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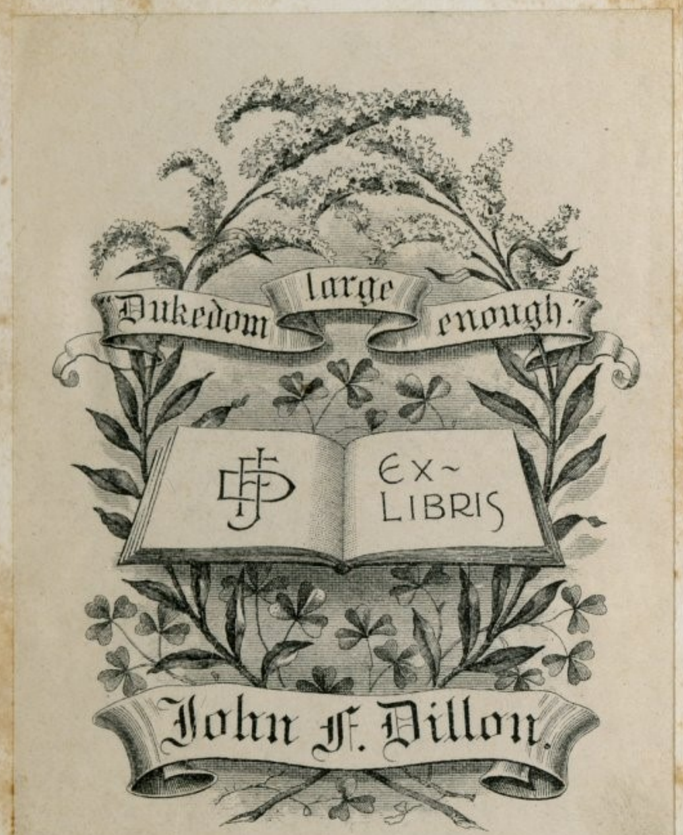

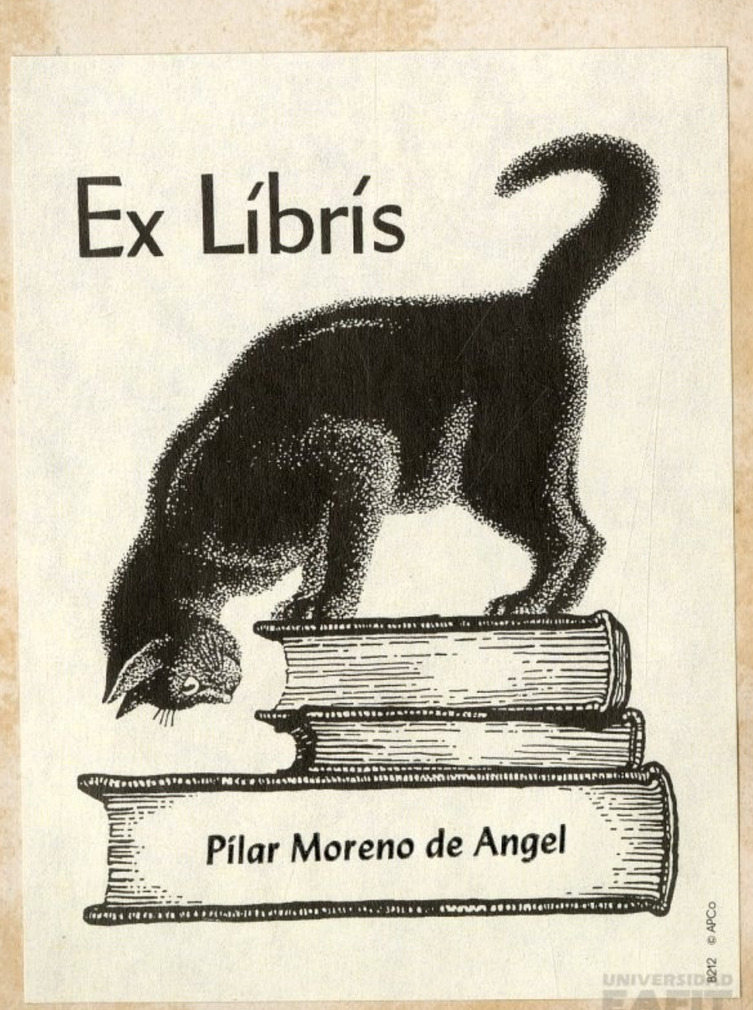

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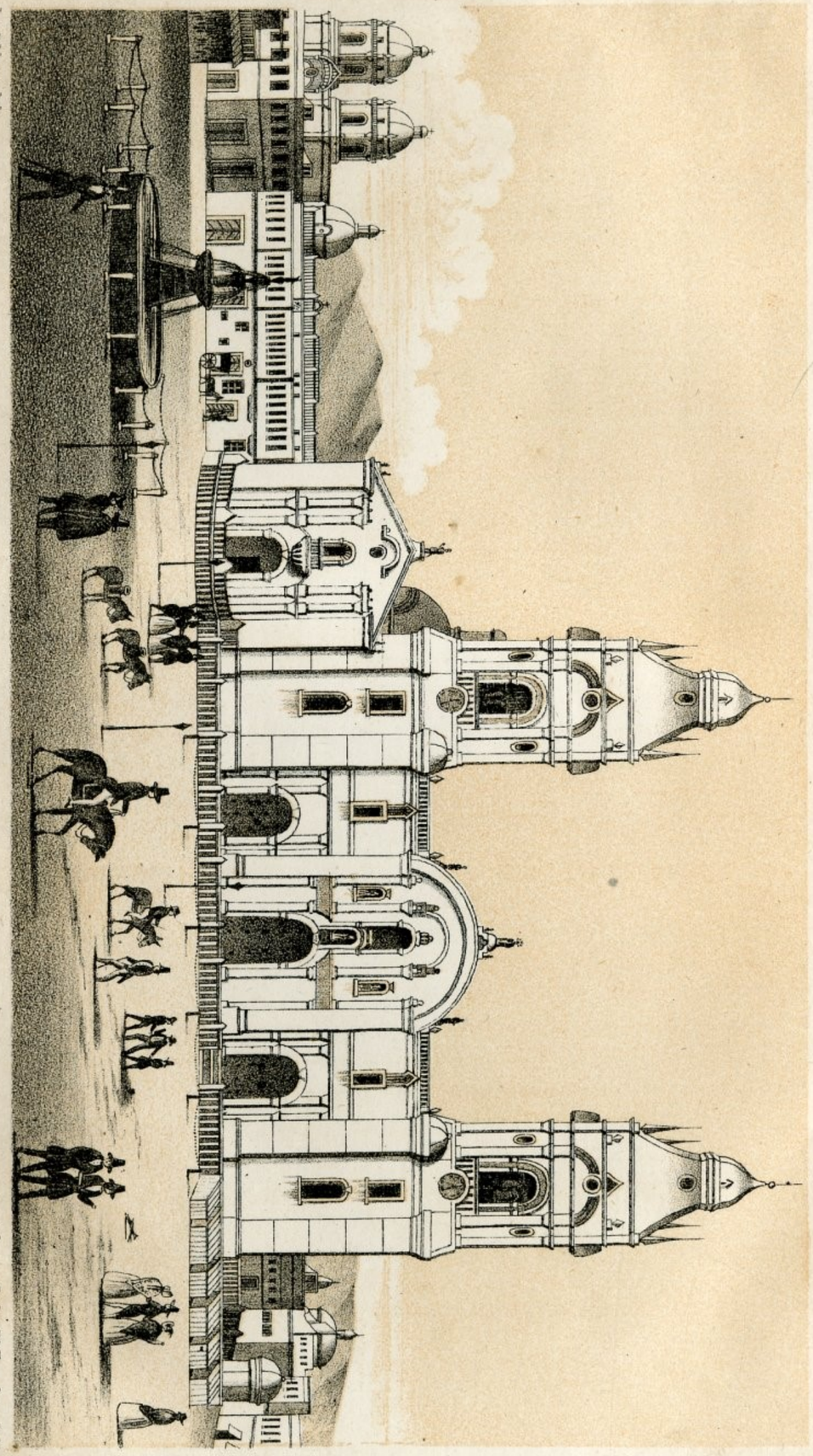

Lt. Gibbon del.

CATHEDRAL OF LIMA.

Foundation Stone Laid by Don Fr. Francisco Pizarro 18th of January 1534

Ackerman Lith. 379 Broadway N.Y.

Pl1.

In^o F. Dillon. 1863

33D CONGRESS, 1st Session. } HO. OF REPS. { EXECUTIVE, No. 53.

EXPLORATION

OF THE

VALLEY OF THE AMAZON,

MADE UNDER DIRECTION OF

THE NAVY DEPARTMENT,

BY

WM. LEWIS HERNDON AND LARDNER GIBBON,
LIEUTENANTS UNITED STATES NAVY.

PART I.

BY LIEUT. HERNDON.

WASHINGTON:
ROBERT ARMSTRONG, PUBLIC PRINTER
1854.

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LETTER OF THE SECRETARY OF THE NAVY,

COMMUNICATING

A REPORT OF AN EXPLORATION OF THE VALLEY OF THE AMAZON AND ITS TRIBUTARIES, MADE BY LIEUT. HERNDON, IN CONNECTION WITH LIEUT. GIBBON.

JANUARY 6, 1854.—*Resolved*, That there be printed, for the use of the members of the House, ten thousand extra copies of the report of the Secretary of the Navy communicating the reports of the exploration of the river Amazon and its tributaries, made by Lieutenants Herndon and Gibbon, with the accompanying maps and plates.

APRIL 13, 1854.—*Resolved*, That there be printed twenty thousand additional copies of the reports of the surveys and explorations of the river Amazon, with the plates and maps accompanying, by Lieutenants Herndon and Gibbon—two hundred and fifty copies for distribution by Lieutenant Herndon, and two hundred and fifty copies by Lieutenant Gibbon, and the remainder for the use of the members of the House.

To the Senate and House of Representatives:

I herewith transmit a communication from the Secretary of the Navy, accompanied by the first part of Lieut. Herndon's Report of the Exploration of the Valley of the Amazon and its tributaries, made by him, in connexion with Lieut. Lardner Gibbon, under instructions from the Navy Department.

MILLARD FILLMORE.

WASHINGTON, *February* 9, 1853.

NAVY DEPARTMENT, *February* 7, 1853.

To the PRESIDENT.

SIR: In compliance with the notice given in the annual report of this department to the President, and communicated to Congress at the opening of its present session, I have the honor herewith to submit the first part of the Report of Lieut. Herndon, of the Exploration of the Valley of the Amazon and its tributaries, made by him, in connection with Lieut. Lardner Gibbon, under instructions from this department, dated the 15th of February, 1851.

I am happy to be able to inform you that Lieut. Gibbon reached Pará on his homeward journey some weeks ago, and may very soon be expected to arrive in the United States. When he returns, Lieut. Herndon will have all the materials necessary to complete his report, and will devote himself to that labor with the same assiduity which has characterized his present work.

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I would respectfully beg leave to suggest that, in submitting this report to the House of Representatives, it be accompanied with a request to that body, if it should think proper to direct the printing of this valuable document, that the order for that purpose may include all the remaining portions of the report which may hereafter be furnished; and that the order for printing shall include a suitable direction for the engraving and publication of the maps, charts, and sketches, which will be furnished as necessary illustrations of the subjects treated of in the report.

I have the honor to be, with the highest consideration, your obedient servant,

JOHN P. KENNEDY.

WASHINGTON CITY, *January* 26, 1853.

To the Hon. JOHN P. KENNEDY,
Secretary of the Navy.

SIR: I have the honor to submit part first of the Report of an Exploration of the Valley of the Amazon, made by me, with the assistance of Lieut. Lardner Gibbon, under instructions of the Navy Department, bearing date February 15, 1851.

The desire expressed by the department for an early report of my exploration of the Amazon, and the general interest manifested in the public mind with regard to the same, have induced me to lay before you at once as full an account of our proceedings as can be made before the return of my companion.

The general map which accompanies the report is based upon maps published by the Society for the diffusion of Useful Knowledge, but corrected and improved according to my own personal observations, and on information obtained by me whilst in that country.

The final report of the expedition will be submitted as soon after Lieut. Gibbon's return as practicable. I am in daily expectation of intelligence from him. At the latest accounts (26th of July, 1852) he was at Trinidad de Moxos, on the Mamoré, in the republic of Bolivia, making his preparations for the descent of the Madeira.

I have the honor to be, very respectfully, your obedient servant,

WM. LEWIS HERNDON,
Lieut. U. S. Navy.

CHAPTER I.

INTRODUCTORY.

U. S. ship Vandalia—Valparaiso—Santiago—Vicente Pazos—Preparatory orders—Lima—Means of information—Conquests of the Incas in the Montaña—First explorations of the Spaniards—Madame Godin.

Attached to the U. S. ship Vandalia, of the Pacific squadron, lying at anchor in the harbor of Valparaiso, in the month of August, 1850, I received a communication from the Superintendent of the National Observatory, informing me that orders to explore the Valley of the Amazon would be sent me by the next mail steamer.

The ship was then bound for the Sandwich Islands, but Captain Gardner, with that kindness which ever characterized his intercourse with his officers, did not hesitate to detach me from the ship, and to give me permission to await, at Valparaiso, the arrival of my instructions.

The officers expressed much flattering regret at my leaving the ship, and loaded me with little personal mementos—things that might be of use to me on my proposed journey.

On the 6th of August I unexpectedly saw, from the windows of the club-house at Valparaiso, the topsails of the ship mounting to the mastheads; I saw that she must needs make a stretch in-shore to clear the rocks that lie off the western point of the bay; and desirous to say farewell to my friends, I leaped into a shore-boat, and shoved off, with the hope of reaching her before she went about. The oarsmen, influenced by the promise of a pair of dollars if they put me on board, bent to their oars with a will, and the light whale-boat seemed to fly; but just as I was clearing the outer line of merchantmen, the ship came sweeping up to the wind; and as she gracefully fell off on the other tack, her royals and courses were set; and bending to the steady northeast breeze, she darted out of the harbor at a rate that set pursuit at defiance. God's blessing go with the beautiful ship, and the gallant gentlemen, her officers, who had been to me as brothers.

Owing to the death of President Taylor, and the consequent change in the Cabinet, my orders were delayed, and I spent several weeks in

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Valparaiso, and Santiago, the capital of Chili. This time, however, was not thrown away: my residence in these cities improved my knowledge of the Spanish language, and gave me information regarding the Bolivian tributaries of the Amazon which I probably could have got nowhere else.

The commander of the English naval forces in the Pacific, Admiral Hornby, was much interested in my mission, and searched for me, through his valuable library, for all that had been written upon the subject. I am indebted to him, and the officers of his fleet, for much personal kindness.

I must also return thanks to Messrs. George Hobson, H. V. Ward, George Cood, and Commodore Simpson, of the Chilian navy, for the loan of books and maps which assisted me in forming my plans, and deciding as to route.

Mr. Bridges, an English florist and botanist, who had descended the Chaparé and Mamoré, tributaries of the Madeira, as far as the mouth of the Beni, and who sent the first specimen of the Victoria Regia to England from this country, gave me such a description of it as enabled me to point out to Mr. Gibbon the most practicable route to the head-waters of those streams.

I also had long conversations with General Ballivian, ex-President of Bolivia, then an exile to Chili. He lent me a map of Bolivia, executed under his orders whilst President of that republic, of which I took a tracing, but which I had afterwards the misfortune to lose.

At Santiago I received information regarding the river Beni, and the interior of Bolivia and Peru, from a French gentleman named Pissis, an engineer in the employment of the Chilian government; and also from a gentleman named Smith, an employé in the large mercantile house of Huth, Gruning & Co., who had travelled much in those countries.

To Don José Pardo, chargé d'affaires of Peru to the republic of Chili, I owe much for information and advice. He gave me copies of letters from Vicente Pazos, a citizen of Buenos Ayres, who has always manifested much interest in the improvement and advancement of South America, and who, in 1819, published a series of papers on the affairs of that country, directed to Henry Clay. These letters I deem of sufficient interest to give a translation of.

Buenos Ayres, *July* 14, 1850.

To Don Jose Pardo,

Minister of the Peruvian Republic, near the Government of Chili.

Sir: In a journal of this capital of the 2d inst., I have seen a transcript of a letter from you to the editor of a periodical of this place, in which you say, under date of the 25th of April last, that you have received special notice of the discovery, in the province of "Carabaya," of the ore and washings of gold. In consequence, the government of Peru invites all who desire it to take advantage, and make use of the natural productions of these regions, where emigrants of all nations shall have all the political and religious guarantees necessary in the exercise of their industry.

This announcement fills me with pleasure, because it is an evidence of the elevation of ideas which obtains in the government, and which will carry this part of Upper Peru to the height of prosperity to which it is called by its topographical and territorial position; and particularly because it has in its midst navigable rivers which connect it with the Atlantic. I allude to the navigation of the Amazon.

I have been now engaged some ten years in the thought and study of the political, social, and commercial relations concerning this matter, as is shown in my many publications which have circulated in Europe and America. These show the pains I have taken with the government of Louis Philippe, King of France, in order to open a new line of commercial communication between Cayenne and French Guyana and the republics of Peru, Bolivia, Ecuador, and Venezuela.

But I have always thought that our America, by the intelligence of its people, was to make a great social and commercial change; and I have always thought that this change would operate by means of its gigantic and navigable rivers. This conception is corroborated by the announcement of the discovery of the gold regions of *Carabaya*. Its upper parts, which belong to the Andes, feed sheep of the most exquisite wool; and as it goes on descending, vegetation springs up with a fecundity and ease unknown in the Old World. The land is cut up with mountain torrents, whose banks contain gold, and which unite to form the river "Purus," one of the greatest tributaries of the Amazon.

Of this river, our celebrated botanist, D. Tadeo Há-énke, in a special report, says: "Purus, or Cachivara, is a river of the first order. It arises in the cordillera of Vilcanota, a little to the east of the mountains of Carabaya, from which descend many considerable streams, rich in gold." To the testimony of this wise naturalist I add that of Conda-

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mine, and of the English naval officer, Smyth, and lastly the works of the Count of Castelnau, who descended the Amazon from Cuzco.

The scientific and hydrographical works of these travellers persuade me that the "Purus" will be the best channel of interior commerce, and will put the centre of Peru in communication with the industrial, commercial, and manufacturing nations of Europe and North America.

For this effect it is proper not only to speak of and familiarize people with this easy line of communication, but also to stimulate foreign emigration, and the civilization of the inhabitants of our forests—a people of a gentle disposition and an active intelligence.

The first sight I had of steam in the United States of America, in 1818, gave me the idea that our rivers were equally susceptible with theirs of this motive power, so that, in a work which I published in New York in 1819, I said that the day would arrive in which vessels moved by steam would navigate upon the gold-bearing rivers of Peru, as upon the fabulous Pactolus. This prediction is not now to me a fable, and, therefore, my conviction is unshaken, as will be seen by a letter which I have written to the President of the republic, Prince Louis Napoleon Bonaparte. The note to which I refer in it is very long, which prevents me from copying it, but some day it will be published.

In the mean time, I congratulate you, and your government, that in its administration should have taken place a measure so necessary for the common good.

Permit me, also, to offer you my respects, and to subscribe myself,

Your obedient servant,

VICENTE PAZOS.

—

BUENOS AYRES, *February* 2, 1850.

To His Excellency Prince LOUIS NAPOLEON BONAPARTE,
President of the French Republic.

PRINCE: In bringing to the notice of your excellency the adjoined copy, which is a duplicate of my note, laid before the executive power which governed republican France in June, 1848, my object is to call the attention of your excellency to the same project which Napoleon, your august uncle, conceived for the aggrandizement of the most important colony which France possesses in the New World—French Guyana. Before the application of steam to navigation, this tutelar genius of France comprehended that Cayenne would some day be the key to a vast commerce in all those regions, where might be created great empires.

This sublime conception infused into my spirit the idea that the time had arrived to realize the views of the Emperor; and, with this object, I addressed myself to the French government, in April, 1840, when the Chambers decreed trans-atlantic steam navigation, to the end that there should also be established a river line between French Guyana and the republics of Peru, Bolivia, Ecuador, and Venezuela. All the ministers who governed until February, 1848, including also the monarchy, approved my project, and took the preliminary measures necessary for beginning a system of navigation without equal since the days of Columbus and Vasco de Gama.

Officers of the French navy, stimulated by the example of those of the English, who had preceded them in the exploration of the Amazon, made also important hydrographical observations of the course of that river, which show that its principal outlet is along the shores of French Guyana, whence France may command the fluvial navigation and the commerce of those vast regions.

I thought that this advantage, which a glance at the geographical position of French Guyana shows, would work effectually in the judgment of M. Arago, then Minister of Marine and member of the provincial government of the French republic.

The reply of this wise astronomer, of April 14th, to my note of the 22d April preceding, smothered, not only my hopes, but closed the doors to the prosperity of the French colonies, and to that of those nations whose streams form the Amazon, and whose people desire with eagerness this new and short way of communication between Europe and meridional America.

The grandeur of this plan, which is found set forth in my notes, memorials, and writings, which may be found in the different ministerial bureaus of France, together with the opinions of many French writers and travellers, among whom the most distinguished is M. Castelnau, demonstrate the utility of encouraging the growth of Guyana.

To all the information furnished by these ought to be added the verbal communications which I have received from the commander of the "Astrolabe," M. Montravel, who is now on the station of the river Plate, under the order of Vice Admiral Le Predour. M. De Montravel, in the corvette Boulognaise, is the officer who made the exploration of the Amazon, and whose most valuable information, which exists in the department of the French marine, corroborates all that I have expressed to the French government for these ten years, and now animates me to

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address myself to your excellency directly, renewing the same project which I had the honor of presenting to the French nation, &c.

VICENTE PAZOS.

The city of Santiago is situated in a lovely plain at the very foot of the cordillera. The snowy summits of this chain, painted in bold relief against the hard, gray sky of the morning, have a very singular and beautiful appearance; they seem cut from white marble, and within reach of the hand. It is almost impossible to give an idea of the transparency of the atmosphere at this place. I was never tired of watching, from Lieut. Gillis's little observatory, the stars rising over these mountains. There was nothing of the faint and indistinct glimmer which stars generally present when rising from the ocean; but they burst forth in an instant of time, in the full blaze of their beauty, and seemed as if just created. Gillis told me that his small telescope, of American manufacture, of 6½ inches of aperture, was there fully equal in power to the German glass at Washington of 9 inches.

Chili, in arts and civilization, is far ahead of any other South American republic. There are many young men of native families, educated in the best manner in Europe, who would be ornaments to any society; and the manners of the ladies are marked by a simple, open, engaging cordiality, that seems peculiar to Creoles. I do not know a more pleasant place of residence than Santiago, except for two causes: one, earthquakes, to the terrors of which no familiarity breeds indifference; the other, the readiness of the people to appeal to the bayonet for the settlement of political differences, or in the struggle for political power. These two causes shook the city and society to their foundations a few months after I left it.

On the 20th of January, 1851, I received the following instructions from the Hon. William A. Graham, Secretary of the Navy:

NAVY DEPARTMENT, *October* 30, 1850.

SIR: Proceed to Lima, for the purpose of collecting from the monasteries, and other authentic sources that may be acessible to you, information concerning the headwaters of the Amazon and the regions of country drained by its Peruvian tributaries. You will then visit the monasteries of Bolivia for a like purpose, touching the Bolivian tributaries of that river, should it in your judgment be desirable.

The object of the department in assigning you to this service is with the view of directing you to explore the Valley of the Amazon, should the consent of Brazil therefor be obtained; and the information you are directed to obtain is such as would tend to assist and guide you in such exploration, should you be directed to make it.

As this service to which you are now assigned may probably involve the necessity of the occasional expenditure of a small amount on government account, you are furnished with a bill of credit for one thousand dollars, for which you will account to the proper office.

Also, enclosed you will find a letter of introduction to Messrs. Clay and McClung, chargés d'affaires near the governments of Peru and Bolivia.

Respectfully, &c.,

WILLIAM A. GRAHAM.

As I had obtained from my Santiago and Valparaiso friends—particularly from General Ballivian—all the information that I would be likely to get in the cities of Bolivia, I determined to proceed to Lima, and accordingly embarked on board the mail boat of the 26th.

My residence in Valparaiso had made new friends and established new ties, that I found painful to break; but this is the lot of the navy officer: separated from his family for years, he is brought into the closest and most intimate association with his messmates, and forms ties which are made but to be broken, generally by many years of separation. Taken from these, he is thrown among strangers, and becomes dependent upon their kindness and hospitality for the only enjoyments that make his life endurable. Receiving these, his heart yearns towards the donors; and my Valparaiso friends will readily believe that I was sad enough when compelled to leave them.

I arrived in Lima on the 6th of February. This city has changed greatly since I was here, twenty years ago. Though we had bull-fights on the accession of the new President, General Echenique, (which accession, strange to say, took place without popular tumult, except a small outbreak at Arequipa, resulting in the immediate imprisonment at Lima of the opposing candidate, General Vivanco,) yet the noble amphitheatre was not crowded as in old times with the *élite* and fashion of Lima, but seemed abandoned to the vulgar. The ladies have given up their peculiar and most graceful national costume, the "Saya y Manto," and it is now the mark of a ragged reputation. They dress in the French style, frequent the opera, and, instead of the "Yerba de Paraguay," called Matté, of which they

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used a great quantity formerly, they now take tea. These are causes for regret, for one likes to see nationality preserved; but there is one cause for congratulation, (especially on the part of sea-going men, who have sometimes suffered,) the railroad between Lima and Callao has broken up the robbers.

But with these matters I have nothing to do. My first business at Lima was to establish relations with Don Francisco Paula y Vigil, the accomplished and learned superintendent of the public library. This gentleman, who is an ecclesiastic and a member of the Senate, has so high a character for learning and honesty, that, though a partisan politician, and a member of the opposition to the new government, he preserves (a rare thing in Peru) the respect and confidence of all. He placed the books of the library at my disposal, and kindly selected for me those that would be of service.

The sources of information, however, were small and unsatisfactory. The military expeditions into the country to the eastward of the Andes left little or no reliable traces of their labors. The records of the explorations of the Jesuits were out of my reach, in the archives of Quito—at that time the head of the diocese, and the starting-point of the missions into the interior—and nearly all that I could get at were some meagre accounts of the operations of the Franciscans, collected by Father Manuel Sobreviela, guardian of the missionary college of Ocopa, and published, in 1790, in a periodical called "Mercurio Peruano," edited by an association styling itself "Amantes del Pais," or lovers of their country.

Though the information obtained in Lima was not great, I still think that a slight historical sketch of the attempts to explore the Montaña,* of Peru, made since the conquest of that country by Pizarro, will not be uninteresting. Before commencing it, however, I desire to express my acknowledgments to the many gentlemen, both native and foreign, who have assisted me in my researches with information and advice, particularly to Don Nicholas Pierola, the Director of the National Museum, whose name is associated with that of Mariano de Rivero, as "*par excellence*" the scientific men of Peru; to the Hon. John Randolph Clay, chargé d'affaires of the United States; to Dr. Archibald Smith,

* Montaña (pronounced Montanya) is the name given by the Peruvians to any wooded country, "monte" being the Spanish term for a thick and tangled forest. As there is no other wooded country in Peru except to the eastward of the Andes, the term applies only to the eastern slope, and the level country at the base of the mountains, stretching as far as the confines of Brazil.

an eminent physician, and author of a very clever book called "Peru as it is;" and to the courteous and hospitable partners of the mercantile house of Alsop & Co., Messrs. Prevost, Foster & McCall.

Modern books upon the subject—such as Prescott's Peru; Humboldt's Narrative; Von Tschude's Travels; Smith's "Peru as it is;" Condamine's Voyage on the Amazon; Prince Adalbert's Travels; the Journals of the English Lieutenants, Smyth and Maw; "Travels in Maynas" of Don Manuel Ijurra, who afterwards accompanied me as interpreter to the Indians; Southey's Brazil, and a Chorographic Essay on the Province of Pará, by a Brazilian named Baena—were all consulted, and, together with oral communications from persons who had visited various parts of the Valley of the Amazon, gave me all the information within my reach, and prepared me to start upon my journey at least with open eyes.

According to Garcilasso de la Vega, himself a descendant of the Incas, the attention of the Peruvian government was directed to the country east of the Andes even before the time of the Spanish conquest. The sixth Inca, *Rocca*, sent his son, *Yahuar Huaccac*, at the head of 15,000 men, with three generals as companions and advisers, to the conquest of the country to the northward and eastward of Cuzco, called *Antisuyo*, inhabited by Indians called *Antis*. The young prince added a space of thirty leagues in that direction to the dominions of his father, but could reach no further on account of the roughness of the country and the difficulties of the march. The tenth and great Inca, *Yupanqui*, sent an expedition of 10,000 men to pursue the conquests of Yahuar Huaccac. These reached the Montaña, and, embarking on rafts upon the great river *Amarumayo*,* fought their way through tribes called *Chunchos*, till they arrived, with only 1,000 men, into the territory of tribes called *Musus*. Finding their numbers now too small for conquest, they persuaded these Indians that they were friends, and, by their superior civilization, obtained such an ascendency among them, that the Musus agreed to send ambassadors to render homage and worship to the "Child of the Sun," and gave these men of the Inca race their daughters in marriage, and a place in their tribe.

* As I shall have occasion, in speaking of routes, to refer again to this river, I would like to draw particular attention to it, simply stating here, however, that all who have penetrated into the Montaña to the northward and eastward of Cuzco, agree in reporting a large and navigable river arrived at soon after clearing the skirts of the mountains. Different tribes of Indians inhabit its banks, and I presume it is on this account that so many different names—such as Amarumayo, Mano, Tono, Inambiri, Guariguari, Cachihuara, and Madre-de-dios—have been given it.

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Years afterwards, during the reign of *Huaynal Capac*, the Incas and their descendants desired to return to Cuzco; but in the midst of their preparations they received intelligence of the downfall of their nation, and settled finally among the Musus, who adopted many of the laws, customs, usages, and worship of the Incas.

I have little doubt of the truth of this account, for even at the present day may be found amongst the savages who dwell about the headwaters of the *Ucayali*, the *Purus*, and in the country between the Purus and *Beni*, traces of the warlike character of the mountain race, and that invincible hatred of the white man which the descendants of the Incas may well be supposed to feel. This determined hostility and warlike character prevented me from embarking upon the *Chanchamayo* to descend the Ucayali, was the cause why I could not get men to ascend the Ucayali from *Sarayacu*, and I have no doubt hindered Mr. Gibbon from penetrating to the eastward of Cuzco, and seeking in that direction the sources of the Purus.

This character is entirely distinct from that of the Indians of the plains everywhere in South America, who are, in general, gentle, docile, and obedient, and who fear the white man with an abject and craven fear.

Love of dominion and power had induced the Indian princes of Peru to waste their treasures and the lives of their subjects in the subjugation of the Montaña. A stronger passion was now to urge a stronger people in the same direction. Stories of great empires, which had obtained the names of *Beni*, or *Gran Pará*, *Gran Pairiri*, or *Paititi*, and *El Dorado*, filled with large and populous cities, whose streets were paved with gold; of a lake of golden sand, called *Parima;* of a gilded king, who, when he rose in the morning, was smeared with oil, and covered with gold dust blown upon him by his courtiers through long reeds, and of immense mineral and vegetable treasures, had for some time filled the ears and occupied the minds of the avaricious conquerors; and, after the partial settlement of affairs by the defeat of the *Almagro* faction at the battle of *Salinas*, near Cuzco, on the 26th April, 1538, various leaders sought opportunities of obtaining wealth and distinction by incursions into these unknown lands.

