Grace Line that they prefer to make their start from Talcahuano, rather than from Valparaiso, thus adding twenty-four hours to the succession of lazy days on a blue ocean, under a turquoise sky, always in sight of mountains. First comes the darker, lower Coast Range, then the Andes, rising in rugged ridges up to fifteen or even eighteen thousand feet. So often snow covers their serrated flanks. Clouds cling to the summit, clouds so like the snow that it is not always easy to tell where snow begins and clouds end.

Yonder in the mountains it is easy to imagine remnants of the royal road of Inca days, which reached from Quito to the south of Chile, a distance of more than three thousand miles. That great road, we are told, crossed wide deserts, deep canyons, fearful precipices, and foaming torrents. Here and there were suspension bridges whose cables of fiber and hair were fastened in holes cut in the

rock. Sometimes deep gorges were filled with masonry, while tunnels pierced the ridges. Some of these tunnels are still in use, while travelers follow the hairpin curves of long ago, or trace bits of the asphalt surface.

When about two hundred miles north of Valparaiso attention is attracted by marks of industry on the barren mountains of the Coast Range. There is a mountain of iron ore, with a railroad winding above the steep slope toward the sea, where there are shipping facilities for sending the iron to the mills of the United States. When the *Santa Inez* anchored at the little port close to the mountain of ore, a small boat brought from shore two passengers, husband and wife, who showed their delight in their surroundings as soon as they came on board.

"You wouldn't wonder at our pleasure if you could see the barren place yonder where we have spent three long years," the husband explained. "During these years we have spoken hundreds of times of the joy that would be ours when we could come on board a Grace Line boat and could revel in its luxury for the days which would take us back to the joys of home.

"Coming back? Of course we're coming back. My work is over there in the mines. Our home is there on the mountain side. We may be glad to get away, but you can be sure we shall be glad to return in three months."

Just then the signal was given to hoist anchor; the ship would soon be on its way once more.

"Would you like to come with me to the engine-room?" asked the man from the mine. "I have wanted to see the ship's Diesel engines set in motion. Machinery always fascinates me, but there is nothing like the starting of these motor boats. You'll agree with me, I'm sure, that you will see more poetry in that engine-room than you can read in an evening."

His companion had to tell him he was right. A visit to the engine-room of a Grace Line boat is a rare treat.

From the engine-room, out to see the desert. There was a lot of desert. And those who wish to see how dry a desert can be should go to Antofagasta, more than seven hundred miles to the north of Valparaiso, and pay a visit to the desert of Atacama. There people do not ask one another if they think rain will fall to-day, or to-morrow, or next week. When conversation becomes dull some one may speak of the shower that fell three years ago. Or an extremely accurate individual who most tiresomely persists in dating events may say, " I remember that this happened just before the day of the rain." In most countries the remark would pass without comment; the day of the rain may have been last week or the week before. But where rain falls only once in six or seven years, the designation is noteworthy.

Yet beware of counting on the rainless condition even of the desert! For just before the writer planned to take the fine railroad inland from Antofagasta the rain descended on the town and the floods came, until the railroad that leads to La Paz was in a deplorable state through washouts.

There was a time when this and other barren deserts of Chile and Peru were fertile lands. Then the Andes were not so lofty, and when trade winds blew clouds from the Atlantic they did not hit the barrier and drop all their moisture before reaching the country along the Pacific. Now, however, the mountains are so high that the clouds are deprived of their burden before they have an opportunity to become a blessing to the land on the west of the mountains. So, instead of forests, there are deserts; instead of trees, there is barren desolation.

But do not think that desolation means poverty; that a

desert is without riches. The desert of Atacama is one of the world's richest regions; here, and in the companion desert of Tarapaca, are the famous nitrate deposits that, since the time of the first exports in 1830, have been making Chile rich.

The mineral so valuable in the development of plant life is found in deep beds where it has lain during many ages. For a distance of four hundred and fifty miles these beds occur, between the rivers Loa and Totoral, sometimes fifteen miles from the coast, sometimes six or seven times as far.

What a tragedy it seems that the very thing that is so necessary to the production of glorious plant life is found where there is nothing green, no vegetation of any kind! Then why doesn't the country look more presentable? Those huge mountain barriers against which the clouds from the east drop their last burden of rain are the answer.

More, rain would be a grave misfortune. For it would wash away the thick crust that covers thousands of square miles, and the desert would become in reality as barren as it appears to be, and as it seemed to the inhabitants until that day when the famous Scotsman who lived at Iquique, to the north of Antofagasta, noted that a part of his garden which had been banked up with soil from the beds that looked like desert, was yielding far greater returns than other parts. Some of the miracle-working soil was sent home to Scotland for testing; the results there brought wealth to the country of the nitrates.

That country was Chile? No! For much of the nitrate country belonged to Bolivia. The lands were exploited by Chile, however, where enterprising business men saw the possibilities of the desert riches that were not being exploited by their proprietors. Bolivia demanded that the mining companies pay a tax on each quintal of nitrate

exported. When the demand was ignored, Bolivia seized the property of the Chilean Nitrate Company. Chile sent five hundred soldiers to protect her interests, and blockaded the ports of the nitrate region, including Antofagasta. Two weeks later Bolivia declared war on Chile.

Bolivia called on Peru to give assistance in accordance with treaty provisions. "Denounce the treaty!" Chile demanded. Peru would not do this, but declared her willingness to act as mediator between the disputants. Chile would not accept the offer, and the result was the beginning of the War of the Pacific between Chile and Peru and Bolivia, the landing of troops at Arica, close to the border of the two countries, the naval victory of Chile at Iquique, the conquest of Lima and Callao, and the final complete victory of Chile, though Bolivia delayed signing the treaty of peace until December, 1883. Not until 1904 did she cede to Chile her territory on the coast.

Peru yielded to the demand made by Chile for the province of Tarapaca, which included Tacna and Arica, while by yielding Atacama Bolivia lost her seacoast. This was the beginning of the long dispute concerning Tacna and Arica which, for forty years, dragged its slow course along. A provision of the treaty of Ancon, made in 1883, was that, after an interval of ten years, a vote of the people should decide to which country they would belong. A further provision was that the loser in the vote should receive ten million pesos from the winner. The attempt to hold the plebiscite in 1922 was a failure. Then, at the invitation of the United States of North America, representatives were sent to Washington, to seek relief.

Not until 1929 was the decision made that Tacna should be awarded to Peru, and Arica to Chile. An imaginary line should be drawn between the towns, and the town built at the ocean end of the line should be called Con-

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AVENIDA de BRAZIL, VALPARAISO

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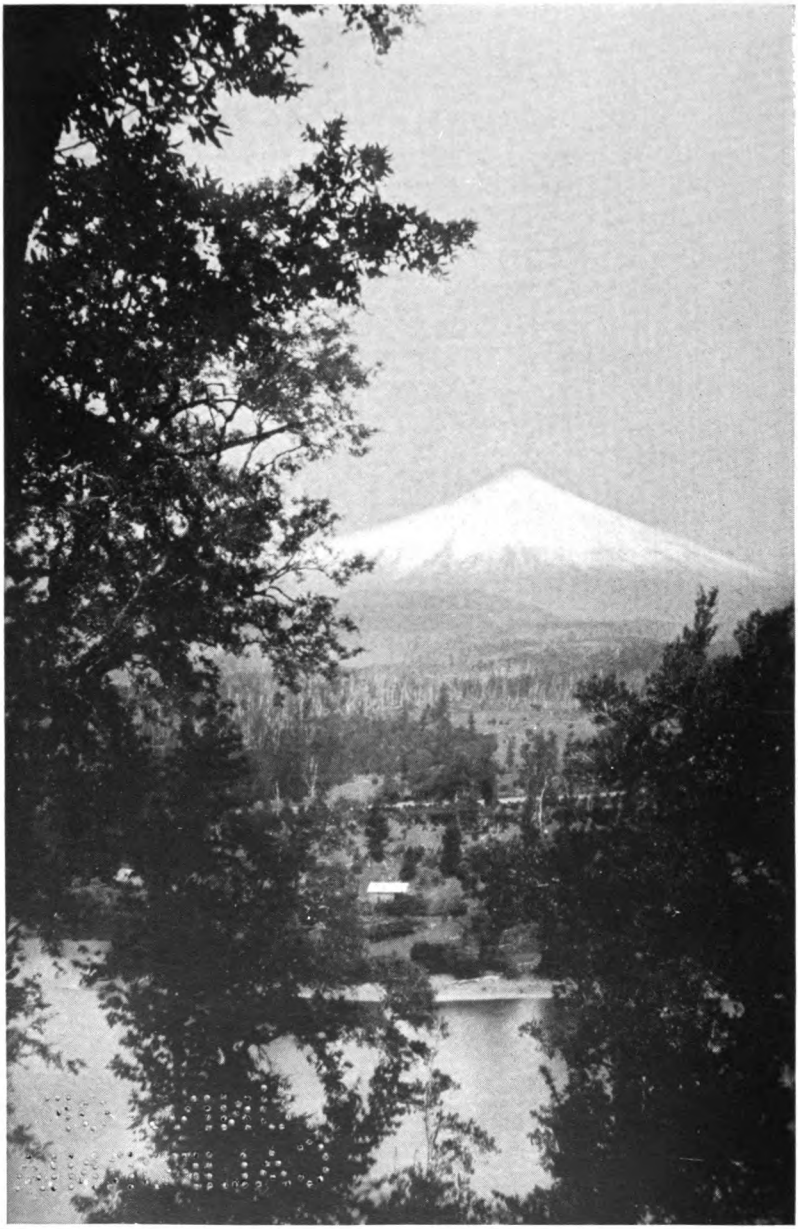
OXEN CROSSING THE FORD



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THE SNOW-CAPPED VOLCANO OF VILLARICA, CHILE

cordia. Chile was glad to retain Antofagasta, not only because of its importance to her, but because of the history of the port, while Tacna yielded to the inevitable, and was on its way to fame.

Arica, near by, is an old city. It was built long before the days of the Incas and the destruction of their king by Pizarro. The town in his days became an export center, and demands were made of the people that it was hoped they would accept. This they did not do, however; they preferred to receive another buffet from fate that was even harder to submit to than fire or earthquake. The last of these earthquakes that visited the town was accompanied by a tidal wave that blew far up the beach the U. S. S. *Wateree*.

A few years after the conclusion of the War of the Pacific the desert country figured once more in history. In 1891 the officials of President Balmaceda of Chile, members of both houses of Congress, revolted and fled to the nitrate fields. They made their headquarters at Iquique, where they were cared for by the navy they had taken with them. Supported by the revenue from the nitrate fields, an army was recruited from the labourers. With these men they prepared to fight Balmaceda. Arms were needed, and the *Itata* smuggled a cargo from the United States of North America. Discovered in season, the vessel was unable to land her cargo. Ultimately more arms were received from Europe, and the Balmacedists were defeated in a battle that decided whether the country was to be controlled by the President or by Congress.

In the towns in the desert which provided the funds for the opponents of Balmaceda there are many peculiar sights for the visitor. In Arica, for instance, there are the burros in the streets, bearing panniers woven of reeds or grass, laden with fruits and vegetables. Other burros draw casks

of precious water over hard-packed sands where, it has been said, the deserts of North America are entirely surpassed.

Antofagasta, too, has its surprises. In the midst of the barren country where, for hundreds of miles, no living creature is to be seen, and no trace of vegetation, this city of sixty thousand people has a little park that is a marvel. For it is kept green by water that is pumped nearly two hundred miles from Siloti Spring, high up in the Andes. How beautiful that park is, with its tropical foliage against the background of the mountains! The city is supported by its exports of nitrate; a million pounds a year are sent in response to urgent demands. These demands continue, though scientific discoveries have reduced them, so they have cut the price.

But the chief wonder of the desert that leads out of Antofagasta is the railroad, seven hundred and twenty miles long, more than six hundred miles north of Valparaiso, whose beginning was due to the efforts of two Chileans. In 1866 these men began to search in the Atacama desert for nitrates. Bolivia gave them a concession to explore and develop five square leagues for agricultural purposes. This was to be done in the San Mateo Valley, on the present Antofagasta Bay. Acting as the Atacama Desert Exploration Company, they began to build a railroad from the sea to the nitrate fields, seventy-five miles distant.

Fourteen years passed. The work was completed to Salinas. Then came the War of the Pacific, which Chile won. With her seacoast Bolivia lost the railroad also. Soon this became known as the Antofagasta and Bolivia railroad.

For the first portion of the line the gauge is narrow. But when the road reaches Bolivia it becomes wider. The

passage is difficult; the embankments and the curves are sharp and steep. From sea level to two and a half miles above there is a steady ascent, in very short space. At first the country is rich in nitrates and poor in water. Next it becomes simply poor. Frequently the road that rises in stretches to a height of thirteen thousand feet is in the midst of rich country, at first barren nitrate lands, then borax territory, then the green agricultural lands of the Bolivian plateau.

Some may find the ride on this wonder road monotonous. But those who make the trip for the first time will not think the hours tedious as they pass, within a short period, from an altitude of one to twelve thousand feet. The temperature changes with the altitude from 110° to 42°. Few are the railroads that give opportunity to go so quickly from a humid climate to a sub-tropical region. Then there are temperate, deep valleys, cool plateaus, bleak, inhospitable grazing lands, and finally the Arctic zone. And all these varieties in Bolivia, which lies wholly within the tropics!

On the way there are torrents to be crossed, there are passages through snow sheds, and there are numerous glimpses far down over the precarious edge of shelves in which the railroad has been cut. Here where the Andes are broad there is a double line of crests. The crest farther west is close to the boundary between Chile and Argentina. Between the crests are elevated valleys which range in height from ten to thirteen thousand feet, while passes range from thirteen to fifteen thousand.

XIII

THROUGH THE HEART OF BOLIVIA

AFTER the railroad crosses from Chile into Bolivia, the traveler has the curious sensation of being in the midst of swampy land in high territory. For he passes a series of low-lying lakes—by courtesy they are called lakes—which are more like marshes. First of these is the Salar de Uyuni, thirty-five hundred miles of salt-encrusted swamp which may have a little water in especially low places. This swamp has no outlet. The Salar de Coipasa, another swampy area farther on, covers a thousand square miles, has a small outlet, though it has a large inlet from Lake Poopo, a shallow body of water not more than fifteen feet deep. This varies in extent. At low water it is about the size of Coipasa, but sometimes it reaches thirty miles from its low water edge to the very borders of Oruro. It is fed by the Desaguadero River, from Lake Titicaca, and it has an outlet, the Lacahahuira, yet the difference between inflow and outflow is more than five hundred cubic feet per second! This must be accounted for by evaporation. The Lacahahuira, a very much discouraged body of water, starts beneath the sand, until it comes to the Salar de Coipasa.

Lake Poopo has interest entirely apart from its size and its strange characteristics. East of the lake is an Indian village that amounts to little at ordinary times, but once a year, in the week following Easter, it becomes a bustling community of ten thousand people. For at that time a

fair is held to which flock, for trade and for social contact, Indians from the highlands, from the eastern lowlands, and many from Argentina—Aymarus, Quichuas, Mojos, Chiquitos, and Chinguanos; among them are representatives of wild tribes as well as descendants of civilized Indians in the grass-lands who were trained by the Jesuits in the seventeenth century.

But before the railroad approaches even the first of these strange, swampy lakes the passenger is given a glimpse of Uyuni, an important highway and railway junction, a town of five thousand people. This may be reached either from Buenos Aires or from Montevideo over lines which, after leading through the heart of a rich agricultural section, climb into the mountains and come to the Argentine border at La Quiaca. Tupiza, a railroad town across the border in Bolivia, is a picturesque place of five thousand, on a small branch of the San Juan River. Only since 1925 has this final link in the upper route from the Atlantic to the Pacific been open.

A few miles above Uyuni is the center of a great silver-mining section. The Huanchaco-Pulacayo group of mines are on a slope of the eastern Cordillera, about 6,000 feet above the sea. Here is Bolivia's largest silver output; it takes second place only to the Broken Hill mine in Australia. Probably more than a hundred million dollars was extracted here within thirty years. A study of silver mining methods is easy and interesting for those who stop over at Huanchaco.

Yet if there is time for but one stop-over this should be made at Opoca, to permit a trip by the short line to Potosi, opened in 1912. This line to South America's most famous silver mining center of Spanish days crosses over the Cordillera Oriental at a height of fifteen thousand eight hundred feet. This is finished at Crucero Alto. Then

comes the descent of fifteen hundred feet to Potosi, now a busy town of more than thirty thousand people. This seems large in modern Bolivia, though it is small when compared with the hundred and sixty thousand people who lived in the district when New York City was a hamlet. Those were the bonanza days when silver mining was at its height. The town was founded in 1547, two years after the discovery of the first silver mine in the gaunt, grim, white-capped Cerro which rises two thousand feet above the town. The discovery was made by Hualpa, who was with an Indian goat-herd. The latter took hold of a bush which came up by the roots, laying bare a mass of pure silver.

The new town—still one of the highest towns in the world—was called Cerro Gordo de Potosi, from the height on which the silver was found. That mountain was found to be almost pure silver. Those who look upon it can see how the sides were honeycombed with tunnels. Most of them are abandoned now, but they were producing between the two centuries and a half when more than eight hundred millions in silver came from them and from other mines in the district.

Potosi is a picturesque town, with its central plaza, surrounded by public buildings, including the mint, which was built in 1885. But the most interesting remains are the lagunas, made by the Spaniards in 1621, for the city's water supply. The people to-day still secure their water from these lagunas. Of course there are melancholy ruins, most of them of adobe, which tell of the days of departed greatness. But some of them are being replaced, by reason of new prosperity that is coming in the wake of tin production.

The tin in the mountains of Bolivia was known to the Incas. There is evidence that they opened mines and

worked them. That they knew how to combine tin with an alloy, so making bronze, has been shown by discoveries of relics on the shores of Lake Titicaca. Not until the coming of the railroad to the high plateau between the two ranges of the Andes was it possible to take the tin to market. Since then there has been constant development.

"If only we had our own outlet to the sea!" is the constant cry of this inland country. It may well be understood, then, why, before the settlement of the Tacna-Arica dispute between Chile and Peru, Bolivia longed for these towns. They belonged to the old government of which Bolivia was a part in the days of Spanish domination. Wouldn't it be a wonderful thing for Bolivia if they could be hers?

An American company which has been exporting tin in spite of the handicap of no seaport, the Caracoles Tin Company, has obviated some of its own local difficulties by the construction of an aerial tramway from the mines to the mill at Molina. This six-mile tramway, which cost three hundred thousand dollars, supports its double cable on a hundred towers. These are built across great ravines and on the sides of mountains surmounted by snow-clad peaks. The elevation is about twelve thousand feet, so it is the highest tramway of the kind in the world. Twelve tons of ore are carried each hour, half a ton in a bucket. From the mill the product is taken by motor sixty-eight miles to Eucalyptus on the railroad, for shipment to Antofagasta. This journey is made by one of the bits of modern highway of which Bolivia is proud, a stretch built along a trail once fit only for llamas and mules.

There is now a railroad from Potosi to the interesting old city of seventeen thousand people known since 1840 as Sucre, in honour of the first President of Bolivia, and hero of the war of liberation from Spain. A fine auto-

mobile highway more than one hundred miles long also connects the centers—a great contrast to the road between La Paz and Potosi over which, in 1825, Bolivar rode in triumph, when a company of two hundred Indians had made it passable. One who told of that triumphal ride said of the road:

> It lay across stark, barren country swept with bitter winds, thirteen thousand feet above sea level, but the Liberator rode under an arcade of green trees and triumphal arches extending out at least two leagues from the city.

Sucre is ancient. It was built on the site of the village which the Indians called Chuquisaca (golden bridge) and was named Charcas. The site, in a narrow ravine of the Cachimayo River, nearly ten thousand feet high, surrounded by fruitful valleys and rich vineyards, attracted the Spaniards, who here began the cathedral in 1553, and a mint in 1572. The University of San Xavier was founded in 1624. The President's palace and halls of Congress may be seen, for Sucre was, until 1898, one of four Capitals of Bolivia. La Paz, Sucre, Cochabamba and Oruro took turns in being Capital. In December, 1898, Sucre overreached herself by trying to become the permanent Capital. La Paz objected most decidedly. The result was a battle, fought forty miles from La Paz, between insurgents and government forces. The former were victorious, and since that time La Paz has been the actual Capital.

On the way by rail back from Sucre to La Paz, north of Lake Poopo, is another great mining center, Oruro, a city of about thirty-five thousand, on the Plain of Oruro, thirteen thousand feet high. Copper, tin, bismuth, and silver are here loaded on the train within sight of Sajama,

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TRANSPORTATION IN AREQUIPA

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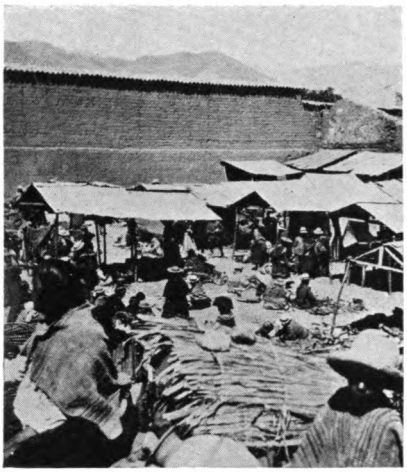
HAULING NITRATE IN THE DESERT



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MARKET DAY

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PREPARING YARN FOR THE LOOM

whose summit rises eight thousand feet above the plateau. Curiosities for visitors are the streams of boiling water which flow from crevices in the mountains to the plateau. These hot streams are valued by the native women, who use them for washing clothes.

In Oruro the old and the new are side by side. The town dates from 1595; one of the new institutions is the School of Mines, located by a wide-awake government in this strategic place, which took on new life when the railroad from Antofagasta was opened.

From Oruro to La Paz, the destination, is one hundred and forty miles, across a treeless tableland. On the way are the copper fields of Corocorro. Forty miles from La Paz is lordly Illimani, which looks down on the city from its twenty-one thousand feet. Not far away is Illampa, the second summit in South America, where the vicuna and the guanaco leap boldly among the higher crags, while the surefooted alpaca and the llama tread the lower regions.

La Paz has a strange situation. The traveler stumbles on it almost before he knows that there is a city near. For, while it is twelve thousand feet high, it is deep within a ravine in the tableland, ten miles long and three miles wide—by many thought to have been at one time an outlet from Lake Titicaca to the Amazon—and the vision of red-tiled houses bursts suddenly on the visitor.

Into this heart of Bolivia came Pizarro, from his conquest of Peru, in 1535. After his domination of the Indians, who made no resistance, he divided the country among his brothers.

La Paz was founded in 1548 by Mendoza on the site of an Indian village dating from about 1185, which Don Vincente Pazos says was called Choka-Yupoo (farm of potatoes), though others say that it was called Chiquiapu (heritage of gold). The new name given to it was La

Ciudad de Nuestra Senora de la Paz (the City of our Lady of Peace). It is situated on the La Paz River, which, a few miles below the city, channels a way through the Cordillera Real on the way to the Beni, and then to the Madeira.

The precipitous sides of the valley of the La Paz rise fifteen hundred feet above the city, to meet the plateau in the midst of which is Lake Titicaca. In and about this tableland city are places of commanding interest and views that are compelling. Most of the streets are steep, but the public automobiles and the electric cars provide easy transportation to all parts of the city and the suburbs—to the colourful market; to the fur-goods stores, where alpaca and vicuna rugs are so attractive; to the points of vantage everywhere from which seventy-five miles of snow-covered peaks may be seen with ease; to the curious houses of other days, as well as to the modern dwellings of wealthy citizens; to the Plaza de Armas—only level spot in the city—surrounded by the Government Palace, the Congressional Buildings, the Hotel Paris, and the cathedral, which, still unfinished, has been in process for two centuries; to the walls of the canyon within which the city is built, with its pleasing combination of colouring and erosion; to El Prado, the public promenade, where tropical trees, shrubs and flowers are cared for in a manner remarkable for the altitude. But most interesting of all to many visitors are the Indians who throng the old, narrow, roughly paved streets, the markets, and the stone bridge across the river.

And this is the Capital of Bolivia, a country which is not to be dismissed with Waldo Frank's careless characterization as "a mere stratification of geographic districts and ethnic groups bound externally together." For Bolivia is a country to be reckoned with, a colourful, pleasing country where enterprise is real and the future is encouraging.

Beyond La Paz, just over the seventeen-thousand-foot Illiapo Range, then across the Tipuani and Chollona Rivers, live many thousands of primitive Indians who guard the passes by which their land may be approached. They fear the coming of settlers, who might put them out of their beloved Capital, Paroma, set on a hill in the midst of the tropical forest.

One of the latest indications of Bolivian enterprise is the new railroad from La Paz over the high Huacuyo Pass, 15,223 feet high, into the Upper Yungas Valley. This road, so difficult to build, but so much needed, will open a rich district where coffee, cocoa, and tropical fruits are produced. This new road will fit in well to the outlet road to the Pacific at Arica, two hundred and eighty miles long, which was provided by treaty between Chile and Bolivia in 1904, and was completed in 1913. It descends the Cordilleras by astounding grades; 28 miles of the distance is made by rack-rail.

Arica, the Pacific terminus of the road, over which trains run once a week, was—according to Don Vincente Pazos, in his *History of South America,* written before 1820—"formerly a considerable town, but it has declined; it contains at present about 3,000 inhabitants." The same picturesque historian told of natural products that made the deserts great:

> In the valleys of Tackna, situated a few leagues from the port of Iquique, there are many vineyards, and there is also a rude manufactory of glass. The vineyards and other plantations in the province are manured by a kind of yellow earth, called *puano,* which is supposed to be the excrement of birds. It is procured from two small islands, one near Arica, and the other in the bay of Iquique. This earth is so fertilizing that it is supposed to enrich the soil at least four-hundred-fold.

In Northern Chilean and Southern Peruvian waters the guanay, or white cormorant, after feasting on the rich content of the ocean, deposits the fertilizer on the rocks. There are millions of them, as well as of the gannet, the black cormorant, and the Peruvian albatross. How these millions of birds are adding daily to the wealth of Chile and Peru—wealth that would astonish the conquistadors, who thought of riches only in terms of gold and silver!

The albatross, however, is not an unmixed joy to the pilots of airplanes. One day, when the ship of the air made a sudden rise, the radio operator explained: "Albatross! Last trip one of them got tangled in the propeller blades. We shudder yet as we think what might have happened."

XIV

LAKE TITICACA AND INCA LAND

THOSE five wonderful miles on the railway from La Paz to El Alto, on the way to Guaqui and Lake Titicaca! This bit of the railway built by the Bolivian Government, but since 1910 a part of the lines of the Peruvian Railway Corporation, is not only a marvelous bit of engineering, with its circles and loops and daring curves which conquer twelve hundred feet within that brief distance, but the panorama spread out from a point not far from El Alto, on the way to the Bolivian Capital, is tremendous. Far down in the ravine is the picturesque "metropolis of the roof of the world," with its climbing streets and its buildings of rainbow hues, overshadowed by those tremendous peaks, Illimani and Mururaba. The powerful electric locomotive conquers all too quickly this steep ascent, for the traveler wishes to look and look again, and with all his looking he longs for more of the vision splendid.

When, at length, the eyes are permitted to turn ahead, in the path taken by the steam locomotive in its three-hour progress to Lake Titicaca, it will be found that the vision of glory has not ended, but has merely been transformed. How the engineers who find delight in conquering difficulties must have enjoyed the construction of this road that passes through a region that was the seat of a civilization old when the Incas came into power! The roadbed is a monument to these builders of long ago, for the labourers who sought building material everywhere utilized walls by

the roadside, remnants of structures erected no one knows how long ago, ruins that those who have come afterward wish were still here within view of the traveler on the lofty plateau.

Fortunately the visitor is able to form some sort of picture of how these Punas Haladas, or bleak, frozen regions, must have appeared at one time after he has made a study of the ruins of Tiahuanaco, thirteen miles from Titicaca. Once a city greater than Cuzco, and older, possibly, than Rome, must have stood on the shores of the lake. But the subsidence of the waters, and the elevation of the plain have changed conditions in this region where to-day only a few people live. There is a native village, called Tiahuanaco, whose people have utilized in house building many of the more easily handled stones from the ruins of long ago.

Who were the builders of this regal city? There is a conjecture that a banished tribe from Argentina, forced north by the advance of more powerful natives, took their stand here. Uiracocha is the name of a legendary leader of his tribe, perhaps a god worshiped by the people. A former assistant consul at La Paz said that possibly the builders were ancestors of the present Aymara people of the modern valley. Were they an ancient Andean race of Mongoloid source, predecessors or contemporaries of the founders of ancient Central American civilization?

These people left no record. They had no form of writing, no hieroglyphics. We only know of them that they must have been in power long before 1100, when the Incas came. Did their period of power extend from the second century before Christ? Were they strong until about the year 800, when they seem to have dominated the coast as far north as Lima, possibly into Ecuador? Then did they decay for several centuries more? How did they manage

to build, with only the rudest implements, a city whose ruins indicate "perhaps the most imposing architectural structure of pre-Columbian America"?

It is known that these excited the wonder of the later Inca conquerors, by whom the ruins were recognized as ancient. How ancient? Some say they are three thousand years old. One conjecture is eleven thousand years!

Here and there on the plain, within sight of the track, as well as farther back where there is need for an hour or two of exploration, are huge monolithic statues of gods or national heroes. East of the modern village many of these statues are grouped in a great quadrangle, which is a reminder of Stonehenge in England. This quadrangle measures ninety yards by eighty yards, and the statues are ten feet apart. Some of the stones are six feet wide and four feet thick. It has been estimated that at least one of them weighs twenty-six tons! Many of the statues are eight feet high, and of a girth too great to be measured by the arms.

Some students say that there are evidences of two distinct and separate civilizations; a later people, on the ruins left by others, built a regal city. Which of these peoples were responsible for the crude harbour mole whose remains are still visible, a mole that was of great use in the days when Titicaca was at the higher level?

Above the quadrangle of the statues is a huge mount one hundred and sixty-five feet high, not unlike a step-pyramid. A staircase of great monolithic steps is also a feature. The quadrangle has been named by some The Temple of the Sun. The gateway of this temple has been called by one archæologist "the most remarkable ruin in America." The massive pediment has on it an image of the sun, with subsidiary carvings on either side. There is evidence that at one time there was a pavement on the terrace, elevated

ten feet above the plain which is surrounded by the temple, but in all probability the ruins have been removed by modern builders who are indifferent to the fact that visitors from North America would like to see them in the original location. On another artificial hill, but at some distance, are the remains of what has been called " the tribunal of justice." There are four platforms, each composed of a single stone. Indications are that there were, above this, ten lintels for ten doors.

Not far away is the ruined fortress Chavin de Huanta. There a great stone, twenty-five feet long, has fallen from the façade of the building. It is thought that this stone is far older than the building itself, which was probably erected by the Incas.

There are evidences of the way these ancient people lived, for it is not likely that their successors have made many changes in some of the things they did. For instance, take the primitive suspension bridges that may still be seen here and there in the high regions of Peru and Bolivia. " How can we cross this? " the modern traveler is apt to say, as he looks on the swaying structure. Yet the people seem rather indifferent to the danger, though " to cross is an athletic feat, calling for a cool head, and a command of the nerves that is unusual."

A study of these picturesque descendants of the people of long ago, as they are seen on the shore of Lake Titicaca, is full of interest. They sing at their work, whether this is planting, reaping, or tending sheep. One writer on the country has called attention to the fact that these born musicians are seldom seen without the *quena,* a sort of Pan's pipes. He says of them:

As they walk along, bending under their burdens; as they drive their llama train; as they hurry forward toward some

fiesta or dance, they continually play the plaintive, peculiar music of their Inca ancestors. And wherever a man or boy is tending the flock of sheep, cattle, llama or alpaca, the century-old airs of the Incas will be heard filling the rarefied mountain air with their melodies.

Spanish taskmasters who were eager to have the natives use all their energy in digging for gold tried in vain to break the musical habit. But they did succeed in teaching them to be active—especially the women and children. As the Quechia women tend their flocks or walk along the road they may be seen winding or spinning alpaca wool. The children, too, learn easily to follow industrious example; they are ready to take their share of sheep-herding, even when they are but six or seven years old. And they look on with interest while their parents, in the intervals of tending the flock, make blankets out-of-doors, their materials pegged out on the ground.

The alpaca, which supplies wool for these industrious people, may be seen crossing the Desaguadero, soon after it leaves Lake Titicaca, for old highways lead down to the water, and over to the other side—highways on which for many centuries the products of the mines and the fields have been carried on llamas from the plateau beyond the Western Cordilleras toward the coastal plains.

After the decay of the Tiahuanaco civilization it is thought that the survivors took refuge for a season on one of the many islands in Lake Titicaca, the largest of these being neighbour to Copacabana. A ride among the islands on the pleasant steamer *Inca* shows the way to many traces of the vanished race. This twelve-hour ride is one of the outstanding pleasures of a trip to South America. Think of taking passage here at the top of the world, on a lake twelve thousand five hundred feet above the sea, on a

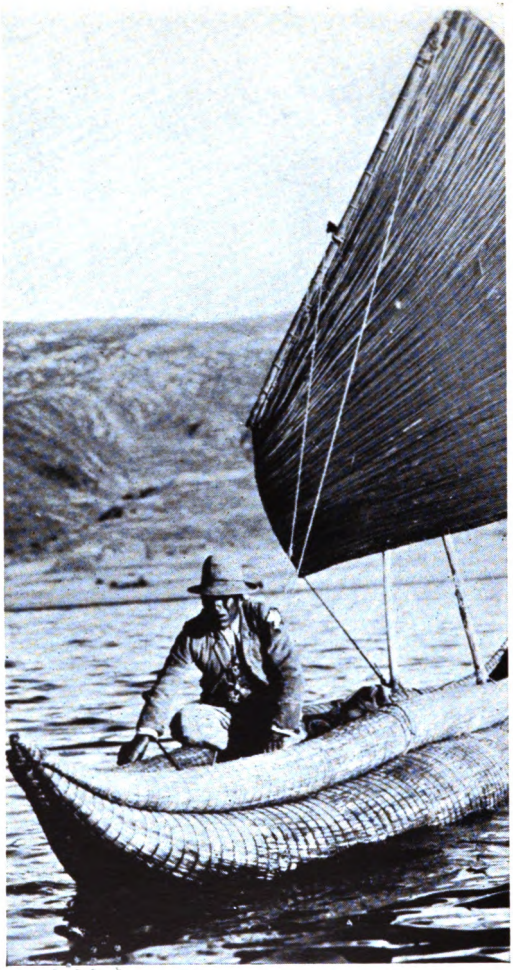
steamer of one thousand tons burden, more than two hundred feet long! Since 1902 this sturdy vessel—successor to the *Yavari* which, in 1861, was carried to the lake in sections on the backs of mules and Indians—has transported wondering passengers between the line that goes to La Paz and that which moves toward Cuzco. Fortunately the railroad was ready to move this vessel from the seacoast, and then skilful engineers assembled the parts so well that for thirty years she has rendered dependable service on this lofty lake which is larger than the State of Delaware.

If the traveler comes from La Paz, the voyage is begun in the shallow lower section of the lake, known as the Laguna de Uinamarca. The Strait of Tiquina leads into the main lake, where the passenger is in sight all day of a magnificent panorama ninety-five miles long, of snow-clad mountains. Illampu and Sorata, both close to 21,000 feet high, dominate the range.

These snow-topped peaks of the Cordillera Real are responsible for the lake, set in a deep depression in the high plateau of Bolivia, called the *altiplano,* five hundred miles long, and eighty miles wide, between parallel ranges of mountains. The lake set in this *altiplano* has no outlet to the sea. The water is absorbed or disappears by evaporation. Nearly everywhere the lake is shallow, though near the eastern shore there is a long trough where the sounding line shows a depth up to eight hundred and ninety feet.

The trip " on this sunlit sea, in a cradle of shadowing mountains," has been described by Adolph F. Bandelier, who took it in winter, when calm and clear days prevail. He told of " the placid watershed, spread out in dazzling fashion, traversed here and there by streamers of emerald green. Above was a sky of incomparable beauty, while

RUINS AT TIAHUNACO



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NATIVE SAILBOAT ON LAKE TITICACA

beneath not a ripple disturbed the mirror-like water. Sometimes winds blow and sudden storms arise, but usually calm weather can be counted on by those who visit this lake of icy water which does not freeze."

This water is navigated not only by the *Inca,* but by the curious native boat called the *balsa.* This is built of *totoras*—reeds and rushes which grow along the shore—precisely as it was made centuries ago by those who have passed down the secret. So it is possible to-day to ride in a boat just like those found on Titicaca when Pizarro came down from the north on his errand of conquest!

The *totoras,* which are often twelve feet long, are dried and tied in long bundles, fastened together at the ends. A mast is fashioned of two light poles fastened together. These poles are precious, since lumber must be brought to Lake Titicaca from the forests and mills of Puget Sound. Some of the *balsas* can contain a dozen passengers, though many are much smaller. But the natives find them invaluable, especially in gathering the single variety of small but palatable fish which seem to be the only kind that can prosper at the high altitude of the lake.

Of the thirty-six islands in the lake, some are on the Bolivian side, while others belong to Peru. Titicaca and Coati, chief among them, were revered in Inca days. Titicaca possesses two caves, out of which the sun and the moon came at the time of creation. The basis of the Indian tradition seems to be the fact that those who lived on the western shore of the lake would get the first vision of these heavenly bodies as they rose over the island. Both islands possess ruins of great interest. The Indians who live on Titicaca profess to be able to distinguish two kinds of these; one they call chuelpa, while the other they name Inca. The highly interesting archæological monuments on Titicaca, including the ruins of stone buildings and paved

roads, are of both classes. As the boat passes Titicaca Island it is of interest to recall the story of Bandelier, who says that once upon a time it was inhabited by Caballeros. These men of a higher race married native women. When children were born they were deposited in caves. There they were sustained by the water which dropped from the rocky ceiling. These children, they say, became the Incas.

A second story of the origin of this great people of pre-Spanish days tells of a tribe of rich Indians which possessed a flock of llamas. One of the herders in charge was a desert girl who left her child in a cave. There he was brought up by a deer. When he became a man he asked his mother for a club and a sling. With these he became the powerful first of the Incas.