Hernando Pizarro fitted out two expeditions, giving to *Pedro de Candia* the command of the first, and to *Pedro Anzulo* that of the second. These men, led on by the report of the Indians, who constantly asserted that the rich countries they sought lay yet farther to the eastward, penetrated, it is supposed, as far as the Beni; but, overcome by danger, privation, and suffering, they returned with no results, save

marvellous stories of what they had seen and learned, which inflamed the curiosity and cupidity of others. These parties were generally accompanied by an ecclesiastic, who was the historian of the expedition. Some idea may be formed of the worthlessness of their records by examining a few of the stories related by them. Here is one:

"Juan Alvarez Maldonado made an expedition from Cuzco in the year 1561. He descended the eastern range of the Andes, and had scarcely cleared the rough and rocky ground of the slope when his party encountered two pigmies. They shot the female, and the male died of grief six days afterwards.

"Following the course of the great river Mano downwards, at the distance of two hundred leagues they landed upon a beach, and a piquet of soldiers penetrated into the woods. They found the trees so tall as to exceed an arrow-shot in height, and so large that six men, with joined hands, could scarcely circle them. Here they found lying upon the ground a man, five yards in height, members in proportion, long snout, projecting teeth, vesture of beautiful leopard skin, short and shrivelled, and, for a walking-stick, a tree, which he played with as with a cane. On his attempting to rise, they shot him dead, and returned to the boat to give notice to their companions. These went to the spot, and found traces of his having been carried off. Following the track towards a neighboring hill, they heard thence such shouts and vociferations that they were astounded, and, horror-stricken, fled." One more:

"Between the years 1639 and 1648, Padre *Tomas de Chaves*, a Dominican, entered among the Chunchos, from Cochabamba, in Bolivia. He took twelve of them to Lima, where they were baptized. He then went back and lived among them fourteen years, making many expeditions. His last was in 1654 among the *Moxos* Indians of the Mamoré. He there cured a cacique of some infirmity, and the Emperor of the Musus (this is the great Paititi or gilded King of the Spaniards) sent six hundred armed men to the cacique of the Moxos, demanding that the reverend father should be sent to cure his Queen. The Moxos were very unwilling to part with their physician; but threats of extermination delivered by the ambassadors of the Emperor induced compliance; and the padre was carried off on the shoulders of the Indians. After a travel of thirty days, he came to the banks of a stream so wide that it could scarcely be seen across; (supposed to be the Beni.) Here the Indian ambassadors had left their canoes; loosing them from the banks, they launched, went down the stream twelve days, and then landed. Here the father

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found a large town inhabited by an incredible number of savages, all soldiers, guarding this great port of the river, and entrance into the empire of the Musus. No women were to be seen; they lived in another town, a league off, and only came in by day to bring food and drink to the warriors, and returned at night.

"He observed that the river at this place divided into many arms, all appearing navigable, and formed large islands, on which were great towns. He travelled hence twenty-seven days, when he arrived at court. The King came out to meet him, dressed in the finest and most delicate feathers, of different colors. He treated his guest with great courtesy, had a sumptuous feast prepared for him, and told him that, hearing of his wonderful powers as a physician, he had sent for him to cure the Queen of a disease which had baffled the skill of all his doctors. The good father remarked that he was no physician, and had not been bred to that art; but observing that the Queen was beset with devils, ('obsesa,') he exorcised her according to the formulary, whereby she was thankfully made a Christian. He was eleven months in the court of the Paititi; at the end of which time, seeing that the wine and flour for the sacred elements were giving out, and having baptized an infinite number of infants in 'Articulo Mortis,' he took leave of their majesties, recommending to the Queen that she hold fast the faith she had received, abstaining from all offence towards God. He refused from the King a great present of gold, silver, pearls, and rich feathers; whereat (says Father Tomas) the King and courtiers wondered greatly."

These are of the number of stories which, inflaming the cupidity of the Spaniards, led them to brave the perils of the wilderness in search of El Dorado. They serve to show at this day the little confidence which is to be placed in the relations of the friars concerning this country; I do not imagine, however, that they are broad lies. The soldiers of Maldonado evidently mistook monkeys for pigmies, and some beast of the forest, probably the tapir, for a giant; and there is doubtless some truth in the account of Padre Tomas, though one cannot credit the six hundred ambassadors; the river that could scarcely be seen across; the garrisoned port; and the gold, silver, and pearls of an alluvial country.

But the defeated followers of Almagro, flying from before the face of the still victorious Pizarros, *did* find to the eastward of Cuzco a country answering, in some degree, to the description of the fabulous El Dorado. They penetrated into the valleys of *Carabaya*, and found there washings of gold of great value. They subjugated the Indians;

built the towns of *San Juan del Oro*, *San Gaban*, *Sandia*, &c.; and sent large quantities of gold to Spain. On one occasion they sent a mass of gold in the shape of an ox's head, and of the weight of two hundred pounds, as a present to Charles V. The Emperor, in acknowledgment, gave the title of "Royal City" to the town of San Juan del Oro, and ennobled its inhabitants. The Indians, however, in the course of time, revolted, murdered their oppressors, and destroyed their towns. Up to the last three years this has been a sealed country to the white man. I shall have occasion to refer to it again.

While these efforts to penetrate the Montaña to the eastward of Cuzco were being made, Gonzalo Pizarro fitted out at Quito an expedition consisting of 350 Spaniards and 4,000 Indians, with large supplies of provisions and live stock. All who have read the brilliant pages of Prescott know the history of this expedition: the discovery of cinnamon; the treachery of Orellana; and the origin of the present name of the great river. I shall not tread upon such ground; but shall content myself with observing that, if Pizarro built a brig, or anything that carried a mast, he either embarked low down upon the Napo, or, what I rather suspect, the Napo was a much larger stream then than now.

The failure of this expedition, and the almost incredible sufferings of the party who composed it, could not deter the Spaniards from their search for El Dorado. In 1560 the Marquis of *Cañete*, Viceroy of Peru, sent *Pedro de Ursoa* with a large company on this mission. This officer marched northward from Cuzco, and embarked upon the *Huallaga*. At *Lamas*, a small town near that river, he was murdered by his lieutenant, *Lope de Aguirre*, who determined to prosecute the enterprise. Aguirre descended the Huallaga—and the Amazon to its mouth—coasted along the shores of Guyana and Venezuela, and took possession of the small island of Marguerita. There raising a party, he landed at Cumaná, with the purpose of conquering an empire on the main land. He was, however, defeated by some Spanish troops who had already possession of the country, taken prisoner, carried to Trinidad and hung.

Aguirre appears to have been a bold and violent man. His letter to Philip II, published in Humboldt's narrative, is indicative of his character. He says: "On going out of the river Amazon we landed at an island called La Margaretta. We there received news from Spain of the great faction of the Lutherans. This news frightened us exceedingly. We found among us one of that faction; his name was

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Monteverde. I had him cut in pieces, as was just; for, believe me, signor, wherever I am, people live according to the law.

"In the year 1559 the Marquis of Cañete sent to the Amazon Pedro de Ursoa, a Navarrese, or rather a Frenchman. We sailed on the largest rivers of Peru till we came to a gulf of fresh water. We had already gone 300 leagues, when we killed that bad and ambitious captain. We chose a Cavallero of Seville, *Fernando de Guzman*, for king; and we swore fealty to him, as is done to thyself. I was named quartermaster general; and, because I did not consent to all his will, he wanted to kill me. But I killed this new king, the captain of his guards, his lieutenant general, his chaplain, a woman, a knight of the order of Rhodes, two ensigns, and five or six domestics of the pretended king. I then resolved to punish thy ministers and thy auditors. I named captains and sergeants. These again wanted to kill me; but I had them all hanged. In the midst of these adventures we navigated eleven months, till we reached the mouth of the river. We sailed more than 1,500 leagues. God knows how we got through that great mass of water. I advise thee, O great king, never to send Spanish fleets into that cursed river."

The following story, from the "Viagero Universal" of Ulloa, shows his barbarity in yet more revolting colors. It appears that in all his marches he carried with him a favorite daughter. When defeated and surrounded, so that escape was impossible, he called this lady, and addressing her, said: "I had hoped to make thee a queen. This now is impossible. I cannot bear that you should live to be pointed at as the child of a traitor and a felon. Thou must prepare for death at my hands." She requested a few minutes for prayer, which was granted; but her father, thinking she was too long at her devotions, fired upon her whilst on her knees. The unfortunate lady staggered towards him; but taking her by the hand as she approached, the villain plunged his knife into her bosom, and she sank at his feet, murmuring "*Basta Padre Mio*,"—It is enough, my father.

It is not to be expected that information of an exact and scientific character could be had from the voyages of adventurers like these. They were mere soldiers, and too much occupied in difficulties of travel, conflicts with Indians, ambitious designs, and internal dissentions, to make any notes of the topography or productions of the countries they passed through.

But a task that had baffled the ambition and power of the Incas and love of gold, backed by the indomitable spirit and courage of the hardy Spanish soldier, was now to be undertaken by men who were urged on

by a yet more absorbing passion than either of these. I mean missionary zeal—the love of propagating the faith.

The first missionary stations established in the Montaña were founded by the Fathers Cuxia and Cueva, of the holy company of the Jesuits, in 1737.

They commenced operations at the village of *St. Francis de Borja*, founded by *Don Pedro de Vaca*, in 1634, when he conquered and settled the province of *Mainas*, under the direction of the Viceroy *Don Francisco de Borja*, prince of *Esquilache*. This village is situated on the left bank of the Marañon, not far below where it breaks its way through the last chain of hills that obstructs its course, at the *Pongo* de Manseriché*.

In the same year (1637,) according to Ulloa, (whose statements, I think, are always to be received "cum grano salis") Pedro Texeira, a Portuguese captain, ascended the Amazon with a fleet mounting forty-seven large guns. After an eight months' voyage from *Pará*, he arrived at the port of *Payamino*, or *Frayamixa*, in the province of *Quixos*, on the river Napo. I am unable to find out how far up the Napo this is; but Texeira, leaving his fleet there, went with some of his officers by land to Quito. The Royal Audience of that city determined to send explorers with him on his return, and the Jesuit Fathers, *Acuña* and *Artieda*, were selected for that purpose, and directed to report to the King of Spain. Passing through the town of *Archidona*, on the headwaters of the Napo, with much suffering they joined the fleet in the port of Payamino, and after a voyage of ten months, by land and water, arrived at Pará, whence they sailed for Spain.

The Spanish government, then occupied with the rebellion of Portugal, could lend no aid to the missionaries, and Father *Artieda* returned to Quito in 1643. He appealed to the Royal Audience, and to the college of the Jesuits at that city, for help to the missions, and the latter institution furnished him with five or six missionaries. These were well received by the Indians, and prosecuted their labors with such success, that in the year 1666 they had formed thirteen large and populous settlements in the country, bordering on the upper Marañon, and near the mouths of the Pastaza, Ucayali, and Huallaga.

About this time the Franciscans commenced pushing their explorations and missionary operations from Lima, by the way of Tarma and Jauxa, into the Montaña, drained by the headwaters of the Ucayali; and here (thanks to Father Sobreviela) we begin to get a little topo-

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* Pongo means a rapid.

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graphical information; and the map may now be consulted in elucidation of the text.

In 1673 the Franciscan Father *Manuel Biedma* penetrated into the Montaña from *Jauxa*, by the way of *Comas* and *Andamarca*, and established the missionary station of *Santa Cruz de Sonomora*, on the river *Pangoa*, a tributary of the Ucayali.

In 1681 he opened a mule road from Andamarca to Sonomora, and in 1684 one from Sonomora to the junction of the Pangoa with the Perene. In 1686 he embarked at this place with *Antonio Vital*, and descended the Ucayali to near the junction of the *Pachitea*. Here he established a station called "*San Miguel de los Conibos*," and, leaving Vital in charge, he attempted to ascend the river again, but was killed by the savages. Vital, hearing of his death, and seeing himself abandoned, without hope of succor, determined to commit himself to the downward current; and, embarking in a canoe with six Indians, he soon reached the Jesuit missionary stations near the mouth of the Ucayali. Directed by these missionaries, he ascended the Marañon, the Huallaga, and the river Mayo as far as it is navigable. He then disembarked, travelled by land through *Moyobamba* and *Chachapoyas*, and passing through Lima arrived at Jauxa, whence he had set out with Father Biedma.

About this time the Franciscans, also penetrating from *Tarma* by the valleys of *Chanchamayo* and *Vitoc*, established the missions of the *Cerro de la Sal* and the *Pajonal*. The Cerro de la Sal is described as a mountain of rock and red earth, with veins of salt of thirty yards in breadth, to which the Indians, for many miles round, were in the habit of repairing for their supply. The Pajonal is a great grassy plain, enclosed between the river Pachitea and a great bend of the Ucayali. It is about one hundred and twenty miles in length from north to south, and ninety from east to west; and I judge from its name, and some imperfect descriptions of it, that it is a very fine grazing country.

In the year 1712 *Padre Francisco de San José* established a college, "de propaganda fide," at the village of *Ocopa*, in the Andes, a few leagues from Jauxa. By his zeal and abilities he induced many European monks, of the order of St. Francis, to come over and join him in his missionary labors. These men labored so successfully, that up to 1742 they had established ten towns in the Pajonal and Cerro de la Sal, and had under their spiritual direction ten thousand converts. But in this year an Indian of Cuzco, who had been converted and baptized as *Juan Santos*, apostatized from the faith; and, taking upon himself the style and title of Inca, and the name of *Atahuallpa*, excited to rebellion all the Indians of the plain, and swept away every trace of

the missionary rule; some seventy or eighty of the priests perishing in the wreck.

It is quite evident that no distaste for the Catholic religion induced this rebellion; for in the year 1750, eight years afterward, the Marquis of *Minahermosa*, marching into this country for the punishment of the rebels, found the church at *Quimiri*, on the river Perene, in perfect order, with candles burning before the images. He burned the town and church. And six years after this, when another entrance into this country was made by *Gen. Bustamente*, he found the town rebuilt, and a large cross erected in the middle of the plaza, or public square. I have had occasion myself to notice the respect and reverence of these Indians for their pastors, and their delight in participating in the ceremonial, and sense-striking worship of the Roman Church.

It remains but to speak of the conversions of the Ucayali, in the *Pampa del Sacramento*, made by the Franciscans of Ocopa, and which are the only trophies that now remain of the zeal, patience, and suffering of these devoted men.

The missions established on the Ucayali by Fathers Biedma and Caballero, in the years 1673 to 1686, were lost by insurrections of the Indians in 1704. In 1726, the converted Indians about the head of canoe navigation on the Huallaga, (the tidings of the gospel were first carried to these from *Huanuco*, by *Felipe Luyendo*, in 1631,) crossing the hills that border that river on its eastern bank, discovered a wooded plain, which was named Pampa del Sacramento, from the day of its discovery being the festival of *Corpus Cristi*. This was a new field for the missionary; and by 1760, the Fathers of the college at Ocopa had penetrated across this plain to the Ucayali, and re-established the missions of *Manoa*, the former spiritual conquests of Biedma. To get at these missions with less difficulty, expeditions were made from Huanuco by the way of Pozuzu, Mayro, and the Pachitea, in the years 1763 to 1767. Several missionaries lost their lives by the *Cashibos* Indians of the Pachitea; and in this last year the Indians of the Ucayali rose upon the missionaries, killed nine of them, and broke up their settlements. But not for this were they to be deterred. In 1790 Father *Narciso Girbal*, with two others, under the direction of Sobreviela, then guardian of the college at Ocopa, went down the Pachitea and again established these missions, of which there remain three at this time, called, respectively, Sarayacu, *Tierra Blanca*, and *Sta. Catalina*.

The difficulties of penetrating into these countries, where the path is to be broken for the first time, can only be conceived by one who has

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travelled over the roads already trodden. The broken and precipitous mountain track—the deep morass—the thick and tangled forest—the danger from Indians, wild beasts, and reptiles—the scarcity of provisions—the exposure to the almost appalling rains—and the navigation of the impetuous and rock-obstructed river, threatening at every moment shipwreck to the frail canoe—form obstacles that might daunt any heart but that of the gold-hunter or the missionary.

The most remarkable voyage down the Amazon was made by a woman. Madame Godin des Odonnais, wife of one of the French commissioners who was sent with *Condamine* to measure an arc of the meridian near Quito, started in 1769, from *Rio Bamba*, in Ecuador, to join her husband in Cayenne by the route of the Amazon. She embarked at *Canelos*, on the *Borbonaza*, with a company of eight persons, two, besides herself, being females. On the third day the Indians who conducted their canoe deserted: another Indian, whom they found sick in a hovel near the bank, and employed as pilot, fell from the canoe in endeavoring to pick up the hat of one of the party, and was drowned.

The canoe, under their own management, soon capsized, and they lost all their clothing and provisions. Three men of the party now started for *Andoas*, on the Pastaza, which they supposed themselves to be within five or six days of, and never returned. The party left behind, now consisting of the three females and two brothers of Madame Godin, lashed a few logs together and attempted again to navigate; but their frail vessel soon went to pieces by striking against the fallen trees in the river. They then attempted to journey on foot along the banks of the river, but finding the growth here too thick and tangled for them to make any way, they struck off into the forest in hopes of finding a less obstructed path.

They were soon lost: despair took possession of them, and they perished miserably of hunger and exhaustion. Madame Godin, recovering from a swoon, which she supposes to have been of many hours' duration, took the shoes from her dead brother's feet and started to walk, she knew not whither. Her clothes were soon torn to rags, her body lacerated by her exertions in forcing her way through the tangled and thorny undergrowth, and she was kept constantly in a state of deadly terror by the howl of the tiger and the hiss of the serpent. It is wonderful that she preserved her reason. Eight terrible days and nights did she wander alone in the howling wilderness, supported by a few berries and birds' eggs. Providentially (one cannot say accidentally) she struck the river at a point where two Indians (a man and a woman)

were just launching a canoe. They received her with kindness, furnished her with food, gave her a coarse cotton petticoat, which she preserved for years afterwards as a memorial of their goodness, and carried her in their canoe to Andoas, whence she found a passage down the river, and finally joined her husband. Her hair turned gray from suffering, and she could never hear the incidents of her voyage alluded to without a feeling of horror that bordered on insanity.

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CHAPTER II.

INTRODUCTORY.

Orders—Investigation of routes—Lake Rogoaguado—River Beni—Chanchamayo—Cuzco route—River Madre de Dios—Gold mines of Carabaya—Route through the cities of Truxillo, Caxamarca, Chachapoyas, Moyobamba, &c.—Preparations for the journey—The start.

On the 4th of April, 1851, Lieutenant Lardner Gibbon, of the navy, arrived at Lima, and delivered me orders from the Navy Department, of which the following is a copy:

NAVY DEPARTMENT, *February* 15, 1851.

SIR: The department is about to confide to you a most important and delicate duty, which will call for the exercise of all those high qualities and attainments, on account of which you have been selected.

The government desires to be put in possession of certain information relating to the valley of the river Amazon, in which term is included the entire basin, or water-shed, drained by that river and its tributaries.

This desire extends not only to the present condition of that valley, with regard to the navigability of its streams; to the number and condition, both industrial and social, of its inhabitants, their trade and products; its climate, soil, and productions; but also to its capacities for cultivation, and to the character and extent of its undeveloped commercial resources, whether of the field, the forest, the river, or the mine.

You will, for the purpose of obtaining such information, proceed across the Cordillera, and explore the Amazon from its source to its mouth.

Passed Midshipman Lardner Gibbon, a prudent and intelligent officer, has been selected to accompany you on this service, and is instructed to report accordingly.

This, together with a few instruments, necessary for such an expedition, will be delivered to you by him.

Being joined by him, you will commence to make such arrangements as may be necessary for crossing the Andes and descending the Amazon; and having completed them, you will then proceed on your journey without further orders.

The route by which you may reach the Amazon river is left to your discretion. Whether you will descend the Ucayali, or the Huallaga, or any other of the Peruvian tributaries, or whether you will cross over into

Bolivia, and, passing through the province of Yongas, embark on the Mamoré or Ytenes, or whether you will try the Beni or any other route to the Madeira, and thence to the Amazon, the state of the information which you have collected, under a former order, will enable you to decide more judiciously than it is possible for the department, with the meagre state of its information upon the subject, to do.

It is not desired that you should select any route by which you and your party would be exposed to savage hostility, beyond your means of defence and protection.

Neither is it desirable that your party should be so large, on the one hand, as to excite the suspicion of the people, or give offence to the authorities, of the country through which you may pass, nor so small, on the other, as to endanger its success.

You are, therefore, anthorized to employ a cook, servant, guide, and interpreter, and to provide them with such arms as it is customary only for travellers generally, in that part of the world, to carry for their own protection. And these arms you will have returned to you at Parâ.

The Navy Agent at Lima has been instructed to furnish, upon your requisition, the necessary articles for the outfit of yourself and party, and to honor your draft for a sum not exceeding five thousand dollars, to cover your expenses by the way. As these expenses will be mostly for mules and arrieros, boats and boats' crews, it is supposed that the sum named will be much more than sufficient. You will use of it only for the *necessary* expenses of the party.

The geographical situation and the commercial position of the Amazon indicate the future importance, to this country, of the free navigation of that river.

To enable the government to form a proper estimate as to the degree of that importance, present and prospective, is the object of your mission.

You will, therefore, avail yourself of the best sources of information that can be had in answer to any or all of the following questions:

What is the present condition of the silver mines of Peru, and Bolivia—their yield; how and by whom are they principally wrought?

What is the machinery used, whence obtained, and how transported?

Are mines of this metal, which are not worked, known to exist? What impulse would the free navigation of the Amazon give to the working of those mines? What are their capacities; and if the navigation of that river and its tributaries were open to commerce, what effect would it have in turning the stream of silver from those mines down these rivers? With what description of craft can they be navigated respectively?

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What inducements are offered by the laws of Peru and Bolivia for emigrants to settle in the eastern provinces of those two republics, and what is the amount and character of the population already there? What the productions? the value of the trade with them—of what articles does it consist, where manufactured, how introduced, and at what charges upon prime cost?

What are the staple productions for which the climate and soil of the valley of the Amazon, in different parts, are adapted? What the state of tillage; of what class are the laborers; the value of a day's work; the yield per acre and per hand of the various staples, such as matté, coca and cocoa, sugar, rice, chinchona, hemp, cotton, India-rubber, coffee, balsams, drugs, spices, dyes, and ornamental woods; the season for planting and gathering; the price at the place of production, and at the principal commercial mart; the mode and means of transportation? with every other item of information that is calculated to interest a nautical and commercial people.

You will make such geographical and scientific observations by the way as may be consistent with the main object of the expedition, always bearing in mind that these are merely incidental, and that no part of the main objects of the expedition is to be interfered with by them.

It is desirable that you should bring home with you specimens or samples of the various articles of produce from the Amazon river, together with such seeds or plants as might probably be introduced into this country with advantage.

Arriving at Pará, you will embark by the first opportunity for the United States, and report in person to this department.

Wishing you a pleasant journey and a safe return to your country and friends,

I am, respectfully, your obedient servant,

WILL. A. GRAHAM.

Lieut. WILLIAM L. HERNDON, U. S. NAVY, *Peru, or Bolivia.*

As the choice of route was thus left to my discretion, this, in connexion with the best and most efficient mode of carrying out my instructions, became an object of much consideration with me.

As I had some time previously received intimation of the intention of the department to issue such orders, whilst in Valparaiso and Santiago I had sought what information was to be had there, and conversed with many persons regarding the routes through Bolivia and the navigability of the Bolivian tributaries of the Amazon. Two interesting routes presented themselves through this country: one from Cochabamba, by the river Mamoré, a sketch of which had been given me by Mr. Bridges; and the other by the Beni, (also a confluent of the Madeira,) which seems nearly a "terra incognita."

Palacios, an officer of the Bolivian government, who had made some explorations in the country between the Mamoré and Beni, and who visited and navigated on the Lake Rogoaguado, (the existence of which has been a subject of dispute among geographers,) describes the Beni, between its sources and Los Reyes, (about half the course of the river,) as being much obstructed by shoals, with very narrow channels, and broken up into rapids, of which he enumerates twenty-two. He thinks, however, that flat-bottomed iron boats would overcome many of the difficulties, and navigate an immense distance up. He says that in some parts of the course of the river are found veins of silver and gold, salt springs, coal, lime, and (in Tequije) diamonds. I think that his description of the Lake Rogoaguado would be a valuable contribution to geography; for though it is evident that his account is not exact, or even correct, yet it settles the point that there is such a lake, and that it does not give rise to many of the large rivers that empty into the Amazon, as was long supposed, and as is so represented in many maps. I give a translation:

"The supreme government, being desirous of ascertaining if the great Lake Rogoaguado had communication with the Beni or proceeded from it, directed me to explore it for the purpose of facilitating communication between that river and the Mamoré. For this purpose I directed the construction of a boat and commenced my journey. I set out from the town of *Exaltacion*, (a village on the Mamoré, some distance above its junction with the Madeira,) the nearest point, and directed my course W. N. W. 15 miles, to the estate (*estancia*) of Santa Cruz, passing (a mile and a half from this point) the river Iruyani, which runs to the N. E., and appears navigable. Its sources are unknown; but it is supposed that it rises in some swamps situated in the flat country about Reyes, or that it runs from the Beni. At this estate of Santa Cruz there is a somewhat flat hill of 300 yards in height, and composed of white 'soroché,' the generator (criadero) of gold. It is constantly covered with grass and trees, among which are found those producing the India-rubber.

"Hence I directed my march W. $\frac{1}{4}$ N., to the estate denominated San Carlos, which is distant twenty-four miles from the first, and is situated among morasses, with some eminences, the good pastures of which maintain large flocks of cattle. The course from here was N. W.,

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and at the distance of nine miles I encountered the Lake 'Ibachuna, or, of the winds, which is twelve miles broad and twenty-four long from north to south, and whose outlet runs among swamps into Lake Rogoaguado, known likewise by the name of Domú, on whose banks yet exist traces of the ancient tribe of the Cayubabos, who now form the population of the town of Exaltacion.

"Not finding the boat which I had ordered finished, I embarked in a small canoe, and directed my course towards two islands in the lake, about three miles from the shore. These are elevated a little above the surface of the lake, which has not more than a fathom (braza, 66 inches) of depth in this part, and are covered with an impenetrable thicket. On the following day I launched the boat; it was 33 feet (12 varas) long, $3\frac{2}{3}$ feet wide, and $2\frac{3}{4}$ feet deep. It rocked much, and I directed two small canoes to be lashed, one on each side, to serve as counterpoises.

"I weighed from my port with a course N. W. $\frac{1}{4}$ N. At the distance of fifteen miles I encountered a stream which served as an outlet, and was connected with another small lake, called Yapacha, towards the N. E. I changed the course, coasting along W. N. W. for nine miles, continuing on other nine S. W. $\frac{1}{4}$ S.; thence I changed to S. twenty-four miles; to S. W. four and a half; to S. $\frac{1}{4}$ E. thirteen and a half. So that I sailed upon a bow-line" (much he knew about a bow-line) "with a depth of $2\frac{1}{2}$ fathoms, (brazadas,) running six miles the hour. (!!)

"At the capes, or prominent points, I landed, and observed that the belt of woods surrounding the lake was narrow; and that outside of this the pasturages were so great that they formed a horizon, or could not be seen across. On one occasion I set fire to them, and saw towards the N. W. the answering smoke of the fires of the Chacobos savages. The country of this people was afterwards explored. The tribe was found to consist of three hundred souls; and among them were people white and ruddy.

"I continued on E. $\frac{1}{4}$ N., and having navigated twelve miles, the north wind came on so strong, and raised such a sea, that I was in danger of shipwreck. I therefore landed, and remained twenty-four hours, employing the time in examining the mouth of the rivulet called Ibachuna, where there were large morasses.

"I travelled the next day with oars against the wind, bailing the water from the boat continually. The course was N. N. E.; and eighteen miles brought me to the point whence I originally sailed.

"The lake is of good and clear water. It has a bottom of oxide of iron, with $2\frac{1}{2}$ fathoms (brazadas) of water. There are many fish and rays, crocodiles and porpoises.

"In the woods there are almonds of various kinds and superior quality. Towards the east there is another small lake called Puaja, whose waters (united with those of Rogoaguado and Yapacha) form the river Yatachico, or Black river, which is a confluent of the Mamoré. I presume the Yata Grande is only an arm of the Beni from the clearness of its waters, from the declivity of the land towards the Mamoré, and because its sources are not found in the Steppes, (Llanos) there only arising from these the Black river of the Lake Rogagua of Reyes, which is a confluent of the Beni.

"The navigation of the Yata Grande is a matter of interest; and I would have attempted it when I descended the Mamoré had I had at my disposal an armed party, which is absolutely necessary on account of the multitude of savages which dwell upon its banks; nevertheless, I did ascend to its first rapids, where there is an abundance of pitch. The Iruyani should be explored for the same reasons as the Yata Grande."

It was suggested by Mr. Pissis that I should take the route of the Beni on account of the honor of discovery, and the addition I should make to geographical knowledge; and General Ballivian, ex-President of Bolivia, who was then in Valparaiso forming plans for revolution in that country, which he afterwards endeavored to execute, but without success, strongly urged me to take one of the Bolivian rivers; but an unanswerable objection to this in my mind was, that such a route would bring me into the Amazon very low down, and make the necessity of ascending that river to its sources; a work which would occupy years in its execution, and probably break down a much stronger man than I am.

Upon my arrival in Lima, I immediately set to work to investigate routes. The best informed people of Peru are wide awake to the importance of opening an inland communication between their territories to the east of the Andes and the Atlantic, and many attempts have been made to secure the aid of government in the opening of such a communication. From time immemorial a jealousy has existed upon this subject between the people inhabiting points on the three most feasible routes; that is, that of the valley of Huanuco, that of Chanchamayo, and that of Paucartambo, to the eastward of Cuzco. This jealousy originated in the fact that the valley of Huanuco, the first settled, at one time supplied all the coca that was used in Peru. The people of that valley saw in the opening of the Montaña of Chanchamayo a rival interest that would decrease their gains, and at one time they had such interest at Court as to get an order dismantling the

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fort that had been built in Chanchamayo, and breaking up the roads. The Tarma people never forgave this, and in 1808 *Urrutia*, the Intendente of that province, addressed a pamphlet to *Abascal*, the Viceroy, setting forth the advantages of the Chanchamayo, and depreciating the Mayro or Huanuco route to the Montaña.

"Surely, surely," says he, (and I entirely agree with him,) "nothing but the especial concitation of the devil (thus interfering with the conversion of the heathen) could have induced the government to so suicidal a step as to break up so thriving a colony as that at Chanchamayo." He says that he can scarcely refrain from tears at thinking to what it would have grown in the twenty-five years that have been lost between then and now. He writes with earnestness; and probably would have succeeded in obtaining the aid of the government, but that the cloud of the revolution was then above the horizon, and Viceroy and Intendente soon had other matters to think of.

In 1827 *General La Mar* again ordered the opening of the Chanchamayo country. The direction of the work was given to my acquaintance and very good friend *General Otero*, then prefect of the department. He pushed the matter of opening the roads with success for some time; but the roughness of the country, the difficulty of obtaining supplies, and the steady hostility of the Indians, interposed so many obstacles, that the work languished and was finally abandoned; the Indians taking possession of the few plantations that had been made.

In 1847, however, the people of Tarma resolved to take advantage of so fine a country so near them. They republished the pamphlet of Urrutia; made an appeal to the government, and themselves broke into the country under the lead of *Colonel Pablo Salaverry*. They drove the Indians over the rivers of Chanchamayo and Tulumayo; and *Don Ramon Castilla*, the President, (ever alive to the interests of his country,) sent a company of eighty soldiers, under a captain in the navy named *Noel*, with engineers, artificers, tools and supplies, and constructed the little stockade fort of *San Ramon*, at the junction of these rivers. Under the protection of this fort the Tarma people have begun to clear and cultivate, and the former desert is now beautiful with the waving cane, the yellow blossom of the cotton, and the red berry of the coffee.