Still a third tale is given by Garcilaso de la Vega, a descendant of the last of the Incas. In the early seventeenth century he wrote a history of Peru which is more entertaining than it is reliable, though it is of special interest because it presents the point of view of the native. He says:

> Our Father, the Sun, beholding men such as before related (altogether savage), took compassion on them, and sent a son and daughter of his own from heaven to earth to instruct our people in the knowledge of our Father the Sun, that they might worship and adore him, and esteem him their God. He placed his two children on Lake Titicaca, giving them liberty to go and travel where they pleased; and, in whatsoever place they stayed, to eat a sheep, they should strike into the ground a little wedge of gold which he had given them, being about half a yard long, and two fingers thick, and where with one stroke this wedge would sink into the earth, this should be the place of their habitation, and the court to which all people should resort.

During the journey from the lake toward Cuzco, there

will be further opportunity to see how this legend of the lake developed.

Is it better to take the voyage on Titicaca by day or by night? There is so much difference of opinion that surely the traveler who takes the night boat rather than that which makes the journey by day should not be much concerned. Of course the day trip reveals a succession of wonders. But no one who has seen the sun rise on Titicaca can forget the indescribable combinations of colour and the rare revelations of beauty as he looks first at the water where prismatic effects are startling, or at the summits two miles above him where the snows are transformed by the monarch of the heavens whom the people of long ago adored.

XV

ON THE TRAIL OF THE INCAS

AS the fascinating journey from Lake Titicaca into Inca Land is continued by rail toward Cuzco, the train climbs rapidly until it reaches an altitude of fourteen thousand feet at La Raya, on the watershed between Titicaca and Cuzco. Not far from the village is a ruined wall which, many think, was a " thus-far-shalt-thou-come-and-no-farther " between the Incas of the North and Collas or warlike tribes of the Titicaca basin between whom war was a frequent occurrence. Near the rough stone wall are the ruins of houses which, it may be, were occupied by the soldiers of the garrison. Monterinos thinks that, about 800 A. D., Pachacuti VI, last of the rulers of the Amantas, drew up his men behind the wall. With this they kept at bay giant invaders, probably Patagonians or Araucanians, but at length these, with their bows and arrows, triumphed over Pachacuti, and routed his army. This may be but a picturesque statement of the conflicts that lasted for centuries between the tribes of the grass-covered mountains and the dwellers on the forested plains.

Before reaching this divide at La Raya, attention is attracted by the prophets of modern agricultural methods at the Government Model Farm of Chuquibambilla, conducted at an elevation of twelve thousand feet. What a contrast is presented here to the primitive methods pursued in plowing, tilling and reaping, by the Indians who toilfully cultivate the land by the side of the road!

La Raya, miles beyond the model farm, not only marks the beginning of the descent to Cuzco, but the beginning of the drainage that leads eastward to the Atlantic Ocean. For here, on the left, are the ultimate sources of the mighty Amazon, in the maze of streams that go to make up the Apurmac River, largest tributary of Brazil's great river. It seems strange to find these Atlantic-bound waters so close to the Pacific; the sight brings home the fact that the Andes indeed are close to the ocean of the West, and that the plain between the mountains and the sea is very narrow.

Beyond La Raya and the dividing of the waters, the railroad passes Sicuani, close to more remarkable ruins, those of the Temple of Vira-Cocha. The wall, which is pierced by large doors, is broken also by niches, which are narrower at the top than at the bottom. This stone wall, nearly thirty feet high, is five feet thick at the base.

Can this remarkable wall be the remains of Paccaritampu (the House of the Dawn) and of the great hall called Tampu-Tocco (The House of Windows)? Bingham thinks that the location was farther north, at Machu Picchu, as is indicated later in the chapter. But there is room for difference of opinion as to this most famous of the legendary sites that tell of the beginning of the Inca civilization, when the ancestors of the tribe emerged from caverns in a hill, under the leadership of four brothers, all of whom were called Ayar. How like this story is to that of the Indians of Arizona who tell of the emergence of their ancestors from the depths of the Grand Canyon of the Colorado!

The brothers were guided by the eldest, Manco. He was the high-priest of the Sun, the tribal god. The fetich of the Sun, a bird, was carried in a basket, where he was consulted from time to time, that he might tell the brothers just how they were to travel. The other brothers were called Cachi (salt), Uchu (pepper), and Anca (pleasure).

With these were their sisters, all of them called Mama (mother), while their given names were Ocoli, Huaco, Cura, and Raura. In search of an empire these eight people traveled toward the north. Manco had been told that the golden rod he bore would sink into the ground when the favourable site was reached for the building of a city.

Manco managed to rid himself of his brothers, one by one. Cachi, sent back to fetch a golden vase and the figure of a llama, fetiches left behind in a cave, was fastened within by a great rock, at the entrance. Uchu was persuaded to lay hold of a stone statue encountered on the way, and as a result became a stone image. The spot where this untoward incident occurred became known as Huana-cauri. At this sacred spot was held the Huarachicu ceremony, the initiation of young knights. Uchu was told to fly to the top of a hill which could be seen far to the north, and there he was turned to stone. When Manco reached the hill, the golden rod sank into the ground, and the site of Cuzco was revealed. Moreover, the incidents of the journey had given a forecast of the tremendous importance of stone images to the Incas.

One more legend should become the possession of all who travel on this route of Manco, son of the Sun, to Cuzco. This is the story of Pachacuti VII, successor of the ruler who was defeated by the giants at the battle of La Raya. The body of the fallen leader was burned in a cave, and near by, at Tampu-Tocco, some of his followers built a city. Their first ruler, Tupac Cauri, was an enlightened man, who led his people in the art of writing on the leaves of trees. "He sent messages," we are told, "to the various parts of the highlands, asking the tribes to stop worshiping idols and animals, to cease practicing evil customs, which had grown up since the fall of the Amantas,

and to return to the ways of their ancestors." He met with little encouragement. On the contrary, his ambassadors were killed, and little or no change took place. Discouraged by the failure of his attempts at reformation, and desirous of learning the cause, Tupac Cauri was told by a soothsayer that the matter which most displeased the gods was the invention of writing. Therefore he forbade anybody to practice writing, under penalty of death. The mandate was observed with such strictness that the ancient people never again used letters. Instead they used "Quipus," the system of strings and knots which was in use by the Incas at the time of the Spanish Conquest.

It is related also that Tupac Cauri founded a university where boys were trained in military exercises, the use of the sling, the bola, the war-club, and bow and arrow. Most important, however, was instruction in the important and involved art of Quipus, the method of counting and recording facts.

This ancient Peruvian method of calculation has been described carefully. The Quipus consisted of a number of thongs or cords hanging from a top bar or cross bar, generally forming groups, often with an equal number of cords in each group, with cords depending from them, and again from the last. Knots were tied on the main cord, and the cords of different colours were knotted together to form loops. At first numbers only could be recorded by the Quipus, but later it became possible to tell of historical events and also to communicate to the people laws adopted for their control. A necessary part of the system was the presence in every center of an official interpreter who could translate a message given in this crude but ingenious manner.

The story of Tampu-Tocco, where Quipus originated, goes on to tell how the country became too crowded, and

men went out to seek a new home, as has already been related. The rulers of the new people were called Sapa Inca (only Inca). Various accounts tell of twelve Incas, each of whom did much for the people. The last of the twelve was killed by Pizarro. Yet Montesinos insists that there were scores of rulers between Rocca, successor of Manco, and Atahualpa, the dupe of Pizarro.

When Pizarro discovered the Pacific Ocean, in 1513, the Inca civilization was at the height of its development. He learned of the rich country to the south, where the people had much gold and lived in wonderful houses. But not until 1531 was he able to penetrate to the heart of Inca land. On November 15, 1532, the Inca ruler, Atahualpa, received him with kindness, but the Inca was taken captive treacherously, and his protectors offered no resistance; they had been taught submission to constitutional authority. He was promised his pardon if he would furnish gold enough to fill a room as high as Pizarro could reach. Messengers were sent to all parts of the kingdom, and loyal people sent great treasures of gold. When the room was filled, the Inca was informed that he was to die, in spite of the promise made. His offer to bring other treasures was in vain, and he became a victim of Spanish greed of power and gold.

One historian declares that if Atahualpa had not known chess so well, his life might have been spared. The story is that one day, when he was a prisoner, he watched two grandees of Spain as they played chess. When one of them was about to make a misplay, Atahualpa spoke up, "No, captain, no! The rook!" The rook was played, the game was won—but the loser never forgave the interference of the captive. A little later this loser was one of the twenty-four judges who decided Atahualpa's fate. When the vote was taken, thirteen ballots were against him.

And the thirteenth was that of the man who lost the game of chess.

Thus Pizarro put an end to the power of a kingdom which, for density of population, may be compared to some of the European countries to-day. Throughout this region, from Quito in Ecuador to the River Maule in Chile, they were highly organized. These speakers of the Quichu and Aymara tongues had evolved—in the words of Joyce —" if not a civilization, at least a very magnificent barbarism." Some say that this characterization is not fair. There is just as much difference of opinion as to the benefits conferred by the conquest. The Inca Garcilaso de la Vega lauds the Incas for their virtues, and speaks of the beginning of the Spanish régime as a dire misfortune, whereas Sarmiento talked of the Incas as oppressors, while the Spaniards were liberators. Montesinos takes a fair middle ground.

When Pizarro made his attack on the Incas, he stepped into the midst of internal trouble which helped him. Atahualpa, whom he murdered, had been the murderer of his predecessor, Huasca, who, he claimed, was not the rightful ruler, since he was himself the son of the predecessor of Huasca. And immediately Pizarro brought down on himself further trouble by putting on the throne a figurehead ruler, Manco, the son of the Inca Huayna Capac. This puppet king, chafing under restrictions laid upon him, escaped to the mountains, rallied about him an army, and besieged Cuzco. The war that followed was called by one of the participants the most cruel war in the world. Relief came to the city in 1536, through Pizarro's ally Almagro. Manco retreated to Ollantaytambo on the banks of the Urubamba River. Driven from there, he went to Uiticos. There, in a wild, precipitous country, in the midst of great forests, he found a natural fastness from which, frequently,

he made incursions against the Spaniards, as they passed along the old highway that led from Cuzco to Quito. This highway was one of two roads between the cities, each more than one thousand miles long. "One of those costly and noble works," as they were called by Lopez de Gomara, "was over the mountains, while the other crossed the plains." The road on the mountains was twenty-five feet wide, and was cut in some places from the solid rock. In other places it was necessary to fill up the valleys to bring the road to a level. "It was a work which, as all agree, exceeded the pyramids of Egypt, the paved ways of Rome, and, indeed, all the ancient works." Both roads went in a direct line, without turning aside for hills, mountains, or even lakes. For meeting places they had certain grand palaces, which were called tambos, where the court and royal army lodged.

These roads were destroyed in the civil wars that followed the conquest. But bits of them remain, enough to show what splendid works they were. In some places the mountain road led up the heights by stone steps!

Repeated attacks on the merchants led Pizarro to lead out a force from Cuzco in the hope of surprising the men from the mountains. But word was taken to them by keen-sighted Indians who were posted on the heights, and the army of Pizarro was attacked from ambush, and was defeated. Not until 1545, after many failures, were the Incas killed.

Investigators have visited what they think is the site of this last stand of the Incas. They call the place of the fortress "The Hill of Roses." After conquering the rugged slope, visitors find on the summit ruins of a dozen houses, built about a courtyard. Unfortunately treasure-seekers have torn down most of the walls; the legend of riches wherever Incas trod persists. Not even the monster palace

has escaped the activity of the eager natives. Through the granite entrance the last of the Incas passed in and out through a long time of trouble and anxiety.

Naturally the natives have many tales of these days of trial, as well as of the years of prosperity that preceded them. Deep in the forest recesses along the Urubamba River, far down in the rubber country of eastern Peru, the Madigangas have traditions of the days when the Incas subjugated the Indians and compelled them to pay tribute, of the conquest of Pizarro, and of the last stand of the royal line.

Until recently only explorers equipped for an arduous expedition could penetrate to the regions north of Cuzco where some of these events occurred. But by a short railroad of a little more than one hundred miles from Cuzco to Santa Ana, recently completed, it is now possible for all to travel with ease on the northern trail of the Incas, and so to approach the ancient wonders yet to be described. When, some day, the new road from Cuzco through Ayacucho and Huancayo is open to Lima, the easy and marvelous journeys to be made from Cuzco will be most satisfying.

The winding, twisting mountain road to Santa Ana gives sufficient taste of the Urubamba River country to enable travelers to appreciate the description given by Hiram Bingham of the lofty mountain view from Colpane, "a typical Peruvian mountain view rising from sugar cane to perpetual ice." This explorer calls the Urubamba "the gateway to the eastern valleys and the lowland plain of the Amazon." Then he goes on to say:

> It is here that the adventurous river, reënforced by hundreds of mountain tributaries, finally cuts its defiant way through the last of the great topographic barriers. More than seventy

rapids interrupt its course. These rapids occur at the great bend of the Urubamba, where the stream suddenly changes its northward course, and, striking south of west flows nearly fifty miles toward the axis of the mountains, where, turning about a complete circle, it makes a final assault on the eastern mountain range. Fifty miles farther on it breaks through the long sharp-crested chain of the Forest Range of the Andes in a splendid gorge, more than a half mile deep, the famous Pongo de Mainique.

Then the road opens out into the Amazon basin, through a dense tropical forest. But the road to Santa Ana does not go on to the jungle country. It does, however, take the path trod by Bowman in his expeditions to outposts of Inca civilization. One of these is Pisac, by the Yucay River, in a garden spot where the valley road passes through rich orchards, while terraces rise up, up, ever up toward the heights. Ruins of an Inca temple and of a citadel, with the marvelously fitted stone characteristic of Inca building, are well preserved.

Those who go through this country will be filled with admiration as they see the hundreds of miles of stone terracing by means of which the Incas compelled the mountains to respond to their efforts at cultivation. The Ollentaytambo Valley, which the railroad passes through, demonstrates the method and the success of these tireless and ingenious toilers in making soil at an elevation of eleven thousand feet, where none was available. Bingham points out that these were not made simply by hoeing down the earth from the hillside. Stone walls were carefully constructed. Then the space back of the walls was filled with coarse rock, clay, and rubble. Smaller rocks, pebbles, and gravel followed; these would drain the subsoil. Finally, on top of all this, and to a depth of eighteen inches, was laid the finest soil they could procure. With what tremen-

dous labour this was carried to the place where it was needed! Often the terraces were only a few feet wide, though they were hundreds of yards long.

The arduous labour necessary to make these terraces arouses wonder that is surpassed only when the eyes light on the remains of aqueducts, though these are seen at their best in arid valleys toward the Pacific. Some of them were built before the days of the Incas, though the Incas did much to improve them. How were they built? Where did the water come from? Nothing is known but what was written by Markham in 1853. He told of the cutting of a deep trench along the whole length of the valley, and so far into the mountains that the present inhabitants have no knowledge of the place where it commences.

High up in the valley the main *fuquios* are some four feet in height, with floors, roofs and sides lined with stone. Lower down they are separated into smaller *fuquios*, which ramify in every direction over the valley, to supply all estates with delicious water throughout the year, feeding the little streams which irrigate the fields. The larger *fuquios* are several feet below the surface, and at intervals of about two hundred yards there are manholes, *ojos*, by which workers can get down into the channels and clear away obstacles. And this where there is, naturally, nothing but a small watercourse which may be dry for six years at a time! All that has been necessary to overcome the condition is to construct an aqueduct twelve feet deep and a hundred and fifty leagues in length! The engineers in charge, who knew nothing of the principle of the arch, were compelled more than once to carry the aqueduct far around the source of a stream!

This Ollentaytambo Valley is a reminder of the ancient Peruvian dramatic opera, Ollentay, which has been called

"perhaps the most remarkable dramatic and musical composition ever produced by an ancient race." Sometimes travelers in the interior of Peru come across Indians who give the old drama, though not in its complete form.

This land calls forth astonished exclamations, surprised ejaculations from the moment of leaving Cuzco. A part of the journey covered by the traveler to Santa Ana is said by one who passed this way, to combine the majestic grandeur of the Canadian Rockies, the startling beauty of the Nuuanu Pali near Honolulu, and the enchanting vista of the Koolau Ditch Train on Maui in the Hawaiian Islands. The traveler says:

> In the variety of its charm and the power of its spell I know of no place in the world which can compare with it. Not only has it great snow peaks looming above the clouds more than two miles overhead; gigantic precipices of many-coloured granite, rising sheer for thousands of feet above the foaming, glistening, roaring rapids; it has also, in striking contrast, orchids and tree ferns, the delectable beauty of luxurious vegetation, and the mysterious witchery of the jungle. One is drawn irresistibly onward by ever-recurring surprises through a deep, winding gorge turning and twisting past overhanging cliffs of incredible height. Above all, there is the fascination of finding here and there under the swaying vines, or perched on the top of a beetling crag, the rugged masonry of a bygone race; and of trying to understand the bewildering romance of the ancient builders who, ages ago, sought refuge in a region which appears to have been expressly designed by nature as a sanctuary for the oppressed, a place where they might fearlessly and patiently give expression to their passion for walls of enduring beauty.

In the midst of this wonder, an astounding discovery was made in 1890, at Machu Picchu, when the Peruvian Government was cutting a trail along the Urubamba, through

the canyon, by which coca and aguardiente could be shipped to Cuzco from Huadquina and Santa Ana. The building of the road called for years of effort, but the toil has been repaid amply, as the way was shown to avoid the mountain passes, which was a bit of pioneering for the railroad.

In 1911, Professor Hiram Bingham of Yale University, attracted by the first reports of the road builders, went from Cuzco to Urubamba, a favourite winter resort of the Incas of Cuzco. Then he went to Ollentaytambo, also on the Urubamba River, with its ancient fortress commanding the valley which is a relic of early days. Some of the stones in the walls weigh eight tons! How did the builders transport them?

Then he came to a canyon far down below mountain peaks; the path he traveled was through dense jungle, yet the peaks above were snow-clad. Everywhere he found evidences of the engineering of the ancient peoples. Sometimes the rapids were far down between precipitous rocky walls two thousand feet high. Retaining walls showed where rapids were made narrower, while at places where the precipice receded a bit from the river the bluff between was terraced in marvelous fashion. A temple was found over across the river, inaccessible by reason of fierce rapids. At another place retaining walls had been built that the people might keep their foothold while they threw down great rocks on enemies in the valley below. The modern road cut along the precipice sometimes follows the ancient footpath used by the Incas.

Six days passed while these wonders were unfolded. The party met an Indian who told of ruins at a place called Machu Picchu. Guided by him, the discoverer went down to the river, which they crossed by a " shaky little bridge made of four tree trunks bound together with vines

and stretching across the stream only a few inches above the roaring rapids."

Then came a hard climb, through the jungle, and up a precipitous slope. Suddenly Dr. Bingham found himself in the midst of ruins, an astonishing variety of them. They were on a ridge, " protected on all sides by precipices and on three sides by the rapids of the Urubamba River." Beyond were much higher mountains, from five to eleven thousand feet above the river, which is six thousand feet above the sea. There were many ancient walls and buildings made of granite blocks, wonderfully fitted together after the peerless manner of the Incas. A temple wall had three great windows. This caused surprise for it was a fashion of building unusual among the Incas. Enough explorations were made in 1911 to lead Dr. Bingham to be eager for a more thorough study the next year, of what he felt sure were the remains of Tampu-Tocco, the place from which, so legend says, the Incas started out to find Cuzco.