Juan Centeno, deputy in Congress from Cuzco, in strong and earnest terms advocated the propriety of taking the Cuzco route, telling me that ten thousand dollars, appropriated by the government for the survey of the river Amarumayo, now lay in the treasury, waiting the

proper time and man to take it up; and that he had no doubt but that I might organize a surveying party and employ this money for that purpose. It was a tempting proposition, but I feared the proverbially dilatory action of the Peruvian government; and what I had seen in the journals of Smyth and Castelnau regarding the efficiency of the co-operation of Peruvian officials, revived school-boy recollections and brought to my mind Virgil's

"Non tali auxilio; nec defensoribus istis."

This route had, moreover, the same objections as that by the Bolivian tributaries; that is, that it would bring me into the Amazon too low down. It is, however, a route of great importance, and well worth investigation. Señor Centeno placed in my hands a pamphlet ("*El brillante porvenir de Cuzco*") written by the confessor of his family, an Italian Franciscan, Father *Julian Bobo de Revello*, in which the advantages of this route are strongly and ably argued; and which argument induced the above-mentioned appropriation by the Peruvian government. The Father declares that he himself, in visiting the valleys of Paucartambo, in company with Don José Miguel Medina, prefect of the province, saw from the heights of Acobamba an interminable horizon of woods towards the N. E.; and in the midst of this immense plain, the winding course of the great navigable river "*Madre de Dios.*" He labors to prove that this Madre de Dios is the same river which, under the name of Purus, enters the Amazon a few days' journey above the Barra do Rio Negro.

There is no doubt that there is a great unknown river in these parts. Every expedition made into this country brought back accounts of it, and represented it under various names—such as Amarumayu; Tono; Mano; Inambiri; Guariguari; and Madre de Dios, according to the nomenclature of the various tribes that live upon its banks—as great and containing much water—(Grande y Caudaloso.) It is impossible to say whether this river turns to the N. W. and joins the Ucayali, flows straight N. E., and, as either the Yavari, the Jutay, the Jurua, the Teffe, the Coari, or the Purus, empties into the Amazon; or, flowing east, is tributary to the Beni. It is, of course, likewise impossible to say whether or not it is free from obstructions to navigation; but it is reasonable to suppose, from the fact that the country through which it flows (supposing it to take the general direction of the rivers there and run N. E.) is very far from the Andes on one side, and the *Cordillera Geral* of Brazil, which form the obstructions to the Madeira, on the other, that it is free from impediments for an immense distance up. This route, however, takes its importance, in a commercial point of view, from the following facts:

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It will be recollected that I stated, in the preceding chapter, that the defeated followers of Almagro, hiding themselves in the valleys and dens of the broken country to the eastward of Cuzco, called Carabaya, discovered, in the small streams that dashed down from the neighboring Cordillera, washings of gold of great value—that they built villages, and sent immense treasures to Spain.

In the month of June, 1849, two brothers named Poblete, seeking Peruvian bark in the valleys of Carabaya, discovered grains or pits (pepitas) of gold in the "Gulch" of Challuhuma. They were soon joined by other hunters of bark; the news spread in the province; companies were formed, and petitions made to the board of miners for titles; quarrels arose about priority of discovery and rights, and the paths were broken up, and bridges and rafts for crossing the rivers destroyed, so that, up to the time of my information, little had been done in gathering the gold.

It appears from an official letter of Pablo Pimentel, sub-prefect of the province of Carabaya, in answer to certain questions propounded to him by the Treasury Department, that the mining district is situated in the valleys to the N. and E. of *Crucero*, the capital of the province, and is reached from that place by the following routes and distances. (It will be as well to premise that Crucero is situated in about latitude 14° south, and longitude 74° west from Greenwich; and that to reach it by the nearest route from the Pacific coast, one should land at Islay; and travelling on horseback through the cities of Arequipa and Puno, he will arrive at Crucero, by easy stages of fifteen miles a day, in about twenty days.) From Crucero the route, running to the eastward, and crossing the Cordillera at probably its highest and most difficult pass, conducts the traveller to the small and abandoned village of Phara, forty-two miles from Crucero.

Here he puts foot to ground, and travels seventy-two miles (four days' journey) to the banks of the great river Guariguari; although his provisions and implements may be carried to this point on mules or asses. He crosses this river on a perilous swinging bridge, called Oroya, and makes his way thirty miles further towards the north without any broken track, save an occasional one made by the bark hunters.

This brings him to Challuhuma.

The valley, or gulch, is from thirty to thirty-six miles long from the top of the mountains, whence descend the three small torrents which form the auriferous stream called Challuhuma, to its entrance into the Guariguari; but it is calculated that only about a fifth part of this can be worked, as the other four parts are hemmed in by precipitous rocks

on each side; and "to turn the course of the river at these parts, so as to get at its bed, would be about as easy a task as to remove the Andes."

Pimentel supposes that from the time of the discovery, in June, to the date of his letter, in November, about one hundred thousand dollars had been collected; but that the best parts had been worked, and such success was no longer to be looked for. He says, moreover, that the difficulty of obtaining provisions and supplies is very great, from the small number of persons engaged in agriculture, the general laziness of the people, and the difficulty of transportation.

It is quite evident that Pimentel is disposed to throw difficulties in the way, and to distract attention from Challuhuma by dwelling upon the undiscovered riches in other valleys, and the great vegetable wealth of the country a little to the eastward of it. Other accounts from this district give a different version, and represent Pimentel as a party in one of the mining companies, and interested in keeping secret the true state of affairs. The quarrel on this subject ran very high in the department of Puno, and even the motives and conduct of General Deustua, then prefect of the department, and now governor of the "Provincia Littoral" of Callao—a man of the very highest standing and character in his country—were impugned. He vindicated his reputation in a very spirited letter to the Secretary of State for the Treasury Department, demanding to be relieved, and receiving an apologetic reply from the government.

It appears from some notices of this country, written by Manuel Hurtado, a citizen of Puno, "that the province of Carabaya has an extent of one hundred and eighty miles, from north to south, rendered more to the traveller, who wishes to pass over its whole length, on account of his having to cross the spurs of the mountains, which divide the whole country into valleys, having auriferous streams; for, from Cuia to Quica, there are eighteen miles; to Sandia, forty-two; to Cuyo-Cuyo, twelve; to Patambuco, eighteen; to Phara, thirty-six; to Uricayas, forty-five; to Coasa, eighteen; to Thiata, thirty; to Ayapata, eighteen; to Ollachea, forty-two; and to Corani, eighteen; making three hundred and seven miles. All these villages, except the last, are in the line of the edge of the Montaña. The villages of Macusani and Crucero are on this other side of the Cordillera. The population of the province is thirty thousand souls, over and above strangers, who come to collect the gold and cascarilla.

"The exportation of the products of the province for the last year were about three hundred thousand pounds of cascarilla, twenty-five thousand baskets of coca, (of twenty-one pounds each,) and one thousand

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pounds of coffee. The small crops of maize, &c., are only for the consumption of the country. The only two plantations that have been opened in the last two years, by D. Augustin Aragon and D. Lorenzo Requelme, will begin to render their crops in the coming year.

"According to the notices acquired from different persons, and particularly from Pimentel and the Pobletes, we know that the gold taken from Challuhuma, from the middle of June to September, amounts to seven hundred pounds, of which the Pobletes hold three, and the balance has been sold by various individuals in the fairs and markets of Azangaro, Tangazuca, and Crucero, over and above the many pounds that have been sent for sale to Puno and Arequipa, and that which the Indians indubitably hold, seeing that they only sell enough to purchase themselves necessaries; although one has been known to sell the value of six hundred dollars. About the end of September the associates of the company styled 'Descubridora' destroyed the hanging bridges, (oroyas,) the rafts, and even some parts of the road, saying that in Challuhuma there is nothing, and advising all to return to their houses. This rather encouraged them to proceed. They plunged into the woods where human foot had never trodden, and, crossing the great river on temporary oroyas, many persons settled themselves in Challuhuma; whence they have been taking gold without its being known how much has been collected in the month and a half which has intervened. It is worthy of note that these people and the Pobletes have very imperfect means of extracting the gold: being reduced to what they call '*chichiquear*,' which is, to place earth in a trough, wash it a little while in the stream, and collect the gold that has settled; which may be one, two, or more ounces, according to the fortune of the washer. They repeat this operation as many times a day as their strength will permit. On one occasion the sub-prefect Pimentel obtained from one trough-full twenty-odd ounces of gold, as he himself related to us; and no trough-full yields less than one ounce."

There seems exaggeration in this account; but an anonymous publication from Puno on this subject of Carabaya goes beyond this. It says:

"In the year 1713, a mine of silver was discovered in a hill called Uncuntayo, among the heights (Altos) of Ollachea, which gave more than four thousand marks to the caxon. (Six marks to the caxon is a paying yield in Cerro Pasco.) These riches gave rise to such disturbances, violences, and murders, that the Viceroy had to march to suppress the disorders; but after a few years the hill fell in and closed the mines.

"It has been always known that much gold existed in all the ravines of the district of Phara, and the proof is the discovery of it, in the present year, at the points called Beinisamayo, Rio Challuhuma, and Acomayo, from which '*placeres*' it is certain that even in this short time many arrobas (twenty-five pounds) of fine gold, in the shape of melon seeds, have been taken and seen in Puno Arequipa, &c. The sight of this gold, and the conviction which is entertained of the existence of abundance of this metal, have awakened the avarice of all, and are attracting to Carabaya a concurrence of the people of the departments of La Paz, Puno, Arequipa, and Cuzco. The work must cease, on account of the rains, towards the end of October; but from May onwards, we shall have growing up there a society, heterogeneous, avaricious, and needing authorities and judges, that the 'placeres' may be appointed among the workers according to law; that property may be secured; and that those disorders which may be expected to grow out of such a state of affairs may be checked: for the sub-prefect, besides being a principal associate in the companies for collecting gold and cascarilla, has not the weight of character necessary in these cases. Moreover, the person who directs in mining matters (Diputado de Mineria) resides in Puno, two hundred miles from the point whence the gold is extracted. The companies endeavor, by every means in their power, to hide the riches which exist in the already discovered mines, and to throw difficulties in the way of getting there; but we know that every trough-full of the earth which is washed gives six ounces and upwards, and that there are only three days on horseback from Phara to the banks of the great river, though the road is somewhat rough; and from the other side of the river, (which may be crossed by an oroya or on rafts) to the mines is only one day on foot. The climate of the greater part of the Montaña of Carabaya is entirely healthy, and of an endurable heat. Its lands are so rich that they give three crops a year, and produce fine coca, coffee that rivals that of Mocha, superior cacao, potatoes, maize, fruits, raisins of every kind, the vanilla, superior and most abundant woods, and the cascarilla, called calisaya, with all the other classes. Added to this there are rivers with immense fisheries, so that people would do well to colonize there even if there were no gold. The savages, in tribes of more than two hundred souls, live scattered about sixty or ninety miles to the eastward of the placeres. It is necessary to adopt some measures of precaution to anticipate attacks which they would be likely to make on small parties."

Pimentel says that the Indians on some of the beaches of the great

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river "Inambari," which flows through this Montaña, make a sort of scaly pavement (*empedrado, en forma de escama*) just before the increase of the river, caused by the rains, so that the gold borne down by its current may be deposited. They call these their *chacras*, or farms of gold, and collect their crop at the falling of the river.

It will be perceived, from the above accounts, that, if the river "Madre de Dios" of Father Bobo should be identical with the Purus, and there should be a navigable communication between this country and the Atlantic, the advantages to commerce would be enormous, and the "Brillante Porvenir," or dazzling future of Cuzco, would be no dream. I judge, from the description of the country through which this "great river" (as it is called in all the accounts of people who have visited these parts) flows, that it is not navigable; and it is certain that neither the cascarilla nor the gold can be collected for six months in the year. Yet I judge that there is a much nearer and easier communication with the Atlantic, by this route, than that by the passage of the Cordillera, and the voyage around Cape Horn; and that the opening to trade of a country which produces, in abundance, gold, and the best quality of cinchona, would soon repay the courage, enterprise, and outlay of money which would be necessary to open, at most, but a short road, and to remove a few obstructions from a river.

Since writing the above I have received from Mr. Clay, our distinguished chargè at Lima, a slip from the *Comercio*, a Lima journal, containing an account of the fitting out of an expedition for the exploration of this river by the people of the town of Paucartambo. These, tired of waiting the tardy action of the government, met in council on the 10th of June, 1852, and subscribed one hundred and fifteen dollars to pay the expenses of the exploring party. Twenty Indians were hired, for twenty days, at five dollars a head, and ten dollars given as gratification to their overseer; the remaining five were expended in repairing the axes and other tools supplied by the farmers. The party, consisting of young volunteers, having their expeditionary flag blessed by the Curate, being exhorted by their governors and elders, and placed under the especial protection of our blessed Lady of Carmen, marched out, under the guidance of Don Manuel Ugaldi, amid the strains of music and the "vivas" blessings and tears of their relatives and friends. We have yet to see the result of so enthusiastic an outburst.

I was so much impressed with the importance of this route, that I left Lima undecided whether I should take it or not; and at Tarma, after long and anxious deliberation, (the measure being supported by

Mr. Gibbon's advice and earnest personal solicitation,) I determined to take the responsibility of dividing the party, and did so, furnishing Mr. Gibbon with the following instructions, and verbally calling his attention to the river Beni:

TARMA, *June* 30, 1851.

SIR: From a careful perusal of my instructions from the Navy Department, it appears to be a matter of importance that as much of the great South American basin, drained by the Amazon and its tributaries, should be explored as the means placed at my disposal will allow; and having now arrived at a point where, if the party is kept together, some objects of much interest will have to be abandoned to secure others, I have determined to divide the party, and confide a portion of it to your direction.

You will, therefore, with "Mr. Richards" and a guide, proceed to "Cuzco," and examine the country to the eastward of that place. It is said that a large and navigable river, called the Madre de Dios, has its source in the mountains of Carabaya, and may be approached at a navigable point by descending the Andes from "Cuzco." Many arguments have been adduced to show that this river is the "Purus," which is known to empty into the Amazon.

It is desirable that this should be determined; and you will make such inquiries in Cuzco as will enable you to decide whether it is practicable to descend this river. I am under the impression that its shores, near where you would be likely to embark, are inhabited by tribes of savage and warlike Indians, who have committed frequent depredations upon the "haciendas" established in the neighborhood. You will constantly bear in mind that your loss will deprive the government of the after-services expected of you in the prosecution of our important and interesting enterprise. You will therefore run no unnecessary risk, nor expose yourself or party to unreasonable danger from the attacks of these savages. The inhabitants of Cuzco are said to be so much interested in this discovery, that they may furnish you an escort past the point of danger.

Should you find this route impracticable, you will proceed south, to Puno, on the banks of the "Lake Titicaca;" thence around the southern shores of this "lake" to La Paz, in Bolivia; thence to Cochabamba; and, descending the mountains in that neighborhood, embark upon the "Mamoré," and descend that river and the "Madeira" to the Amazon. You will then ascend the Amazon to the "Barra do Rio Negro," and, making that your headquarters, make excursions for the

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exploration of the main stream and adjacent tributaries, until my arrival, or you hear from me.

You are already possessed of the views of the department regarding the objects of this expedition. A copy of its instructions is herewith furnished you. You will follow them as closely as possible.

Should you go into "Bolivia," I would call your attention to the "cascarilla," or Peruvian bark, which is of a better quality in that country than elsewhere. Make yourself acquainted with its history and present condition.

Wishing you success, I remain your obedient servant,

WM. LEWIS HERNDON,
Lieutenant U. S. Navy.

Passed Midshipman LARDNER GIBBON,
U. S. Navy.

Other reasons that induced me to take this step were, that I might carry out the instructions of the department as fully as lay in my power; and while I gave my own personal attention to the countries drained by the upper Marañon and its tributaries, Mr. Gibbon might explore some, and gather all the information he could respecting others, of the Bolivian tributaries of the Amazon. The objections were, that the department had not sanctioned the step, and that by separating we were deprived of the comfort and assistance to be derived from companionship—no small item in so long and lonely a journey. But I did not conceive that these should weigh against the consideration that we could cover more ground apart than together.

I felt that, under my instructions requiring me to explore the Amazon from its source to its mouth, I could not neglect the route I finally determined to take. This route would enable me to form a judgment respecting the practicability of a transitable connexion between Lima and the navigable headwaters of the tributaries of the Amazon—would lead me through the richest and most productive mineral district of Peru—would put under my observation nearly all the course of the Amazon—and would enable me to gather information regarding the Pampa del Sacramento, or great plain, shut in between four great rivers, and concerning which the "Viagero Universal" says "that the two continents of America do not contain another country so favorably situated, or so fertile."

The last and most commonly-used route to the Montaña is through

the cities of Truxillo, Caxamarca, Chachapoyas, Moyobamba, &c. The Andes here break into many chains, sending off spurs in all directions, but none of any great height, so that there is a tolerably good mule road all the way to Moyobamba; and almost all articles of foreign manufacture—such as cloths and the necessary household articles used in the small towns that border the Huallaga and the Marañon—are supplied by this route. The climate and productions of this country are, on account of its precipitous elevations, and, consequently, deep valleys, very various; and here the sugar-cane and the pine-apple may be seen growing by a spectator standing in the barley field and the potato patch.

This route crosses the Amazon, or rather the Marañon, where, according to Lieut. Maw, it is sixty yards wide, and rushes between mountains whose summits are hid in the clouds. This point is about three degrees north of its source, in Lake *Lauricocha;* but the river is nowhere navigable until *Tomependa*, in the province of *Jaen de Braca Moros*, is reached; whence it may be descended, but with great peril and difficulty, on rafts. There are twenty-seven "pongos," or rapids, to pass, and the water rushes over these with frightful velocity. Four days of such navigation passes the last, called the *Pongo de "Manseriché,"* near the village of San Borja, and I am satisfied that an unbroken channel, of at least eighteen feet in depth, may be found thence to the Atlantic Ocean.

That the rains might be entirely over, and the roads on the mend in the Cordillera, I fixed upon the 20th of May as the day of departure, and Mr. Gibbon and I set about making the necessary preparations. I engaged the services of Don Manuel Ijurra, a young Peruvian, who had made the voyage down the Amazon a few years before, as interpreter to the Indians; and Capt. Gauntt, of the frigate Raritan, then lying in the harbor of Callao, was kind enough to give me a young master's mate from his ship, named Richards; besides supplying me with carbines, pistols, ammunition, and a tent. Capt. Magruder, of the St. Mary's, also offered me anything that the ship could supply, and furnished me with more arms, and fifteen hundred fathoms of the fishing-line now put on board ships for deep-sea soundings.

Our purchases were four saddle-mules, which, through the agency of Dr. Smith, we were fortunate enough to get young, sound, and well bitted, (indispensable requisites,) out of a drove just in from the mountains. We consulted the learned in such matters on the propriety of having them shod, and found the doctors disagreeing upon this subject very much. As they were from the mountains, and their

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hoofs were round, sound, and apparently as hard as iron, we decided not to shoe; and, I believe, did better than if we had followed a contrary course. We also purchased about a thousand yards of coarse cotton cloth, made in the mills at Lima, and put up for mountain travel in bales of half a mule-load; hatchets, knives, tinder-boxes, fish-hooks, beads, looking-glasses, cotton handkerchiefs, ribbons, and cheap trinkets, which we thought might take the fancy of the Indians, and purchase us services and food when money would not. These things were also put up in boxes of the same size and shape, and each equal to half a mule-load. Our trunks were arranged in the same way, so that they might be lashed one on each side of the mule's back, with an India-rubber bag, (also obtained from the Raritan,) which carried our bed-clothes, put on top in the space between them. This makes a compact and easily-handled load; and every traveller in the Cordillera should take care to arrange his baggage in this way, and have, as far as possible, everything under lock and key, and in water-tight chests. Such small, incongruous articles as our pots and pans for cooking, our tent, and particularly the tent-pole, which was carried *fore and aft* above a cargo, and which, from its length, was poking into everything, and constantly getting awry, gave us more trouble than anything else.

Our bedding consisted of the saddle-cloths, a stout blanket, and anything else that could be packed in the India-rubber bag. An Englishman, from New Holland, whom I met in Lima, gave me a coverlet made of the skins of a kind of racoon, which served me many a good turn; and often, when in the cold of the Cordillera I wrapped myself in its warm folds, I felt a thrill of gratitude for the thoughtful kindness which had provided me with such a comfort. We purchased thick flannel shirts, *ponchos*, of India-rubber, wool, and cotton, and had straw hats, covered with oil-cloth, and fitted with green veils, to protect our eyes from the painful affections which often occur by the sudden bursting out of the sunlight upon the masses of snow that lie forever upon the mountain tops.

We carried two small kegs—one containing brandy, for drinking, and the other the common rum of the country, called *Ron de Quemar*, for burning; also, some coarse knives, forks, spoons, tin cups, and plates. I did not carry, as I should have done, a few cases of preserved meat, sardines, cheese, &c., which would have given us a much more agreeable meal than we often got on the road; but I did carry, in the India-rubber bags, quite a large quantity of biscuit, which I had baked in Lima, which served a very good purpose, and lasted us to Tarma.

We had the mules fitted with the heavy, deep-seated box saddles of

Peru. I believe the English saddle would be much more comfortable, and probably as safe to the rider accustomed to it; but it would be almost impossible with these to preserve the skin of the mule from chafe. The Peruvian saddles rest entirely upon the ribs of the animal, which are protected by at least six yards of a coarse woollen fabric manufactured in the country, called *jerga*, and touch the back-bone nowhere. These saddles are a wooden box frame, stuffed thickly on the inside, and covered outwardly with buckskin. They are fitted with heavy, square, wooden stirrups, which are thought to preserve the legs from contact with projecting rocks, and, being lined with fur, to keep the feet warm. There is also a heavy breast-strap and crupper for steep ascents and descents; and a thick *pillon*, or mat, made of thrums of cotton, silk, or hair, is thrown over the saddle, to make the seat soft. The reins and head-stall of the bridle should be broad and strong, and the bit the coarse and powerful one of the country. Our guns, in leathern cases, were slung to the crupper, and the pistols carried in holsters, made with large pockets, to carry powder-flasks, percussion caps, specimens that we might pick up on the road, &c. A small box of instruments for skinning birds and dissecting animals; a medicine chest, containing, among other things, some arsenical soap, for preserving skins; a few reams of coarse paper, for drying leaves and plants; chart paper, in a tin case; passports and other papers, also in a tin case; note-books, pencils, &c., completed our outfit. A chest was made, with compartments for the sextant, artificial horizon, boiling-point apparatus, camera lucida, and spy-glass. The chronometer was carried in the pocket, and the barometer, slung in a leathern case made for it, at the saddle-bow of Mr. Gibbon's mule.

On the 15th of May I engaged the services of an *arriero*, or muleteer. He engaged to furnish beasts to carry the party and its baggage from Lima to Tarma at ten dollars the head, stopping on the road wherever I pleased, and as long as I pleased, for that sum. An ordinary train of baggage mules may be had on the same route for about seven dollars the head. The arrieros of Peru, as a class, have a very indifferent reputation for faithfulness and honesty, and those on the route, (that from Lima to Cerro Pasco,) to which my friend particularly belonged, are said to be the worst of their class. He was a thin, spare, dark Indian, of the *Sierra* or mountain land, about forty-five years of age, with keen, black eye, thin moustache, and deliberate in his speech and gesture. I thought I had seldom seen a worse face; but Mr. McCall said that he was rather better looking than the generality of them. He managed to cheat me very soon after our acquaintance.

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Arrieros, when they supply as many mules as I had engaged, always furnish a *peon*, or assistant, to help load and unload, and take care of the mules. Mine, taking advantage of my ignorance in these matters, said to me that his *peon* was "*desanimado*," (disheartened,) was afraid of the "*Piedra Parada*," or upright rock, where we were to cross the Cordillera, and had backed out; but that he himself could very well attend to the mules if I would be good enough to let him have the occasional assistance of my Indian servant. I unwarily promised, which was the cause of a good deal of difficulty; but when the old rascal complained of over-work and sickness on the road, I had an answer for him which always silenced him—that is, that it was his own cupidity and dishonesty which caused it, and that if he did not work and behave himself, I would discharge him without pay, and send back to Lima for another.

I directed him to bring the mules to the hotel door on the 20th; but, upon his finding that this was Tuesday, he demurred, saying that it was an unlucky day, and that no arriero was willing to start on that day, but that Monday was lucky, and begged that I would be ready by then. This I could not do; so that on Wednesday, the 21st of May, we loaded up, though I had to cajole, and finally to bribe the old fellow, to take on all the baggage, which he represented to be too much for his beasts.

I did wrong to start, for the party was short of a servant allowed by my instructions. (I had not been able to get one in Lima, except at an unreasonable price, and depended upon getting one in some of the towns of the Sierra.) The arriero needed a peon, and the mules were overloaded. I would strongly advise all travellers in these parts to imitate the conduct of the Jesuits, whose first day's journey is to load their burden mules, saddle and mount their riding-mules; go twice round the patio or square, on the inside of their dwelling, to see that everything is prepared and fits properly; and then unload and wait for the morning. However, I foresaw a longer delay by unloading again than I was willing to make; and after a hard morning's work in drumming up the Peruvian part of the expedition, (these people have not the slightest idea that a man will start on a journey on the day he proposes,) the party, consisting of myself, Mr. Gibbon, Mr. Richards, Mr. Ijurra, Mauricio, an Indian of *Chamicuros*, (a village on the Huallaga,) and the arriero, Pablo Luis Arredondo, with seven burden-mules, defiled out by the Gate of Marvels, (*Puerta de Maravillas*,) and took the broad and beaten road that ascends the left bank of the Rimac.

CHAPTER III.

Passports—Means of defence—The road—Pacayar—Chaclacayo—Narrow pass—Yanacoto—Bridge—Cocachacra—Tribute money—Dividing line between the coast and the Sierra—Moyoc—Varieties of the potato—Matucana—San Mateo—Mines of Párac—Narrow valley—Summit of the Cordillera—Reflections.

Before leaving Lima I had had several interviews with the President, General Castilla, who exhibited much interest in my mission; and the Hon. J. R. Clay, U. S. chargé d'affaires, had presented me to General Torrico, who at that time was sole Minister of Peru, under the newly elected President, General Echenique, who yet had not had time to appoint his Cabinet. General Torrico caused to be issued to me the following passport and letter:

[Translation.]

JUAN CRISOSTOMO TORRICO,

Minister of War and Marine, and charged with the conduct of Foreign Relations.

In that Wm. Lewis Herndon, lieutenant of the navy of the United States, and Lardner Gibbon, passed midshipman of the same, commissioned by their government to make a scientific expedition in the Territory of Peru, direct themselves towards the interior of the republic for the discharge of their commission, accompanied by Henry Richards, Manuel Ijurra, Mauricio N., attached to said commission, and by two servants:

Therefore, I direct that the authorities of the districts they may pass through shall place no obstacle in the way of the above-mentioned gentlemen and servants; but, rather, shall afford them all the assistance and facilities that may be necessary for the fulfilment of their object, preserving to them the considerations which are their due—(*guardandole las consideraciones que les son debidas.*)

Given in Lima, the 13th of May, 1851.

J. C'MO. TORRICO.

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[Translation.]

To the PREFECT OF THE DEPARTMENT OF AMAZONAS.

SIR: Wm. Lewis Herndon, lieutenant of the navy of the United States, and Lardner Gibbon, passed midshipman of the same, commissioned by the government of that nation to make a scientific expedition in the eastern parts of Peru, accompanied by Henry Richards, Mauricio N., and Manuel Ijurra, as adjuncts to the expedition, direct themselves towards the department under your command in the discharge of their commission. As the expedition deserves, on account of its important object, the particular protection of the government, his Excellency the President commands me to advise you to afford them whatever resources and facilities they may need for the better discharge of their commission, taking care, likewise, that there shall be preserved to them the considerations that are their due.

The which I communicate to you for its punctual fulfilment.

God preserve you.

J. C'MO. TORRICO.

This passport was made out at a time when I expected to procure two servants. Mauricio, the Chamicuros Indian, was the only servant who accompanied us.

We were accompanied for a mile or two on the road by our kind friends and countrymen, Messrs. Prevost, Foster, and McCall, who drew up at the Cemetery to bid us good-bye; Mr. Prevost advising us to halt at the first place we could find pasturage for the mules. The road we were to travel had reputation for robbers, and Mr. McCall desired to know how we were to defend ourselves in case of attack, as we carried our guns in leather cases, strapped to the crupper, and entirely out of reach for a sudden emergency. Gibbon replied by showing his six-barrelled *Colt*, and observed that Ijurra, Richards, and myself had each a pair of pistols at hand. As for Mauricio, he kept his pistols in his saddle-bags; and I was satisfied, from some attempts that I had made to teach Luis to shoot, (though he was very ambitious and desirous to learn,) that it was dangerous to trust him with a pair, as he might as readily fire into his friends as his enemies. With the comfortable observation from Mr. McCall that he never expected to see us again, we shook hands and parted.

Our course lay about E. N. E. over an apparently level and very

stony road. To the right were the green cane and alfalfa* fields, about *Miraflores* and *Chorillos;* and on the left and behind, the vegetation afforded by the valley of the Rimac; but ahead all was barren, grim, and forbidding.

Just before sunset we stopped at the hacienda (estate, or farm, or settlement) of Santa Clara, and applied for pasturage. We were told by an old negro woman sitting on the ground at the door of the house, that there was none; which was confirmed by two men who just then rode up, and who expressed their regret at not being able to accommodate us. It was remarkable to see such poverty and squalid wretchedness at nine miles from the great city of Lima; it was like passing in a moment from the most luxurious civilization into savage barbarity—from the garden to the desert. We rode on, about three miles further, to the hacienda of *Pacayar*, where we arrived at half past six o'clock, p. m.

Before the mules could be unloaded it became very dark; so that the arriero and Mauricio had considerable trouble in driving them to the pasturage. Indeed some of them got away; I could hear them galloping furiously up and down the road, and I went to bed on a table in the only room in the house, with the comfortable reflection that I had balked at starting, and should have to return or send back to Lima to buy more mules.

Tormented with these reflections, and oppressed with the excitement and fatigue of the day, I could not sleep; but tossed "in restless ecstacy" for many a long hour, until just before daylight, when, as I was dropping to sleep, a couple of game cocks, tied by the leg in the room, commenced "their salutation to the morn," and screamed out their clarion notes within a yard of my ear. This was too much for me. I rushed out—to meet a heavenly morning, and old Luis, with the intelligence that the mules were "all right." I took off my upper clothes, and plunged head, neck, and shoulders, into the water of a little mountain stream that rushed clear and cold as ice by the roadside in front of the house. Thus refreshed and invigorated, the appearance of affairs took a new aspect, and light-heartedness and hope came back as strong and fresh as in the days of boyhood.

The mayordomo, or steward of the estate, was a *Chino*, (descendant of Indian and negro,) and seemed an amiable and intelligent fellow,

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*A very green and pretty kind of lucern, universally used in this countr for pasturage.

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He gave us a supper of a thin soup (caldo) and chupe;* and whilst we were eating it, he was engaged in teaching the children of a neighbor the multiplication table and the catechism.

From the appearance of things, I judge this estate paid little enough to its owner; for I saw small signs of cultivation about it, though I should think that the valley of the Rimac, which is a full mile in width in front of the house, would produce good and (considering the short distance to Lima) valuable crops of grass and vegetables. The land is ploughed with a rude, heavy, wooden plough of one handle, which is shod with iron. It is generally worked by a yoke of oxen.

The house was built of *adobe*, or sun-dried bricks, and roofed with tiles. It had but one room, which was the general receptacle for all comers. A mud projection, of two feet high and three wide, stood out from the walls of the room all round, and served as a standing bed place for numbers. Others laid their blankets and ponchos and stretched themselves upon the floor; so that, with whites, Indians, negroes, trunks, packages, horse furniture, game cocks, and Guinea pigs, we had quite a caravansera appearance. The supper and bed that the steward had given us were gratuitous; he would accept no remuneration; and we got our breakfast of chupe and eggs at a *tambo* or roadside inn nearly opposite.

Though we commenced loading up soon after daylight, we did not get off until half-past nine. Such delays were invariable; and this was owing to the want of a peon and another servant.

The height of Pacayar above the level of the sea is one thousand three hundred and forty-six feet.

May 22.—Roads still good; valley gradually narrowing, and hills becoming higher, and more barren and rocky. We passed several squads of asses and *llamas* carrying potatoes and eggs, some of them as far as from Jauja, to Lima. Six miles from Pacayar is the village (*pueblo*) of Chaclacayo, consisting of four or five houses, constructed of cane and mud. A mile further is the *Juzgado* of Sta. Ines, quite a large, good-looking house, with a small chapel near it. This was the residence, in the Spanish times, of a justice of the peace, who administered law and judgment to his neighbors; hence called Juzgado. Soon after leaving this the stream approached the hills so close that there was no longer room between them for the road; and this had to be cut out of

* Chupe is a universal article of diet in the Sierra. It is a broth, or soup, made generally of potatoes, cheese, and lard; sometimes meat is boiled in it. It is the last dish served at dinner at a gentleman's table before the dessert.

the side of the hill. It was very narrow, and seemed in some places to overhang the stream fifty feet below it. Just as we were turning an angle of the road we met a man driving two horses before him, which immediately mingled in with our burden mules, and endangered their going over the precipice. Our arriero shouted to the man, and, spurring his horse through the mules, commenced driving back the horses of the other, who flourished his whip, and insisted upon passing. I expected to see a fight, and mischief happen, which would probably have fallen upon us, as the other had nothing to lose, when Ijurra called out to him, and represented that our cargoes were very valuable, and that if one were lost he should be held responsible; whereupon he desisted, drove his horses back, and suffered us to pass. This caused us to be more careful in our march; and I sent Gibbon, with Richards, ahead, to warn persons, or give us warning, in time to prevent a collision. The burden mules were driven by the arriero and the servant, in the middle; while Ijurra and I brought up the rear.

At 2 p. m. we stopped at the Tambo of Yanacoto. I determined to stay here a day or two to get things shaken into their places, and obtain a new error and rate for the chronometer, which had stopped the day before, a few hours out of Lima, though we had not discovered it till this morning. I cared, however, very little for this, as I was satisfied that it would either stop again or so vary in its rate as to be worthless. No chronometer will stand the jar of mule-travel over these roads, especially if carried in the pocket, where the momentum of the jar is parallel to the movement of the balance-wheel of the watch. Were I to carry a chronometer on such a journey again, I would have it placed in its box on a cushion on the saddle-bow; and when I travelled in a canoe, where the motion is the other way, I would hang it up. We pitched the tent in the valley before the road, and proceeded to make ourselves as comfortable as possible; got an observation for time, and found the latitude of Yanacoto, by Mer. alt. of γ Crucis, to be 11° 57′ 20″.

May 23.—Bathing before breakfast is, on this part of the route, both heathful and pleasant. There seemed to be no cultivation in this valley, which here is about half a mile wide. It is covered with bushes, except close to the water's edge, where grow reeds and flags. The bushes are dwarf willow, and a kind of locust called *Sangre de Christo*, which bears a broad bean, containing four or five seed, and a pretty red flower, something like our crape myrtle. There is also a bush, of some ten or twelve feet in height, called *Molle*. This is the most common shrub of the country, and has a wider climatic range than any other of this slope of the Andes. It has long, delicate leaves, like the acacia, and

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produces an immense quantity of small red berries in large bunches. The leaves, when crushed, have a strong aromatic smell; and many persons believe that it is certain death to sleep under its shade. Dr. Smith, in his book, called "Peru as it is," says that "this tree is much prized for fuel. The sugar refiners of the interior use the ashes from it in preference to those from any other wood, on account of their higher alkaline properties, and consequent efficiency in purifying the cane-juice when being boiled down to a proper consistence to be cast into moulds. The Inca tribe, as we learn from Garcilasso de la Vega, made a highly valuable and medicinal beer, which some of the Indians of the interior still occasionally prepare, from the clusters of small grained fruit that hang gracefully and abundantly from this pretty tree."

We saw several cases of *tertiana*, or chills and fever, at Yanacoto. The people seem to have no remedy, except drinking spirits just before the chill comes on, and using as a drink, during the fever, the juice of the bitter orange, with sugar and water. When the case is bad, those who can afford it—such as the mayordomos and *tamberos* (the keepers of the road-side inns, called tambos)—send to Lima and get medical advice and physic. Our tambero killed a mutton for us, and (leaving out the lard, which is always abominable) made a good chupe. The roast was a failure; but we got poultry and eggs, and had a very good time.

The elevation of Yanacoto is two thousand three hundred and thirty-seven feet, a little more than one thousand feet above Pacayar. The distance between them is about ten miles; showing a rise to the mile of about one hundred feet, which is very little greater than that between Callao and Lima.

May 24.—Had observation for time; breakfasted, and started at ten. Valley still narrowing; the hills becoming mountains, mostly of granite; rock piled upon rock for hundreds of feet, and in every variety of shape; no vegetation, except where the hardy cactus finds aliment in the crevices of the rock.

About four and a half miles above Yanacoto we passed the hacienda of Lachosita, and soon after the little village of San Pedro Mama, where the first bridge is thrown over the Rimac. Heavy, rough stone-work is built on each side of the river, into which are inserted massive pieces of timber, standing out a few feet from the face of the masonry, and hewn flat on top. On their ends are laid trunks of trees, crossing the river, and securely lashed. Athwart these are laid sticks of wood, of some two or three inches diameter, lashed down, and covered over with bundles of reeds, mud, and stones.

After San Pedro, at about three miles of distance, comes the hacienda of Santa Ana, belonging to Señor Ximenes, an old gentleman of Lima, who had made a large fortune by mining. Just before reaching there we met a drove of one hundred and fifty mules belonging to him, in fine condition and well appointed, going to Lima, laden with small sticks of the willow and *molle* for fuel.

There is very little cultivation till near Cocachacra, where we saw well-tilled fields, green with alfalfa and Indian corn. We arrived at this place at half-past five, and pitched the tent in a meadow near the river, and without the town, for the purpose of avoiding company and disagreeable curiosity.

Although we had seen fields of lucern before entering the village, we could get none for our mules after we got there; and to every inquiry for hay, fodder, or grain, the constant reply was "*No hay*," (there is none.) Gibbon, however, persevered until some one told him, in an undertone, as if imparting a great secret, where a little corn was to be purchased, and he got a peck or two shelled. We were continually annoyed and put to inconvenience by the refusal of the people to sell to us. I think it arose from one of two causes, or probably both—either that money was of less value to them than the things we wanted, or they feared to have it known that they had possessions, lest the hand of authority should be laid upon them, and they be compelled to give up their property without payment.

Cocachacra is a village of about one hundred inhabitants, and at present the residence of the sub-prefect or governor of the province, which is that of Huarochiri. This province, according to the "Guia de Forasteros," (a sort of official almanac published yearly at Lima,) is conterminous with that of Lima, and commences at eighteen miles from the city. It has ninety miles of length from N. W. to S. E., and seventy-two of breadth. There are fourteen thousand two hundred and fifty-eight native inhabitants; and its fiscal income is fourteen thousand two hundred and fifty-eight dollars and two reals; its municipal, one thousand one hundred and eighty-seven dollars. The inhabitants are generally engaged in mining, cultivating potatoes, and raising cattle, or as muleteers. The houses, like all those of the Sierra, are built either of stone or adobe, and thatched with wheat or barley straw.

We called on the sub-prefect and exhibited our Peruvian passports, asking, at the same time, that he would give us some assistance in obtaining food for our beasts. This he seemed lukewarm about, and I did not press him, for I had made up my mind that as far as it was

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possible I would avoid appealing to authority for the purpose of obtaining supplies, and go without what I could not buy or beg. He had in the house the semi-yearly contribution of his province towards the support of the government, which he was to send to Lima next day. A gentleman suggested that he might be robbed that night; but he said that his guns were loaded, (pointing to some muskets standing around the room,) and that he might count upon assistance from our party, which seemed well armed.

Very little help he would have had from us. He had shown no disposition to oblige us, and moreover I had no notion of interfering in other people's quarrels, or preventing the people from taking back their money if they wanted it. This contribution is a capitation tax of seven dollars a year, collected half-yearly from the Indian population between the ages of sixteen and sixty. It is collected by the governors of the districts into which a province is divided, who receive two per centum on their collections, and pay over to the sub-prefect, who receives four per cent. on the whole amount collected from the districts of his province. The prefects of the departments, which are made up of a number of provinces, receive a regular salary, according to the size and wealth of their departments, varying from three to five thousand dollars. We slept comfortably in the tent. Nights getting cool.

May 25.—Started at 10 a. m. Valley getting so narrow as not to allow room for the road, which is in many places cut from the rock on the side of the hill, very narrow, rough and precipitous, rising and falling as it crosses the spurs of the hills. The general character of the rock is a feldspar porphyry, succeeded, as the road ascends, by a very coarse-grained trachyte porphyry, reaching as far as Surco. Vegetation, willow, molle, and many varieties of the cactus. We passed on the road the ruins of an ancient Indian town; the houses had been small, and built of stone on terraces cut from the mountain side.

At two we passed through the village of Surco, the largest we have seen on the road. It appears capable of holding five or six hundred people, but seemed deserted—nearly every house closed, and many falling into decay. We were told that the inhabitants were away over the hills, looking after their plantations and flocks, and that they returned at night. But if this is so, judging from the height of the mountains on each side of the village, I should say that half their time is lost in going and returning from their work.

Here we leave the district called the Coast, and enter upon that called the Sierra. There is tertiana below, but none above this. Dr. Smith, speaking of the climate of this district, says, "that it is neither

winter nor summer, but one perpetual spring. It is out of the sphere of frosts, and exempted from the raw fogs and sultry heats of the coast. The atmospherical currents of mountain and coast meet here and neutralize each other; the extremes of both disappear; and the result is a delicious climate for the convalescent, whose tender organs require a gentle, uniform temperature, alike removed from the extremes of heat and cold, dryness and moisture. With this important fact the delicate inhabitants of Lima are perfectly acquainted; and they are accustomed to resort to the 'Cabezadas,' or headlands of valleys, where these verge on the joint air of mountain and coast, as, for example, Matucana, the favorite resting-place of phthisical and hæmoptic individuals, who find themselves obliged to retire from the capital in order to recover health by visiting those celebrated sites of convalescence, Tarma and Juaxa." We certainly had delicious weather, but did not stay long enough, of course, to pronounce authoritatively upon its general climate.

At 5 p. m., we arrived at the Chacra of Moyoc, belonging to Ximenes. Here we pitched for the night, having travelled about fifteen miles, which is our usual day's journey, between ten and five. This is a most beautiful little dell, entirely and closely surrounded by mountains. The valley has widened out so as to give room for some narrow patches of corn and alfalfa. The Rimac, here a "babbling brook," rushes musically between its willow-fringed banks; and the lingering of the sunlight upon the snowy summits of the now not distant Cordillera, long after night had settled upon the valley, gave an effect to the scenery that was at once magical and enchanting.

The nights in the Cordillera at this season are very beautiful. The traveller feels that he is lifted above the impurities of the lower strata of the atmosphere, and is breathing air entirely free from taint. I was never tired of gazing into the glorious sky, which, less blue, I think, than ours, yet seemed palpable—a dome of steel lit up by the stars. The stars themselves sparkled with intense brilliancy. A small pocket spy-glass showed the satellites of Jupiter with distinctness; and Gibbon even declared on one occasion that he could see them with the naked eye. I could not, but my sight is bad at night. The temperature is now getting cool, and I slept cold last night, though with all my clothes on, and covered with two parts of a heavy blanket and a woollen poncho. The rays of the sun are very powerful in the day, until tempered by the S. W. wind, which usually sets in about eleven o'clock in the morning.

The steward of Ximenes, a nice old fellow, with a pretty young wife, gave us, at a reasonable price, pasturage for the beasts and a capital

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chupe. The productions of the country are maize, alfalfa, and potatoes—the maize very indifferent; but the potatoes, though generally small, are very fine, particularly the yellow ones. We saw here, for the first time, a vegetable of the potato kind called *Oca*. It resembles in appearance the Jerusalem artichoke, though longer and slimmer; and boiled or roasted it is very agreeable to the taste. Richards compared its flavor to that of green corn; I suggested pumpkin, and he allowed that it was between the two. We also saw another vegetable of the same species, called *Ulluca*. This was more glutinous, and not so pleasant to the taste. Gibbon shot a pair of beautiful small wild ducks that were gambolling in the stream and shooting the rapids with the speed of an arrow.

May 26.—Started at eleven, and passed the village of Matucana, a mile from Moyoc. This appears about the size of Surco, and is the capital of the province, (still Huarochiri.) The Guia de Forasteros states the number of its inhabitants at one thousand three hundred and thirty-seven; but this is manifestly too great, and I believe that the statements of this book concerning populations are made with regard to the district in which a village is situated, or the *doctrina*, or ecclesiastical division, of which the *Cura* has charge. Service was going on in the church; and Gibbon and Richards, who were far ahead, had time to go in and say their prayers.

The river is now reduced to a mountain torrent, raging in foam over the *debris* of the porphyritic cliffs, which overhang its bed for hundreds of feet in height. The valley still occasionally widens out and gives room for a little cultivation. Where this is the case it is generally bounded on one side or the other by cliffs of sandstone, in which innumerable parrots have perforated holes for nests; and the road at these places lies broad and level at their base. We crossed the river frequently on such bridges as I have described at San Pedro Mama, and arrived at San Mateo at half-past 5 p. m., having travelled only twelve miles. The barometer shows a much greater ascent than we have yet made in one day's travel. We pitched in an old and abandoned alfalfa field above the town, and got supper from the postmaster.

May 27.—San Mateo, a village about the size of Surco and Matucana, is situated on both sides of the Rimac, and at an elevation of ten thousand two hundred feet above the level of the sea. The men work the chacras of maize, potatoes, and beans; and the women do all the household work, besides carrying their meals to the workmen on the farms, over hills that would make a lazy man shudder even to look

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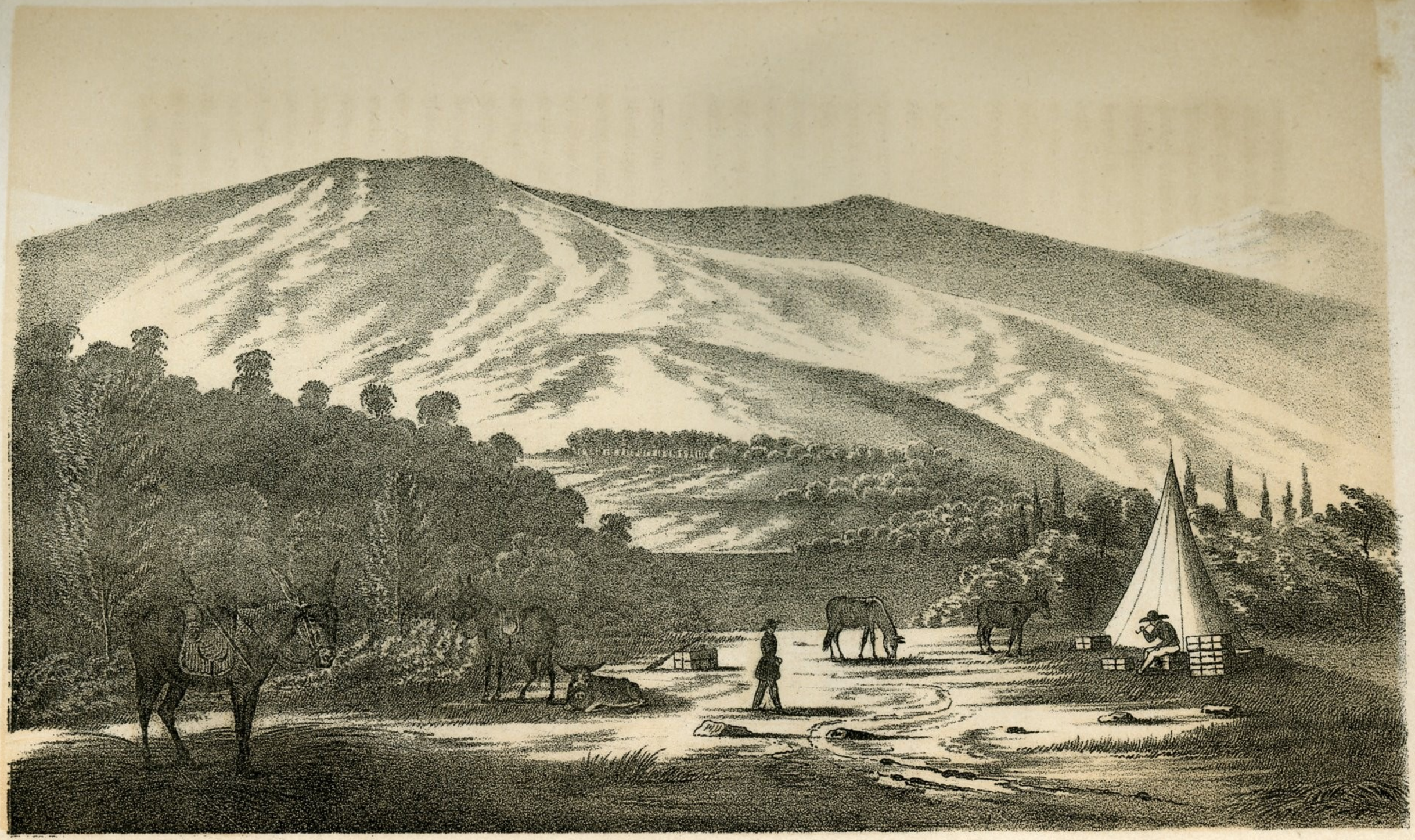

L.t. Gibbon del.

Ackerman Lith. 379 Broadway N.Y.

YANACOTO

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at. They live in poverty and filth, but seem happy enough. We saw the women winnowing the beans (which were gathered dry from the plant) by collecting them in pans made of large gourds, and flinging them into the air; and also sifting flour, which comes from the other side of the Cordillera, about Jauxa. The costume of the Serrana women is different from that of the women of the coast. It consists of a very narrow skirt, and a body of coarse woollen cloth, generally blue, which comes from Lima, and is belted around the waist with a broad-figured woollen belt, woven by themselves. A woollen apron, with a figured border, is worn on the left side, hanging from the right shoulder by a strap; and in the cold of the morning and evening the shoulders are covered with a thick, colored blanket, reaching to the hips. A high, broad-brimmed straw-hat, with shoes of raw-hide, drawn with a string around the ancle, and no stockings, complete the costume. These people seem contented with what they have, and don't want money. It was with great difficulty we could persuade them to sell us anything, always denying that they had it. On our return from the mines at Párac, (where Mr. Gibbon had been sick with chills and fever,) he could not eat the chupe, which had, at first, been made with *charqui*, or jerked beef, but which had now dwindled down to cheese and potatoes. I made a speech to some curious loafers about the tent, in which I appealed to their pride and patriotism, telling them that I thought it strange that so large a town as San Mateo, belonging to so famous a country as Peru, could not furnish a sick stranger, who could eat nothing else, with a few eggs. Whereupon, a fellow went off and brought us a dozen, though he had just sworn by the Pope that there were no such things in the village.

May 28.—Mr. Gibbon and I, guided by a boy, rode over to the hacienda of *San Jose de Párac*, leaving Richards and Ijurra in charge of the camp. The ride occupied about three hours, over the worst roads, bordered by the highest cliffs and deepest ravines we had yet seen. The earth here shows her giant skeleton bare: mountains, rather than rocks, of granite, rear their gray heads to the skies; and our proximity made these things more striking and sublime. We found, on the sides of the hills, short grass and small clover, with some fine cattle feeding; and, wherever the mountain afforded a level shelf, abundance of fine potatoes, which the people were then gathering.

I brought letters from Mr. Prevost to Don Torribio Malarin, the superintendent of the mines, who received us kindly, and entertained us with much hospitality. His house was comfortably heated with a stove, and the chamber furnished with a large four-post bedstead, and

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the biggest and heaviest bureau I had ever seen. I was somewhat surprised at the sight of these—

"Not that the things were very rich or rare,
I wonder'd how the devil they got there."

They must have come up in pieces, for nothing so large could have been fastened on a mule's back, or passed entire in the narrow parts of the road.

The Hacienda is situated near the head of a small valley, which debouches upon the road just below San Mateo; the stream which drains it emptying into the Rimac there. It is a square, enclosed with one-story buildings, consisting of the mill for grinding the ore, the ovens for toasting it when ground, the workshops, store-houses, and dwelling-houses. It is managed by a superintendent and three mayordomos, and employs about forty working hands. These are Indians of the Sierra, strong, hardy-looking fellows, though generally low in stature, and stupid in expression. They are silent and patient, and, having coca enough to chew, will do an extraordinary quantity of work. They have their breakfast of caldo and *cancha*, (toasted maize,) and get to work by eight o'clock. At eleven they have a recess of half an hour, when they sit down near their place of work, chat lazily with each other, and chew coca, mixed with a little lime, which each one carries in a small gourd, putting it on the mass of coca leaves in his mouth with a wire pin attached to the stopper of the gourd that carries the lime. Some dexterity is necessary to do this properly without cauterizing the lips or tongue. They then go to work again until five, when they finish for the day, and dine off chupe. It has made me, with my tropical habit of life, shiver to see these fellows puddling with their naked legs a mass of mud and quicksilver in water at the temperature of thirty-eight Fahrenheit.

These Indians generally live in huts near the hacienda, and are supplied from its store-houses. They are kept in debt by the supplies; and by custom, though not by law, no one will employ an Indian who is in debt to his patron; so that he is compelled to work on with no hope of getting free of the debt, except by running away to a distant part of the country where he is not known, which some do.

The diseases incident to this occupation are indigestion, called *empacho*, pleurisy, and sometimes the lungs seem affected with the fumes and dust of the ore; but, on the whole, it does not seem an unhealthy occupation.

The principal articles furnished from the store-house are maize, coca, mutton, charqui, rum, sugar, coffee, tea, chocolate, chancaca, (cakes of brown sugar,) soap, baize, cotton, and coarse linen cloths, woollen cloths, silk handkerchiefs, foreign ponchos, ribbons, silk sashes, &c., &c., which are supplied to the Indian at about one hundred per cent. advance on their cost at Lima, and charged against his wages, which amount to half a dollar a day, with half a dollar more if he work at night.

The manner of getting the silver from the ore, or beneficiating it, as it is called in Peru, is this: The ore, after it is dug from the mine and brought to the surface, is broken into pieces about the size of a Madeira nut or English walnut, and sent to the hacienda, in hide-bags, on the backs of llamas or mules. (The hacienda is always situated on the nearest stream to the mine, for the advantages of the water-power in turning the mill.) There it is reduced, by several grindings and siftings, to an impalpable powder. The mill consists of a horizontal water-wheel, carrying a vertical axis, which comes up through the floor of the mill, the wheel being below. To the top of this axis is bolted a large cross-beam, and to the ends of the beam are slung, by chains, heavy, rough stones, each about a ton weight. These stones, by the turning of the axis, are carried around, nearly in contact with a concave bed of smoother and harder rock, built upon the floor of the mill, and through which the axis comes up. The ore is poured by the basket-full upon the bed, and the large hanging rocks grind it to powder, which pours out of holes made in the periphery of the bed. This is shifted through fine wire sieves, and the coarser parts are put in the mill again for re-grinding. The ground ore, or *harina*, is then mixed with salt (at the rate of fifty pounds of salt to every six hundred pounds of harina) and taken to the ovens (which are of earth) and toasted. I could not learn the quantity of heat necessary to be applied; it is judged of by experiment.

The fuel used in these ovens is the dung of cattle, called *taquia;* it costs three cents for twenty-five pounds. The ovens here burn one million five hundred thousand pounds yearly. After the harina is toasted, it is carried in hide-bags to the square enclosed in the buildings of the hacienda, and laid in piles of about six hundred pounds each upon the floor. This floor is of flat stones, but should be of flags cemented together; because the stones have often to be taken up to collect the quicksilver, many pounds of which run down between the interstices. Ten of these piles are laid in a row, making a *caxon* of six thousand two hundred and fifty pounds. The piles are then moistened with water, and quicksilver is sprinkled on them through a woollen cloth. (The quantity of mercury, which depends upon the

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quantity of silver in the ore, is judged of beforehand by experiments on a small scale.) The mass is well mixed by treading with the feet and working with hoes. A little calcined iron pyrites, called *magistral*, is also added—about four pounds to the caxon. The pile is often examined to see that the amalgamation is going on well. In some conditions the mass is called hot; in others, cold. The state of heat is cured by adding a little lime and rotten dung; that of cold, by a little magistral or oxide of iron. Practice and experience alone will enable one to judge of these states. It is then left to stand for eight or nine days, (occasionally re-trodden and re-worked,) until the amalgamation is complete, which is also judged of by experiment. It is then carried to an elevated platform of stone, and thrown, in small quantities at a time, into a well sunk in the middle of the platform; a stream of water is turned on, and four or five men trample and wash it with their feet. The amalgam sinks to the bottom, and the mud and water are let off, by an aperture in the lower part of the well, into a smaller well below, lined with a raw-hide, where one man carries on the washing with his feet. More amalgam sinks to the bottom of this well, and the mud and water again flow off though a long wooden trough, lined with green baize, into a pit prepared for it, where the water percolates through the soil, leaving the mud to be again re-washed. When the washing is finished for the day, the green baize lining of the trough, with many particles of the amalgam clinging to it, is washed in the larger well. The water, which by this time is clear, is let off, and all the amalgam, called "*pella*," is collected, put in hide-bags, and weighed. Two caxons are washed in a day. The *pella* is then put into conical bags of coarse linen, which are hung up, and the weight of the mass presses out a quantity of the quicksilver, which oozes through the interstices of the linen, and is caught in vessels below. The mass, now dry, and somewhat harder than putty, is carried to the ovens, where the remainder of the quicksilver is driven off by heat, and the residue is the *plata piña*, or pure silver. This is melted, run into bars, stamped according to the *ley* or quality of the silver, and sent to Lima, either for the mint or for exportation.

In the refining process the fumes of the mercury are condensed, and it is used again. Two pounds, however, are lost to every pound of silver. The proportion of pure silver in the *pella seca*, or amalgam, after the draining off of the mercury through the bag, is about twenty-two per cent. A careful experiment made by Mr. Galt, a jeweller of this city, on a bit of the pella which I brought home from Cerro Pasco, gave but eighteen and thirty-three per cent. of pure silver.

Salt is worth at this place three reals (37½ cents) the arroba, and mercury costs one dollar the pound in Lima. The superintendent is paid twelve hundred dollars yearly; three mayordomos, thirty dollars each, monthly; the corporals, or heads of the working gangs in the mines, twenty dollars; the miners, sixty-two and a half cents per day, (as much more if they work at night;) and the laborers at the hacienda, fifty cents. This, however, is nominal, being more than swallowed up by the supplies. The estimated yearly expenses of these mines are thirty thousand dollars, and the annual yield, seventy thousand dollars. A caxon, of six thousand two hundred and fifty pounds of the ground ore, yields, by the assay on the small scale, fifty marks, though only twenty-five or thirty are obtained by this process, showing a loss of nearly one-half. The quantity of silver obtained from the *relabes*, or re-washings, is about twenty per cent. of the whole: that is, if a caxon yield twenty-five marks at the first washing, the re-washing will give five.

An idea may be formed of the value of these mines when I state that at Cerro Pasco, which is seventy-five miles further from Lima, and on the other side of the Cordillera, ore, which yields only six marks to the caxon, will give a profit to the miner, though it is saddled with some duties—such as those for drainage and for public works, from which the ore of Párac is exempt. Malarin, the superintendent, said that the caxon must yield fifteen marks here to pay. But granting this, I do not wonder at his expression, that these mines would in a few years render my countryman, Mr. Prevost, the richest man in the country, ("*El hombre mas poderoso, que hay en el Peru,*") he owning a third of them.

May 29.—Visited the mines. These are situated down the valley with regard to the hacienda, and are two leagues W. S. W. of it. They are much nearer San Mateo than is the hacienda, but there is no road to them from that village. The road, or rather path, lay along the side of the mountain, and zigzagged up and down to turn precipices, now running near the banks of the little stream, and now many hundreds of feet above it. The ride was bad enough at this time—it must be frightful in the rainy season; though Malarin says he sometimes travels it on horseback. This I am sure I should not do; and when these paths are slippery I would much prefer trusting to my own legs than to those of any other animal. Many persons suffer much in riding amongst these precipices and ravines. Dr. Smith knew a gentleman, who, "familiar with downs and lawns, was affected at the steeps of the *Paxaron* with a giddiness that for some time after disordered his imagination;" and one of a party of English officers, who crossed the

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Cordillera at Valparaiso whilst I was there, had to return without crossing, because he could not bear the sight of the sheer descents.

The valley of Párac lies about east and west, and the veins of silver on the sides of the mountains E. N. E. and W. S. W., thus crossing the valley diagonally. There are four mines belonging to the establishment, which employ about sixty workmen, though more could be employed to advantage. These men are directed by a mayordomo and four corporals. They are divided into two gangs for each mine: one party will go on duty at 7 p. m. and work till 5 a. m., when they come out, rest two hours, and go on again till 7 p. m. They are then relieved by the other party. This is very hard work, for the mines are very wet and cold. The getter-out of the ore wields, with one hand, a hammer of thirty pounds, and the carriers of the ore bear a burden of one hundred and fifty pounds from the bottom of the shaft to the surface—a distance in this case of about a quarter of a mile, of a very steep and rough ascent. When I first met one of these men toiling up in the dark, I thought, from the dreadful groans I heard before I saw him, that some one was dying near me; but he does this "a purpose," for when we met he had breath enough to give me a courteous salutation, and beg a paper cigar. Boys commence this work at eight years of age, and spend probably the greater part of their lives in the mine.

The mine called Sta. Rosa, which we visited, has a perpendicular depth of five hundred and twenty feet—that is, the bottom of the shaft, which penetrates the mountain at an angle from the horizon of about 25°, is five hundred and twenty feet below the mouth of it. By the mining laws the shaft (*cañon*) of the mine must be three feet eight inches high, three feet five inches wide, and arched for security. The superincumbent earth frequently requires to be supported by beams of wood laid against each other in form of Gothic arch. I could not learn how much ore a man could get out in a day, for it is a very uncertain quantity, depending upon the hardness of the rock that encloses the vein. Malarin told us that he had instructed the workmen not to blast whilst we were in the mine, because the dreadful reverberation of sound often had an unhappy effect upon people not accustomed to it, which, as we were men who sometimes dealt in heavy artillery, we did not thank him for.

Returning from the mine we met a drove of llamas on their way from the hacienda. This is quite an imposing sight, especially when the drove is encountered suddenly at a turn of the road. The leader, which is always selected on account of his superior height, has his head

decorated with tufts of colored woollen fringe, hung with little bells; and his extreme height, (often six feet,) gallant and graceful carriage, pointed ear, restless eye, and quivering lip, as he faces you for a moment, make him as striking an object as one can well conceive. Upon pressing on him he bounds aside, either up or down the cliff, and is followed by the herd scrambling over places that would be impassable for the mule or the ass.

They travel immense distances, but by short stages—not more than nine or ten miles per day. It is necessary, in long journeys, to have double the number required to carry the cargo, so as to give them relays. The burden of the llama is about one hundred and thirty pounds; he will not carry more, and will be beat to death rather than move when he is overloaded or tired. The males only are worked; the females are kept for the breed. They appear gentle and docile, but when irritated they have a very savage look, and spit at the object of their anger with great venom. The spittle is said to be very acrid, and will raise blisters where it touches the skin. We saw none in the wild state. They are bred on the haciendas in great numbers. We had no opportunity of seeing the *guanaco* or *alpacca*, (other varieties of the Peruvian sheep,) though we now and then, in crossing the mountains, caught a glimpse of the wild and shy *vicuña*. These go in herds of ten or fifteen females, accompanied by one male, who is ever on the alert. On the approach of danger he gives warning by a shrill whistle, and his charge makes off with the speed of the wind. The wool of the vicuña is much finer and more valuable than that of the other species—it is maroon-colored.