The presence of the windows in one great wall seemed to lend colour to the belief that the cradle of the Incas had been found, for it will be remembered, legend says, that when, under the leadership of three brothers, the Incas left Tampu-Tocco, they emerged from three windows. Years before this time the Incas, defeated by attacking enemies, had found refuge in inaccessible places in the Andes. There they lived for several centuries. They became strong, and they were crowded. So they started out on that fabled journey which led them to Cuzco. The Spaniards believed the Inca who told them that their stronghold was south of Cuzco, at Paccarritampu. But the ruins there, while notable, do not seem to tally with descriptions made of them by the Incas. Moreover, the location is not so unusual, the place is not so easily defended, and there are no windows.

In 1912 the discoverers returned, making explorations for the National Geographical Society, and for Yale University. The clearing away of the jungle required many days, but when the ruins were exposed the reward was great. What had been hidden for centuries was disclosed. The defenses of the city consisted of two walls and a dry moat, which was still from six to eight feet deep, even after the filling up during the centuries. These walls ran across the ridge from precipice to precipice. The peculiar construction of the wall enabled the defenders to throw down on besiegers large stones, and smaller stones in slings. These stones came from the river bed, two thousand feet below. The discoverers found piles of those stones in the defenses.

The people of the city were fed from crops grown on terraces, like those already described. There Indian corn and potatoes were raised. The terraces were connected by stairways of stone which were almost ladders. On the mountains above the city there are remains of a signal station from which the Incas could send word of the approach of an enemy. To this wonder city led a footpath four feet wide, crossing the terraces. In one place a tunnel had been built under the road, to make easy passage from the upper to the lower terraces. This footpath was a wonder, rising by steps set among walls down the precipice.

The streets of the city were steep. Sometimes a long stairway served as a street. One of these stairways had one hundred and fifty steps. Sometimes stairways were cut out of a great rock. One of the many great stairways in the city, called by Dr. Bingham " The Stairway of the Fountains," was " so arranged as to admit the entrance of fountains on fourteen or fifteen of the steps." There were no pipes, so the water was conducted in skilfully made stone conduits. The streams were carried from basin to

basin, sometimes under the stairway and sometimes at its side. These fountains were fed by springs, but to-day the fountains do not yield enough water for the purpose. Evidently there has been a change in climate.

The houses, many of them a story and a half high, were built of stone blocks. Often the gable ends were decorated by projecting cylindrical blocks. Provision for locking the city gates was made in a most ingenious manner. How these locks were carved from stone is a study of the infinite patience of the contriver. One house had a lintel for the door weighing three tons. How was this raised without cranes or pulleys?

How the stones were fitted into the rock walls, some of them sloping at very steep angles, and without mortar, is startling. How these ruins make the traveler think of the Hill Towns of Italy, where are so many gates and bits of city wall, as well as walls of houses, that date back to the days of the Etruscans, long before Rome became a power! And to think that, very likely, the site of this mountain Capital was selected about 800 A. D., as a place of refuge for men driven out of their former homes by their enemies! From about 1300 to 1534, when Pizarro came, it was abandoned. Then once again it became a refuge for the Virgins of the Sun. Says Dr. Bingham:

> Here, concealed in a canyon of remarkable grandeur, these consecrated women gradually passed away, leaving no known descendants, nor any record other than the masonry walls and artifacts. Whoever they were, whatever name be finally assigned to the site by future historians, of this I feel sure—that few romances can ever surpass that of the granite citadel on top of the beetling precipice of Machu Picchu, the crown of Inca land.

XVI

FROM CUZCO DOWN TO THE PACIFIC

THE fascinating study of the dwelling place of the Incas has led us some distance above Cuzco. The time has come for the return to the seat of the Incas.

To those who approach the city it is not difficult to appreciate why the builders chose the site in the Cuzco Valley, a depression in the plateau that is eleven thousand feet high. The depression is nineteen miles long, so there is ample room for the city. The valley is dry—in fact, men can live here and grow crops because the climate is not humid. Yet the rim of the plateau beneath which Cuzco is built is cut by tributaries of two great rivers, the Apurimac, and the Urubamba. There thirty thousand people make their home in what is the most marvelous combination of the new and the old. Not only are there wonderfully substantial Inca walls in most unexpected places, but there are new buildings adjacent to the old, and new buildings erected out of old materials. Take, for instance, the monastery of La Merced, built of stones from the ruins. This is a beautiful structure, with its arcade surrounding the inner patio, its garden, and its fountain. But it does not inspire the awe that comes from looking at some of the Inca walls in which great stones are so marvelously fitted together that the traditional knife blade cannot be inserted between them.

Here and there may be seen bits of Spanish construction, imposed on Inca walls. It is worth while to compare

the work. The Spaniards used mortar; the Incas used none. Yet there can be no question as to whose work will endure longer. At the end of a single hour in this strange city the visitor will find himself bewildered by other contrasts of the new and the old. He alights from a railway train in a modern station, but when he passes to the street he finds himself in the midst of people many of whom seem to have come down from another century. He may ride in an automobile whose driver must be careful lest he graze the legs of passing llamas.

When you take a walk in Cuzco, see how many such contrasts you can describe after a single passage through the streets where up-to-date business men jostle traders whose methods are those of long ago!

The central feature of Cuzco is the plaza, on which is located the cathedral where the last of the Incas met his doom at the hands of his conqueror. The palace of the emperor also faced the square. Since each new emperor had to have a new palace, there were many buildings available for Pizarro and his associates. And to each was assigned one of the palaces!

At a little distance from the plaza is the old Temple of the Sun. Fortunately those who reconstructed this into the monastery of Santo Domingo were not able to destroy all the evidences of architectural beauty in the original. This is only one of the many buildings devoted to religious uses in this city of monasteries and nunneries, where the old and the new are ever in contrast.

Now let us go to the heights and see the city from various points of vantage, remembering that the chief spot for such a vision of the streets and lower city below and of the mountains above is in the heights of Sachsahuaman, where is the fortress of the Incas, built of great stones, some of them of unbelievable size. Much of this fortress

was destroyed to provide building stone for the Spaniards, notably the three great houses, where the Inca soldiers lived. But on the ramparts remain stones which are taller than a man. How were they moved to the height, and how were they set in place?

Of the many traditions of Sachsahuaman, perhaps the most appealing is that of days when Cuzco degenerated. A woman, Siyu-yaca, eager to see past glories restored, made a plot. Taking her son Rocca, she hid him in a cavern in the Sachsahuaman hill. With him she hid a long garment, which was covered with plates of gold. Then she allowed the rumour to spread throughout the city that Rocca had been taken by the Sun; after receiving instructions from the god, he would return to rule.

When the rumour had been given a good chance to spread, Rocca appeared in the mouth of the cavern, wearing his glittering robe. Then he vanished. The people, now on the watch, saw the figure a second time. Rushing up the hill, they fell and worshiped him. Rocca told them that he had a message from the Sun; this he would tell in the temple. In the temple he made known the fact that the Sun was angry because of their corruption. The old religion must be restored under the leadership of an adopted son of the Sun. Should he rule, prosperity would return. So he was acclaimed Inca; he was the fifth in the list of the kings.

Rocca was as good as his word. He not only enlarged the temple of the Sun, but he improved the water supply of Cuzco—note the remains of a stone aqueduct which supplied water to the two hundred thousand citizens—and founded schools for the children of those of high estate. His power increased until he ruled from Quito to the River Maule, the Capital, Cuzco, being at about the center of the vast empire.

When the time comes for the reluctant departure from Cuzco, there is the pleasant necessity of repeating the railroad trip to Juliaca, almost to Lake Titicaca. If the journey by the train which makes the trip three or four times each week is completed to this point on Sunday it may be possible to continue to the seacoast by night. But what visitor to this strangely beautiful country wishes for deadly night travel? It is far better to go to spend the night in the comfortable hotel at Juliaca, and be ready for a second day of mountain grandeur.

At Juliaca stories are told of Inca treasure near the town. The secret, however, is lost. Probably there is no such hoard; was the Incas' treasury the careful garnering of thousands of searchers of the sands of thousands of streams, each of whom succeeded in gathering a few ounces from time to time?

Juliaca is on the eastern side of the divide, so the first portion of the way is upward, through an elevated country where on all sides are evidences of cultivation carried on with difficulty by natives who know nothing of modern methods and care less, who, most fortunately for the visitor, have not laid aside their picturesque ways and their quaint, colourful garments, where woman takes the lead in arduous labour.

As the railway reaches higher, it passes for an hour or more close to Lakes Lagunillas and Saracocha, while barren heights appear beyond, and occasionally a startled little vicuna, a curious wool-bearing animal, darts away from the track. The divide is crossed at Crucero Alto, fourteen thousand six hundred feet above the Pacific, which is two hundred and ten miles away. This distance is made by a road that has but one tunnel, and no switchbacks. There are few bridges, for streams are not encountered. Not far from Crucero Alto the Camana River is crossed. An

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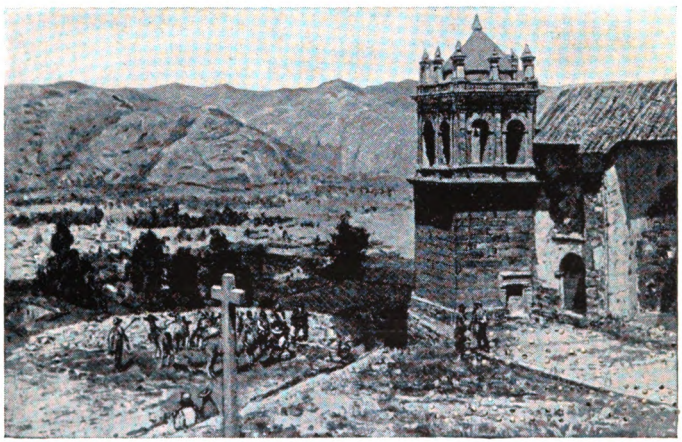
LLAMAS ARE THE BURDEN BEARERS OF THE ANDES



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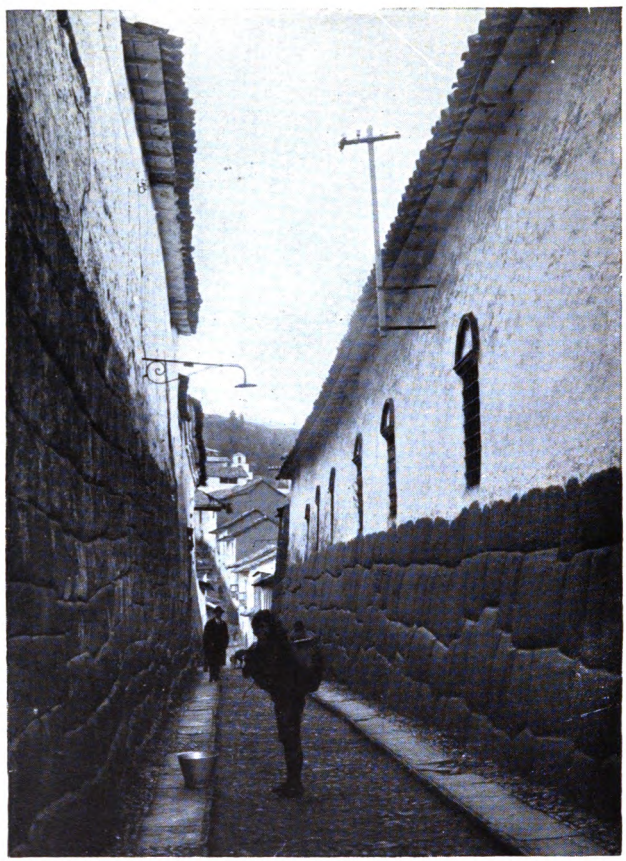
A CHURCH NEAR CUZCO



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OLD WALLS OF INCA DAYS

interesting thing to note of this Pacific-bound water is that, perhaps seventy-five miles down stream, it passes within twenty miles or so of the extreme source of the Apurimac River, Amazon-bound. This is just before the Camana makes its sharp turn that leads it between Mount Ampato, twenty-one thousand feet high, and Mount Coropuna, seven hundred feet higher.

These are not the only lofty mountains that gratify the vision of the traveler. He can see the snow and the glacier of Charchani, the beetling brow of Picchu, and El Misti, a mountain famous by reason of its symmetry and grandeur. Near its base is the Harvard University Observatory, one of the sights in store for those who have a day or two to spend at Arequipa.

The view of El Misti, from the west, across the lands irrigated from the Chili River and the picturesque city of Arequipa, is most impressive. As seen from the west this old volcano, though most symmetrical, is deeply eroded, while those who have studied it from the east tell how the opposite side is smooth. Visitors to the summit speak of the double crater from which there has been no eruption for hundreds of years.

At the base of El Misti, close to the airport used by the Pan-American Grace Airways, is an old lava flow which has been deeply eroded through the centuries until it might be the record in stone of some bad dream.

Perhaps thirty miles northwest of El Misti is another great mountain, even higher, the Nudo de Ampato. This rises far above the gorge of the Coeca River, from where shepherds lead their flocks for summer pasturage until they come close to the glaciers that still cover the slopes of the mountain.

Arequipa, second city of Peru, with about fifty thousand population, claims El Misti as its own particular property.

The people do not forget that an earthquake, due probably to El Misti, destroyed Arequipa in 1868; but they see its vapours and smell its sulphur with equanimity, for who is afraid after sixty years? Perhaps one reason for equanimity is the knowledge that the white houses of the city are thought to be earthquake-proof. Built of volcanic stone, they present a pleasing appearance to those who look down on this busy city where modern buildings are neighbours to the rare old cathedral and the picturesque arcade of the Plaza Mayor.

The story of the founding of the beautiful city is told quaintly in *The War of Chupas,* by Cieza de Leon. He tells how Don Francisco Pizarro " told the batchelor Garci Dias Arias " to look out for the best site on which to found a city. Then he went to the valley of Yucay, where he hoped to treat with the King Manco Inca Yupanqui. But Manco Inca killed his messenger, and he took vengeance by seizing the principal wife of the Inca and putting her to death. When the Marquis returned to Cuzco, he heard from the bachelor that he had gone down toward the seacoast, seeking for a site on which to found the new city; but every place was difficult, and with many defects. All came to the conclusion that Arequipa was the best place. The site was approved and he " divided the natives among those who would remain there as citizens."

One of the controlling factors in Pizarro's choice of the city which is now a market of note for alpaca wool was the fact that it was on one of the Inca tracks from Cuzco to the sea; this was the road taken by runners sent down by the Incas to secure fresh fish for their households. The fertile valley, watered by the river Chili, must have been another deciding factor.

The life of Arequipa was completely peaceful until that day in 1825 when Bolivar the Liberator entered the city

in triumph. Flowers strewed his path, and he passed through floral arches. The people came out to meet him, with their horses covered with trappings of pure gold.

Beyond Arequipa, the plateau by the railroad is covered for a distance by great sand dunes, which have been likened to scattered earthworks of a great army, and have been described by a scientific observer:

> Of different heights and widths, but all perfect crescents, they face in the same direction and, according to those who have marveled at them, steadily advance at a rate of forty to fifty feet a year. That they move before the south wind, centers higher and thicker than the tips, is easy to see; but why they start, or keep up their crawl in irregular skirmish formation, or do not unite into one big crescent, requires longer study than from a speeding airplane. Years later they will reach the mountains and vanish into the air, but man's only way to divert an invasion is by piling rocks on one horn until the dune dissolves.

About one hundred miles from Arequipa, and eight thousand feet below the city at the foot of El Misti, comes Mollendo, the terminus of one of the two Peruvian railroads which take visitors to the elevated interior. It is a port where only the smallest vessels can reach the wharves. Cargoes and passengers booked for Mollendo are transferred to lighters or to boats in the open roadstead, while cargo destined for the ships is loaded on launches that have a passable shelter in the slip made by means of a breakwater. And this must be done carefully, for here is the worst surf on the coast of Peru. The method adopted for the landing of passengers may seem crude, but those who have tried it once have no hesitation in trusting themselves a second time to the tender mercies of the men who assist them to embark or to disembark.

XVII

ON PERU'S FASCINATING COAST

THERE are two ways of making the journey from Mollendo or Arequipa to Lima, the gorgeous city of the kings, the Capital and chief city of Peru. An airplane, dependable and safe, leaves Arequipa at noon and reaches Lima before dinner. However, the traveler may prefer to go on to Mollendo, and there take steamship up the coast to Callao, where he will disembark for Lima. The two-day change to the steamship after some days on the railroad will prove acceptable and restful, and will be a preparation worth while for a bit more of sightseeing at Lima and beyond.

From the steamship the coast may look forbidding. " But just over yonder are regions of delight," said a fellow passenger who had lived for years on the barren coast.

Look out for the little rivers that come down from the mountains. Frequently these streams have a bit of irrigated land along their banks. One such river of special interest, the Camana, enters the Pacific several hours after Mollendo is left behind. A little town takes advantage of the river plain, the only level land in the vast extent of ridges and mountains that stretch back to the Andes plateau. Unfortunately the town has no port, though it is but three miles from the coast; it must take its products nearly half-way to Mollendo. There the mouth of another little river makes approach to the sea possible.

But in spite of its barrenness the coast of lower Peru

is of absorbing interest. At Tambo de Moro, a desolate port, where, in an open roadstead, ships sometimes stop to load cotton and other products of the fertile valley, the captain of the *Santa Inez,* that delightful steamship of the Grace Line, said:

"Look yonder! There are mounds that have come down from the days of people who lived before the Incas. Yes, I am referring to those hillocks close to the shore. I often wonder what those who built them would think if they could see us steaming by their chosen habitation."

There was ample opportunity to study these relics of an ancient civilization, for the stevedores who handled the cotton acted as if they had plenty of time. First, after bringing alongside their barges of cotton bales, they had to gather on deck for their meal; always they consider this a most important part of their day. And how they did eat! One would think that they had been saving up appetite for several days, in anticipation of the coming of the steamship. Great kettles of soup and of more substantial viands were brought from the galley, and generous portions were given to the men. Then they proceeded—not too quickly—to load the great rope slings in each of which a dozen bales of cotton were lifted from the barge to the deck, then into the hold.

When, finally, the last barges were empty, the stevedores hurriedly—yes, they seemed to be in a hurry at last—piled aboard the boats that were to carry them to shore, where they would probably store up appetite for the next boat.

On a point of land, close to the Bay of Pisco, are excavations which tell of the same ancient civilization. This is the region of the famous Chincha Islands. One of them, to which the ship approaches closely, displays a curious Indian sign, similar to the class memorials placed on hillsides near their college by verdant Freshmen and eager

Sophomores. This is a sort of Neptune's trident, with some additions. On a barren slope trenches perhaps fifteen feet deep have been dug to make the symbol permanent. What is its meaning? No one knows but the Indians, and they do not tell. But it is known that perhaps twice each year they visit the trenches, and renew the sign. How long have they been doing this? Again they tell nothing.

The Chincha Islands are more famous because of other relics which, unlike the ruins of pre-Inca days, are bringing wealth to the modern people. For on these islands are found the marvelous guano deposits, left there by myriads of sea birds, for which the world pays tribute to Peru.

The story of these marvelous deposits is of great interest. The Incas used the product of the islands on the irrigated lands of the Peruvian plain. There is evidence that sometimes the fertilizer was taken to lands from two to three miles above the sea. The wise Incas protected the birds. Laws were made, and were enforced, designed to secure the preservation of this source of agricultural wealth, and to administer it in such a manner that it would be preserved for generations to follow. But when Pizarro descended on Peru all care was forgotten. Gold seemed far more important to him than guano. Why should time and strength be wasted in looking after that which was not gold?

Centuries passed. Not until 1840 did the world at large become aware of the wealth of the guano islands. After the introduction of the fertilizer to foreign markets three years later, vessels descended on the islands and guano was loaded in most prodigious fashion. Sometimes fifty vessels at a time were waiting for cargoes. Hundreds of thousands of tons were taken each year between 1851 and 1872. It is estimated that ten million tons were gathered, and this not from all the islands, but only from a small

portion. Records say that a single island was lowered more than a hundred feet by reason of the mining done. The tragedy of destruction was like that of Hawaiian sandalwood at about the same period.

The nineteenth century was drawing to a close when Peru suddenly aroused to the dire fact that her wealth, the accumulation of untold centuries, was disappearing, and that it would never come again. How the nation faced the fact, and made Herculean efforts to save its source of wealth, is a story that fills the reader with admiration for the leaders of Peru and the people who followed their guidance. The Guano Administration was given unlimited power, and the result has been tremendous. Birds were fast disappearing, but they have been protected until now the islands have the world's largest sea-bird population—that is, for the area. Guanayes and pelicans are everywhere. One traveler says:

> On the waters near Peru the guanayes form rafts which can be spied miles away. Slowly the dense mass of birds press along the sea, gobbling up fish in their path, the hinder margin of the raft continually rising into the air and pressing over the van in some such manner as the great flocks of passenger pigeons are said to have once rolled through the North American forests in which oak or beech mast lay thick upon the leafy plain.

A traveler by airplane has said that he saw spots which looked like forests, though closer scouting showed that the air was solid with birds. One reason these birds must be protected so carefully is that they are not afraid of man; it is said that a man driving a pack-animal in one of the islands may pass through them, because they swerve aside to let him through, as do the pigeons of St. Mark's, in Venice. These fearless birds are Arctic cormorants, and

are brought here within six degrees of the equator by the Humboldt Current, Peru's cool coastal ocean-stream.

The Chincha Islands are close to the port of Pisco, at the mouth of Pisco River, which enters the Pacific through a delta. The steep cliff so characteristic of the coast in this region gives way to the river. The Paracas Peninsula and a number of guano islands make a harbour where there is tolerable shelter for vessels which enter to receive shipments of grapes, sugar cane and cotton. These come down by rail from the fertile Ica valley.

From the port it is a mile to the town of Pisco, where live thirteen thousand people. This town was removed from the coast more than two hundred years ago to escape the destructive floods which swept it away more than once. To-day only the stevedores and other necessary port-workers remain on the coast; though a mile away is the fishing village of San Andres, where a few hundred people live in the low houses that are so typical of Peru, and cultivate their little fields to which water is brought with great labour.

The Chincha Valley, not far away, is another great cotton-growing country. One of the chief growers, Señor Fermin Tanguis, has developed a cotton called by his name, which is becoming the chief variety in Peru. A third cotton region, the Nazca Valley, boasts an irrigating system that goes far back of the Spanish conquerors. Special interest attaches to this old irrigating system because it is close to the Peninsula of Paracas, which many geologists think is the last remnant of a former vast Pacific continent, antedating the upheaval of the Andes. They declare that the continent began here and extended perhaps as far as Australia.

More, there are remains, covered by sand, which show the existence of a town of some importance and size.

To-day the absence of water makes a town impossible, but once there must have been water in abundance for the people of the latest settlement, who were in the time of the Incas. Before these people were two more civilizations; the second seems to have been when the ancient Peruvians were emerging from the stone age to the metal age, while the third was still more ancient. Caverns have yielded mummies and other remains of bygone glory.

"Now watch for Cerro Azul, and see what variety there is in these little ports," the captain said, when the vessel was out of sight of Pisco. "There is a river there, the Canete, or rather its mouth, eight miles south of the port. A little railroad—one of the first built in Peru, goes back twenty miles or so into the interior. A government irrigation project has reclaimed thousands of acres of land where the river comes down to the sea. Then you will see hills along the coast which still show the marks of terraces that tell of the days of long ago. Cerro Sentinellas, close to the port, was the site of a fortress famous when the Incas were in their glory. Unfortunately, there is little left to tell of those days, for the stones were used to build Callao's first breakwater. That breakwater, too, has disappeared; an earthquake in 1687 took away the relics from Cerro Azul."

Ruins like these are strung along the coastal plain, fourteen hundred miles long, and from fifty to a hundred miles wide, where irrigation atones for the lack of rainfall. Above this is a high plateau from thirteen to fifteen thousand feet high, bounded by three Cordilleras that rise from eighteen to twenty-one thousand feet. This plateau is cut into deep gorges by tributaries of the Amazon, the nearest of which comes within one hundred and twelve miles of Lima. It is not customary to think of the Amazon as a Peruvian river, but some of its mightiest tributaries

are in this country. This fact is taken advantage of by Peruvian families, who float down stream on a raft which carries a thatched hut for living quarters. Such rafts may be seen frequently on the three or four thousand miles of navigable tributaries of the Amazon.

XVIII

FROM CALLAO TO LIMA

SOON the steamship reaches Callao, with its harbour protected by the point La Punta, where there is a fashionable bathing beach, and San Lorenzo Island, where the Peruvian Naval Academy has its buildings. Though there is a wharf, the steamer dips anchor at a distance from it, and the passenger has the pleasant experience of getting into a rowboat or a motorboat for the journey to the custom house.

But first comes the battle of the boatmen who come on deck and contend fiercely with one another for the privilege of taking the passenger and his baggage ashore. The contest is not at an end when the visitor is seated in one of the boats. Frequently an over-zealous porter tries to seize the baggage which has been deposited in the chosen conveyance in the hope that the owner will follow his chattels. However, it must be said for the contending boatmen that they are efficient as well as cheap. They do not feel that their work is done until they have taken the baggage to the custom house, have assisted in clearing it, and then have taken the stranger to his conveyance.

The harbour, stretching away to the intensively cultivated valley of the Rimac River, presents a busy scene, for here are vessels from all over the world receiving their loads of grain and cotton and sugar, of cattle and hides, of copper from the great Cerro de Pasco mines, and silver from mines far up in the Andes. Oil is received at ports farther north, for the oil fields are toward Peru's upper

border. Coal, too, is a valuable product that may be seen here. Once Cinchona bark was exported in great quantities, but in later years Java, Ceylon, and India have displaced Peru as a quinine-producing center.

Callao has been an important port since its founding, two years after Pizarro settled on the site of Lima. For in the days of the Spanish domination all commerce had to go from here, including that from Buenos Aires and Rio de Janeiro. How the people managed to endure the royal edict it is difficult to see. But they had no choice. Naturally pirates were attracted to Callao because of the rich booty they hoped to secure there. And earthquakes have been fatal to the city. In 1746, when Callao had six thousand population, all but two were killed by the shaking of the earth.

The trip so close to the surface of the water enables the tourist to appreciate something of the magnitude of the work done by a progressive government in developing the port. The immense breakwater at the back of the rower is new. On the right is the old French mole, with a short breakwater extending toward the longer breakwater at an angle. Between these yawns the mouth of the sanctuary where great fleets of sailing vessels and steamers assemble. While many are at anchor, as is the steamship from which the rowboat has come, others are at the mole, where modern conveniences for loading and unloading are provided. These facilities will be increased soon, when new piers are ready.

When the time comes for the traveler's attack on the vast country by way of Callao, he has his choice of two methods of transportation. He may go by motor road, the Avenida del Progreso, or he may take the railroad. The concrete motor-road is separate from the trucking highway, which is near by. On the highway eight motor cars

can travel abreast. This is a sample of the road building in a country that is talking of a highway thirteen hundred miles long, the entire length of Peru. Many sections of this have been completed.

When about half-way between Callao and Lima, the highway cuts through a great ridge which looks like a hill, but it is not: it is a vast mound, relic of a civilization that was old when Pizarro came this way and laid the foundation of Lima's greatness. Excavations in the mound have disclosed one of the great burial places of the ancient rulers of Peru, where little cells of mud bricks—samples of these bricks may be seen by the roadway—were built to accommodate the carefully prepared mummies.

" You should have seen this mound when the workmen were cutting the road through it," a fellow passenger on the bus, noting the interested glance at the cutting, volunteered information. " Fortunately the government stepped in and saved many of the relics that otherwise would have been destroyed. I wonder how much building material was taken there for those little houses of the poor beyond the mound! "

At first Pizarro did not govern his conquered possessions from the vicinity of this mound. For a time he ruled from Jauga, in the mountains. This site proved inconvenient. Cuzco might have been chosen instead, but the decision was that this city was too high, and too isolated, while the site of Pachacamac by the River Lurin was too narrow. So Pizarro went to the plain by the Rimac River—which, by the way, gives the name to Lima, by the easy substitution of " L " for " R."

Pizarro, attracted by the coming of the life-giving water from the mountains, on a Sunday in 1535 began to build Ciudad de los Reyes, the City of the Kings—that is, the Three Wise Men of the East.

He laid out one hundred and seventeen squares, which he allotted to his subordinates to whom he wished to do honour. There he ruled for six years, in what Bryce has called the first city of South America, into which the clever man poured fabulous wealth. Its viceroy was the greatest man on the continent, a potentate whose distant master could seldom interfere with him, for there was no telegraph, and there were no steam vessels in those days. The pomp that surrounded him, the pageants with which his entrance was celebrated, were like those of a Mogul emperor.

There is a memorial to Francisco Pizarro in the President's Palace at Lima, a long, low building on the Plaza de Armas, which was occupied by the conqueror, then by the viceroys. On another side of the plaza are the two-towered white cathedral, and the residence of the Archbishop.

The cathedral is not the original building erected by Pizarro, nor is it the greater structure erected by the viceroys. The earthquake that destroyed Callao took toll of the cathedral. A third building is on the site, but this is of special interest by reason of the tradition that says the high altar is composed of some of the very silver with which Atahualpa in vain sought to pay his ransom. In the cathedral is preserved, in a glass casket, the mummy of the conqueror. The inscription is to the " Fundador de Lima, January 18, 1530." It is related that, after the murder of the conqueror, a faithful attendant and his wife, with a few black retainers, wrapped the body in a cotton cloth and carried it to the cathedral. It was buried in a grave that was dug hastily in a cavern. But on June 26, 1891, by resolution of the Peruvian Congress, it was deposited in the case where it is seen to-day.

The City of the Kings is in a delightful irrigated valley which reaches away for fifty miles to the foothills of the

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THE CATHEDRAL IN LIMA, PERU

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PERUVIAN MOUNTAINEERS PLOWING

INTERIOR OF CATHEDRAL, LIMA

HAULING WOOD IN PERU

Andes. In the valley are the mountain peaks San Cristobal and San Jeronimo, friendly neighbours of Lima. The River Rimac flows through the city, which is built on both sides. Several bridges cross from one section of the city to the other.

In the center of the city is the Plaza de Armas, the cathedral plaza, and from it streets reach out into the city. On some of the streets are palatial homes of men who have made fortunes in the mines. Beautiful women, pleasingly garbed, walk the pavements, which are bordered by many modern buildings, as well as by other structures that tell of old days. For Lima, too, is a combination of the old and the new. It is still a center of art and literature and culture. The days of its grandeur when it was the most famous city in South America have passed, but it is the home of elegance and fashion. They say that in Lima the people speak Spanish as pure as any to be heard in Madrid.

Plaza Mayor is a popular resort. Tropical foliage and flowers are everywhere, birds fly in the branches and butterflies flit from flower to flower. Bolivar Plaza is notable for the equestrian statue of Simon Bolivar, with its remarkable balance of the heavy armour and its wearer, and for the stately building near it, now the senate chamber, but once the headquarters of the Spanish Inquisition in Peru. The visitor to these halls is attracted at once by the carvings and the mahogany ceiling, the product of skilful workers. The Universidad de San Marcos, much older than Harvard University, is on this plaza. In fact it is the oldest college in both Americas, for it was founded in 1551.

Among remarkable buildings of importance are the Municipal Institute of Hygiene, the National Museum, with its many interesting exhibits of Inca days, the Na-

tional Library, founded in 1822, and the House of the Lima Society of Engineers, a beautiful, graceful structure, a feature of new Lima. A beautiful wide street leads from the old city to the suburbs. It passes through regions of rest, the golf links and the country club, an ornate building, notable because the rear is as impressive as the front. The Paseo Colon leads from the Plaza Bolognesi to the Government Zoological Garden. At the plaza end is the memorial to Col. Francisco Bolognesi, hero of the Battle of Arica, who won the applause of the countrymen by his refusal to surrender so long as he had a single cartridge left in his rifle. But many will pause longer before the memorial erected to Don Jorge Chavis, who perished in crossing the Alps. His was the first airplane to cross these high mountains of Europe. Not far away is the heroic statue to General Simon Bolivar, the hero of all South America, while in the chapel of San Marcos University is the Pantheon of National Heroes. There statues and memorials are all about to the heroes of the Peruvian War of Independence. Shoppers delight in the glass-domed arcade, a famous shopping center, where people walk in between huge columns, with twin Atlases which hold up the columns within the entrance.

Of the many fine houses the most remarkable is the Torre-Tagle Mansion, which dates from the time of the viceroys. It is only two stories high, but it is of massive construction. The portal, with its guarding columns, the window above, the carved balconies on either side of the window, and the stone balustrade on the roof, are notable. The windows on the ground floor are guarded by the characteristic iron grilles which seem the fitting frame for the beautiful women of Lima. This old residence is now a government building.

Even such prosaic structures as the telegraph office and

the post-office have a substantial building of stone whose façade is an illustration of the South American taste for presenting always a good front.

The stroller about the streets pauses at the stone bridges over the Rimac, one of which, above the apron that makes the falls, is especially beautiful. The public market attracts him, and he is soon led to remark that the butchers do not know, or do not care, to cut beef properly. They carve across the grain, and they disregard the first principles of the selection of choice cuts. The square before the market is occupied by fruit-sellers, who carry baskets on poles, and milk-sellers, who ride little donkeys, seated on native saddles, on which are hung two huge milk cans. Lottery tickets are sold everywhere, as in all South American cities, for the people of Lima would not know how to get along without this institution. When the drawings are held there is always a crowd present.

Rug weavers are features of the city. These artificers in alpaca wool come from Catahuasi Canyon. They use black and white and coloured wool, and the rugs they make have fast colours. The weavers make these rugs at the homes of their patrons. The price is not large, but the weavers seem to value more than the money reward the board and lodging, the tobacco, liquors and wine that are supplied freely.

The llamas that furnish the wool were once on every street, but now they are seldom seen until the city is left behind. How unintelligent these animals are may be seen by the method of hitching them; it is so simple as to be laughable. If their long necks are placed within a rope, their bodies remaining outside, they will stand safely, though all they need to do to escape is to bend their necks. These little beasts travel about ten miles a day, and find their forage as they go. They carry loads on packsaddles,

which are designed for from seventy to ninety pounds for each animal.

There is always joy in strolling aimlessly along the streets of a strange city, but this was especially true in Lima. First came the business streets near the hotel, with many curious shops. Then the way was past the cathedral, with the ragged beggars on the steps, lying in wait for the passer-by who looked to be profitable prey. Beyond, on the plaza, with its tropical vegetation, men loafed on the benches as if they had all day before them, with nothing to be done. A little farther, and the streets grew still narrower, and the good-natured crowd became more promiscuous, for this was the part of the city which, in many places, would be called the slums. In Lima there is interest even in the abodes of the teeming thousands who live from hand to mouth, and yet seem never to lose their ability to laugh and enjoy themselves.

When the city has been viewed from the streets, the next thing—and this must not be forgotten—is a journey by the winding drive to the summit of the rocky hill San Cristobal, overlooking the town. The prospect is not easily forgotten. The view of the city that Pizarro founded forty-three years after Columbus discovered America is astonishing. Another worth-while view is secured from an airplane. The tree-bordered streets, the houses, the ring for the bull fight, and the river all show up well, as does the plain that reaches away to the mountains. The eye is caught by the evidences of irrigation here and there, for Lima is located in one of the largest of the oases in the coastal desert, oases made by the melting snows from the mountains. Peru, it will be discovered, has a great irrigation program; in 1925 the first part of the program was completed, and seventeen thousand acres were added to the cultivable area of the country.

Before leaving Lima, a trip must by all means be taken up what has been called the world's most wonderful railroad, the Central Railroad of Peru, continuation of the railroad from Callao. Trains from this lowland, and the trains that come down from the mountains, may be studied to advantage by the sightseer who stands on the bridge across the tracks spread out in the rear of the station. The busy modern scene spread out below him is in such contrast to the relics of days of long ago.

This road, which, with its branches, is two hundred and fifty-seven miles long, was built by Henry Meigs. It climbs to a point nearly a mile higher than any other standard gauge railroad. A tremendous ascent takes the traveler up to the Galera tunnel, over fifteen thousand feet high—higher than the summit of Mont Blanc. By thirteen switchbacks, sixty-one tunnels, and forty-one bridges it conquers the heights, cutting through the Cordillera de Huerochiri, nearly sixteen thousand feet high, whose dark crests are picked out by the red sandstone. Perhaps the most remarkable bridge crossed is that of Little Hell; this connects two tunnels over a wild gorge.

When Meigs proposed to Peru that he build the road, it was difficult to find people who would believe in the possibility of its success. But he did succeed, in spite of obstacles of which he did not dream when he began the work. He died before the task was completed, but to him belongs the credit for the vision, the daring plan that conquered vast heights, and the carrying out of this plan until most of the difficult task was complete. Those who take the day's journey to the summit can appreciate the magnitude of the task he set himself in ascending to such a height above Lima, in ninety miles. He did not employ the rack-rail nor did he use the cable. His method was the utilization of the principles of zigzags, first forward,

then back, precisely as a teamster may conquer a difficult hill with a heavily loaded wagon. The sight of the mountain side with some of the zigzags outlined far above makes the traveler gasp, but he gasps still more when he passes over the zigzags and looks down into the gorges. Some of these gorges are crossed by lofty viaducts.

Within the short distance covered the road passes through three distinct climates—that of the hot coastal plain, that of the temperate plateau, and that of the frigid summits in the region of perpetual snow, where is Peru's most productive mineral region above Cerro de Pasco. The line ascends from Lima to Chosica, a great vacation resort, then to the Verrugas Valley, which is a dread to travelers because of its mysterious fever. No one wishes to pause here, if he can avoid the stop. Matucana, eight thousand feet up, is in the valley of the Rimac; the railroad passes through a narrow gorge which is shared by river and road. The temperature is low, though the Equator is near, and passengers find heavy garments comfortable. Ticlio, the most lofty railroad station in the world, is fifteen thousand six hundred feet high. This is ninety-nine miles from Lima, and here the tunnel passes in triumph through the Cumbres of the pass.