A good and learned Presbyter, Dr. *Cabrera*, whose portrait hangs in the library at Lima, by patience and gentleness, succeeded in obtaining a cross between the alpacca and vicuña, which he called *paco vicuña*, the wool of which is said to combine the fineness of that of the vicuña and the length of staple of that of the alpacca. The value of vicuña wool, at the port of shipment, was, in 1838, one hundred dollars the hundred weight; that of the alpacca, twenty-five dollars; and that of the sheep, from twelve to fifteen. Peru shipped from the ports of Arica, Callao, and Islay, during the four years between 1837 and 1840, inclusive, wool of the sheep, alpacca, and vicuña, to the value of two million two hundred and forty-nine thousand and thirty-nine dollars. (Castelnau, vol. 4, page 120.)

Were any care taken in the rearing of these wild sheep of Peru, the country might draw a great revenue from the sale of their wool.

May 30.—Dull, rainy day. Gibbon laid up with chills and fever,

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which he either brought from Lima, or took yesterday in the damp, cold mine. He *would* drink as much cold water as he wanted, though our friends held up their hands in astonishment, and said he would kill himself. Fire in a stove is very comfortable; the thermometer, during the day, standing at 50° Fah.

May 31.—Beautiful day. Ther., at 5 a. m., 36°. The general character of the rock is red porphyry. There is grass for pasturage; and the hill sides are covered with a bush of some eight or ten feet high, bearing bunches of blue flowers, resembling our lilac. There are several kinds of stinging nettle, one of which, that bears a small yellow flower, Malarin says, will cause gangrene and death. I had no disposition to try it; but I doubt the statement. So dangerous a thing would scarcely be so plentiful where the bare-legged herdsman and miner are exposed to it. Returned with Gibbon to San Mateo.

June 1.—Found Richards sick and the muleteer growling at the delay; loaded up, and got off at eleven. At twelve the valley narrowed to a dell of about fifty feet in width; the stream occupying its whole breadth, with the exception of a narrow, but smooth and level mule-path on its right bank. This is a very remarkable place. On each side the rock of red porphyry rises perpendicularly for full five hundred feet. In places it overhangs the stream and road. The traveller feels as if he were passing through some tunnel of the Titans. The upper exit from the dell is so steep that steps have been cut in the rock for the mule's feet; and the stream rushes down the rock-obstructed declivity in foaming fury, flinging clouds of white spray over the traveller, and rendering the path slippery and dangerous.

Passed *Chiglla* and *Bella Vista*, mining haciendas. The country is quite thickly settled, there being houses in sight all the way between these two places. The barley here does not give grain, but is cut for fodder. The alfalfa has given way to short, thin grass; and we begin to find difficulty in getting food for the beasts. We saw cabbages growing in the gardens of Chiglla, which is a straggling village of some three or four hundred inhabitants. Just after passing Chiglla the mountains looked low, giving the appearance of a rolling country, and were clothed with verdure to the top. Upon turning a corner of the road the snow-covered summits of the Cordillera were close before us, also looking low; and when the snow or verdure suffered the earth to be seen, this was of a deep pink color. The general character of the rock is conglomerate. We stopped at four at the tambo of *Acchahuarcu*, where we pitched and bought barley straw (*alcaser*) at the rate of twelve and a half cents the armful, called "tercio," which is just

enough for one mule. The mercury in the barometer being below the scale, we had to cut away the brass casing in front, and mark the height of the column on the inside of the case with a pen-knife.

June 2.—Got off at half-past ten. Road tolerably good, and not very precipitous. At twelve we arrived on a level with the lowest line of snow. We were marking the barometer, when a traveller rode up, who proved to be an old schoolmate of mine, whom I had not seen or even heard of since we were boys. The meeting at this place was an extraordinary and very agreeable occurrence. It was also fortunate for me, for my friend was head machinist at the mines of *Morococha*, and gave us a note to the administrator, which secured us a hospitable reception and an interesting day or two. Without this we should have been compelled to pass on, for pasturage here is very scant, and the people of the mines have to pay a high price for their barley straw, and are not willing to give it to every stray traveller. At 2 p. m. we arrived at the highest point of the road, called the pass of *Antarangra*, or copper rock. (The pass of the Piedra Parada, or standing rock, which passes by the mines of Yauli, crosses a few miles to our right.) Some scattering mosses lay on a hill-side above us; but Gibbon and I spurred our panting and trembling mules to the summit of the hill, and had nothing around us but snow, granite, and dark gray porphyry.

I was disappointed in the view from this place. The peaks of the Cordillera that were above us looked low, and presented the appearance of a hilly country, at home, on a winter-day; while the contrast between the snowy hills and the bright green of lower ranges, together with the view of the placid little lakes which lie so snug and still in their midst, gave an air of quiet beauty to the scene very distinct from the savage and desolate grandeur I had expected.

Gibbon, with the camera lucida, sketched the Cordillera. I expended a box of matches in boiling the snow for the atmospheric pressure; and poor Richards lay shivering on the ground, enveloped in our *pillons*, a martyr to the *veta*.

Veta is the sickness caused by the rarity of the atmosphere at these great elevations. The Indians call it veta, or vein, because they believe it is caused by veins of metal diffusing around a poisonous infection. It is a remarkable thing, that, although this affection must be caused by absence of atmospheric pressure, yet in no case except this, (and Richards was ill before,) that I have known or read of, has it been felt at the greatest elevation, but always at a point below this—sometimes on one side, sometimes on the other. The affection displays itself in a violent headache, with the veins of the head swollen and turgid a difficulty of

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respiration, and cold extremities. The smell of garlic is said to alleviate the symptoms; and the arrieros generally anoint their cattle over the eyes, and on the forehead, with an unguent made of tallow, garlic, and wild marjoram, as a preventive, before attempting the ascent. I did not observe that our animals were affected, though they trembled and breathed hard, which, I think, was attributable to the steepness of the hill up which we rode. The barometer stood at 16.730, indicating an elevation of sixteen thousand and forty-four feet. Water boiled at 182°.5; temperature of the air, 43°.

The road hence is cut along the flank of the mountain, at whose base lies a pretty little lake. The hacienda of *Morococha* is situated on the banks of a second, which communicates with it; and this again pours its waters, by a small and gentle stream, into a third, below. These are, respectively, *Huacracocha*, or Horn lake; *Morococha*, or Painted lake, (from the variety of colors which its placid surface reflects from the red, green, and yellow of the surrounding mountains;) and *Huascacocha*, or Rope lake.

Though not yet sixty miles from the sea, we had crossed the great "divide" which separates the waters of the Atlantic from those of the Pacific. The last steps of our mules had made a striking change in our geographical relations; so suddenly and so quickly had we been cut off from all connexion with the Pacific, and placed upon waters that rippled and sparkled joyously as they danced by our feet to join the glad waves of the ocean that wash the shores of our own dear land. They whispered to me of home, and my heart went along with them. I thought of Maury, with his researches concerning the currents of the sea; and, recollecting the close physical connexion pointed out by him as existing between these—the waters of the Amazon and those of our own majestic Mississippi—I musingly dropped a bit of green moss, plucked from the hill-side, upon the bosom of the placid lake of Morococha; and as it floated along I followed it, in imagination, down through the luxurious climes, the beautiful skies, and enchanting scenery of the tropics, to the mouth of the great river; thence across the Carribbean sea, through the Yucatan pass, into the Gulf of Mexico; thence along the Gulf-stream; and so out upon the ocean, off the shores of the "Land of Flowers." Here I fancied it might meet with silent little messengers cast by the hands of sympathizing friends and countrymen high up on the head-waters of the Mississippi, or away in the "Far West," upon the distant fountains of the Missouri.

It was, indeed, but a bit of moss floating on the water; but as I mused, fancy, awakened and stimulated by surrounding circumstances,

had already converted it into a skiff manned by fairies, and bound upon a mission of high import, bearing messages of peace and good-will, telling of commerce and navigation, of settlement and civilization, of religious and political liberty, from the "King of Rivers" to the "Father of Waters;" and, possibly, meeting in the Florida pass, and "speaking," through a trumpet louder than the tempest, spirits sent down by the Naiads of Lake Itaska, with greetings to Morococha.

I was now, for the first time, fairly in the field of my operations. I had been sent to explore the Valley of the Amazon, to sound its streams, and to report as to their navigability. I was commanded to examine its fields, its forests, and its rivers, that I might gauge their capabilities, active and dormant, for trade and commerce with the States of Christendom, and make known to the spirit and enterprise of the age the resources which lie in concealment there, waiting for the touch of civilization and the breath of the steam-engine to give them animation, life, and palpable existence.

Before us lay this immense field, dressed in the robes of everlasting summer, and embracing an area of thousands upon thousands of square miles on which the footfall of civilized man had never been heard. Behind us towered, in forbidding grandeur, the crests and peaked summits of the Andes, clad in the garb of eternal winter. The contrast was striking, and the field inviting. But who were the laborers? Gibbon and I. We were all. The rest were not even gleaners. But it was well. The expedition had been planned and arranged at home with admirable judgment and consummate sagacity; for, had it been on a grand scale, commensurate with its importance, or even larger than it was, it would have broken down with its own weight.

Though the waters where I stood were bound on their way to meet the streams of our Northern Hemisphere, and to bring, for all the practical purposes of commerce and navigation, the mouth of the Amazon and the mouth of the Mississippi into one, and place it before our own doors; yet, from the head of navigation on one stream to the head of navigation on the other, the distance to be sailed could not be less than ten thousand miles. Vast, many, and great, doubtless, are the varieties of climates, soils, and productions within such a range. The importance to the world of settlement, cultivation, and commerce in the Valley of the Amazon cannot be over-estimated. With the climates of India, and of all the habitable portions of the earth, piled one above the other in quick succession, tillage and good husbandry here would transfer the productions of the East to this magnificent

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river basin, and place them within a few days' easy sail of Europe and the United States.

Only a few miles back we had first entered the famous mining district of Peru. A large portion of the silver which constitutes the circulation of the world was dug from the range of mountains upon which we are standing; and most of it came from that slope of them which is drained off into the Amazon. Is it possible for commerce and navigation up and down this majestic water-course and its beautiful tributaries to turn the flow of this silver stream from its western course to the Pacific, and conduct it with steamers down the Amazon to the United States, there to balance the stream of gold with which we are likely to be flooded from California and Australia?

Questions which I could not answer, and reflections which I could not keep back, crowded upon me. Oppressed with their weight, and the magnitude of the task before me, I turned slowly and sadly away, secretly lamenting my own want of ability, and sincerely regretting that the duty before me had not been assigned to abler and better hands.

CHAPTER IV.

Mines of Morococha—A Yankee's house—Mountain of Puy-puy—Splendid view—Pachachaca—Lava stream—Chain bridge at Oroya—Descent into the valley of Tarma—Tarma—American physician—Customs—Dress—Religious observances—Muleteers and mules—General Otero—Farming in the Sierra—Road to Chanchamayo—Perils of travel—Gold mines of Matichacra—View of the Montaña—Fort San Ramon—Indians of Chanchamayo—Cultivation.

We arrived at Morococha at 5 p. m. This is a copper mining hacienda, belonging to some German brothers named Pflücker, of Lima, who own, also, several silver mines of the neighborhood. The copper and silver of these mountains are intimately mixed; they are both got out by smelting, though this operation, as far as regarded the silver, had been abandoned, and they were now beginning the process of extracting the silver, by the mode of grinding and washing—such as I have described at Párac—after having tried the *via humida* (or method of washing in barrels, used in Saxony) and failed.

The copper ore is calcined in the open air, in piles consisting of alternate layers of ore and coal, which burn for a month. The ore thus calcined is taken to ovens, built of brick imported from the United States, and sufficient heat is employed to melt the copper, which runs off into moulds below; the scoria being continually drawn off with long iron hoes. The copper in this state is called *exe;* it has about fifty per cent. of pure copper, the residue being silver, iron, &c., &c. It is worth fifteen cents the pound in England, where it is refined. There is a mine of fine coal eighteen miles from the hacienda, which yields an abundant supply. It is bituminous, but hard, and of great brilliancy. The hacienda employs about one hundred hands; more are desired, but they cannot be had at this time, because it is harvest, and the Indians are gathering the corn, barley, and beans of the valleys below. A man will get out about one thousand pounds of copper ore in a day. I do not think the mines were at work during our stay; at least, I saw or heard nothing of them. I could not either get statistics concerning the yield of these mines or the cost of working them, and I thought that I noticed some reserve upon this subject. The director told me that the silver ore of this region was very rich, and spoke of specimens that yielded one thousand, and even fifteen hundred, marks to the caxon.

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The mining business of the hacienda is conducted by a director, an intelligent and gentlemanly young German, named Richard Von Durfeldt; and its fiscal affairs and general business, by an administrator, a fine-looking young Spaniard, Don Jose Fco. de Lizarralde, whose kindly courtesy we shall long remember. The engineer, or machinist, is my friend and schoolmate Shepherd, who seemed to be a "Jack of all trades"—blacksmith, carpenter, watch-maker, and doctor. His room was quite a curiosity, and bespoke plainly enough the American. I never saw so many different things gathered together in so small a place: shelves of fine standard books; a dispensary for physic; all manner of tools, from the sledge-hammer and the whip-saw to the delicate instruments of the watch-maker; parts of watches lying under bell-glasses; engravings hanging around the walls, with a great chart, setting forth directions for the treatment of all manner of diseases and accidents; horse furniture, saddle-bags, boots, shoes, and every variety of garment, from the heavy woollen poncho of the man to the more delicate cotton petticoat of the woman; for my friend has a pretty young Sierra wife, who took great pleasure in talking to me about the home and relations of my "*paisano*." Shepherd's warm room and bed, with plenty of covering, was a princely luxury in that cold climate. These things are comparative, and I had not slept under a roof but twice since I left Lima. An old Englishman from the Isle of Guernsey, named Grant, who seemed to be a sort of factotum, and knew and did everything, and who was unwearied in his kindness and attention to us, made up the sum of our pleasant acquaintances at Morococha. We had beef and mutton for dinner, with good butter and cheese; vegetables scarce; Gibbon not well; Richards very sick, and under treatment from Shepherd.

June 3.—We all went to see the Mountain of *Puy-puy*, said to be higher than Chimborazo. The place of view is about three miles from Morococha. We passed the openings of a copper and silver mine, and rode along a boggy country, where turf is cut for fuel. We saw many snipes, ducks, and other aquatic birds. This upset all my preconceived notions; I had no idea that I should see, at fifteen thousand feet above the level of the sea, anything that would remind me of duck-shooting in the marshes of the Rappahannock. To see the mountain, it was necessary to cross a range of hills, about seven or eight hundred feet in height. The road went up diagonally, but the ascent was the most toilsome operation I had ever undertaken. We were obliged to dismount, when about three-fourths of the way up, and lead the mules; the path was muddy and slippery, and we had to stop to blow at every

half-dozen steps. Gibbon declared that this was the only occasion in which he had ever found the big spurs of the country of any service; for when he slipped and fell, as we all frequently did, he said that he should inevitably have gone to the bottom had he not dug his spurs into the soil, and so held on. I think that I suffered more than any of the party. On arriving at the top, I was fairly exhausted; I thought my heart would break from my breast with its violent agitation, and I felt, for the first time, how painful it was

"To breathe
The difficult air of the iced mountain's top."[1]

I soon recovered, however, and was amply repaid by the splendor of the view. The lofty cone-shaped mountain, clad in its brilliant mantle from the top even to the cylindrical base upon which it rested, rose in solitary majesty from the plain beneath us; and when the sunlight, bursting from the clouds, rested upon its summit, it was beautiful, indeed. Gibbon almost froze taking a sketch of it; and the rest of us tired ourselves nearly to death endeavoring to get a shot at a herd of shy vicuñas that were seen feeding among the distant rocks. We had a fatiguing ride, and enjoyed a late dinner and a good night's rest.

June 4.—We took leave of our hospitable friends, (whom I could no longer intrude our large party upon,) and started at meridian, leaving Richards too sick to travel. We rode down the "Valley of the Lakes" in about an E. N. E. direction, visiting the silver mining hacienda of Tuctu as we passed, which belongs to the establishment of Morococha. We travelled over a heavy rolling country; the southern sides of the hills clothed with verdure, and affording tolerable pasture; the northern sides bare and rocky—no trees or bushes. About nine miles from Morococha, we crossed a range of hills to the right, and entered the village of *Pachachaca*.

This is situated in a valley that comes down from Yauli. The stream of the Valley of the Lakes at this place joins with the larger and very serpentine stream of the Yauli valley. This valley has a flat and apparently level floor of half a mile in width, affording a carriage-road of two or three miles in length. There is a hacienda for smelting silver here; but having no letters, and but little time, (for the arriero begins very justly to complain that we are delaying him an unreasonable time upon the road,) I did not visit it.

Pachachaca is a small village of two hundred inhabitants. The people seem more industrious than those of the villages on the other side. There are fine crops of barley here, and we saw cabbages, onions, peaches, and eggs, in the shops. We were greater objects of curiosity

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in this place than we had been before. The people, I believe, took us for peddlers, and the woman from whom we got our supper and breakfast seemed offended because we would not sell her some candles, and importuned Gibbon for the sale of his straw hat. The men wore short woollen trousers, buttoned at the knee, together with, generally, two pair of long woollen stockings. The woollen articles of clothing are woven in this neighborhood, except the ponchos, which come from Tarma. Printed cottons from Lima sell for eighteen and three-quarter cents the vara, (33 inches;) a cup and saucer of the commonest ware are held at thirty-seven and a half cents, but purchasers are few; sewing-cotton, a dollar the pound. Shoes come from Jauxa; also candles and potatoes. Fuel is the "taquia," or dried cattle manure. Gibbon and I had occasion afterwards to laugh at our fastidiousness in objecting to a mutton-chop broiled upon a coal of cow-dung.

June 5.—We travelled down the valley about east. At about one and a half mile we passed a very curious-looking place, where a small stream came out of a valley to the northward and westward, and spread itself over a flat table-rock, soft and calcareous. It poured over this rock in a sort of horse-shoe cataract, and then spread over an apparently convex surface of this same soft rock, about two hundred and fifty yards wide, crossing the valley down which we were travelling. This rock sounded hollow under the feet of the mules, and I feared we should break through at every instant. I am confident it was but a thin crust; and, indeed, after crossing it, we observed a clear stream of water issuing from beneath it, and flowing into the road on the farther side. We saw another such place a little lower down, only the stream tumbled, in a variety of colored streaks, principally white, like salt, over the metallic-looking rock, into the rivulet below. I presume there must have been some volcano near here, and that this rock is lava, for it had all the appearance of having once been liquid.

The valley about two miles from Pachachaca is cut across by rocky hills. Here we turned to the northward and eastward. The country at first offered some pasturage, but became more barren as we advanced, only showing, now and then, some patches of barley. We travelled till noon on the left bank of the Yauli stream, when we crossed it by a natural bridge, at a little village of a few huts, called Saco. At half-past two, after a ride over a stony and dusty plain, bordered on each side by rocky mountains, we arrived at the bridge of Oroya. This is a chain suspension bridge, of about fifty yards in length, and two and a half in breadth, flung over the river of Jauxa, which is a tributary of the Ucayali. The Yauli stream, into which emptied the stream from

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L. Gibbon del.

HACIENDA DE MOYOC

Ackerman Lith. 379 Broadway N.Y.

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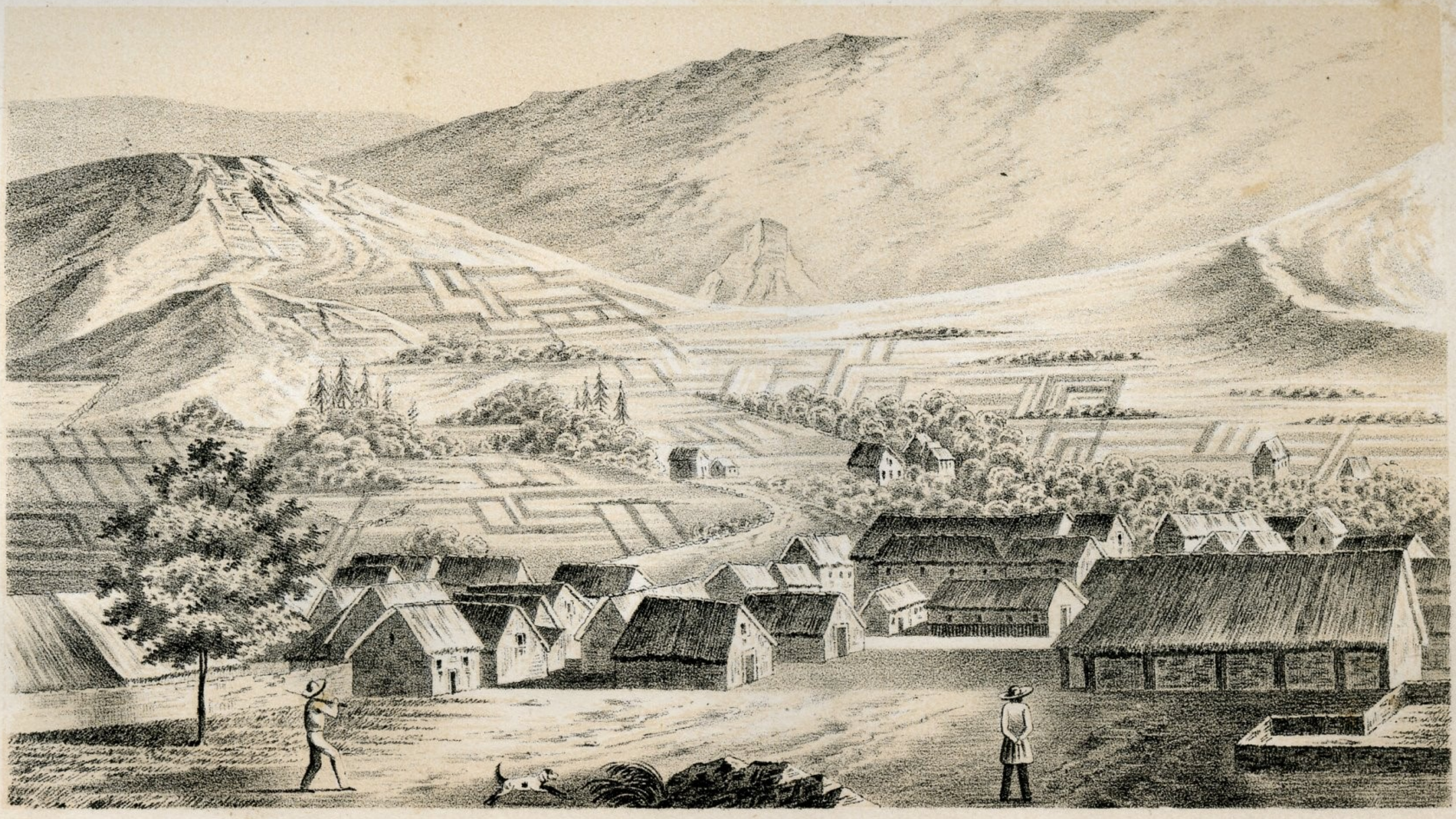

Lt Gibon del.

SAN MATEO.

Ackerman Lith. 379 Broadway N.Y.

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Lt Gibbon del.

Ackerman Lith 379 Broadway NY.

CORDILLERA FROM THE HIGHEST POINT OF THE ROUTE.

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Lt Gibbon del.

Ackerman Lith 379 Broadway N.Y.

MOUNT PUYPUY.

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the lakes at Morococha, joins this river here, and this is the connexion that I spoke of between those lakes, near the very summit of the Andes and the Atlantic ocean.

The bridge consisted of four chains, of about a quarter of an inch diameter, stretched horizontally across the river from strong stone-work on each side. These are interlaced with thongs of hide; sticks of about one and a half inch in diameter are laid across them and lashed down, forming a floor. Two other chains are stretched across about four feet above these, and connected with them by thongs of hide; these serve for balustrades, and would prevent a mule from jumping off. The bridge was about fifty feet above the water when we passed. It seemed very light, and rocked and swayed under the motion of the mules in crossing it. The heavy cargoes are taken off and carried over on the shoulders of the bridge-keeper and his assistants. The toll is twelve and a half cents the mule; and the same, the cargo. The bridge-ward seemed astonished, and somewhat annoyed, when I told him that one of the cargoes, which he left on the mule, was the heaviest I had, being a box filled with bags of shot, balls, and powder, together with the specimens of ore and rocks we had collected.

The river at this place turns from its southern course and runs to the eastward, by the village of Oroya, where we camped. This village contains about one hundred inhabitants, though we saw only five or six men; most of the male inhabitants being away to the harvest on the plains above. The women seemed nearly all to be employed in spinning wool; holding the bundle of wool in the left hand and spinning it out by a hanging broach. Very few of them spoke Spanish, but a currupt *Quichua*, or language of the Incas. We bought barley straw for the mules, and got a beef chupe, with eggs and roasted potatoes, for ourselves. We saw some small trees within the deserted enclosures where houses had been, bearing a very fragrant flower, something resembling the heliotrope, but much larger, and tinged with a reddish color. We also saw flocks of sheep, but got no mutton for dinner.

June 6.—Got under way at 9 a. m., steering N. N. E., and making a considerable ascent for about two miles. We then rode over a plain, with rolling hills on each side, covered with a short grass, giving pasturage to large flocks of sheep and some cows. The road then rose again, taking our column of mercury in the barometer out of sight, till half-past eleven, when we stood at the head of a ravine leading down to the valley of Tarma. The height of this spot above the level of the sea was eleven thousand two hundred and seventy feet. We rode down this ravine, north, for three-quarters of an hour, and at an angle to the

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horizon of full thirty degrees. The road was filled with fragments of white calcareous rock, and the rocky hills on each side were pierced with many a cavern. When nearly at the foot, the plants and flowers familiar to us on the other side began to make their appearance, and in such quick succession, that it seemed that an hour's ride carried us over many a mile of the tedious ascent to the westward of the mountains. First appeared the hardy little flowers of the heights above San Mateo; then, the barley; the alfalfa; the Indian corn; beans; turnips; shrubs, becoming bushes; bushes, trees; flowers growing larger and gayer in their colors, (yellow predominating,) till the pretty little city of Tarma, embosomed among the hills, and enveloped in its covering of willows and fruit trees, with its long lawns of alfalfa (the greenest of grasses) stretching out in front, broke upon our view. The ride of to-day was a long and tiresome one, being mostly a bone-shaking descent; and we hailed with pleasure the sight of the little town as a resting place, after the tedious passage of the Cordillera, and felt that one of the inconveniences and perils of the expedition was safely and happily passed.

We arrived at 4 p. m., and rode straight to the house of a gentleman, Don Lorenzo Burgos, to whom I brought a letter of introduction from friend Shepherd, of Morococha; which letter contained the modest request that Don Lorenzo should place his house at my disposal. This he acceded to without hesitation, removing his sick wife, in spite of remonstrance, into another room, and giving us his hall for our baggage, and his chamber for our sleeping room. This I would not have acceded to, except that this is not Don Lorenzo's place of residence, but a new house which he is constructing here, and which he is only staying at for a few days till his wife is able to travel to their regular place of residence. There is no public house in the town, and it is customary to take travellers in. When I (next morning) presented a letter of introduction from the Bishop of Eretria to the Cura of Tarma, his first question was, "Where are you lodged?" And when I told him, he seemed annoyed, and said that I had not treated him properly in not coming to his house. Don Lorenzo gave us some dinner, and we slept well after the fatigues of the day.

Tarma, a town of some seven thousand inhabitants, belonging to the province of *Pasco* and department of *Junin*, is beautifully situated in an amphitheatre of mountains, which are clothed nearly to the top with waving fields of barley. The valley in front, about half a mile wide, and two miles long, appears level, and is covered with the greenest and richest pasturage. Its borders are fringed with fruit trees;

and the stream which waters it plunges, in a beautiful little cataract, of some thirty feet in height, over a ledge of rocks at the farther end. Its climate is delicious; and it is the resort of sickly people from Lima, and the cold and inclement mining districts, who find comfort and restoration in its pure atmosphere and mild and equable temperature. I was told, although the district contains nearly twenty thousand inhabitants, and its villages are close together, and easily accessible, that it could not, of itself, support a physician, and that the government had to appropriate the tax on spirits, and the surplus revenue of the bridge at Oroya, to this purpose. A young American physician, recently established in Tarma, gave me this account; but said that not even this had been sufficient to keep one here; that the custom had, therefore, fallen into desuetude, and that he was then engaged, with hope of success, in endeavoring to have this appropriation renewed and paid over to him.

I cannot vouch for this story. It has an apocryphal sound to me. I only know that it is a very healthy place, and that my medical friend is a person of repute there. When I proposed to carry him off with me, the ladies of my acquaintance raised a great outcry, and declared that they could not part with their *Medico*. I think there is no apothecary's shop in Tarma, for I supplied the Doctor with some medicines, those which he had brought from Lima being nearly exhausted. I am satisfied, though there are so few diseases, that a good-looking young graduate of medicine, who would go there with money enough to buy him a horse, might readily marry a pretty girl of influential family, and soon get a practice that would enrich him in ten years. I afterwards new a young American at Cerro Pasco, who, though not a graduate, and I believe scarcely a student of medicine, was in high repute as a doctor, and had as much practice as he could attend to; but who, like several of our countrymen whom I met abroad, was dissipated and reckless, and, as he himself expressed it, "slept with the pump."

The houses of Tarma are built of adobe; and the better sort are whitewashed within and without; floored with gypsum and tiled. The wood and iron work is of the rudest possible description, although the former, from the Montaña of Chanchamayo, is pretty and good. The doors of the house we are living in very much resemble "birds-eye maple." Some of the houses are partially papered, and carpeted with common Scotch carpeting. Most of them have *patios*, or enclosed squares, within, and some of them flat roofs, with a parapet around them, where maize, peas, beans, and such things, are placed in the sun to dry.

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Sunday is the great market-day, and the market-place is filled with country people, who come in to sell their manufactures of ponchos, blankets, shoes, hats, (made of the vicuña wool,) &c., and to buy coca, cotton goods, and *agua diente*, as well as to attend mass and get drunk. It is quite a busy and animated scene. The men are generally dressed in tall straw hats, ponchos, breeches, buttoned at the knee, and long woollen stockings; the women, in a blue woollen skirt, tied around the waist, and open in front, to show a white cotton petticoat, the shoulders covered with a mantle consisting of two or three yards of gay-colored plush, called "*Bayeta de Castilla*," or Spanish baize. Everything foreign in this country is called "*de Castilla*," (of Castile;) as in Brazil, it is called "*da Rainha*," (of the Queen.) The skirt of a lady of higher quality consists of a colored print, or mousseline. She rarely, unless dressed for company, takes the trouble to put on the body of her dress, which hangs down behind, and is covered with a gay shawl, passed around the bust, with the end thrown gracefully over the left shoulder. The hair, particularly on Sundays, is in perfect order; parted in the middle, and hanging down in two plaits behind. It is surmounted by a very neat, low-crowned straw-hat, the crown being nearly covered with a broad ribbon; and she is always "*bien calzada*," (well shod.) The women are generally large and well developed; not very pretty, but with amiable, frank, and agreeable manners; they have, almost invariably, a pleasant smile, with an open and engaging expression of countenance.

Religion flourishes in Tarma; and the Cura seems to have a busy time of it; though it is said he is cheated of half his rights in the way of marriage fees. I think that no day passed while we were here that there was not a "*fiesta*" of the church; for, although there are not more than twenty-five or thirty feast days in the year insisted upon by the church and the government, yet any piously-disposed person may get up one when he pleases. The manner seems to be this: A person, either from religious motives or ostentation, during or after Divine service in the church, approaches the altar, and, kissing one of its appendages, (I forget which,) proclaims his intention of becoming mayordomo or superintendent of such and such a *fiesta*—generally that of the Saint after whom he is named, and thereupon receives the benediction of the priest. This binds him and his heirs to all the expenses of the celebration, which, in the great functions in Lima, may be set down at no small matter—the heaviest item being the lighting of one of those large churches from floor to dome with wax. The jewels and other adornments of the images borne in procession are generally borrowed

from the devout Señoras of the higher and richer class; but I am told that many a person impoverishes his family for years by paying the expenses of one of these festivals.

The *fiestas* in Tarma are generally celebrated with music, ringing of bells, firing of rockets, and dances of Indians. A dozen vagabonds are dressed in what is supposed to be the costume of the ancient Indians. This consists of a red blanket hanging from one shoulder, and a white one from the other, reaching nearly to the knee, and girded around the waist; the usual short blue breeches, with a white fringe at the knee; stockings of an indifferent color, and shoes or sandals of raw-hide, gathered over the toes with a draw-string, and tied around the ankles. The head-dress is a low crowned, broad-brimmed round hat, made of wool, and surrounded with a circlet of dyed feathers of the ostrich. Thus costumed, the party march through the streets, and stop every now and then to execute a sort of dance to the melancholy and monotonous music of a reed pipe, accompanied by a rude flat drum—both in the hands of the same performer. Each man has a stick or club, of hard wood, and a very small wooden or hide shield, which he strikes with the club at certain periods of the dance, making a low clattering in time with the music. They have also small bells, called "cascabeles," attached to the knees and feet, which jingle in the dance. They and their company of Indians and Mestizos smell very badly on a near approach. Connected with this there is a great deal of riot and drunkenness; and I felt annoyed that the church should patronize and encourage so demoralizing a procedure. The secular clergy of Peru, with a few honorable exceptions, have not a high character, if one is to believe the stories told of them by their own countrymen; and I had occasion to observe that the educated young men, as well of Chili as of Peru, generally spoke of them in terms of great contempt. I judge that the case is different with the clergy of the monastic orders, particularly the missionaries. Those I met with were evidently men of high character; and to their zeal, energy, and ability, Peru owes the conquest of by far the largest and richest part of the republic. It happens, unfortunately for the Peruvian character, that nearly all of these are foreigners—generally Spaniards and Italians.

June 7.—I suffered all day with violent pain in the head and limbs, from the ride of yesterday. These Peruvian saddles, though good for the beasts, and for riding up and down hill, stretch the legs so far apart as for a long time to give the unaccustomed rider severe pains in the muscles of the thighs; and I had to ride a large portion of the distance with my leg over the pommel, like a lady.

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We paid off and parted with the arriero, Pablo Luis Arredondo. I did not find him so great a rascal as I expected; for, except the disposition to get all out of me he could, (which was very natural,) and an occasional growl, (which was also to be expected,) I had no reason to be dissatisfied with Luis. Ijurra was always quarrelling with him; but I think Ijurra has the fault of his countrymen generally, and wants the temper and patience necessary to manage ignorant people. By soft words and some bribery, I got along well enough with the old fellow; and he loaded his mules beyond their usual cargoes, and drove them along very well. I was frequently astonished at the difficulties they surmounted, loaded as they were. The usual load is two hundred and sixty pounds; and these animals of ours, with, I am sure, in some instances, a heavier load, and of a most incongruous and heterogeneous description, ascended hills and descended valleys which one would scarcely think an unloaded mule could travel over. Our riding mules were perfect treasures. Sure-footed, steady, strong, and patient, they bore us along easily and with comfort; and Gibbon says that he will part with his with tears, when we are compelled to give them up and take to the boats.

The market at Tarma is tolerably good, though the meat is badly butchered. Beef costs six cents a pound; a small leg of mutton, eighteen and three-quarter cents; good potatoes, nearly a dollar a bushel; cauliflowers, three small heads for twelve and a half cents; oranges, pine-apples, and peaches are abundant and cheap, but not good; bread, very good, is baked in small loaves, by a Frenchman, four for twelve and a half cents; flour comes from Jauxa; eggs are ten cents a dozen.

We had a visit from the Cura, and went to see the sub prefect of the province, a gentleman named Mier, who promised me such assistance as I needed in my visit to Chanchamayo. Both of these gentlemen earnestly deprecated the idea of trusting myself and party among the "*Chunchos*" Indians on the other side of the river Chanchamayo, saying that they were very hostile to the whites, and dangerous. The Cura promised to look out for a servant for us. We had visits, also, from several gentlemen of the town; among them a Señor Cardenas, who gave me a copy of the memorial of Urrutia. All seemed much interested in my expedition to Chanchamayo, and hoped a favorable report.

June 11.—We rode about a league down the valley which leads to Chanchamayo, to the farm of General Otero, to whom we brought letters from Mr. Prevost, and Pasquel, bishop of Eretrea. We found this farm a different sort of affair from anything we had hitherto seen in this way in our travels. This is in a high state of cultivation, well

enclosed with mud walls, and in beautiful order. The General—a good looking, farmer-like old gentleman—met us with great cordiality, and showed us over the premises. He has a very large house, with all the necessary offices attached, which he built himself. Indeed, he said he had made the farm; for when he purchased it, it was a stony and desolate place, and he had expended much time, labor, and money on it. There were two gardens: one for vegetables and fruit, and one for flowers. They were both in fine order. The fruits were peaches of various kinds, apples, strawberries, almonds, and some few grapes. The flowers were principally roses, pinks, pansies, jessamines, and geraniums. There were a few exotics, under bell-glasses. Both fruit and flowers were of rather indifferent quality, but much better than one would expect to see in so elevated and cold a situation. The nights here, particularly in the early morning, are quite cold.

This is the harvest season, and the General was gathering his crop of maize. About twenty peons or laborers were bringing it in from the fields, and throwing it down in piles in a large court-yard, while boys and women were engaged in "*shucking*" it. In one corner of the square, under a snug little shed attached to one of the barns, with stone seats around it, sat the General's three daughters, sewing, and probably superintending the "shucking." They were fair, sweet-looking girls. The General had a tray of glasses, with some *Italia* (a cordial made of a Muscatel grape that grows in the province of Ica, and hence called Ica brandy) and paper cigars, brought out for us; and the whole concern had a home look that was quite pleasing.

I cannot give a good idea of farming in this country, for want of information of the value of land; this depending so entirely on its situation and condition. The mountain sides are so steep, and the valleys so rocky, that I imagine there is no great deal of cultivable land in all this district, and therefore it is probably high. According to Gen. Otero, land here is measured by "tongos," which is a square of thirty-three varas. (A vara is thirty-three English inches.) Three tongos make a "yuntada," or as much as it is calculated that a yoke of oxen can plough in a day. About half an arroba, or twelve and a half pounds of seed, is planted to the tongo. In maize, the yield is between forty-five and fifty for one. Wheat yields about forty for one, but is so subject to the rust as to be an uncertain crop, and is therefore little cultivated. The price of maize is five dollars the *carga* or mule-load, of two hundred and sixty pounds. From these data it appears, then, that an acre will yield about forty-three bushels, which is worth one dollar and twenty-five cents the bushel. Quantities of barley are

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cultivated on the mountain sides, but the grain does not come to perfection, and it is generally cut green for fodder; though the General says that it is not good for that, the straw being coarse and hard. Potatoes are a good crop; they are worth now in Tarma one dollar and fifty cents the hundred pounds, and in times of scarcity have been known to run up as high as seven dollars. One of the principal articles of food of the laborers of this country is "*cancha*," or toasted maize. They mix a little lime with the grains before putting them in the hot ashes, which makes them whiter and improves their flavor. It is really very sweet and good, and I liked it better than the green corn roasted, which is such a favorite dish with us. *Chicha*, a fermented liquor, is also made from Indian corn, and much drunk by all classes. The General gave us some that he had prepared and bottled himself. It was very good, rose-colored, and sparkled like Champagne. He told us that our corn, which he called "*mais morocha*," was not so good as this for making either cancha or chicha; this being softer and sweeter.

We visited the stables, which were very clean, and paved, and contained some ten or fifteen fine-looking young horses; and there were thirty or forty more, mares and colts, in a spacious corral or enclosure near, with an American farrier from Tarma attending to some of them. There is also a neat little chapel occupying a corner of the "patio," with the inscription over the door, "*Domus mea, domus orationis est.*" It was neatly papered and carpeted, and had colored prints of the "Stations" hung around the walls. The altar-piece was a figure of our Lady of Mercy, with the figures of St. Francis and St. Peter on each side; these Saints being the patrons of the general and his lady, Don Francisco and Doña Pedronilla. The General's manners were exceedingly courteous and affable; and he possessed that suavity and gentleness of bearing that seems to me always to characterize the military man of high rank when in retirement. The whole establishment reminded me of one of our best kept Virginia farms, where the owner had inherited the homestead of his father, and was in easy circumstances.

June 12.—Dined with our countryman, Dr. Buckingham, and a couple of young ladies, one of whom seemed to be his housekeeper. The dinner was after the Peruvian fashion: first, a sort of thick soup; then, roasted ribs of mutton, served with salad; this succeeded by a dish of stewed Guinea pigs, mixed with a variety of vegetables, and which would have been very good but for the addition of a quantity of *aji*, or red pepper, which made it unendurable to the unaccustomed palate; winding up with the invariable chupe, and the invariable dessert of

dulces, or sweetmeats. A Limenian never thinks of taking water during dinner, and always eats sweetmeats after dinner, that he may then safely take water; so that "*Tomar dulces, para beber agua*" is a sort of dietetic proverb with them.

June 13.—Rode out on the Oroya road, with the intention of visiting a cave, or what is reported to be a subterraneous passage made by the Incas, and reaching as far as Jauxa, twenty-seven miles; but, after riding about five miles, we determined that we were too late to explore the cave for that day, and meeting Richards, from Morococha, we turned back. I suspect that this cave is nothing more than the *cañon*, or opening, of some long-deserted mine.

June 14.—Rode out to the southward, in the direction of Jauxa. This valley, which rises very rapidly, is thickly settled, and well cultivated. Road bad. Another valley debouches from this, about four miles above Tarma, to the southward and eastward, leading to the Montaña of Vitoc.

June 15.—Had a long visit from General Otero. The vivacious old gentleman discoursed very pleasantly. He said that it was difficult to get at the population of the town proper, the census being generally taken of the Doctrina, or district over which the Cura had religious jurisdiction; that this was about ten or twelve thousand, of which one-twelfth part were pure white, about one-half Mestizos, (descendants of whites and Indians,) and the balance Indians, there being very few negroes. I asked him to account for the number of blind people we had noticed in the streets. He said that most of the blind people came from Jauxa, in which country much wheat and barley are produced; that they sifted these grains, and got rid of the chaff by throwing them up in the air, and he believed that the blindness arose from the irritation caused by the chaff and barbs flying into the eyes of the people who sifted.

He also said that he thought I should not attempt to cross the Chanchamayo amongst the Indians, for that I would not be able to defend myself against their attacks; but thought that, if I wished to descend the Ucayali, I had better take a more southern tributary, called the Pangoa; (this is Biedma's route, by Andamarca and Sonomora;) that there the Indians were not so much irritated against the whites, and that the river was known to be navigable for canoes, for he himself had known a friar of Ocopa who, in 1817, had descended it for the conversion of the Indians of the Ucayali, and had afterwards established a missionary station at Andamarca, where the Indians came at stated periods to be baptized and receive presents of hatchets, knives,

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beads, &c., but that, on the occasion of the war in 1824, the supplies had been stopped, and the Indians would come no more. He, as did the sub-prefect, liked my idea of ascending from the mouth of the Ucayali, with a properly-equipped Indian force, and looking into the navigability of the *Perené* and Chanchamayo that way.

The latitude of Tarma, by mean of Mer. altitudes of α and β *Centauri*, is 11° 25′ 05″ S.

June 16.—We left Tarma for the Chanchamayo. This is the first time I have applied to authority for the means of locomotion. I did it inadvertently, and was sorry for it; for, though I would probably have been cheated in the price, yet I should not have been the cause of injustice and oppression. I had said to the sub-prefect, a few days before, that I wanted the means of transportation for some baggage to Chanchamayo, which he promised to furnish me. Yesterday I went to ask for it for to-day, and he referred me to the governor of the district, who was present, and who told me that he would have what I required—viz: two asses and a saddle mule, with two peons—ready by to-morrow morning. Accordingly, this morning he sent for me, and presented to me the owner of the mule, the owner of the asses, and the two peons. The wages of these were to be four reals, or half a dollar, a day; and I paid each three dollars in advance. To the governor I paid a dollar for each ass, and two for the mule, with the understanding that I was to pay as much more on my return. The peons were then lectured on their duties, and sent round to my house with an escort of half a dozen *alguaziles*, or constables, armed with sticks, to prevent their escaping or getting drunk before the start. The asses and mules were also sent round under a similar guard, so that my patio seemed filled with a clamorous multitude, who created such a confusion that I had to turn out all but my own people. I ordered these to load up; but they said that the owners of the asses had sent no *lassos*, or thongs, to bind on the burdens; and I soon discovered that there was a general unwillingness for the job, and that the governor had pressed the animals into the service against the will of the owners.

Strong efforts were made to get the mule away from me. The woman of the house, who, it appears, was a sister of the owner, advised me not to take it; and said that it was a bad, vicious animal, that would do me a mischief. I was surprised at this, as he looked particularly docile; and I directed my new servant (one recommended by the Cura, and who looked twice as vicious as the mule) to mount and ride him around the patio. The fellow grinned maliciously, and proved my judgment correct. Finding this would not do, the owner (who had put his

sister up to making this attempt) then came forward, and said I must pay him half a dollar more, as the governor had kept back that much of the price. This being "no go," he tried to steal away his mule while our backs were turned; but being prevented, he went off, got drunk in about fifteen minutes, and came back maudlin; embracing, kissing, and weeping over his mule, crying in piteous tones "*Mi macho, mi macho*," (my mule, my mule.) We shoved him aside and rode off, followed, I have no doubt, by the curses of the community.

This was all very annoying to me. I afterwards mentioned these circumstances to the commandant of the fort at Chanchamayo, telling him how much I would prefer to pay double price and get voluntary service. He said that my sympathies were all thrown away upon these people, that I *must* go to the governors for the means of transportation; for that the Indians would not let me have their beasts at any price; and related instances of his having to use threats, and even force, to induce a sulky Indian to give him and his beast food and shelter when in the Cordillera, and the approach of night made it impossible to go on. Several travellers in these parts have also told me that they have been compelled to shoot the poultry of an Indian, who with a large stock, would refuse to sell at any price; but who, after the thing was done, would good humoredly accept a fair value.

Ijurra also related instances of oppression and tyranny on the part of the governors, particularly in the province of Mainas, where commerce is carried on by transportation of the goods on the backs of Indians. A travelling merchant goes to the governor and says, "I have such and such a cargo; I want so many Indians to transport it." The governor, generally a white or Mestizo, sends for the *Curaca*, (the lineal hereditary governor of the tribe of Indians of that district, who has great authority, and without whose assistance the whites probably could not govern at all,) and orders him to have so many Indians detailed for a journey. The Curaca drums them up, directing them to toast their corn and prepare their "*fiambre*" (food for the road) for a journey of so many leagues; and they are taken from their occupations and sent off, for probably many days, at a pay of anything that the governor may direct.

If a man wishes to build a house or open a farm, he may be supplied with laborers for six months, at a hire, per month, of as many yards of cotton cloth as will make each a shirt and pair of trousers; the patron or master furnishing them with food; but, as may be imagined, this is of the coarsest and commonest description that will support life.

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It would seem that men could never improve under a system of such absolute slavery as this; yet to give them liberty, is to abandon them and return them to a state of barbarity, shutting out all prospect of improvement; and the only hope seems to be in the justice and moderation of the rulers—a slim hope here.

We got off at noon; stopped at the "chacra" of Gen. Otero, and received a letter of introduction to the commandant of the fort. When the old gentleman saw our new servant "*Mariano*," he crossed himself most devoutly, and ejaculated "*Satanas!*" He then told us that this was a notoriously bad boy, whom nobody had been able to manage, but that we, being strangers and military men, might get along with him by strictness and severity; and he gave the boy a lecture upon his duties and the faithful performance of them.

A mile and a half beyond Gen. Otero's is the town of Acobamba. I judge that it contains twelve or fifteen hundred inhabitants; but it is situated in a thickly-settled district, and the "Doctrina" is said to be more populous than that of Tarma. Six more miles brought us to Palca, a straggling town of about one thousand inhabitants. We merely passed through, and a mile further on "brought up" at the chacra of Don Justo Rojas, to whom I had a letter from Lizarralde, the administrator at Morococha. Don Justo was engaged in extracting, by boiling, the juice of the rhatany root for an apothecary of Lima. He supplied us with a capital supper of chicken soup and boiled eggs, with alfalfa for the beasts. He also sold us, from his establishment in town, sugar and bread. We pitched the tent in an old corn-field, and slept delightfully. Tent-pegs for this country should be of iron. Although those we used were made of the hardest wood that could be found in Lima, we had used them all up by this time, beating off their heads by driving them with a hatchet into the hard and stony ground.

Don Justo's is the last chacra in the valley, which now narrows, and allows no room for cultivation. Though going down hill by the barometer, we were evidently crossing a chain of mountains, which the stream at the bottom of the valley has saved us the trouble of ascending and descending, by cleaving a way through for itself, and leaving the mountains on either hand towering thousands of feet above our heads. The ride was the wildest we have yet had; the road sometimes finding room along the borders of the river, and then ascending nearly to the top of the hills, and diminishing the foaming and thundering stream to a noiseless, silver thread. The ascents and descents were nearly precipitous; and the scene was rugged, wild, and grand beyond description.

We saw some miserable huts on the road, and met a few asses carrying reeds and poles from Chanchamayo. It seemed a providence that we did not meet these at certain parts of the road, where it is utterly impossible for two beasts to pass abreast, or for one to turn and retreat; and the only remedy is to tumble one off the precipice, or to drag him back by the tail until he reaches a place where the other can pass. Von Tschudi relates an instance of his shooting a mule which met him at one of these places.

We met with a considerable fright in this way to-day. We were riding in single file along one of these narrow ascents, where the road is cut out of the mountain side, and the traveller has a perpendicular wall on one hand, and a sheer precipice of many hundreds of feet upon the other. Mr. Gibbon was riding ahead. Just as he was about to turn a sharp bend of the road the head of a bull peered round it, on the descent. When the bull came in full view he stopped, and we could see the heads of other cattle clustering over his quarters, and hear the shouts of the cattle-drivers, far behind, urging on their herd. I happened to be abreast of a slight natural excavation, or hollow, in the mountain side, and dismounting I put my shoulder against my mule's flank and pressed her into this friendly retreat; but I saw no escape for Gibbon, who had passed it. The bull, with lowered crest, and savage, sullen look, came slowly on, and actually got his head between the perpendicular rock and the neck of Gibbon's mule. I felt a thrill of agony, for I thought my companion's fate was sealed. But the sagacious beast on which he was mounted, pressing her haunches hard against the wall, gathered her feet close under her and turned as upon a pivot. This placed the bull on the outside, (there was room to pass, though I did not believe it,) and he rushed by at the gallop, followed in single file by the rest of the herd. I cannot describe the relief I experienced. Gibbon, who is as gallant and fearless as man can be, said "It is of no use to attempt to disguise the fact—I was badly scared."

At 2 p. m., we arrived at a place called Matichacra, where there was a single hut, inhabited by a woman and her child; the husband having gone to Cerro Pasco to exhibit some specimens of gold ore which he had found here. The woman was afflicted with an eruption on her face, which she thought was caused by the metallic character of the earth around, particularly the antimonial. She took a knife, and, digging earth from the floor of her hut, washed it in a gourd, and showed us particles of metal like gold sticking to the bottom. I showed some of this earth to General Otero, who pronounced that

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there was no gold in it; but Lieutenant Maury, who examined some that I brought home with a powerful magnifier, has declared that there was. The mountains have an exceedingly metallic appearance, and the woman said that there were still in the neighborhood traces of the mining operations of the Spaniards.

About a mile and a half above Matichacra commenced the steep regular descent of the mountain range, and from just above it we could discern where the valley debouched upon an apparent plain, though bounded and intersected by distant mountains, bearing and ranging in different directions. This place we judged to be the "Montaña." We stopped an hour at Matichacra, (Gourd Farm, from half a dozen gourd vines growing near the house,) and made a chupe with a leg of mutton we had bought the night before at Palca. We saw a few patches of Indian corn on the side of the mountain opposite, and the tops of the mountains are clad with small trees. We passed on five miles further, and camped on a level plat near the banks of the stream, with bushes and small trees growing around us.

June 18.—This was the longest and hardest day's ride. The road was very bad; rocky and rough where it descended the river, and steep and difficult where it ascended the mountain side. We thought that the engineer who planned and constructed the road had frequently "taken the bull by the horns," and selected the worst places to run his road over; and that he would have done much better had he occasionally have thrown a bridge across the stream, and led the road along the flank of the mountains on the other side. In seven and a half miles we arrived at *Utcuyacu*, (cotton water,) the first hacienda where we saw sugar-cane, yucca, pine-apples, and plantains. It had just been opened, and nothing yet had been sold from it.

The road, by which we had descended the valley of Chanchamayo, turned at this place sharp to the right, and faced the mountains that divide this valley from that of the Rio Seco. We were near the junction of the two valleys, but a rock had fallen from the hills above and blocked up the road on which we were travelling, so that we had to cross the mountain on our right and get into the other valley. The ascent was steep, and trying to man and beast. It is called the "*Cuesta de Tangachuca*," or "Hill of take care of your hat," and is about three miles in length. The road, after passing through a thick forest, brought us out upon a bald eminence, the termination of the spur of the Andes that divides the two valleys. The rivers Seco and Chanchamayo unite at its base and flow off through a valley, rapidly widening out, covered with forests, and presenting an appearance entirely distinct from the

rocky and stern sterility that characterizes the country above. This is the "Montaña" of which I had thought so much. I was wofully disappointed in its appearance. I had taken the impression that I should behold a boundless plain, alternating with forest and prairie, covered with waving grass, and with a broad and gentle river winding its serpentine course through it, between banks rich with the palm and plantain. In place of this, the view from the mountain top showed a country broken still into mountain and valley, (though on a much smaller scale than above,) shaggy with trees and undergrowth of every description, and watered by a small stream, still foaming and roaring over its rocky bed.

We descended the hill by a very circuitous and precipitous path, most of us on foot, though it may be ridden over, for Mr. Gibbon did ride over the worst parts of it, and only dismounted where a fallen tree made an obstruction that he could not pass. The descent brought us to the rocky bed of the Rio Seco, crossing which we were clear of the eastern chain of the Andes and in the Montaña of Chanchamayo.

As far as the traveller is concerned there are not, on the route we have travelled, two ranges of the Andes—that is, he has not to ascend and descend one range, and then ascend and descend another. From the time he crosses the Cordillera at Antarangra, his progress is downward till he reaches the plain. Really there are two. The streams from the first, or western range, have broken their way through the second, making deep gorges, at the bottom of which the road generally runs, and leaves the peaks of the second range thousands of feet above the head of the traveller.

A league from the crossing of the Rio Seco, we passed a bad and broken bridge, that spans a small stream called "*Punta Yacu*," coming down a valley from the southward, and halted at the hacienda of Don Jose Manuel Cardenas, the first of the Montaña, where we camped for the night.

June 19.—Six miles of travel brought us to the fort of San Ramon. The road is a black mud bridle-path through the woods, much obstructed with the roots and branches of trees, but level. Comparatively few rocks are seen after leaving Cardenas. We were kindly received by the commandant, Don Juan Noel, a fine-looking young man, Captain of Frigate and Lieutenant Colonel in the Army, and his officers, Major Umeres and Lieutenant ———.

Fort San Ramon is, by Mer. alt. of "γ Crusis," in latitude 11°.07 S. Its height above the level of the sea, as given by barometer, is two thousand six hundred and ten feet.

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From the first of March to the last of August the climate is delightful; but the heavy and almost continuous rains of the other six months of the year make it disagreeable, but not unhealthy.

As we are now near the foot of the mountains, on the eastern slope, I give a table of the distances and elevations of various points on the route. The *B. P.* opposite some of the elevations show that these were indicated by the temperature of boiling water:

Places.	Distances.	Height above the level of the sea.
	Miles.	*Feet.*
Callao		
Lima	6	476
Pacayar	12	1,346
Yanacoto	10	2,337
Cocachacra	16	4,452
Moyoc	15	7,302
San Mateo	13	10,200
Acchahuarcu	9	12,898 B. P.
Pass of Antarangra	6	16,044
Do. do.	6	16,199 B. P.
Pachachaca	13	12,786 B. P.
Oroya	12	11,654
Do.	12	11,825 B. P.
Tarma	18	9,738
Palca	11	8,512
Matichacra	12	7,091
Huacapishtana	4	5,687
Challuapuquio	12	3,192
Fort San Ramon	6	2,605
Do. do.		2,953

The barometer gave the height of a point, four miles above Tarma, at eleven thousand two hundred and seventy feet. So that there is a descent in these four miles of distance of one thousand five hundred and thirty-five feet. The ascent, however, between Acchahuarcu and the top of the hill on which we observed, at the Pass of Antarangra, is steeper than this, being three thousand three hundred and fifty-eight feet in six miles.

From Yanacoto, on the western slope of the Andes, to the top of the Pass, is fifty-nine miles; from the top of the Pass to Fort San Ramon, on the eastern slope, which is two hundred and seventy feet higher than Yanacoto, is eighty-eight miles. This gives the ascent of the Andes, on its western slope, at 232 feet to the mile, and on its eastern slope at 152.

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J.t Gibbon del.

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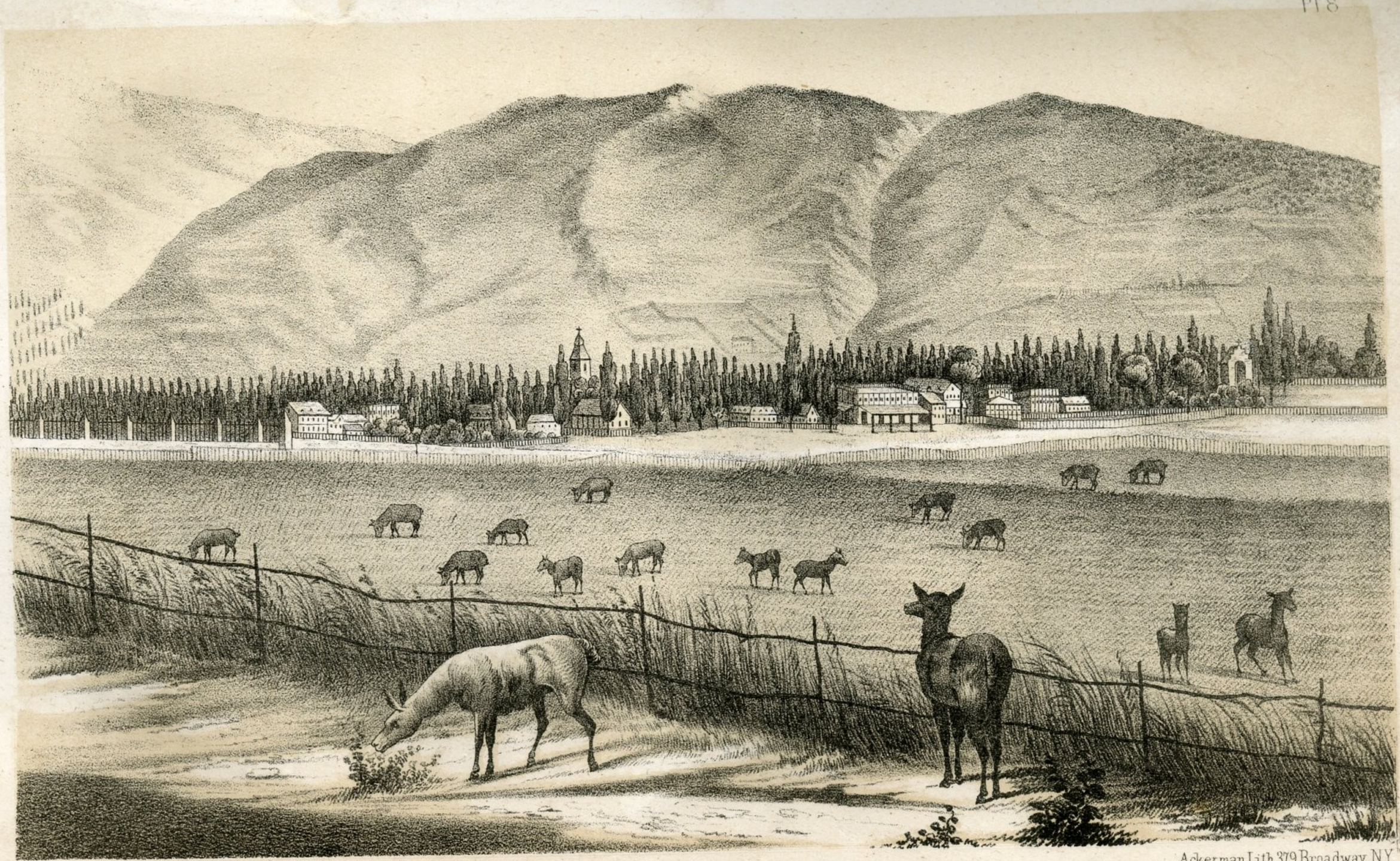

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TARMA.

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Yanacoto is only twenty-eight miles from the ocean that washes the base of the slope on which it is situated. Fort San Ramon, (at nearly the same elevation as Yanacoto,) by the winding of the river, cannot be much less than four thousand miles from its ocean, and in the direct course of the river is at least two thousand five hundred miles. But I am of opinion, from some observations made afterwards with a boiling-point apparatus, that the indications of the barometer, at the eastern foot of the Andes, are not to be depended upon; and that San Ramon has a greater elevation than is shown by the barometer.

The fort is a stockade, embracing about six acres, armed with four brass four-pounders, and garrisoned with forty-eight men. It is situated at the junction of the rivers Chanchamayo and Tulumayo—the former about thirty and the latter forty yards wide—both shallow and obstructed with rocks. The current seemed about five or six miles the hour. A canoe, well managed, might shoot down the Tulumayo as far as we saw it.

The fort was constructed in 1847, under the direction of President Castilla, for the purpose of affording protection to the cultivators of the farms in its rear. It doubtless does this against the unwarlike Indians of this country; but I imagine that North American Indians, actuated by the feelings of hostility which these people constantly evince, would cross the rivers above the fort and sweep the plantations before the soldiers could reach them. The Indians have abandoned all idea of reconquering the territory they have lost, but are determined to dispute the passage of the rivers and any attempt at further conquest. They never show themselves now in person, but make their presence evident by occasionally setting fire to the woods and grass on the hill-sides, and discharging their arrows at any incautious person who may wander too near the banks of the rivers.

Noel told us that many attempts had been made to establish friendly relations with them. In former times the Indians used to advance out of the forest, to the further bank of the river, and hold conversations and exchange presents with the officers of the post. They gave bows and arrows, rare birds and animals, and received in return, knives, beads, and looking-glasses. But these parleys always ended with expressions of defiance and insult towards the whites on the part of the Indians, and frequently with a flight of arrows.

He related to us, that a year or two ago a General Castillo, with some officers, came to visit the fort, and wished to try their skill at negotiation. Accordingly, whilst they were at dinner, the sentinel reported that an Indian had made his appearance; whereupon the party rose from

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the table and went down to the river-side to have a talk. The Indian, after salutations, made signs for a looking-glass, which was thrown over to him; then, for a knife, with which he was also gratified. He then asked for a tinder-box. There being none at hand, Noel went up to his quarters for some. On his return, he met an officer coming up the bank, with an arrow through his arm; and shortly after, another, with one planted deep in his back, between the shoulders. It appears that, as soon as the Indian had received his presents, he drew his bow at the general. The party turned to fly; but a flight of arrows from the forest wounded the two officers; and the one who was shot in the back died of the wound eight days afterwards. These arrow-shots are of frequent occurrence; and several of the soldiers of the fort have been severely wounded. A number of arrows were discharged at some soldiers, who were washing their clothes near the banks of the river, whilst we were here. We picked them up, and the commandant made us a present of them.