If the traveler has but one day at his disposal for seeing this railroad of railroads, he will find the way made easy for him. From the Desamparados Station, within sight of the central cathedral, trains are run on certain days to an elevation of eleven thousand five hundred feet, with return to Lima at night. That journey of a single day combines more memorable scenes than have a right to be crowded into such a short time. Bridges, tunnels, switchbacks, viaducts, gorges! Stations where picturesque women and children sell bananas, oranges, boiled corn, and delicacies unnameable, of which only the most venturesome

will taste! At one lofty station flowers, especially violets, are sold at an astonishingly low price! Distant views of rocky roads, where llama trains carry their great loads uncomplainingly! Tunnels where the river has been forced to go that the railroad might seize its bed! A gorge below a lacy viaduct, in whose depths reposes, after more than half a century, a locomotive that, during construction days, crashed into a labourer's car on the bridge, and carried it down to destruction!

It is thrilling to ascend or descend this highest line in the regular train. But even more worth while is a ride on the power-car, built for four people, which finds its way down the long grades in a surprisingly brief time, or on the flat-car which is used sometimes to take burdens down a portion of the line. That car is provided with a regulation pilot, but the only power is gravity. And woe betide the rider who lets gravity have its own way too much!

In this wild country are many cold mountain lakes where the Rimac River rises, close to glaciated valleys which descend to the Mantaro River. The stream rises at an altitude of fifteen thousand feet, not far from the mining town of Cerro de Pasco, then flows southeast through a long mountain gorge to the plain of Jauga and Huanaco. After passing through the gorge the stream flows to the Amazon. The beginning of its course is near Oroya, the terminus of the line, and the starting point for the railroad that runs to Junin, where the battle was fought in which Peru won her independence.

If there is an extra day or two, for a trip into this plateau country, the traveler may well stop at Oroya, where the railroad connects with the branch line leading to the Cerro de Pasco mines. From there he may take the splendid motor road, eighty miles long, by the side of the

Palca River on to San Ramon and La Merced in the glorious Chanchamayo Valley, which is the outstanding example in Peru of fine use and development of fertile lands. At San Ramon the Palca River unites with the Tulumayo, thus making the Perene River.

The winding Palca down in its narrow gorge supplies the water needed in this wonderful valley. Some of the hills above the river are clothed in green, but where the burning sun drinks up the moisture, the hills are bare, except for the grass that grows luxuriantly.

In the Chanchamayo Valley are some of the finest coffee plantations in Peru. At one of these plantations, the Narangal, a fine suspension bridge has been built for the motor road from Oroya. Here, as well as on the Santa Clara Plantations, are grown delicious tropical fruits that, some day soon, will probably become familiar to purchasers in America whose tastes and pocketbooks permit them to indulge their fancy in the depth of the northern winter.

It is difficult to think of such products and such wonderful fertility far up in the high plateau. But no one need be surprised at anything he sees in San Ramon; the presence of a flying field from which many airplanes take off to the far-away Iquitos, landing on the way at Masisea on the Ucayali River, seems a matter of course after the wonderful ride along the motor road from Oroya which creeps along precipices, drops far down into valleys, and does all the stunts a resourceful engineer knows so well how to plan.

After the return to Oroya and to Lima, there should be, if possible, at least one more brief trip, either by rail or by motor bus, to the group of three seaside resorts a few miles south of Lima. Miraflores, first of these, is true to its name, for many of the beautiful villas are in the midst

of rainbow-tinted gardens. The beach may not be so fine as some of those that attract the residents of cities on the East Coast, but the people take joy in going there and in bathing in the Pacific.

Barranca, two miles away, is a bit back from the ocean, by reason of the rugged cliffs which give the resort its name, while Chorillos, a near neighbour, approaches closer to the sea. A stop is put to the extension to another pleasant little bay by the Salto del Fraile, a high, bare hill that seeks the Pacific and forms the point between the two bays. But even if the town does not go beyond this separating hill, the people of Chorillos are not to be deprived of the privilege of the better bathing provided by the lower bay; a fine road climbs the hill and finally pierces it by means of a tunnel through which thousands pass on their way to the attracting beach.

The sight of the gayety by these waters gives the needed last touch to the stay in and about the City of the Kings.

XIX

FROM LIMA NORTH TO PERU'S OIL FIELDS

NOW northward from Lima! Again there is a choice of routes—by sea, along the rugged coast, or by airplane that passes at times over the land, again over the water, that has for introduction the ascent from Las Palmas Airport, then the rising circuit as altitude is gained. What a kaleidoscopic view of Lima is presented thus: the bridges over the Rimac River; the railway that follows the river on its way to Oroya; the Zoological Gardens, with the track for the dog races; the football stadium; the modern residences, set in spacious gardens; the business section, the plaza and the cathedral; the closely built central section, with its streets at right angles; the newer region where avenues angle off to the sea; and beyond the bare ridges that rise ever up to the overpowering heights of the Andes.

The first sight of the country beyond the city shows something of the problem faced by those who talk of the Peruvian link in the Pan-American Highway from New York City to Buenos Aires. How can a practicable route be found through this country of high mountain walls, deep gorges, and wild canyons?

But the very impracticability of the country for land transit adds to its attractiveness to the gazer from the sky who studies the barren character of Northern Peru, with its rare bits of irrigated land near the mouth of one of the infrequent rivers. The capacity of the country for

becoming fertile when water is supplied must have been in the mind of Alexander Von Humboldt when he prophesied, more than a century ago, that Peru would some day become the center of the world's civilization.

As the panorama far below unfolds rapidly before the eyes of the traveler by plane, he sees desert, it is true, but far more. Here and there are remains of the civilization of Inca days, or older. To the left are the blue waters of the Pacific, to the right are the Andes, towering to the ridges that are clothed always with snow. Now and then appear desert oases, kept alive by irrigation. Yonder is a little town, with its fine plaza and its central two-towered church. Now come green fields with adobe walls. Then follow miles of billowing sands. How fascinating it is to watch the effects of the architect of the air, Mr. Wind! Clouds above cast their shadow on the ground, and add detail to the tawny colouring.

The steamship passenger has many of the sights that attract the traveler in the air; from his different point of view he also is able to appreciate the varied surface of land and sea as he moves to the north.

" See those odd hills yonder? " said a passenger to whom the scenes on the coast were ever new. " What can that be on the slope? It looks like snow, but it can't be, so close to the sea."

" No, it is not snow you see, but sand," came the explanation from one who knew his Peru. " The wind that blows from the ocean carries the sand up the slopes, and it lodges in the rough crevices."

" And that island between us and the shore—you might think it, too, is covered with snow. Don't tell me that is the effect of sand."

" Hardly," was the reply of the man who knew. " That is one of the finest of the guano islands. The dirty white

is the deposit of the birds. See them where they are perched so close together on the rock. And watch them as they move by hundreds and thousands close to shore."

Ancon itself, a modest little town, nestles between the beach and the shifting sands. Below the town, back of it, and far to the north stretch the sands.

"What can be the use of such a port?" the inquiring passenger asked. "What supports it? There are two piers in what, so the captain tells me, is an unusually fine harbour—that is, for the Peruvian coast. There is no irrigated land in sight."

But Ancon has more than the activities of a port little used to support it. From Lima, by the railroad built over the sands, people come eagerly to bathe in the ocean, and to enjoy a sojourn in this town of well shaded streets.

It is of interest to study the railroad as it reaches for a distance north of Ancon. The observer from the air is puzzled by the strange twists and turns of the track. "There is mileage sufficient for a mountainous country," is his expression of wonder. "Why was it necessary to build so extravagantly over these low sands?"

The only necessity was a desire for gain. Payment was made to the contractor on a mileage basis. The rate of pay was so good that he sighed to think that he could not build more miles of road. But he found a way to fill his pocket. What if the air-line distance is short? Nothing was said in his contract about building a straight road. What more simple than to increase the distance by the twists and turns, curves and reverse curves that look more like the channel of a river in an alluvial plain than the roadbed of a self-respecting railway! But this is not a self-respecting railway; nobody respects it, least of all those who are compelled to ride along its seemingly endless repetitions of itself.

The traveler by rail, if he has patience, will in time reach Clancay, where the irrigated lands near the mouth of the river of that name provide business for the little port north of the sand-buried hills which dip down into the water. Hills like these are found all along the coast. Sometimes, as at Toma-Calla Point, they are white with guano; again, as at Bajas Point, their only importance seems to be to help form a place where ships may have a little relief from the open ocean.

Yonder is a surprise—Huacho, actually a town of five thousand people, supported by the irrigated lands of the Huauna River. The passenger by sea receives by faith the information that such a place exists, back a little distance from the port built on the ocean front. From the air, however, there is a charming view of hills that border the tree-lined banks of the river and extend back to the sand-covered hills.

More rivers, more irrigated lands, more ports, more harbours where ships find it impracticable to receive their loads except from lighters that put off to them from the shore. Woe betide them if the sea is too heavy to permit the transfer! Sometimes it is necessary for a ship to wait several days for a reduction in the impossible swell.

"On one trip we gave up after waiting as long as we could, then cleared for the south," the captain said, when abreast of one of these irrigated land ports. "On the return trip I stopped again. But still the transshipment of cargo proved impossible. Reluctantly I had to go on my way, passing up until next trip the sugar and cotton that were waiting for us."

Of the two rivers whose irrigated lands help to support Supe, one of the ports in question, the Fortalaza is best known perhaps for the fortresses built there by the Chimus to oppose the Incas. While these fortresses may be seen

from the ocean, they are plainer to those who look from aloft.

Fishing villages and salt-making industries vary the story of this rugged coast where irrigated lands are few and shifting sands are many. Sometimes the hills come down so close to the shore that the sands are crowded out completely, while islands make difficult the approach to the land.

But there are other difficulties than islands. One of the ports passed on the journey, Samanco, is not the town that was seen by travelers a few years ago. That there had to be built a new town is due to the Nepena River, usually a very modest stream which, in 1925, surprised itself and everybody about by a flood that carried down to the sea much sand. The old town, as well as its long pier, was left so far inland that it became necessary to construct new buildings and a new pier, stretching out from the beach where waves break, rolling gently upon the sand. Only a little distance away other waves find in the rocks an obstacle that enrages them. Now and then, beyond the waves, is a patch of vivid green. But these bits of vegetation are rare, especially toward the northern lands of Peru, where it is at its worst just before it yields to the luxuriant jungle of Ecuador.

But long before the end of the desert comes Chimbote, the finest harbour on the west coast south of Panama, where the Chimbote Mountains come down to the sea. There Henry Meigs thought to found a city for the terminus of the railroad he built for sixty miles up the valley of the Santa River. His plans were interrupted by the war with Chile. The armies of that country destroyed his work and carried off his rolling stock. But now, fortunately, the day seems near when his plans will be carried out, and a railroad may be used by those who wish

to go toward mighty Huascaran, the mountain nearly twenty-two thousand feet high, unconquered until 1908.

To the south of Chimbote, beyond the rocky promontory Santa Head, in the vicinity of the port Santa, are many of the ruins of the people who lived before the days of the Incas. But the most extensive ruins are still farther north, in the vicinity of Salaverry, the old salt-making town where Cerro de la Garita, approaching four thousand feet in height, comes down to play with the sea. There are the remains of the old town Chan Chan, which many consider the most remarkable city of the New World, seat of a civilization old when the Incas came, ruler of the country from Ecuador almost to Lima. It is thought that the city had at one time two hundred and fifty thousand people. These lived really in a group of cities, each of which had its wall and other defenses. These were built of adobe, as were the houses.

No one knows the origin of these people. Their buried remains show a structure of head that was altogether unlike that of other South American peoples. Possibly they were akin to the Mayas of Yucatan, whose ruined cities Lindbergh saw as he traveled through the air over the jungle.

Did they come by sea? Or did they migrate by land? How long did the building up of their civilization require? Probably centuries. What happened to them? The Incas told how they waged bitter war with the Chimus of the coast. At length, about 1400, a defeat was administered to them at the fortress of Paramanga, a remarkable structure even in its ruined state. This fortress is much farther south than the other ruins of Chan Chan; it may be seen by those who go to Huacho, on the coast some distance north of Callao. After this defeat the Chimus retreated to their Capital farther north, where they were besieged

by the Incas, once more were defeated, and either exterminated or distributed by the Incas here and there through the Empire, in accordance with their plan for the colonization of conquered people. When the Spaniards came to Peru, they found no evidence of the Chimus except the ruins of their cities and of the irrigation systems which showed marvelous ingenuity.

But even then their fortress was strong. It has been suggested that, but for the fact that Pizarro demoralized the Incas by the capture of their king, Atahualpa, at Cajamarca, farther north in a wonderful upland valley inland from the port of Pacamayo, they might have retired to this stronghold, and there have withstood the conqueror. But when Atahualpa had been captured, most of the chiefs surrendered at once.

Ten miles from Chan Chan, there is the pleasing ruin of Huaca, the Temple of the Moon, unusually decorated with mural paintings in black, orange, red and yellow, on a background of white. In another place are the ruins of a garden, where a man with poetic mind outlined designs by minerals in the irrigation ditches. A palace has richly decorated walls in low relief. Elsewhere adobe walls look like the ruins of cliff dwellings in Arizona, while an altar of sacrifice is pointed out close to the palace of the Arabesques, a great and marvelous hall.

The Chimu Valley is a memorial of these ancient people. To-day it is known also as the Mocha Valley. But by whatever name it is known, it is famous to-day, as it was many centuries ago, for its rich irrigated lands.

Trujillo, the fourth city of Peru, is the metropolis of the valley. Two miles away is Trujillo's own particular seaside resort, Buenos Aires, where a low beach is in such marked contrast with the approaches of the sea to the coast farther south. Mocha, south of Trujillo, is also a

Mecca for those who seek the sea from the Mocha Valley. It might well be called the oldest seaside resort on the Continent of either America, for the Chimu people sought it as do their successors.

For more than one hundred miles north of Trujillo the ports at the mouth of life-giving streams continue. Then, after a long stretch of desert country, where there is neither river nor port, comes the oil town of Talara, built at the most westerly point in the South American coast. Both from the sea and from the air the seven hundred oil wells are a surprising change in the landscape. The foreign dwellers in that bleakest post of a Canadian subsidiary of the Standard Oil Company provide a welcome for those who land among them for a night or for a day or two. There is a club-house in the town to which it is easy to gain an introduction. There the conversation at table is apt to turn on experiences of the last journey of some oil-worker to the homeland, or to anticipation of the visit soon to be paid by some young man who is the envy of his companions.

"Yet somehow we're always eager to come back to Talara," explains one of those who had taken part in the conversation at table.

He was talking to a young man, just in from San Francisco, who had arrived that day on a tramp steamer. "The loneliest trip I ever had," he said. "Talara seems wonderful to me after that long trip down from San Francisco."

"You should travel on one of the boats of the Grace Line," he was informed. "You can't be lonely then."

So the young man resolved to change ships when he left Talara.

Others at the table continued to the north next morning on a Pan-American-Grace Amphibian, which, at times,

skimmed for many miles close to the surface of the water. How that passage emphasized the speed! The water slipped beneath with astonishing rapidity. When a fast steamer was passed, it was left far astern within a few moments. Once when a submarine came within a few rods, even that speedy craft was left out of sight in no time. There was always something to give interest during that trip—perhaps a great flock of guano birds passed near, or porpoises could be seen in the water.

Any traveler who passes up the coast from Lima has a decisive reply for the kill-joy who speaks of this as a deadly monotonous trip. Peru may be a dry country, but it cannot be called monotonous.

XX

THE LAND OF THE EQUATOR

NOW Peru gives way to Ecuador, the country of the ancient Menabis who lived long before the Incas. There is real poetry in the name of Ecuador, the land of the Equator, where the Andes are at their narrowest, though some of the most magnificent elevations of the range are within this princely territory. We may speak of a princely territory, but it is unwise to try to be too specific as to the extent of that territory. The boundaries have been in dispute since colonial days. Ecuador thinks she should have two hundred and seventy-five thousand square miles, but Peru would be willing to limit the territory to seventy-four thousand. In 1894 agreement was reached to submit the decision as to counter claims to the Spanish King, but the decision has been delayed. When it is made it is safe to say that it will be somewhere between the extreme figures quoted. In the meantime a student of geography in the schools of Ecuador must look at boundary lines which show conflicting claims.

The minds of those who turn to Ecuador are apt to think first of that island possession of the country, perhaps five hundred miles out on the Pacific, called the Galapagos Islands, of which so much that is attractive has been written by William Beebe. These islands, haunts of the pirates and corsairs of other days, are now the home of the world's oldest living creatures, the gigantic, edible land tortoises, which seem to thrive there, just under the

Equator. While the sixteen islands—the largest of them is larger than Rhode Island—bear Spanish names, they are known usually by the English names given to them by the buccaneers and the whalers.

While a visit to the Galapagos Islands is not included in the itinerary of the Grace Line, some of their steamers do enter far into the coastal plain, below the Equator, which extends from the ocean to the mountain regions. The entrance is by means of the Gulf of Guayaquil, the largest inlet on the Pacific Coast of South America. For this is one hundred and forty miles wide, and reaches one hundred miles toward the Guayas River, which, as an estuary, enters the ocean after a tumultuous passage from the mountains. This largest navigable river on the Pacific Coast of South America is about two miles wide at Guayaquil, forty miles inland. To this point ocean steamers ascend, though their entrance into the estuary is hindered by the huge deposits of silt made by the stream. But for constant dredging operations, carried on by the government, the channel would become choked.

Guayaquil is a busy port. Here the rich products of a prosperous country seek the sea. Cotton and coffee, gold and silver, crude rubber, petroleum, and a comparatively small quantity of kapok, or silk fiber made from the cotton tree, all are included. But there are several of the exports of chief importance, which arouse curiosity and real interest. The first of these is the Panama hat—a name given to the product of the hat makers by returning gold hunters from California; when they saw the product of Ecuador's craftsmen for sale on the isthmus, they jumped at conclusions, and gave the name that persists. These hats are made from fiber secured from a sort of palm that resembles the saw palmetto. The tree has no trunk, the fan-like leaves rising directly from the ground.

Another export is balsa wood. This is one of the lightest known woods; its weight is only about half as great as that of cork. This extreme lightness is due to the fact that large cells in the wood are filled with air. The forests of Ecuador are full of these trees, whose leaves are from fifteen to thirty inches long. They are cut easily, and are dragged without great effort to the streams that enter the Guayas. There they are built into rafts which can support heavy loads in the voyage down to Guayaquil. The estimate has been made that a log forty feet long and fifteen feet wide will bear two tons through the water. In Guayaquil they are in demand for exportation to those who desire the wood for construction, or for insulation in house building.

The third export of special interest is the product of another tree, and is frequently carried to port on the rafts of balsa logs. This is the tropical vegetable ivory product of the tagua palm tree. This tree bears a nut in a burr, which, when it has been opened, discloses a fruit not unlike a small potato in appearance. When it is young, the nut is thought by many to be quite appetizing. When it is old the product is so hard that it can be carved freely into almost anything for which real ivory is used. But the chief use for the tagua nut is in the making of "ivory" buttons. Great quantities are required by manufacturers in women's costumes, especially in the United States and Italy. Those who see the cargoes floating down to Guayaquil harbour will be interested as they realize that they are looking on an important stage in the process of getting buttons from the forest to the consumer.