These arrows, as are the arrows of all the Indians I have met with, are so heavy that, at a greater distance than twenty or thirty yards, it is necessary to discharge them at an elevation, so that they shall describe a curve in the air; and it is wonderful to see with what precision the Indians will calculate the arc, and regulate the force so that the arrow shall fall upon the object. On the Amazon many fish and turtle are taken with bows and arrows. An Indian in a canoe discharges his arrow in the air. It describes a parabola, and lights upon the back of a fish, which the unpractised eye has not been able to see. The barb, with which the arrow is armed, ships on the end of it, and is held in its place by a cord which wraps around the shaft of the arrow, and is tied to its middle. The plunge of the fish shakes the arrow clear of the barb; the cord unwinds, and the arrow floats upon the water—an impediment to the fish, and a guide to the fisherman, who follows his arrow till the fish or turtle is dead. The motion of the arrow is so slow, and it is so readily seen in its course, that I imagine there would be no danger in the reception of single arrow-shots in front; for an abundance of time is allowed to step aside and avoid them. I have seen boys shooting at buzzards on the beach; and the arrow would alight upon the very spot where the bird had been sitting, some seconds after he had left it.

Whilst here, we visited the haciendas of the Brothers Santa Maria, Padre Saurez, and Zapatero—all, I believe, inhabitants of Tarma. That of the last seemed the largest, and the best order of any that I had yet seen. A description of the method of cultivating the staples of the country practised on this farm, will give an idea of the general system of farming in the Montaña.

Zapatero has about one hundred acres cleared, and most of it planted in cane, coca, yucca, pine-apples, plantains, coffee, and cotton. The farm employs a mayordomo, or steward, and four resident laborers. These are serfs, and cost the employer their support and seven dollars a year each for their contribution to the government, or poll tax. When more land is to be cleared, or the coca crop gathered, laborers are hired from the neighboring villages of Tarma, Ocsabamba, or Palca, at nominal wages of half a dollar a day; but their support is charged to them, at such prices as to swallow up nearly all the wages. A sheep, for example, is charged to them at three dollars: its price in Tarma is one; yucca at thirty-seven and a half cents the arroba, of twenty-five pounds; potatoes at fifty cents; maize at sixty-two and a half cents. This is the maize of the hacienda; if it is supplied from the Sierra it is one dollar and fifty cents. The laborers who live on the estate seem contented with their lot; they dwell in small, filthy cane houses, with their wives and children; do very little work, and eat *chalona*, (or dried mutton,) *charqui*, (or jerked beef,) yucca, cancha, sweet potatoes, and beans; and drink "*huarapo*," (the fermented juice of the cane,) and sometimes a glass of bad rum made from it. They occasionally desert; but if they do this, they must get some distance off, or custom, if not law, would return them as debtors to their masters.

Sugar-cane is propagated, not from seed but from the top joints of the old plant, and is planted at the commencement of the rainy season in September. It is ready for cutting in a year; it yields again every ten months, improving in quality and size every crop for a number of years, according to the quality of the land and the care bestowed upon it. It will continue to spring up from the roots for fifty or sixty years, with one or two light workings with hoes in the year. The field is set fire to after every cutting, to burn up the rubbage, weeds, &c. The average height of the cane is about ten feet, though I have seen a stalk of sixteen feet.

Two men to cut and two to carry, will supply a mill called "*Trapiche*," which consists of three upright wooden rollers, in a rude wooden frame. These rollers are cogged and placed close to each other. The head of the middle one extends above the frame, and is squared, so as to allow the shipping on it of a long beam, to the end of which an ox is harnessed, which, walking in a circle, gives motion to the rollers. The end of the cane is placed between the rollers, and is drawn in and crushed by them; a wooden trough is placed below, to catch the juice.

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Such a mill will yield fifteen hundred pounds of *caldo* or juice in a day. These fifteen hundred pounds will give from two hundred and fifty to three hundred pounds of sugar, which is worth in Tarma twelve and a half cents the pound.

Sugar-cane is the most valuable and useful product of the Montaña. The leaves of the cane, when green, serve for food for the cattle; when dry, to make wrappings for the *chancaca* and sugar. The crushed stalk is used as fuel for the oven. The hogs fatten on the foam at the top of the boiling. From the first boiling is made the chancaca or brown sugar cake, which is eaten after dinner by almost all classes, and in great quantities by the lower class; it is worth six and a quarter cents the pound in Tarma. From one thousand pounds of the caldo boiled ten hours, is made four hundred pounds of chancaca. Very little sugar is yet made in the Montaña of Chanchamayo; indeed, I did not see a nearer approach to it than chancaca in all the route.

Coca is a bush of about four feet high, producing a small light-green leaf, which is the part used. The blossom is white, and the fruit a small red berry. The seed is sown in beds at the end of the rainy season—about the first of March. The earth should be well broken up and cleaned. Arbors of palm leaves are frequently built over the young shoots to protect them from the sun, and they are watered, if it continues clear, for five or six days. It is transplanted in September, a year and a half after planting, and gives its first crop in a year, and every four months thereafter. The bush, if not destroyed by ants, will continue to give leaves for many years. Sometimes, but rarely, the leaves wither and the crop fails. It is necessary to gather the leaves and dry them as quickly as possible, and, if a shower comes on, to gather them up at once, as they are injured by getting wet. Every hundred plants will give an arroba of leaves, which is worth, in Tarma, from six to seven dollars. Some persons do not transplant, but sow several of the seed together, and, when they come up, pull up all but the one most flourishing, and leave that in its original place.

The leaf of this plant is to the Indian of Peru what tobacco is to our laboring classes in the South—a luxury, which has become a necessity. Supplied with an abundance of it, he sometimes performs prodigies of labor, and can go without food for several days. Without it, he is miserable and will not work. It is said to be a powerful stimulant to the nervous system, and, like strong coffee or tea, to take away sleep; but, unlike tobacco and other stimulants, no one has known it to be injurious to the health. Von Tschudi thinks that an immoderate use of it is injurious, but that, taken in moderation, it is in

no way detrimental to health; and that without it the Peruvian Indian, with his spare diet, would be incapable of going through the labor which he now performs. The coca plant he therefore considers as a great blessing to Peru.

He relates that an Indian, employed by him in digging, worked hard for five nights and days without intermission, except for two hours each night—and this without food. Immediately after the work the Indian accompanied him on a two days' journey of twenty-three leagues on foot, and then declared that he was ready to engage in the same amount of work, and go through it without food, if he were allowed an abundance of coca. This man was sixty-two years of age, and had never been sick in his life.

Coffee is propagated from suckers or slips, and it is necessary to protect the plants from the sun by cultivating the broad-leaved plantain among them till they have grown up to about four feet in height. No care, except an occasional cleaning about the roots, is taken of them here, and yet the finest coffee I have ever drunk was from this district. The bush grows to seven or eight feet in height, and is very beautiful in appearance. It has a small and very dark green leaf, pure white blossoms, and green, red, and dark purple fruit on it at the same time. It gives its first crop in two years; but this is small in quantity, and indifferent in quality. The bush is not in perfection until four or five years after planting, and will then last for an indefinite period. The fruit has the size and appearance of a small cherry. Two seeds are contained in each berry. Each seed is wrapped in a thin paper-like envelope, and both together are covered with another, and then surrounded by a sweet, pleasant-tasting pulp, which is covered with a thin skin. Having no machines for getting rid of this pulp, the cultivators gather the fruit, dry it in the sun, and then soak it in water till all the envelopes come off, except the paper-like skin surrounding each seed. The seeds are again dried in the sun, and sent to market with this skin on. It is worth eight dollars the hundred pounds in Tarma. In Lima it generally commands twenty, and sometimes twenty-five and twenty-seven dollars, on account of its great superiority to the coffee of Guayaquil and Central America, which is generally used there.

"*Cotton*" may be planted at any time. It does not grow on a bush or plant, as with us, but on a tree some eight or ten feet high. It gives its first crop in a year, and will continue to give for three years; after which the tree dries up, and it is necessary to replant. It bears cotton all the time; but this is not good nor gathered during the rainy season.

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I could not ascertain how much cotton a tree will give in its lifetime, but, from the quantity of blossoms and bolls I saw on them, I should think its yield was great. The quality, particularly that of Chanchamayo, is very superior. It is the black-seed cotton, and when picked off leaves the seed perfectly bare and clean.

There is also nankeen-colored cotton here, (the tree seeming in every respect like that of the white;) and afterwards, in Brazil, I saw green-seed cotton, in which the seed (generally seven in number for each boll, or rather for each division of it, for the boll seemed to hold the cotton in four distinct parts) were aggregated in a single knot, and enveloped by the cotton. An active man will pick one hundred pounds of cotton a day.

"*Yucca*," (cassava root,) which is grown from the stalk of the plant, is planted at any time. It yields in nine months. The plant runs up to fifteen or twenty feet in height, with about the thickness of a man's wrist. It is difficult to distinguish this plant, or its fruit, from the mandioc. The mandioc is called in Peru "yucca brava," or wild yucca; and this yucca dulce, or sweet yucca. This may be eaten raw; the juice of the other is a deadly poison. The yucca answers the same purpose in Peru that the mandioc does in Brazil. It is the general substitute for bread, and roasted or boiled is very pleasant to the taste. The most common drink of the Indians, called "masato,"* is also made from it. Each plant will give from twenty to twenty-five pounds of the edible root, which grows in clusters like the potato, and some of which are as long and thick as a man's arm.

Three crops of "*Indian corn*" are made in the year. It is of good quality, but much care is necessary to preserve it from weevil and other insects after it is gathered and put away. It is generally placed in an upper story of a house, and a fire is kindled underneath from time to time to smoke it, or it will all be destroyed.

"*Platanos*"—which is the general name for all kinds of plantains, or bananas, of which last there are several species, called respectively "*guineas*," *de la isla*, &c.—are the most common fruit of the country. The people eat them raw, roasted, boiled, baked, and fried. There can be no dinner without them; and a vile rum is also made of them. By

*Masato is made from the yucca by rasping the root to a white pulp, and then boiling it. During the boiling the Indian women, who are making it, take portions into their mouths, chew it, and spit into the pot. After it is sufficiently heated it is put into large earthen jars, covered and suffered to ferment. When used it is taken out of the jar by the handful, mixed with water in a gourd, stirred with the fingers and drunk. It is a disgusting beverage, and powerfully intoxicating.

the Indians the fruit is generally cut green and roasted. It is propagated from suckers or young bulbs, and gives fruit with such facility and abundance as to foster and minister to the laziness of the people, who won't work when they can get anything so good without it.

I have frequently thought that a governor would do a good act, and improve the condition, or at least the character, of the governed, who would set fire to, or grub up every "platanal" in his district, and thus compel the people to labor a little for their bread.

The other fruits are *pine-apples*, of tolerable quality, which doubtless would be very fine with care and attention; *sour sop*, a kind of bastard *chirimoya;* and *papayo*, a large fruit, about the size of a common musk-melon, with a green skin and yellow pulp, which is eaten, and is very sweet and of delicate flavor. It has seed like the musk melon, and grows under the leaves of a kind of palm in clusters like the cocoanut. There are a few orange trees, but no fruit. An orange tree does not give good fruit under six years, and most of the haciendas have been under cultivation but three.

The only farming utensils used in Chanchamayo are short coarse sabres, with which weeds are cut up, and holes dug in the earth in which to plant the seed.

This is not a good grazing country, though there were some cattle belonging to the fort which seemed in good condition. All the meat used is brought from Sierra. It seems difficult to propagate cattle in this country. All the calves are born dead, or die soon after birth with a goitre or swelling in the neck. I had no opportunity of investigating this; but I saw afterwards, in an account of a missionary expedition made by an Italian friar, Father Castrucci de Vernazza, to the Indians of the Pastaza, in 1846, "that cattle were raised with great difficulty about Mayobamba, on account of the 'subyacuro,' a species of worm, which introduces itself between the cuticle and cellular tissue, producing large tumors, which destroy the animal."

The houses on the haciendas are built of small, rough hewn, upright posts, with rafters of the same forming the frame, which is filled in with wild cane (caña brava,) and thatched with a species of narrow leafed palm, which is plaited over a long pole and laid athwart the rafters. The leaves lie, one set over the other, like shingles, and form an effectual protection against the rain and sun; though I should think the rain would beat in through the cane of the sides, as few of the houses are plastered. The commandant of the fort was anxious to have his buildings tiled, as this palm thatch, when dry, is exceedingly inflammable; and he felt that the buildings of the fort were in constant danger from

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the not distant fires of the savages. Señor Zapatero told me that he had contracted with a workman to build him a large adobe house on his hacienda, well fitted with doors and windows of good wood, and tiled, to make it fire-proof, for eight hundred dollars. The same house in Tarma would cost him between three and four thousand, on account of the exceeding difficulty of getting the wood from the Montaña. He is a Catalan, and seems a resolute fellow. He thinks that the government may withdraw the troops from the fort at any time; but says that he has four swivels, which he means to mount around his house; and, as he has expended much labor and money on his hacienda, he will hold on to the last extremity, and not give up his property without a tussle.

It is a pity that there are not more like him, for many acres of fine land are lying uncultivated in Chanchamayo on account of this fear; and several of our Tarma friends offered us title deeds to large tracts of land there, because a feeling of insecurity regarding the stability of the government prevented them from expending time and money in the cultivation of them. Another such administration as that just closed under President Castilla will dissipate this apprehension; and then, if the Peruvian government would invite settlers, giving them the means of reaching there, and appropriating a very small sum for their maintenance till they could clear the forest and gather their first fruits, I have no doubt that fifty years would see settlements pushed to the navigable head waters of the Ucayali, and the colonists would find purchasers for the rich and varied products of their lands at their very doors.

June 23.—We started on the return to Tarma, accompanied by the commandant and his servant. We walked up a part of the hill at Rio Seco. This is very hard work. I could not stand it more than half way, and made the mule carry me over the rest. It takes one hour to ascend, and an hour and a quarter to descend. Camped at Utcuyacu.

June 24.—Missing my saddle bags, which had some money in them, we sent Mariano, (our Tarma servant,) accompanied by the servant of the commandant, back to a place some distance the other side of the big hill, where the saddle bags had been taken off to adjust the saddle. He started at six; we at eight, following our return track. We made the longest and hardest day's ride we had yet made; and were much surprised at being joined by the servants with the saddle-bags by nine p. m. They must have travelled at least thirty-six miles over these terrible roads, crossing the big hill twice, and ascending quite two thousand feet. Gibbon did not believe it. He thought—and with

much probability—that the boy had hid the saddle-bags at Utcuyacu, and after we left there had produced them and followed in our track, persuading or bribing the soldier to keep the secret. The commandant, however, thought his servant incorruptible, and that this was no great feat for these people.

One of our peons carried on his back, for a whole day, (fifteen miles,) a bundle of alfalfa that Gibbon could not lift with ease, and pronounced, upon trial, to be heavier than I am, or upwards of one hundred and twenty-five pounds.

June 26.—Discharged Mariano because we could not trust him. Though clever and active, he is neglectful and dishonest. We thought it rather hard that the "Cura" should have recommended him to us, as his character was notorious in the town. We believed that the "Cura," with the people generally, was glad to get rid of him, and was disposed to palm him off on any body.

We delighted the Tarma people with our favorable reports of the Chanchamayo, and they loaded us with civilities and kindness. They did not like the idea of my visiting the Montaña of Pozuzu and Mayro; and seemed to fear that I might find there a better communication with the Amazon.

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CHAPTER V.

Division of the party—Acobamba—Plain of Junin—Lake Chinchaycocha—Preservation of potatoes—Cerro Pasco—Drainage of the mines—Boliches.

Gibbon and I had long and earnest consultations about the propriety of dividing the party; and I now determined to do so, giving to him the task of exploring the Bolivian tributaries, while I took the headwaters and main trunk of the Amazon. It was a bold, almost a rash determination, for the party seemed small enough as it was; and we might readily encounter difficulties on our route which would require our united exertions to overcome. I had many misgivings, and told Gibbon at first that it seemed midsummer madness; but the prospect of covering such an extent of territory; of being enabled to give an account of countries and rivers so little known; and the reflection that I need not abandon routes that I had looked upon with a longing eye, were so tempting that they overrode all objections; and we set about making our preparations for the separation.

We divided the equipage, the tocuyo, or cotton cloth, (which we had not yet touched,) the hatchets, the knives, the beads, the mirrors, the arms and ammunition. I gave Gibbon fifteen hundred dollars in money, and all the instruments, except some thermometers and the boiling-point apparatus, because I was to travel a route over which sextants and chronometers had been already carried; and he might go where these had never been. I directed him to hire a guide in Tarma, and, so soon as Richards (who was still sick) should be able to travel, to start for Cuzco, and search for the headwaters of the "Madre de Dios."

On the 29th, we dined with General Otero, this being his wife's birthday and festival of St. Peter. The General, being an Argentine born, gave us the national dish—the celebrated *carne con cuero*, or beef, seasoned with spices, and roasted under ground in the hide, which is said to preserve its juices, and make it more palatable. I observed that the soups and the stews were colored with "*achote*." This is the *urucu* of the Brazilians, of which the dye called annatto is made. It grows wild in great abundance all over the Montaña, and is extensively used by the Indians for painting their bodies and dyeing their cotton cloths. It is a bush of eight or ten feet in height, and bears a prickly burr like

our chincapin. This burr contains a number of small red seeds, the skin or covering of which contains the coloring matter.

The General gave us some "*quinua*," the seed of a broom-like bush, which, boiled in milk, makes a pleasant and nutritious article of food. The grains are something like rice, though smaller, and contain a sort of mucilaginous matter. He also gave us some flower seeds, and valuable specimens of silver ore from his mines at Cerro Pasco. He has large flocks of sheep, the wool of which he sends to Lima; and has introduced the Merino, which thrives. He gave us some asbestos from Cuzco, and stalactites from a cave on a sheep farm, which, he says, the sheep are fond of licking, and which Von Tschudi pronounced to contain Epsom salts. I could detect no taste, and thought it a kind of magnesia. We parted from our agreeable host and kind friend with regret.

July 1.—I started at noon with Ijurra and Mauricio, accompanied by Gibbon and Captain Noel, with one of the Señores, Sta. Marias. At General Otero's gate, Noel left us. A very pleasant gentleman this; and I shall long remember his kindness. Soon after, Gibbon and I lingered behind the company; and at the entrance of the valley of the Acobamba, which route I was to take, we shook hands and parted. I had deliberated long and painfully on the propriety of this separation; I felt that I was exposing him to unknown perils; and I knew that I was depriving myself of a pleasant companion and a most efficient auxiliary. My manhood, under the depressing influence of these feelings, fairly gave way, and I felt again that "*hysterico passio*," that swelling of the heart and filling of the eyes, that I have so often been called upon to endure in parting from my gallant and generous comrades of the navy.

He returned to make the necessary arrangements for his expedition. We crossed the Chanchamayo by a stone bridge, and passed through the village of Acobamba. This town contains about fifteen hundred or two thousand inhabitants; but, like all the towns in the Sierra at this season, it appears deserted—no one in the streets, and most of the doors closed. The road is a steady and tolerably smooth ascent of the valley, which is narrow, pretty, and well cultivated. As usual, the hills facing the north are bare and rugged; those facing the south present more vegetation, but this is scant. Cactus and long clump grass run to within two-thirds of the top, and then the rock shoots perpendicularly up in naked majesty.

Three miles above Acobamba we passed the village of Picoi, which has its plaza, church and cemetery, with about one hundred houses.

Six miles further brought us to Palcamayo, a village of one thousand

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inhabitants, belonging to the "Doctrina" of Acobamba. A justice of the peace, a good-looking Indian, whom we encountered sitting at the door of a grog-shop in the plaza, conducted us to the house of the alcalde. We found this worthy drunk, and asleep on the floor, and were much annoyed with the attentions of another individual, who had a very dirty poultice on his jaws; this was his worship's secretary, who was in little better condition than his patron. Two drunken "*regidores*" came in to see us; and it seemed that all the magistracy of Palcamayo had been "on a spree." They required the money of us before they would get us or our cattle anything to eat.

It would be difficult to find a clearer sky and a purer atmosphere than we had here. The sky, at twilight, looked white or gray, rather than blue; and I thought it was cloudy until my eye fell upon the young moon, with edges as distinct and clear as if it were cut out of silver, and near at hand. The elevation of Palcamayo is ten thousand five hundred and thirty-nine feet above the level of the sea.

July 2.—Thermometer, at 6 a. m., 37; clear and calm. Three miles above Palcamayo we left the maize and alfalfa, and encountered potatoes and barley. The road a league above this point turns sharp to the westward, and ascends a steep and rugged "*cuesta.*" This brought us out upon a small plain, bounded by low hills, and dotted with small detached houses, built of stone and covered with conical roofs of straw. They were circular, and looked like bee-hives. The plain was covered with a short grass, and many tolerably looking cattle and sheep were feeding on it. A small stream, coming from the westward, ran through its midst. The water had been carried by a canal half-way up the sides of the hills that bounded the plain to the northward, so as to enable the people to irrigate the whole plain. Where the water had broken through the canal, and spread itself over the side of the hill, it had frozen, and the boys were amusing themselves sliding down it.

At the western edge of the plain is the village of "*Cacas,*" of two hundred and fifty or three hundred inhabitants. The people were celebrating the festival of St. Peter, for they are not particular about days. The church was lighted and decorated with all the frippery that could be mustered; and preparations were making for a great procession. There were two Indians, or Meztizos, dressed in some old-fashioned infantry uniform, with epaulets; flaming red sashes, tied in monstrous bows behind, and white gloves. (The cocked hats, for size and variegated plumage, beggar description.) These were evidently the military part of the procession; one was mounted on a little shaggy nag, with his sword hanging on the right-hand side; and the other was strutting

about, nearly buried in his cocked hat, while just fourteen men were employed in caparisoning his horse. The drinking had already commenced; most of the population were getting drunk fast, and I have no doubt there was a grand row that night.

Drinking seems a very general vice amongst the inhabitants of these wet, cold, and highly-elevated plains. The liquor is invariably the Pisco or Ica brandy, made in that province. It is pleasant to the taste and of good quality. In the Montaña we had often occasion to regret the exchange of this for new-made cane rum.

The hills that bound the plain on the west have two salt springs, from which the inhabitants of the village get their salt by evaporation. The hill over which we rode is called the "*Cuesta de la Veta,*" because travellers suffer from this sickness in passing it. As I had felt nothing of it, even at the Pass of Antarangra, I watched very closely for any symptoms of it here; but perceived none, though I sucked a cigar all the way to the top. The road to the top of the Cuesta is about three miles in length, and its ascent brought us to the historical plain of Junin, where Bolivar, on the 6th of August, 1824, gave the Spaniards a heavy and very nearly conclusive overthrow. Half an hour's ride over the plain brought into view the Western Cordillera, the Lake Chinchaycocha, and the pyramid erected by Mariano Rivero (then prefect of the province) to commemorate the battle. It stands off to the left of the road about a league, and is at the foot of a little hill, where the liberator stood to direct the fight; it is white, and seemed seventy or eighty feet high. Our day's ride of eighteen miles brought us to the town of Junin, where we took lodgings in the house of the governor; more drunken people there.

July 3.—Junin is a village of one thousand inhabitants, situated about a mile and a half from the southern extremity of the lake Chinchaycocha, and twelve thousand nine hundred and forty-seven feet above the level of the sea. This lake is twenty miles long, in a N. W. and S. E. direction, and has an average breadth of about six miles. It is said to discharge its waters into the Amazon by the river of Jauxa, which we crossed at Oroya, and which is a tributary of the Ucayali.

The inhabitants of Junin, and the other towns of this plain, are herdsmen. They raise cattle for the supply of Cerro Pasco and Tarma, and mules for beasts of burden. Their houses are built of mud and straw; and they eat mutton and *macas*, (a root of the potato kind, but looking, and when boiled tasting, more like a turnip.) The people of these regions find it very difficult to procure vegetables, as quinua and barley

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will not grain, nor potatoes grow, in the wet soil and cold atmosphere of the plain. They therefore have to resort to means for preserving the potato and its varieties, which are got from the valleys of the Andes. These means are, generally, drying and freezing; and they make a variety of preparations from the potato in this way. The macas are simply exposed to the frost and sun for a number of days, and then put away in a dry room. The inhabitants make a sort of soup or sirup of them, the smell of which, Rivero says, "is a little disagreeable to people unaccustomed to it," (it is really very offensive;) and it is the general opinion that it is a stimulant to reproduction.

"*Caya*" is made from the *oca* and the *mashua*, (a variety of the oca,) by putting them in water till they rot, and then exposing them to the sun and cold. This, when cooked, smells worse than the macas, and no stomach but that of an Indian or a beast could possibly tolerate it.

There are two kinds of "*chuno*." One (the black) is made from the common potato by soaking it some days in water, then pressing it to express all the moisture, and freezing it. The white (called *moray*) is made from a large, bitter potato, which abounds in the departments of Junin, Cuzco, and Puno. The potatoes are put in water, in a bag, at the setting of the sun, and taken out before sunrise. This operation is carried on for fifteen or twenty days. It is an especial condition of this chuno's turning out well that it shall be put in water after sunset, and taken out before sunrise; for, if it is touched by the sun, it immediately turns black. It is then pressed and exposed to the sun for a few days.

"*Chochoca*" is the common potato, first cooked and peeled, and then frozen. This and the chuno are healthy and nutritive articles of diet.

I quote these means of preserving the potato and its varieties from Rivero, who thinks that these articles of food will, in time, become of great importance, particularly in the supply of the army and navy, and for long journeys or voyages; and that if the European nations knew of these productions, and the means of preserving them, they would draw great advantages from the knowledge.

The plain, about forty-five miles long, and from six to twelve broad, is generally wet, and in some places marshy. The soil is gravelly, with a light covering of mould, producing a short grass, scarcely adequate for the support of the flocks, which are indeed of small size, but sometimes fat and good. A great number of large beautiful waterfowl, including the scarlet flamingo and several varieties of snipe, frequent the banks of the lake and marshy places. The people cut their supply of fuel from the turf of the bogs, in the dry, and stack it up for use in the rainy season. There is said to be much thunder and lightning here at the

commencement of the rainy season, (about the first of October,) and the lightning frequently falls on a hill about four miles to the eastward of the town, where the inhabitants say there is much loadstone. The plain is about thirteen thousand feet above the level of the sea. It has a gentle slope downwards from west to east. I found the difference in elevation (by temperature of boiling water) between the villages of Junin and *Ninaccaca* (the latter about twenty miles to the west of the former) to be four hundred and forty-five feet.

The road onward from Junin runs not far from the banks of the lake. On the left we had the grand snow-covered domes and pinnacles of the Western Cordillera sleeping in the sunlight, while clouds and storm enveloped the Eastern. About 2 p. m., a breeze from the northward brought some of the storm down upon us. It snowed fast; the flakes were small and round, like hail, but soft and white. The thermometer, which was 54 at the commencement of the storm, fell, during its continuance of ten minutes, to 46. We found an overcoat very comfortable.

About fifteen miles from Junin we passed the village of *Carhuamayo*. Here I saw the only really pretty face I have met with in the Sierra, and bought a glass of pisco from it. The road between Junin and Carhuamayo is a broad and elevated one, built of stones and earth by the Spaniards. Without this the plain would be impassable in the rainy season. Six miles further we stopped at the tambo of Ninaccaca.

July 4.—The village of Ninaccaca, of two or three hundred inhabitants, lies off to the right of the road, on which the tambo is situated, about half a mile. I would have gone there, but I was desirous of sleeping in a tambo, for the purpose of testing the accounts of other travellers who complain so bitterly of them. We were fortunate enough to have the tambo to ourselves, there being no other travellers; and I had quite as comfortable a time as in the alcalde's house at Palcamayo, or in that of the governor of Junin. My bed is generally made on the baggage in the middle of the floor; while Ijurra takes to the mud standing bed-places which are to be found in every house. Last night I woke up, and finding him very uneasy, I asked "if he had fleas up there." He replied, with the utmost *sang-froid*, and as if he were discussing some abstract philosophical question with which he had no personal concern whatever, that "this country was too cold for fleas, but that his bed-place was full of lice." It made my blood run cold; but long before I got out of the mouth of the Amazon I was effectually cured of fastidiousness upon this or any similar subject.

We were somewhat annoyed by the attentions of the master of the

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house, who was very drunk. His wife told us next morning that he came near killing her with his knife, and would infallibly have beaten her, but that she told him "those strangers were soldiers, and would shoot him if he did." Her naïve way of telling how she managed the man, and got off from the beating, was quite amusing. The accent of these people is a sort of sliding drawl that makes every voice alike. They use an imperfect Quichna or Inca language, which I am told is only spoken perfectly in the neighborhood of Cuzco.

Our route now approached the Western Cordillera fast. About three miles from the tambo the plain began to be broken into rolling hills. The direction of the road, which had been W. N. W., changed to N. W. by N., and crossed them. After crossing a range we stopped to breakfast at a collection of a few huts, where I was amused at an instance of the apathy of the people. A very common reply to the inquiry of the traveller if he can have such and such things, is "*manam cancha*," (there is none; we haven't it.) We rode up to the door of a hut, the mistress of which was sitting "knitting in the sun" at the back of it. She heard our horses' tread, and too lazy to change her position, without seeing us or ascertaining if we wanted anything, she screamed out "manam cancha." Ijurra abused her terribly; and we had our water boiled (which was all we wanted) at another hut. The *Viuda* pass of the Cordillera, which is generally crossed by travellers between Lima and Cerro Pasco, was in view from this place, bearing S. 30° W. Immediately after starting, we began passing haciendas for the grinding of ores and getting out silver. They are situated on small streams that come from either the Eastern or Western Cordillera, and that find their way into Lake Chinchaycocha. They all seem dry at this season; and none of the haciendas are at work. Passed the old village of Pasco. This was once the great mining station, but, since the discovery of the mines at the Cerro, it is falling into decay. Three miles from this the country becomes more hilly and rocky, losing the character of Pampa. The passage of a low, but abrupt chain of hills, brings the traveller in view of Cerro Pasco. The view from this point is a most extraordinary one. I can compare it to nothing so fitly as the looking from the broken and rugged edges of a volcano into the crater beneath. The traveller sees small houses, built, without regard to regularity, on small hills, with mounds of earth and deep cavities in their very midst; and mud chimneys of ancient furnaces, contrasting strikingly with the more graceful funnel of the modern steam engine; the huge cross erected on the hill of Sta. Catalina, near the middle of the city, which his fancy may suppose placed there to guard, with its holy presence,

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the untold treasures beneath; two beautiful little lakes, only divided by a wide causeway at the southern extremity of the crater, and another embedded among the hills to the westward ; hills (on one of which he stands) of five hundred feet in height, with bold white heads of rock, surrounding these ; and the magnificent Cordillera from the right and left overlooking the whole.

These are the objects that strike the eye of the traveller at his first view. As he rides down the hill, he sees the earth open everywhere with the mouths of mines now abandoned; he is astonished at their number, and feels a sense of insecurity as if the whole might cave in at once and bury him quick. He rides into the narrow, ill-paved streets of the city, and, if he can divert his attention for a moment from the watching of his horse's footsteps, he will observe the motliest population to be met with anywhere out of the dominions of the Sultan. I believe that he may see, in a single ride through the city, men of all nations, and of almost every condition; and if he don't see plenty of drunken people, it will be a marvel.

I was delighted when we turned into the patio of the house of the sub-prefect of the province, Don Jose Mier y Teran, and escaped the rude stare and drunken impertinence of the Indians, thronging the streets, and doors of the grog-shops. This gentleman, whose kindness we had experienced at Tarma, gave us quarters in his house, and pressed us to make ourselves at home, to which his blunt, abrupt, and evidently sincere manners particularly invited.