The gatherers of the tagua, called taguaros, frequently are natives who organize an expedition up one of the rivers tributary to the Guayaquil. When they reach the chosen tagua grounds, they build huts in the forest, then weave

fiber baskets, each of which will hold two hundred pounds of nuts. The next step is the gathering of the balsa wood, the construction of rafts, and the floating of the load down to the sea. A single raft may carry ten tons, or even more, and the product is worth perhaps twenty-five dollars per ton. Many of the natives transport the vegetable ivory in canoes, twenty, thirty, or even fifty feet long, in which they can carry several tons of the product. But the balsa raft is the most profitable conveyance, because this can be sold as well as its burden.

The fourth export that attracts especial attention is cacao, the nut which, powdered, makes cocoa. The cacao tree, which grows freely in the rich alluvial borders of the rivers that flow into the Guayas, has a cucumber-shaped pod. In this is a seed shaped like an almond. These pods are cut open and are dried on the ground; then the cacao nut is ready for transportation to the sea, and for the making of the rich powder of commerce.

Guayaquil, where these exports are sent to the steamer, is an attractive place. In front is the gulf; in the rear rise the mountains to their snowy summits. Here and there in the little city are plazas, bordered with palms, especially the beautiful traveler's palm, which looks like a great feather fan opened and ready for use. There are buildings of pleasing architecture, like the municipal library and museum. This looks like an exposition building. It is but two stories high, yet it is impressive. Like so many of the buildings of Ecuador, it is arcaded. In some cases buildings erected after this manner serve a double purpose: the arcade is used for offices and shops, while the second story is for residential purposes.

So many of the buildings of Guayaquil are of bamboo, even the two- and three-story buildings. These are cool and flexible, and are easily rebuilt when an earthquake

AN OX-TEAM ON AN ANDEAN MOUNTAINSIDE

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INDIAN WOMEN PREPARING FOR MARKET DAY

destroys them. Along the river front houses are built on piles. Many of them are resorts of the wealthy who seek coolness. Across the broad river is the railway terminal from which departs Ecuador's chief railway line, less than three hundred miles long, from Guayaquil to Quito. This was completed in 1909, at a cost of nineteen million dollars. What a tremendous change the expenditure brought about! Now the journey may be made in a single day, though usually a stop is made over night at Riobamba, just beyond Chimborazo Pass, eleven thousand eight hundred feet up. Once the journey was a painful, toilsome pilgrimage of from twelve to fifteen days.

This was an extremely difficult road to build. A single stream is crossed twenty-six times, and there are seventy bridges in all. In the region called The Devil's Nose an altitude is conquered in short order, though not without many thrills to those who make the climb. Along the way are river gorges, loops, switchbacks, terrace cultivation at twelve thousand feet. The base of Cotopaxi is crossed, and the smoke of the volcano can be seen. Then comes soon the fertile valley of Macachi, bounded on the right and the left by rows of mighty volcanoes.

First, however, the road passes for fifty-seven miles to the foothills, through a rich country, where vegetables and fruit grow in abundance. A branch road takes off to the south, toward Cuenca, third city in Ecuador, founded in a fertile and beautiful valley in 1557, on the site of a native town called Tumibamba. The city is noted as a shopping port for Panama hats, and because of the sturdy stone highway bridge El Vador y San Roque which crosses a whirling stream from the mountain, and so gives access to the other side of the river to those who come down the highway, including those who drive the curious llama, the only beast of burden that is a native of South America,

whose woolly fleece protects it from the cold, whose stomach, like the camel's, is able to carry a supply of water for days.

The railroad has its terminus at Quito, the old Quitus of the natives, which, it is said, existed as early as 100 B. C. After conquest by the Incas, the inhabitants reached a high state of culture long before the place was occupied by Sebastian Benalcazar in 1533. It was one of the two Capitals of its great people; Atahualpa ruled here, while his brother Huascar reigned at Cuzco. The name given to Quito by the Spanish conqueror was, at first, Santiago de Quito, but later the name became San Francisco de Quito.

This city of perhaps eighty-five thousand people is in a high basin between ranges of the Andes. The Plaza Mayor, on which the cathedral, the government palace, and the municipal hall face, is over nine thousand three hundred feet in elevation. But this seems an insignificant height when compared with the mountains that can be seen towering above the city. Chimborazo, its feet in a tropical jungle, and its head in an eternal cap of ice, is twenty thousand five hundred feet high, and Cotopaxi, Quito's own volcano—there are so many volcanoes within reach that none of them has a chance to be lonely—has nineteen thousand six hundred feet, with a crater two thousand three hundred feet in diameter from north to south, sixteen hundred and fifty feet from east to west, and a depth of nineteen hundred feet. Of this volcano—one of the most beautiful mountain masses of the world, rivaling the celebrated Fujiyama of Japan in its symmetry of outline—Edward Whymper, who made a scientific trip to the high Andes, said:

> Cotopaxi is an ideal volcano. It comports itself, volcanically

speaking, in a regular and well-behaved manner. It is not one of the provoking sort, exploding in paroxysms, and going to sleep directly afterward. It is in a state of perpetual activity, and has been so ever since it has had a place in history. It has the greatest absolute elevation above the sea of all volcanoes that are in working order.

The city that has Cotopaxi for near neighbour, a city of convents, monasteries, and churches, where bells are constantly ringing, might well set to music the names of some of the volcanic masses that are not so far from its border. Perhaps, however, some of the names might better be said with a sneeze or a gurgle than with music of church bells. Take, for instance, Carihuarazo, Quihudana, Chilles, Iliniza, Pichua, Catacachi, Cayanbi. "And" is omitted before the last name, for there are many more; but this list is surely sufficient for those who wish to decide about the music.

Because Quito is just under the Equator, visitors expect to find the climate hot. They are surprised to learn that the highest temperature in the Andes is found from 15° to 20° south of the Equator, and the heavy rainfall near the Equator is due to lower temperature farther north. Another startling fact about this country of the Equator is that it offers all variations in climate from the torrid to the frigid. As the traveler ascends, he passes to climates ever cooler, until at last he is in the Arctic zone, when he stands near some of the high summits. Vegetation, of course, varies with the altitude, so that in Ecuador may be found specimens of the growth of many zones.

There is much unexplored territory in these mountain fastnesses of Ecuador, not only on the west, but especially on the east. There the country slopes rapidly to the plain of the Amazon and its tributaries, many of which tumble

down from the heights of Ecuador. In this region travel is only by mule or on foot. Mountains are everywhere. Now and then appears an Indian village. One of these villages is Papallacta, 11,000 feet high. The name means "The town of the potato." For it was from the Quichia people of the region that the Spanish secured the small potatoes from which the Irish potato has been developed.

XXI

GLIMPSES OF COLOMBIA AND VENEZUELA

THE traveler who goes north from Guayaquil by the Grace Line may prefer to take a boat that makes other ports in Ecuador, before going on to those of Colombia. Or he may choose the comfortable hydroplane operated by the Panagra, which devours the distance, sometimes over land, but usually over the water within sight of the jungle lands that reach back from the coast, first to Santa Elena, on the graceful bay of that name, then to Manta and Bahia de Carraquez, from which one of Ecuador's few railways runs inland. Then comes Esmeraldas, where vessels must anchor in the open roadstead because of a bar in the river. Both town and river received their name from a curious tribe of Indians now almost extinct, whose members deformed their heads. When the new railroad from this port to Quito is completed the journey to Ecuador's Capital will be only one-third as long as that from Guayaquil.

Then Colombia, with a call at Tumaco, the picturesque port of fifteen thousand inhabitants, gateway by river steamer to Barbacoas, the inland town where the making of Panama hats is a great industry, then over the carpet of tree tops, looking down on impenetrable jungles, where houses are built on stilts for safety from wild beasts, to Buenaventura, the town on a small island ten miles from the open ocean. The graceful drop of the hydroplane to the water not far from the white hotel at the head of

the single business street is an event to the five thousand people of this, the chief Pacific port of Colombia.

From Buenaventura there is a railroad into the interior, to Cali, in the Cauca Valley, between the Western and Eastern Cordillera, where plantains grow two feet long, bunches of bananas weigh as much as two hundred pounds, cacao grows without cultivation, and sugar plantations yield for several generations without replanting or fertilizing.

Next comes the flight of three hundred and sixty miles to the Panama Canal, then the thrilling bird's-eye view of that magnificent waterway, which discloses lock chambers just opening to receive a steamer, or closing to discharge a vessel that has reached its level; Gatun lock and Culebra Cut, and the clustering houses of the canal workers, between Balboa on the Pacific, and Cristobal on the Atlantic. Next the transfer at Cristobal to a hydroplane of the Pan American Airways, for a delightful voyage along the Caribbean. That journey, too, may be made by a coasting steamer, but there is nothing like the exhilarating experience of the speedier trip over the water and, now and then, over the land, then among the islands of the Mulatas Archipelago off the coast of Panama. Once the amphibian dropped to the water in a sheltered cove in the archipelago not far from Cristobal, to give opportunity for a squall to drift by. The hour spent in the lagoon was of great interest to the inhabitants of the two fishing villages, one on the mainland, the other on an island, not only to the grown people, but to the boys and girls in the primitive school, who were allowed to troop out to see the unexpected visitors. Then off to Cartagena, oldest city in the New World, past Santa Marta, the banana port, to Maracaibo, in Venezuela. On the way to Maracaibo comes the most inspiring part of the journey, over the

mountains, the Sierra de Perija. The plane does not rise to more than six thousand five hundred feet, although snow-clad peaks of seventeen thousand feet are just at the right. And, below, the slopes are covered with an impenetrable growth of trees which seems like a carpet of green, broken only here and there by the gash made by a stream as it dashes down the mountain side toward the ocean. Under these trees are villages of Indians, many of them savages, who do not welcome the visits of white men.

It was soon learned by the passengers on these planes that space is at a premium; because the carrying capacity is limited, there must be a rigid curtailment of luggage. Thirty pounds is, usually, the limit of baggage carried without extra charge. The price for excess is so large that passengers coöperate gladly with the companies in compressing their baggage.

The scene at the office just before the passengers enter the plane is interesting. Patrons themselves are weighed, not that they may be charged in accordance with their weight, but that the carrying capacity of the plane may not be overtaxed. Then baggage is placed on the scales. One day, when a nephew of President Gomez, of Venezuela, was about to take passage on the plane on which the traveler was passing, with his wife and their three-months-old child, the father was asked the weight of the baby, that this might be added to the total of other excess baggage. He laughed at the idea of calling his son excess baggage, but he announced the weight, and very gravely the clerk made up his total.

Whether they come by coasting steamer or by hydroplane, those who can do so should stop long enough for a trip up Venezuela's Lake Maracaibo, in the path of Alonzo de Ojeda, who, in 1499, entered the Gulf of Maracaibo from the Caribbean, then passed through a narrow neck into

Lake Maracaibo. This ancient explorer found a cluster of houses which the natives had built on piles in the water. This led him to call the water the Gulf of Venicia, while he named the village Little Venice. This was the origin of the name Venezuela. The visitor to-day finds similar houses on the lake.

It will be found that this strange body of water, which leads far back into the heavily forested interior, is fed by many streams which bring down the copious rainfall. In the lower lake the water is brackish, by reason of its connection with the sea, but the upper lake is fresh.

Perhaps twenty-five miles from the entrance to the Gulf is Maracaibo, in colonial days noted as an educational center, but now one of the world's great petroleum ports. Though the development of the Lake Maracaibo region as an oil center did not begin until 1912, the presence of oil there was known to the natives even before the coming of Columbus. A few years ago the production of the field passed that of Russia, and was second only to that of the United States. During this period of growth the influx of foreigners has been large, and those who visit Maracaibo do not find so much of the typical South American appearance as in many other centers. A boat journey to the head of the lake, past dense tropical forests and the bare spaces where the oil derricks rise, is of interest, not only because of these, but because, until 1668, at Maracaibo's upper end was a little port called Gibraltar, where goods and passengers were loaded for passage to the inland settlements. In that year it was destroyed by pirates.

But before we come to Lake Maracaibo and Venezuela, we want to see a bit of Colombia, which alone of the countries of South America has the distinction of having a coast line both on the Atlantic and the Pacific. The Isthmus of Panama, across which her vessels, by treaty,

have equal rights with those of the United States, reaches down between the oceans to its junction with Colombia and the continent on which it has first place.

So travelers have their choice of entering the country from either ocean. They may go to Buenaventura on the Pacific, and from there may pass inland across several ranges of the Andes, which in Colombia spread out generously into four ranges that enclose fertile plateaus, or to Bogota, the mountain Capital. To be sure, the journey will take some time, for two railway journeys are united by one of the five highways for which Colombia is becoming known. On the first rail-journey is Cali, a city nearly as large as Trenton, New Jersey.

But if the combination trip is too long, a big airplane may be taken, operated by the Sociedad Colombo Alemana de Transportes Aeros, called Scadta for short. Those who ride on the planes of this company should know that they are taking passage on one of the chief routes of a country that was the leader in commercial aviation in the Western Hemisphere. And Colombia and South America have gone ahead with the development of transportation in the air, until it is the world's leader in length of routes. The mountainous nature of the country and the necessary scarcity of railways have been responsible for this development.

A few hours will suffice to carry the traveler from sea level up to the railway that leads to Bogota's eight thousand four hundred-foot elevation, providing a thrilling ride over forests and mountains and rivers from the island port which is the outlet of Colombia's great Cauca Valley, and the home of many Negroes who live in thatched huts built on piles in the water.

But many prefer to make their entry to Colombia from the Caribbean. This may be done by the old port of

Cartagena, which is less than three hundred miles from United States territory in the Canal Zone. This city, frequently visited by the pirates who were attracted because this was the port of the vessels that carried to Spain the loot seized from the natives, and taken from the mines, was founded in 1593, and was thoroughly fortified. There is an old fortress on Boca Chico, while the channel, Boca Grande, that leads between the island Tierra Bomba and the city, is guarded by a strange wall built upward from the bottom of the channel, to make impossible the passage of large vessels. The presence of this wall may have to be taken on testimony, but the visitor can look for himself at the remains of the ancient city walls, on which he can take a long stroll as he gazes at the beautiful harbour. This has been likened to the harbour of San Francisco.

An airplane view of a city is always fascinating, but the view of Cartagena from aloft, with its wall and the ruins of the fortification, is especially delightful. As the airplane makes the long swoop over the city to the harbour, which is the signal for the official of the port to go down to the waterside to receive the visitors, this view is breath-taking. And when the amphibian, after a commotion on the water that must startle the fish, finally comes to rest on the surface of the harbour, the time of waiting does not seem long, for there are so many strange things to be seen. Why this wait? Because the amphibian is subject to the rules and regulations imposed in the case of ships; until the officials have boarded it and examined its papers, there can be no contact with the land. Not even the mail can be removed. And when the time has come to go, there is no possibility of movement until the sometimes dilatory government official is ready to say "Go!"

But before leaving Cartagena, there must be a tour of the old city. Arresting sights will be found everywhere.

One of these is the gateway, with its two arches on the side; these are undistinguished by the columnar ornamentation that is given to the central arch, a rather ornate approach to the clock tower which is like a two-story church steeple. Most fascinating to many is the old House of the Inquisition, relic of the days when Cartagena was the South American headquarters for the institution that brought terror and death to thousands, when the slightest offenses, and offenses which could not be anticipated, brought terrible punishment—as, for instance, the possession of books like *Robinson Crusoe,* or the works of Rousseau. W. Reginald Wheeler has given a striking description of the headquarters of the terror:

It is a solid, white-walled building, with a red-tiled roof and a great doorway. The arch over the doorway is decorated by heavy stone carvings, with a cross cut above what was once the state seal of Spain, whose details have been effaced. In the wall of the first story are small, round windows, like portholes in a ship, but heavily barred. In the rooms of the first floor were imprisoned the victims of the Inquisition: there are more iron bars and gratings visible from the courtyard within, and a small doorway on the second floor leads to the death chamber, where the condemned were despatched by the rack, by fire, and by a species of " Iron Maiden " resembling the historic " Maiden " of Nuremberg. In the cellar wall of the cathedral can be seen the grating, with its iron spikes, upon which heretics were placed over a slow fire; the gridiron now being put to the more pacific service of a protection for one of the cathedral's cellar windows. In the second story of the House of the Inquisition are the rooms which were used as judgment halls in the trials conducted by the Holy Office. The whole building is now in the possession of a Colombian family, and the lower story is used as an office and a store.

Would those who made such a point of prosecuting

what they called witchcraft have held up hands of horror when Lindbergh piloted his airplane from Cartagena to Bogota? Instead of taking the path of the commercial plane that flew from Barranquilla to the Capital, he followed the jungle and crossed the Cauca River. What a vision of the crooked stream he had, as he looked down upon it through the jungle!

Most people who desire to make the journey in the air to Bogota must go first to Barranquilla, the ancient city seventeen miles up the Magdalena River from its busy port on the Caribbean, Puerto Colombia, with which it is connected by rail. Some day soon it is hoped to have the barrier on the lower Magdalena removed so that sea-going vessels can pass through the delta of that great river. In the meantime the rich products from up country are transshipped at Barranquilla, a city of one hundred thousand people, to be loaded from the mile-long iron pier to the waiting steamers.

The citizens of Barranquilla are revealing an impressive spirit of determination to rise above the conditions that long held back this city. Modern methods of construction are bringing about improvements that will make the place as attractive from the streets as it is from the patios of the houses, with their green trees and flowers and their cooling fountains. Picturesque thatched-roofed cottages are now neighbours of up-to-date business buildings, while traffic lights are everywhere. The city is not many degrees above the Equator, so that the midday siesta and the visit to the patio become a necessity. But when the cooler hour at evening comes, it is pleasing to look over to the northeast, to the snowy summits of the Sierra de Perija, which rise seventeen thousand feet above the sea so near by.

No visitor to Barranquilla should leave without an early morning ride beyond the town, that he may see the peons

on their way to market. How they seem to enjoy their parade on the backs of the diminutive donkeys which carry their produce!

From Barranquilla a journey may be taken toward the Equator by stern-wheel steamer on the Magdalena River, the first stage of the ten or eleven-day journey to Bogota which, until the introduction of the hydroplane, was one of the world's most isolated Capitals. That slow progress may be monotonous to those who must make it often, but to those who ascend the river for the first time the rare combination of jungle, primitive life, birds of brilliant plumage, both in the air and on the water, and crocodiles which are frequently twelve feet in length, is an insurance against *ennui*.

At Honda the old road provided by the Spaniards for muleteers leaves the river for Bogota. This road, built more than three centuries ago, is still in use. While it is unusually broad for foot travelers, it is impracticable for wheeled traffic, not only because of its width, but by reason of the stone paving and the steps by which it rises. But it is still serviceable, for the pack trains of mules are employed all over Colombia. An estimate has been made that a living by driving mules is earned by one-third of the men in the country. Frequently there are villages and even districts where the work of mule-driving is the chief source of income of the people.

Yes, the long journey is worth while. But there are those who prefer to save time; they take the Scadta hydroplane from Barranquilla to the railroad, in the daylight hours of a single day. Thus, at greater or less length, the way is conquered to Bogota, the city founded in 1536 by Jimenez de Quesada. He named his new settlement for the ancient headquarters of the Chibchan Indians, whose civilization has been compared to that of the Incas. It

is refreshing to learn that arrangements were made with them to found, without the necessity of using force, Bogota, now a beautiful city of two hundred thousand inhabitants, the proud Capital of Colombia, " the Athens of South America." In its spacious, fertile plain, where vegetation thrives as in California, there is evidence of modern thrift. But life is still much as it was in the days of old, for instance, in the picturesque market, which is crowded like a long-neglected attic or an East Side market in New York City, or on the curious streets of the older part of the city, where the pavements are at the side, while the center are reserved for mules and Indians.

The central plaza, with its cathedral, and its statue of Bolivar, is a reminder of the debt of the Colombians to the Liberator, whose desire was to unite under one government Panama, Colombia, Venezuela, and Ecuador. After his retirement, and the murder of President Sucre in 1830, when Greater Colombia broke into parts, Bogota became Capital of the Republic of New Granada, later called the Granada Confederation, the United States of Colombia, and, finally, the Republic of Colombia.

The Liberator's last days were saddened by the collapse of his dream for a Greater Colombia. But he would have been proud of the diplomatic record of a country that, like so many others in South America, has shown its purpose to arbitrate disputes with neighbours, especially on boundary questions.

When the decision is made to leave Bogota, a fortunate choice of routes is the highway toward the border of Venezuela, at Cucuta. To-day this is known as the Carretera del Norte (Highway of the North) though in ancient days it was known as the Camino Real (Royal Road). This route, along the valley of the Rio Bogota—which enters the Magdalena after a precipitous drop of

over four hundred feet—then over the watershed, is a delightful scenic route, with many opportunities for stops and side trips, like that from a point forty-five miles from Bogota to Lake Guatavita, seven miles by rather rough trail from the main road.

Fifty miles farther along the highway is Tunga where, in 1537, Quesada came when he was in search of El Dorado. The modern town is anything but attractive; it is in keeping with the poor houses seen along the roadside in this, one of the richest sections of Colombia, close to emerald mines from which fabulous wealth has been taken, and in sharp contrast to some of the beautiful country seen by those who come this way. It is of interest to note that emerald mining in Colombia is a government monopoly, and that some of the richest mines, which date from 1540, were lost in the jungle for more than a century, and have been recovered only within a generation.

Fifteen miles before Tunga is reached is Boyaca, where Bolivar fought one of the great battles for independence. Near the spot where the road crosses the Rio Boyaca, the Spanish army was surprised and overwhelmed. Thus the travelers by the Carretera del Norte move on until they cross the bridge over the Tachera that leads into Venezuelan territory, and are set for the three- or four-day jaunt of eight hundred miles to Caracas by the Great Transandine Road.

At first the route is between the head of Lake Maracaibo and the rugged Cordillera of Merida. At length it follows the valley of Guaira River, passing Los Teques, a popular summer resort. And as they approach closer to the Capital the traffic on the road increases; a few modern trucks and hundreds of primitive mule carts carry the products of a rich section for which the port of La Guaira is the distributing point.

From La Guaira travelers find their way inland to Caracas, the Capital of Venezuela, by a route that takes them five thousand feet up the mountain, at whose base is the hot port. That is, the days are apt to be hot in La Guaira, unless the visit is made in December, January, and February, which are the best months for visiting Venezuela. The months from June to November, when there is most of the rainfall, are not unpleasant. They may go by railroad, a most picturesque journey of surprising vistas and adventures. But the real thrill goes to those who cover the eight miles of air-line distance by the twenty-three miles of the superb concrete highway, whose final section leads down four hundred feet to Caracas, the city that looks up to La Silla de Caracas, eight thousand six hundred feet high. The entire distance is through the Federal District, ten times as large as the District of Columbia.

"When you take that road, see its curves, and ride along the abrupt grades, look at the glorious scenery, gaze down hundreds, sometimes thousands of feet to the sea you left so recently, you will agree with me that this has a right to a place among the world's most memorable highways," said an enthusiastic fellow passenger on the hydroplane that devoured the miles so speedily on the Caribbean shores. There was one thing wrong with the statement—the speaker was not enthusiastic enough!

Those who travel this highway find themselves rejoicing that conditions in Venezuela have changed so completely. Once thought of as the country of revolutions, she is now at peace. And how much of real improvement has marked the decades of quiet! Political ideals are infinitely higher, the public debt has been reduced, and communication has been made in many parts of the country. Of the old days President Gomez some years ago wrote:

THE PORT OF CARTAGENA

AIR VIEW OF A SECTION OF CARTAGENA

The countryside was abandoned, for only a few of us dared to cultivate an estate. The cities were dead, for industry was absent. Our subsoil wealth remained unexplored, and the towns in the interior were isolated from each other.

Caracas, the proud seat of Venezuela's government, was all but destroyed by the earthquake of 1812. Then disappeared many of the relics of the centuries since 1567, when the city was founded, and also ten thousand people, including twelve hundred men of the patriot army who were swallowed in a fissure in the earth. So those who go there to-day will see only a beautiful modern city, about the size of Trenton, New Jersey, which has among its treasures the equestrian statue to Bolivar, " the great Venezuelan who did more for the independence of the Spanish Colonies than almost any other man." This has a delightful situation on Plaza Bolivar, with its typical ornamental pavement. While he is similarly honoured in many South American cities, visitors look to his own city for the recognition it has been proud to give since that day in 1813, two years after the adoption of the Declaration of Independence that freed this first of the provinces of South America to take the step—when Bolivar entered Caracas in triumph in a chariot reminiscent of those in which conquerors of old Rome were carried. This was drawn by twelve maidens of the Caracas nobility, each dressed in white and crowned with flowers. That was a memorable day.

The body of the great patriot reposes in the beautiful Pantheon, located at the foot of the mountain in the north part of Caracas. The base is covered by a columned canopy, guarded by two life size figures; under the canopy is a statue of Bolivar, while above it is the splendid cupola of the structure. On the wall is inscribed the Declaration

of Independence which shows how Thomas Jefferson and Bolivar were of one mind and heart.

Not far from the Pantheon are other notable buildings to which visitors want to give attention. The massive university building, with its Gothic façade, is across a plaza from the Capitol building, and the federal palace. No one should visit this palace section of the Capitol without seeing the elliptical salon, with its lifelike fresco of the battle of Carabobo, where, in 1821, the Spaniards were defeated by the patriots, and independence was won for Colombia which then included Venezuela. Visitors from North America will be delighted to see, in the birthplace of Simon Bolivar, their own liberator, a memorial to the leader of the North American revolution. The statue, which faces the north—pointing to the land he served—bears the inscription:

THE GOVERNMENT OF THE PEOPLE
OF VENEZUELA TO
JORGE WASHINGTON, FOUNDER OF
THE REPUBLIC OF THE NORTH,
ERECTED AT THE CENTENARY
OF THE LIBERATOR,
SIMON BOLIVAR.

Those whose hearts swell as they see the statue are glad to remember that the Republic of the North contains several memorials to Bolivar; one of these is in Central Park, New York City, while another is in Washington, District of Columbia.

XXII

WHEN YOU PLAN YOUR SOUTH AMERICAN TOUR

COMPLAINT is sometimes made that the voyage to Europe is not long enough. The voyage to the land beyond the Equator—which has been cut appreciably during the past twenty years—is just long enough to be most restful and helpful, without being so long as to prove trying. Life by day seems good in the comfortable, roomy quarters, on the inviting deck, and in the luxurious swimming pool. Then come the languorous evening hours when the orchestra plays while the passengers dance.

The steamship companies—they are all-sufficient for you as you plan your journey—have arranged tours that will please all people. Down East Coast, up West Coast, or down West Coast, up East Coast; by rail from coast to coast, either across Argentina and the Andes to Chile or by way of Lake Titicaca and La Paz to Buenos Aires; a trip to Cuzco, and excursions out from Lima; visits to Santos, the coffee port of Brazil, and to Sao Paulo; all these excursions may be included even in a two months' absence from New York City. And if another month is available, there are bits of Ecuador, Colombia, and Venezuela that may well be added.

While brief tours of South America will be outlined by the steamship companies—including the Furness-Prince and Munson Lines to the East Coast, and the Grace Line

to the West Coast—it is helpful, even before going to the steamship companies, to know something of what can be accomplished in a given length of time.

It may be of interest to some, then, to know in outline the itinerary mapped out by the writer for the trip made in partial preparation for this book.

Because the average traveler to South America is not apt to have more than eight or ten weeks at his disposal, the latter figure was in mind as a maximum. This was the itinerary:

New York to Rio de Janeiro, twelve days.

In Brazil, including Rio de Janeiro, Petropolis, Sao Paulo, Rio Clara, and Santos, ten days.

Steamer to Montevideo, a day in Montevideo, and night steamer to Buenos Aires, four days.

In Buenos Aires, four days.

(A magnificent trip may be taken from Buenos Aires to Asunción, Paraguay, by rail, over to Iguassu Falls, and back to Buenos Aires by the Parana River boat, in a little less than two weeks. But this is not allowed for in the itinerary, nor is it included in the estimated expense.)

Across Argentina to Mendoza, one day. (This journey may be made by air in six hours, but the railroad offers splendid service, in twenty-one hours, three times weekly.)

Mendoza and vicinity, three days. (If airplane is taken, this time in Mendoza may be reduced to one day; otherwise it will be necessary to wait for the train across the Andes.)

The Transandine trip, one day. (Airplane service provides for the flight to Santiago in two hours or less.)

Santiago, four days.

Valparaiso, one day. Or if steamer connection can be made at Talcahuano, it may be desirable to go down to Concepcion, through Chile's central Valley, a distance of

four hundred miles. A street car ride to Talcahuano, the port, leads to the vessel. Time, two days. (If two weeks more can be spared, it will be found worth while, in case the journey is made between November and April, to go on from Concepcion to Puerto Montt and the Lake Country, north of the Straits of Magellan.)

Steamers from Talcahuano to Valparaiso, with a day's stop, then to Antofagasta, four days.

Antofagasta to La Paz, Bolivia, Lake Titicaca, Cuzco, ruins on the Urubamba River, and return to the Pacific at Mollendo, fourteen days.

Mollendo to New York, twelve days. This allows a day in Lima, and a day going through the Panama Canal. If desired, the trip over the canal may be made by airplane at a cost of ten dollars.

Infinite variations are possible, even if time is not extended beyond ten weeks. For instance, the day in Lima may be extended so as to permit a day's trip up to Rio Blanco, at an elevation of eleven thousand five hundred feet, on the highest railroad in the world. This day's journey costs, first class, less than four dollars!

Then, instead of resuming the steamer at Callao, the Panagra airplane may be taken to Cristobal on the Panama Canal, two days. Then a day in Panama, and the three-day journey by Pan-American amphibian, two thousand six hundred miles for the round trip, along the Caribbean, to Cartagena, Barranquilla, Maracaibo, Curaçao, and Porto Cabello. All this may be done while the steamer, left at Callao, is making its trip to Cristobal. Two weeks more may be spent with profit by stopping at Guayaquil, Ecuador, at the end of the first day on the plane from Lima, taking the glorious railway journey to Quito and return, then resuming the plane to Buenaventura. From Buenaventura the Scadta plane, with railway connection,

leads to Bogota. Return may be made to Buenaventura and the Panagra plane resumed to Cristobal, or the Scadta plane may be taken to Cartagena or Maracaibo in season for the Pan-American plane along the Caribbean to Cristobal. It is possible also to take a plane direct from Bogota to Cristobal.

Because trains on many roads run but two or three days a week—sometimes but once a week—while airplane service may be given only twice a week, it will be well to have route and dates carefully planned. Reservations for seats and berths on trains, and for seats on the planes, should be made well in advance, for frequently the demand is greater than the supply. Often would-be passengers on South American planes are told that there will be no opportunity to make the journey until the next plane, or even for a week or two.

The cost? It is surprising to note how moderate this is. The South American trip, on the minimum outline, does not need to cost as much as such a trip of like length to Europe. In fact, satisfactory journeys, with good accommodations on fine liners, though of course not as full as the minimum outline given, may be made for as little as $500 or $600. The journey as outlined, without air transportation, should not cost more than $1000. The complete tour may be made for $2500. This, however, does not include the cost of the possible Iguassu Falls and Chilean Lake District extension.

Now as to hotels. Comfortable accommodation may be found in most places. In Rio de Janeiro, Sao Paulo, Montevideo, and Buenos Aires there are many hotels. If the trip is made during South America's winter season, it is wise to find in Buenos Aires a hotel with steam heat; many of the hotels have no provision for heating, and nights in the chilly rainy season are uncomfortable without

heat. At Mendoza there is a fine modern hotel. In Santiago, Valparaiso, and Concepcion no difficulty should be found. Even in Antofagasta and Mollendo quarters are good, as in La Paz and Cuzco. In Lima there is a choice between the modern Bolivar and the old-fashioned Maury, with its central plaza and rooms opening on a balcony, and meals which have been famous during many years. At many of the ports in Peru and Ecuador good quarters are offered; at Buenaventura, for instance, there are good rooms and fair meals in the white hotel with many balconies at the head of the business street. Caribbean coast memories may be pleasant, so far as hotels are concerned; Barranquilla has a hotel that is typically Spanish-American, while Curaçao has a Dutch house, built around a central court, with rooms opening on galleries, that seems a fitting part of the quaint town.

Some would-be tourists may be fearful because they do not know Portuguese or Spanish. Knowledge of these languages, while a fine thing, is not essential. In most places enough English is spoken to enable the tourist to get by, while even when he is in a town where he must use signs and a few phrases picked up as he goes along, there is no reason for dismay. In fact, experience in such circumstances is apt to be looked on as one of the pleasures of the journey.

The writer recalls with a smile a most satisfactory interview with a man at a railway ticket office in Lima. After marking a few words in the English-Spanish dictionary, this was handed to him. He read, nodded his head in sign of understanding, then turned to the Spanish-English section of the same dictionary. After turning the pages for a few moments, he marked half a dozen words, and the question asked of him was answered with complete satisfaction. The dictionary in question was a five-cent affair,

little larger than the palm of the hand, but it was entirely adequate.

In this connection it is interesting to note, as a sign of desire in South America to make travel easier for people from the United States, the fact that the Touring Division of Chile's Department of Promotion opened, in July, 1930, an Institute for the Education and Training of Hotel Employes, that they may perform their duties more efficiently. Men in the hotels are to be trained to give directions in English as to touring in Chile, while even the bell-boys are to learn history and geography, that they may be of greater use to visitors.

Furthermore, Chile is planning to have interpreters visit steamships, to give information to incoming visitors as to possible tours. Guides are to be furnished, especially for visits to the Lake District. A Baedeker of Chile has been provided by the Touring Division, and public telephones are to be installed on the highways.

Clothing should be provided for various climates. The needs will be apparent when it is remembered that the seasons below the Equator are the opposite of those of North America; for instance, spring in New York corresponds to fall in Buenos Aires, while summer in the North means winter in the South. Provision should be made for rainy weather, as well as for changes in thermometer that vary with the altitude, from torrid to freezing. If you climb high enough at the Equator, in midsummer, the days will be cold and bleak. Even in La Paz, where the thermometer registers 80° at midday, it is apt to be 35° or even lower at night.

Sometimes these rapid changes in climate are made still more abrupt for those who travel by airplane. And visitors to South America are given many opportunities for air voyages. Usually these are provided in inviting places

where road transportation does not exist. In fact, eighteen companies were operating not long ago on this continent, which was not only one of the first to take aviation seriously, but has been a leader in development of air transportation. It is a question how long this statement of eighteen companies will remain accurate. Advances are rapid on the continent that has more miles of lines regularly operated than either the United States or Europe. The rapidity of the development may be judged from the fact that the map in the *Encyclopedia Britannica,* corrected to 1928, indicated few of the routes in existence in 1930!

When there were but eighteen companies, there were forty-two thousand miles of airways in operation, or four-fifths as many miles as the railways had. The Panama-Grace Airways had more than twenty thousand miles. The Compania Lloyd Aero Boliviano, with headquarters at La Paz, operated on twenty-one hundred miles. The Chilean Army Mail Service had more than a thousand miles in Chile, the Sociedad Colombo Alemana de Transportes Aeros (the pioneer Scadta line, the first in the Western Hemisphere to inaugurate regular mail and foreign service) had two thousand seven hundred miles in Colombia. In Brazil, Argentina, Uruguay and Paraguay the Compagnie Generale Aeropostale of France operated five thousand miles, while the Condor Syndicate of Rio de Janeiro covered a thousand miles in Brazil. The Peruvian Naval Air Service had routes totaling eleven hundred miles, while Ecuador also had its service.

This marvelous development of air transport seems eminently fitting, in view of the fact that a Brazilian, Santos Dumont, in 1901 circled the Eiffel Tower in Paris in a ship lighter than air, while Georges Chavez, a Peruvian, was the first to cross the Alps in a plane. The

Andes were conquered by an airplane for the first time in 1918, by the Chilean navigator Lieutenant Godoy, though the first voyage over the same route from east to west was not made until 1925.

The visitor to South America should consider in advance the possibility of airplane jumps into countries which would not be touched otherwise, for visés should be secured in advance from the consuls of all the states. Now that the price for the passport has been reduced, and its life extended so that it can be renewed for a period of six years, it will be easier to take care of the demands for visés.

Peru is conspicuous among South American countries in requiring no fee for the visé of tourists, though visitors on business must pay a good fee. Neither Paraguay nor Uruguay require a passport, so a visé is unnecessary.

Information as to other requirements is easily obtained. A vaccination certificate, a certificate of good character, and a birth certificate are required in Brazil. The intending visitor may well write for information to the Pan-American Union, whose building at Washington is one of the sights of the city. The Union's literature on South American countries and cities is inspiring and informing. In its most helpful copyrighted booklet by William A. Reed, the Union gives a fine preliminary chapter.

For companionship on the voyage you will want a number of books on South America. First of importance among these is that very human document by the scientist Charles Darwin, with the long title, *Journal of Researches into the Natural History and Geology of the Countries Visited during the Voyage of H. M. S. Beagle around the world, under the command of Capt. Fitz Roy, R. N. by Charles Darwin, M. A., F. R. S., Author of "Origin of Species."* This book, now out of print, can be secured in second-hand bookstores. It gives an exhaustive account of investiga-

tions down to and on the East Coast of South America, in Tierra del Fuego, in Chile, and in Peru. The scientific expositions are interspersed with delightful bits of life and observation, and the reading will provide many a laugh. The chapters on Chiloe, Valdivia, the Araucanian Indians, Chile, and Peru, Crossing the Andes, and the Galapagos Islands, are especially worth while. Of other volumes it will be well to choose at least *South America,* by Hezekiah Butterworth; *Bird Islands of Peru,* by Robert Cushman Murphy; *Aboriginal Myths and Traditions Concerning the Island of Titicaca,* by Adolph F. Bandelier; *Jungle Paths and Inca Ruins,* by William Montgomery McGovern; *Travels Amongst the Great Andes of the Equator,* by Edward Whymper; *History of the Conquest of Peru,* by William H. Prescott; *Through the Brazilian Wilderness,* by Theodore Roosevelt; *South America,* by James Bryce; *South American Archæology,* by Thomas A. Joyce; *Ports and Harbours of South America,* published by the Pan-American Union, Washington; *El Supremo,* a Romance of Uruguay, by Edward Lucas White; *Inca Land,* by Hiram Bingham.

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