After a wash, to which the coldness of the weather and the water by no means invited, I put on my uniform in honor of the day, and went out to see Mr. Jump, director of the machinery, and Mr. Fletcher, an employé of the *Gremio*, (Board of Miners,) to whom I brought letters of introduction from Lima. These gentlemen received me with great cordiality. Mr. Jump offered me a room in his house, and Mr. Fletcher handed me a number of letters from friends at home, at Lima, and at Santiago. These letters were cordial medicines to me ; I had arrived cold, sick, and dispirited, and but for them should have passed the first night of mental and physical suffering that I had been called upon to endure since leaving Lima.

July 6.—Rain nearly all night ; I was cold and sick, and sat by the fire all day, trying to keep myself warm. The houses in Cerro Pasco are generally built of stones and mud, and covered in with tiles or straw ; most of them have grates, with mud chimneys, and are plentifully supplied with good coal, both bituminous and hard. Mier says that if the

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place owes nothing else to the Pasco Peruvian Company, it owes it (at least) a debt of gratitude for the introduction of the grates. I found, however, very little comfort in them; for the houses are so open about the doors and windows, that while my toes were burning, my back was freezing; and one has to be constantly twisting round, like a roasting turkey, to get anything of their benefit. My companion, Ijurra, whose fathers were rich miners and powerful men in these parts, had many visitors. The talk of the company was of nothing but the mines, and incessant was the complaining (which I have heard elsewhere) of the miseries and uncertainties of the miner's life. All seem to agree that it is a sort of gambling, in which most lose; but there is the same sort of feverish infatuation in it that there is in gaming with cards, and the unlucky player cannot but persevere, in the hope that the luck will change, and that the *boya* (striking the rich vein,) like "the bullets and bragger oldest," will come at last.

I went out with Mr. Jump to look at the town. It was a most curious looking place, entirely honey-combed, and having the mouths of mines (some two or three yards in diameter) gaping everywhere. From the top of the hill called Sta. Catalina, the best view is obtained of the whole. Vast pits, called "*Tajos*," surround this hill, from which many millions of silver have been taken; and the miners are still burrowing, like so many rabbits, in their bottoms and sides. I estimate that the tajo of Sta. Rosa is six hundred yards long, by four hundred broad and sixty deep; those of the "*Descubridora*" and ——— are about half as large. The hill of Sta. Catalina is penetrated in every direction; and I should not be surprised if it were to cave in any day, and bury many in its ruins. The falling in of mines is of frequent occurrence; that of "*Mata-gente*" (kill people) caved in years ago, and buried three hundred persons; and four days ago a mine fell in and buried five: four have been recovered, but one is still incarcerated, and the people are now hard at work for him. We visited a machine-shop, and the hacienda for grinding ores by steam, that Mr. Jump is erecting near the city. I should think the hacienda would be a good speculation; for the ores, which have now to be transported on the backs of mules and llamas for a distance of four, five, or six miles to the haciendas, may be taken to this by a railroad in a few minutes; and Mr. Jump believes that he shall have water enough for his boilers all the year; whereas the other haciendas cannot grind for more than three parts of the year. The cost of the machinery, which is cast in England, in parts equal to a mule-load, and transported from Lima on the backs of these animals; the pay of machine and

engine drivers; the digging of ditches for the supply of water; fuel; and all such expenses to which the other haciendas are not subject, I could not well calculate.

Mr. Fletcher, who has lived a long time in Cerro Pasco, says that a purchaser of the ores (making sure of his "*guias*" or experiments on the yield of the ore) can count his gains as easily and certainly as he can the dollars in his pocket; that those men who lose are either the lazy and the careless, or the speculators and lookers after rich ores, to make a fortune at once. The most common and easily obtained ores here are called "*cascajos*." They do not require roasting, as do the ores at Párac; but otherwise the silver is got out in the same manner as I have described it to be at that place. Instead, however, of the ground ore being placed in small piles, and, after being mixed with salt and mercury, trodden with the feet, and worked with hoes as it is at Párac, a large quantity is placed in a circular enclosure, with a stone floor and mud wall, and it is trodden with horses (as we used in old times to "tread wheat" in Virginia) until the amalgamation is completed. The general yield of the cascajos is six marks to the caxon. Their cost, according to the hardness of the rock in which they are enclosed, or their distance from the surface, is from six to sixteen dollars. Here is a calculation to show that, even at their highest price, of sixteen dollars, (being assured by the guia that the caxon will yield six marks,) their working, or benificiation, as it is called here, will pay. The complete amalgamation in the "*circo*," or circle, requires from forty to fifty days.

Dr. Circo of six caxones, *a* $16 caxon - - - -	$96 00
150 mule loads, (transportation to the hacienda,) *a* 25 cents - - - - - - - - - -	37 50
Grinding, *a* $10 - - - - - - - - -	60 00
Magistral, (calcined iron pyrites,) 1 arroba - - -	1 00
40 arrobas of salt, *a* 50 cents - - - - -	20 00
5 tramplings by horses, *a* $5 - - - - - -	25 00
Working and washing the amalgam - - - -	11 50
Loss of 35 lbs. quicksilver, *a* $1 - - - - -	35 00
	286 00
Cr. 6 caxones, at 6 marks caxon, 36 marks. (Mark is worth in Cerro Pasco $8 50) - - - - - -	306 00

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I had this statement from Mr. Jump. I did not examine it at the time, but I observed afterwards that there is no charge for driving off the mercury of the amalgam, and leaving the pure silver, which is worth eight dollars and fifty cents the mark. This would amount to six dollars more, leaving the profit to the purchaser, for the two months that he has been engaged in getting his silver, but fourteen dollars. This, of course, is but a poor business; for, though any quantity of the ore may be purchased, there are not haciendas enough to grind, or circos to amalgamate, a sufficient quantity to make the speculation good; and thus many millions of this ore are left unworked. The ore, however, rarely costs sixteen dollars, and will frequently give seven or eight marks to the caxon.

Statement showing the cost of a mark of silver placed on board ship for exportation:

Cost of a mark of piña in the Cerro	$8 50
Impost for steam machines for pumping water from the mines. (This has been 12½ cents, and soon will be 50 cents)	25
Socabon (or great drain) duty	12½
Public works	6¼
Government or export duty	50
Mineral tribunal duty	12½
Loss in running the piña into bars	12½
Carriage to Lima, and other petty expenses	6¼
Profit of the purchaser in the Cerro	37½
	10 12½

Twelve dwts. is the standard of pure silver in the mint at Lima. All the bars that go from this place are marked 11.22. They are assayed in Lima. If they come up to that standard they are worth $8.6746 the mark. For every grain under this 11.22 there is a deduction in the price of .0303 of a dollar.

To day there was a meeting of the gremio, to take into consideration a question that had arisen whether the contractors for putting up the steam machinery for draining the mines had fulfilled their part of the contract. A short history of the draining of these mines may not be uninteresting, and will at all events put persons on their guard how they make contracts with miners.

The mines of Cerro Pasco were discovered in 1630, by an Indian making a fire on some stones and observing melted silver. They were worked, with little or no drainage, and with great success, up to the

year 1780, when the *socabon* (or drain) of *San Judas* was commenced. This is a great ditch of five and a half feet in breadth and six feet ten inches in height, which drains the mines into the lake of San Judas. Its length is about thirty-five hundred feet, and it cost one hundred thousand dollars. It was finished in 1800. This would drain, by percolation, all the mines above it. For those below it, it was necessary to pump the water up by hand. This was found so inefficient a means, (the socabon also not being sufficiently large,) that in 1806 the gremio commenced the construction of the socabon of *Quiulacocha*, eighty-eight feet below that of San Judas, six feet ten inches broad, and eight feet three inches high. The work is continued upon it to this day. The part that I saw is arched, well walled with solid masonry, and the water rushes through it like a small river. Many *lumbreras*, or light holes, are sunk down upon it in various directions to give light and air, and to carry into the socabon the drainage of the neighboring mines.

In 1816, the gremio contracted with two Spaniards, Abadia and Arismendi, for the drainage of the mines by steam machinery. These persons put up three steam machines for working pumps, and the results were very happy, the ores being found much richer the farther down the mines reached. The war of independence broke them up; their miners being taken away for soldiers, and their machines used up for horse-shoes.

In 1825, an English company, styling itself the "*Pasco Peruvian*," undertook the drainage. This company contracted to be paid in ores, which they were to beneficiate themselves. They were never fairly paid. They employed English officials and operatives at high salaries; and after having dug one hundred and ten feet, at a cost of forty thousand dollars, between September, 1825, and January, 1827, they failed. The government then took it up, and gave two thousand dollars monthly towards the work, the miners also taxing themselves twelve and a half cents on the mark of silver obtained. Rivero took charge of the work, and from the first of June, 1827, to the first of January, 1828, he perforated one hundred and twenty-two feet in the socabon, the workmen finding powder and candles, and he supplying tools. In an official statement, afterwards made by Rivero, he shows that to excavate a vara cost him eighty-six dollars, while it cost the Pasco Peruvian Company one thousand dollars; though he says that in the lumbrera of Sta. Rosa the Pasco Peruvian Company found the rock so hard that twelve men could not perforate more than half a vara a month. The socabon at present is eight thousand two hundred and fifty feet long, and three hundred feet below the surface. About a million of dollars have been spent upon it, though it is said it has not really cost so much.

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A few years ago it was determined to try steam again, for the purpose of carrying on the mining below the great drain, and the gremio contracted with Mr. Jump to undertake it. He bound himself to put up four sets of engines, to work those engines for a year at his own expense, and then turn them over to the gremio; the gremio, on the other hand, binding itself to sink the shafts and to pay weekly twelve and a half cents on every mark of silver produced by the mines for a certain length of time, then twenty-five, and then fifty cents, till six hundred thousand dollars were paid.

The work is carried on with unexampled despatch on the part of Mr. Jump, so that now two sets of engines are at work, a third is going up, and the fourth has arrived from England, though the shaft is not yet ready for it. But there are two parties in the gremio, representing distinct interests. One party, of which General Bermudez (at the time of making the contract prefect of the department and ex-officio president of the gremio) is the leader, represents the speculative men, who look for "boyas," and think that great and sudden riches are to be had by draining the mines below the socabon. The other party (and the majority) represents the men who, content with moderate and certain gain, work the cascajos which are generally above the drain, and therefore need no machinery. These men were probably borne down by the influence of Bermudez during his prefecture, and a majority was obtained for the contract; but since his retirement they rise up and say, "It is a hard case that we should contribute to pay for machines that do us no good;" and they seek for means to avoid this. They find it in the wording of the contract; and although they see that the machines are doing, and more than doing, the work required, they take advantage of the wording, and raise the question now under consideration. The words of the contract are, that "he, the contractor, shall bind himself to put up four sets of engines, each set to consist of two engines of fifteen-horse power each, and to drive three pumps; each engine to be entirely independent of the other in such a manner that, if an accident happen to one engine, the other shall be able to drive two pumps."

I thought, from examination of the engines, that a case might occur whereby the wording of the contract would fail to be fulfilled; but it seemed to me that this arose from the nature of the contract, and was not at all chargeable on Mr. Jump; for it appears to me that, for two engines to drive three pumps, and in such a manner that if one breaks the other may drive two, it is necessary to have a connexion between those engines, which connexion breaking, although either engine may be intact and able to drive its own pump, (thus keeping two pumps

going,) yet the engines must stop to repair the connexion, so as to drive all three again. That the pretended objection is a quibble, may be seen from the fact that the engines keep the shafts clear with only two pumps, and do not work the third; but I suspect that news recently received from Lima of the discovery of large quicksilver mines in California, which would bring down the price of that article one-half, and double the value of the cascajos, (thus still diminishing the necessity for drainage,) had something to do with the movement. A committee of the gremio, appointed for the investigation of the matter, did report in favor of stopping the payments; but before this was decided upon, some rich ores were discovered by the operation of the pumps. This changed their tune, for, although they now only work the ores above the socabon, they may, if they choose, penetrate below it; and if these machines should show conclusively that there are richer ores below, they of course would be glad to have them, and the gremio, therefore, (including even some of the members of the committee,) voted that the works and the payments should continue, and the matter should be arbitrated. I of course get my knowledge and views pretty much from Mr. Jump, one of the parties; but I meet at his house and elsewhere with men of the opposite party, and hear the matter very fully discussed. I would have advised Mr. Jump, in any other country, to reject arbitration and appeal to the law; but the less a man has to do with law in this country the better, not so much on account of its ill administration as of its vexatious delay.

I removed from the sub-prefect's house to that of Mr. Jump, Ijurra staying with his relations, and Mauricio and the mules at board.

The "*callana*," or smelting-house, where the "piña" is run into bars, is a government establishment, and is farmed out. All the produce of the mines has to pass through it; is here run into bars, weighed, stamped, and the duties charged upon it. It is very rude in its appointments, a mere straw-covered hut, with an iron smelting pot in the middle, mounted by arms, on two iron uprights like anvils. The pot melts at one operation sufficient silver to make a bar of two hundred and fifty marks, or one hundred and twenty-five pounds. Alternate layers of piña and charcoal are put in the smelting pot; fire is applied, and air furnished by a rude bellows. When the silver is melted, the pot is turned on its arms, and the silver poured out of a sort of ear at the top of the pot into an iron mould below. From one and a half to one and three-fourths per cent. is lost in this operation; much seems to be driven off by the irregular and excessive heat, and the sides and roof of the hut are covered with a deposit of fine particles of silver, looking

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like frost. They are frequently swept; I did not think to ask to whom these sweepings belong, but I imagine to the farmers of the "callana." The bars are marked with the number of the bar for the year, the number of marks it contains, the initials of the owner, and the invariable 11.22, which designates its "ley" or quality.

Remittances of bars are made to Lima every week. Last week the remittance amounted to seven thousand five hundred marks—a large yield. Since my return, I cut from a Lima paper a letter from Cerro Pasco, of April, 1851, (a few months before the date of my visit,) in which the writer states the remittances for the week at eighteen bars, or four thousand five hundred marks. He says, "The drainage by steam is progressing rapidly. Another vein of ore has been discovered in the mine of Peña Blanca, but I believe not very rich. The advices from Lima are constant that the quicksilver mines of California will yield a sufficient supply for Peru, at a price not exceeding fifty or sixty dollars the '*quintal*,' (or hundred pounds.) Should this be the case, there will be no need of suspending the working of the cascajos, as ore of six marks to the caxon, with quicksilver at seventy dollars the quintal, and piña at eight dollars the mark, will leave fifty dollars of profit in the circo. The price of quicksilver at present is from one hundred to one hundred and seven dollars the quintal; that of piña, eight dollars and forty-three and three-fourth cents."

The yield of these mines is about two millions a year, which is nearly equal to the yield of all the rest of the mines of Peru together.

M. Castelnau makes a calculation from all the data within his reach, by which it appears that the yield of the mines of Cerro Pasco, since the date of their discovery in 1630 to the year 1849, amounts to about the sum of four hundred and seventy-five millions of dollars, which would give a yearly mean of about two millions one hundred and seventy thousand.

About two hundred miles to the southward and eastward of Cerro Pasco are situated the celebrated quicksilver mines of *Huancavelica*. The viceroys of the regal and the presidents of the republican government have made many efforts to keep up the working of these mines, but of late years entirely without success. M. Castelnau states that their produce since the opening in 1751 to the year 1789, inclusive, (since which time they have yielded nothing of importance,) has been one million forty thousand four hundred and fifty-two quintals, which, at a mean price of sixty-five dollars the quintal, will give the sum of sixty-seven million six hundred and twenty-nine thousand three hundred and eighty dollars. In the same

time have been expended on them ten million five hundred and eighty-seven thousand eight hundred and forty-five dollars.

S. S. Rivero and Pierola formed a society in the year 1828 for the working of these mines, but the scheme fell through. Many other propositions have been also made to the Peruvian government, since the independence, for the working of them, but have failed of success. The liberator (Bolivar) refused to sell them for a sum of six or seven hundred thousand dollars. (Castelnau, vol. 4, page 226.)

I met a gentleman in Cerro Pasco who was then on his way to examine and report upon the mines of Huancavelica.

July 8.—Visited the mines. We entered a mouth which seemed only a little larger than that of a common well; each of the party furnished with a tallow candle, shipped in an iron contrivance at the end of a staff. The descent was disagreeable, and, to the tyro, seemed dangerous; it was at an angle of at least 75° from the horizontal line. The earth was moist, and the steps merely holes dug for the heels at irregular distances. I feared every moment that my boot-heel would slip, and that I should "come with a surge" upon my next in advance, sending him and myself into some gulf profound. I was heartily glad when we got upon the apparently level and broad bank of the great socabon, and had made up my mind that I would tempt Providence no more. But, reflecting that I should never, probably, visit the mines of Cerro Pasco again, I took courage and descended one hundred and ten feet further, by an even worse descent than the former, to the bottom of the pump shafts. A burly and muscular Cornishman, whom I at first took to be a yankee, with a bit of candle stuck into a lump of mud in front of his hat, was superintending here, and growling at the laziness and inefficiency of his Indian subordinates. I should think that these pumps were not well attended to, so far from the eye of the master. They are worked by chains and long copper rods. All the metal work of the pumps is of copper. Iron is corroded very quickly, on account of the sulphuric acid and sulphates which the water of the mines holds in solution. The fish are said to have abandoned the lake of Quiulacocha, into which the waters are forced, on this account. The sides of the mines were covered in many places with beautiful sulphates of iron and copper.

Our exploration lasted about four hours; and we emerged at the tajo of Sta. Rosa, where, seated upon piles of silver ore, we partook of some bread and cheese, and a glass of pisco, which we found as welcome and as grateful as manna in the desert. This freshened us up, and we went to see the "boliches." These are hand-mills, or rather foot-mills, for

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grinding ore; generally owned by Frenchmen or Italians, who grind the ore that is brought to them in small quantities by the workmen in the mines. Rivero's account of their charges is amusing. He says: "One of these speculators commences with fifty dollars, (the value of a boliche,) and at the end of two or three years is known to be worth a fortune of eight or ten thousand dollars. He exacts from the workman in the mine, who brings it to him, fifty or sixty-two and a half cents for grinding a "*carga*," which is a very uncertain measure—sometimes a mule-load, sometimes a man-load; but in this case a small hamper-full. He charges twenty-five cents for the water used in the beneficiation, twelve and a half cents for the man who pours the water on, twelve and a half cents for him who breaks the ore into small bits for grinding, sixty-two and a half cents for the grinder, twelve and a half cents for the hole where the mass of ground metal is deposited, (and if this is boarded, he exacts twenty-five cents more,) and twelve and a half cents to clear the water out of it, twelve and a half cents for taking the metal out of this hole and putting it in a bull's hide, for the hire of which he charges twenty-five cents; so that the hide will yield the decent sum of sixty or seventy dollars before it wears out and becomes useless. A hoe will give as much more, for the hire of which twelve and a half cents is charged, and six and a quarter cents besides for every time it is used in incorporating the mass. He gains at least fifty cents in every arroba of salt which he furnishes. For a pound of magistral, which is worth fifty cents, he exacts two dollars. He gains fifty cents in every pound of quicksilver; so that, calculating these expenses with regard to a caxon, they amount to about fifty dollars, which is just so much profit to the *bolichero*. The '*relabes*,' moreover, are his; and they are frequently very valuable. He then expresses all the quicksilver from the *pella* that he can, and receives it of the workman at three pounds the mark, paying him six dollars and twenty-five cents; by which negotiation he gains a mark in every nine, after the quicksilver is driven off by heat, bating to the workman at the same time half a pound in the extraction of the quicksilver. The workman is contented with all this, because, however little profit he makes, the ore which he delivered to the bolichero for grinding cost him nothing but the stealing." This, however, is not always the case. The laborer frequently demands his wages in a portion of ore. Custom seems to give him this right; and the proprietor of the mine complains, with justice, that he has to pay in ores when they are rich, and in money when the ores are poor.

A boliche consists of a large flat stone laid on an elevated platform of rock or earth, and another, convex on its lower side, resting upon it.

The grinder, standing upon this upper stone, spreads his feet apart, and gives it motion by the movement of his body. The bits of ore are placed between these stones, and a small stream of water from a barrel above mixes with the *harina*, and carries it off to a receptacle below. It may be imagined that, to draw any profit from so rude a contrivance as this, it is necessary that the ores ground by it should be of the richest kind.

The apparatus for driving off the mercury by heat is as rude as the boliche. The pella is placed in a kind of earthen jar or bottle made in the neighborhood, and worth from two to three reals. An iron tube, of about two yards long, is introduced into the mouth of the jar, which is then closed with a yellowish clay. The other end of this tube (which is bent) is put into an earthen jar half-full of water, where the fumes of the mercury are condensed. Fire is kindled around the earthen bottles which contain the pella, and continued for three or four hours, when the bottles are broken and the piña taken out.

The man who was buried by the falling in of one of the mines was got out yesterday. He seemed strong, though he had had no food for nearly seven days. He had lost the account of time, and thought he had been enclosed in the earth but three days.

July 9.—Suffering to-day from an affection called *macolca*, which is incident to nearly every one on his first visit to the mines. This is a painful soreness of the muscles, particularly on the front of the thigh. I could scarcely bear that my legs should be touched, and locomotion was anything but agreeable.

The town of Cerro Pasco is (by temperature of boiling water) thirteen thousand eight hundred and two feet above the level of the sea. Rivero states it at fourteen thousand two hundred and seventy-nine. The population varies from six to fifteen thousand souls, according to the greater or less yield of the mines. Most of the adult part of this population are, of course, engaged in mining. This seems to be a calling that distorts much the moral perception, and engenders very confused ideas of right and wrong. The lust for money-making seems to have swallowed up all the finer feelings of the heart, and cut off all the amenities of society. There are no ladies—at least I saw none in society; and the men meet to discuss the mines, the probable price of quicksilver, and to slander and abuse each other. There seems to be no religion here even in form. The churches are mere barns, going to decay; and I saw no processions or religious ceremonies. Smyth saw a procession in 1834, but I should doubt if there had been one of these

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contemptible mockeries since. Not that the people are getting better, but that their love of gain is swallowing up even their love of display. Rivero speaks of the wretched condition of society, and tells of drunkenness, gaming, assassination, and bad faith, as of things of common occurrence.

I met with much kindness on the part of the few gentlemen whose acquaintance I made, particularly on that of the sub-prefect, who lodged me in his house, and, by his frank and sincere manner, made me feel at home; and I do not say that men here are individually bad; but only speak of the philosophical fact that mining, as an occupation, has a tendency to debase men's characters, and destroy those sensibilities and affections that smooth and soften the rugged path of life. Moreover, I don't speak half so badly of them as they do of themselves; for one, if he were to seek it, might easily hear that every individual in the Cerro was a rascal.

The climate of this place is exceedingly uncomfortable, and I should suppose unhealthy. I could not sleep between sheets, but preferred "the wollens," with an abundance of them. Rivero states the mean temperature, during the months of July, August, and September, at 44° in the day, and 35° at night. In these months there is an abundance of snow and hail, which lowers the thermometer considerably; and even without these it goes down to 30° and 28° in August. From the middle of October to the end of April the climate is insupportable from the rains, tempests and lightnings, which almost every year cause damage. There is a period of fine weather from the middle of December to the middle of January, called, in the poetic language and religious turn of thought of the Spaniards, *El verano del niño*, or the summer of the child, from its happening about Christmas. The streams, which are fed from the rains of this country, invariably stop rising, and fall a little after this period. The temperature is so rigorous here that the hens do not hatch, nor the llamas procreate; and women, at the period of their confinement, are obliged to seek a more genial climate, or their offspring will not live.

Persons recently arrived, particularly if they have weak lungs, suffer from affections of the chest and difficulty of breathing. The miners suffer paralysis from the sudden changes of temperature to which they are exposed in and out of the mines, and from inhaling the fumes of the mercury in the operation of distilling. Those who suffer in this way are called *azogados*, from *azogue*, (quicksilver.) The most common diseases are pleurisies, rheumatisms, and a putrid fever called

tabardillo. Pleurisies are said to be cured by taking an infusion of *mullaca*, an herb which grows in the neighborhood. It has very small leaves, and gives a small, round, red fruit.

There is no cultivation in this neighborhood, with the exception of a little barley, which gives no grain, but is cut for fodder. The market, however, is well supplied from *Huanuco*, and the neighboring valleys. Expenses of living are great, particularly where articles of luxury from the coast are used.

July 12.—I visited some of the haciendas for grinding the ores. These mills are also rude. A horizontal water-wheel turns an upright axis, which passes up through a hole in the centre of the lower stone. The upper stone is bolted to the side of the axis, and is carried round on its edge upon the lower one. A very small stream of water trickles continually on the stones, and carries off the ground ore into a receptacle below, prepared for it, where the water drains off, and leaves the *harina* to be carried to the circo. A pair of stones will grind nearly a caxon a day. A stone of granite, nine feet in diameter, and twenty inches thick, costs, delivered, one hundred and thirty-five dollars. It will wear away in six or seven months so as to be unfit for an upper stone; it then answers for a lower one.

I had a visit from an enthusiastic old gentleman, the Intendente of *Pozuzu*, who says that he is about to memorialize Congress for funds and assistance to carry on a work which he has himself commenced—that is, the opening of a road from the Cerro direct to Pozuzu, without taking the roundabout way by Huanuco. He says that he is practically acquainted with the ground; that it is nearly all *pampa*, or plain; (people told us the same thing of the road between Tarma and Chanchamayo;) and that part of it is over a *pajonal*, or grassy plain, where there will be no forest to clear. He says that when the road is opened from the Cerro to Pozuzu, and thence to *Mayro*, (the head of navigation on the *Pachitea*,) communication may be had and burdens carried between the Cerro and Mayro in four days; also, that roads may run to the southward from Pozuzu, over a plain, by which the commerce of foreign countries, coming up the Amazon, may reach Tarma, Jauxa, and all the towns of the Sierra.

This is the day-dream of the Peruvians of that district. They know the difficulties of the Cordillera passage, and look earnestly to the eastward for communication with the world. Though this gentleman is led away by his enthusiasm, and probably misstates, yet I think he is in the main correct; for between the Cerro and Mayro there is but one range of the Andes to pass to arrive at the Montaña, (as is also the case

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between Tarma and Chanchamayo;) whereas, by the route through Huanuco there are at least two, and these very broken, elevated, and rugged. I think that the Ucayali affords the best means of communication with the interior of Peru, and my impression is that it is best approached by the way of Chanchamayo. I hinted this, but my friend hooted at the idea; and I find the same jealousy in him that I found in the Tarma people. Both here and there they say it will be a great day for them when the Americans get near them with a steamer.

July 13.—I had unfortunately selected a feast-day, and one, too, on which there was a regular bull fight, (the first that had been seen in the Cerro,) for my departure, and found great difficulty in getting off. The muleteers I had engaged were drunk at an early hour, and not making their appearance, I had to send the police after them. It is really curious to observe how entirely indifferent to the fulfilment of a promise these people are, and how very general the vice is. These muleteers had given me the strongest assurances that they would be at my door by daylight, and yet when they made the promise they had not the slightest idea of keeping it. The habit seems to be acquiesced in and borne with patience by even the true and promise-keeping English. My friend, Mr. Jump, did not sympathize in the least with my fretfulness, and seemed surprised that I expected to get off.

I desire to express my thanks to him, and the amiable members of his family, Mr. and Mrs. Biggs, for those kind attentions that cheer the heart and renew the energies of the worn wayfarer.

CHAPTER VI.

Departure from Cerro Paseo—Mint at Quinua—San Rafael—Ambo—Quicacan—Huanuco—Cerro de Carpis—Chinchao valley—Huallaga river.

By cajoling, and threats of appeal to the military, (a small military force is stationed here as a police,) we got our drunken vagabonds to "load up" and set off by half-past 1 p. m. One of them gave us the slip at the outskirts of the town. The other wished to look him up, or at least to get the key of a tambo where two spare mules belonging to them were locked up; but we would not hear of it; and driving the loaded mules on, he was fain to follow. The deserter joined us at our stopping-place for the night, but on finding the condition of things, he had to return to the Cerro for his missing beasts.

Almost immediately on leaving the Cerro, and ascending the hills that encircled it on the north, we came in sight of the Eastern Andes, which is here a Cordillera, for it has many abrupt and snow-clad peaks. Close at hand, on the left, was a spot of marshy ground, which had some interest for us, as we were not to quit the waters which we saw trickling in tiny streams from it, until, swelled by many others, they pour themselves into the Atlantic by a mouth one hundred and eighty miles broad. This is the source of the *Huallaga*, one of the head tributaries of the Amazon.

Seven miles in a N. N. E. direction, and passing many haciendas for the grinding of ore, brought us to the village of *Quinua*, where a mint was established several years ago, but is now abandoned. The machinery for coining is much better than any I have seen in South America. It was made by a Boston man, named Hacket, who also made nearly all the machinery for the sugar-mills near Huanuco. There are gold mines in this neighborhood, but I think they are not worked. This village is just at the point where, leaving the sterility of the Cerro, we fall in with bushes and flowers.

Four miles further we stopped for the night at a hacienda called Chiquirin, which appears once to have been flourishing, but which is now nearly abandoned, being only tenanted by an old man to take care of the house. The bridge, which crossed the stream in front of the house, had had arched gateways at each end; and a respectable-looking church occupied one side of the patio. A field or two of barley is all the cultivation now about it. Indeed, there seemed little room for

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more, for the hills on each side now began to close in and present the appearance of mountains; and I have no doubt that, though still going down hill, we have begun to cross the second range of the Andes. We could get no supper at this place. I was tired enough to care little about it. Had Ijurra been with us, he would probably have found something; but he was absent, having dropped the compass on the road and ridden back to look for it. The height of Chiquirin, by boiling point, is eleven thousand five hundred and forty-two feet above the level of the sea.

July 14.—We had a pleasant ride down the valley, which opens a little and gives room for some cultivation. There were pinks and holy-hocks in the little gardens adjoining the cottages; also cabbages, lettuce, and onions. We stopped to breakfast at *Caxarmarquilla*, a village of some eight or ten houses. The cura received me hospitably, and gave me some breakfast. He told me there were one hundred and fifty souls in the Doctrina. I should judge there were about thirty in the village. The rock of this district is red sandstone and conglomerate. At six miles further we passed a hacienda, where there were roses in bloom, and the flowering pea, with wheat on the hill-side, and a grist-mill; also, alfalfa and maize. Immediately afterwards, a valley from the southward and eastward joined the one I was travelling in, bringing its stream of water to swell the Huallaga. Gypsum crops out of the hills on the road-side, making the roads white. Houses here are whitewashed with it. A mile further is the village of *Huariaca*, a long, straggling place of one, and in some places two streets. It contains about seven or eight hundred inhabitants. I thought I saw more white people and more industry in this place than is common in the small Sierra towns. We met continually mules laden with tobacco, coca, and fruit, going from Huanuco and the Montaña beyond it to the Cerro. We stopped, at half-past five, at *San Rafael*, an Indian town of some two hundred and fifty souls, with a white lieutenant governor, and put up at his house.

I had my bed made inside, instead of outside the house, which was a mistake, as I was "pigging in" with all the family; and from want of air, and villanous smell, expected to catch tabardillo before morning. The thermometer was at 62° at 7 p. m., and I imagine did not fall lower than 50° during the night; so that I could very well have slept outside, and advise all travellers to do so, providing themselves with warm bed-clothing. Here I was joined by Ijurra, whom I was very glad to see, and the delinquent arriero, with his two mules. The height of San Rafael, by boiling point, is eight thousand five hundred and fifty-one feet above the level of the sea.

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Rivero del.

CERRO DE PASCO.

Ackerman Lith. 379 Broadway N.Y.

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Rivero del.

Ackerman Lith. 379 Broadway N.Y.

MINER. CERRO PÂSCO

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Rivero del

Ackerman Lith. 379 Broadway N.Y.

ORE CARRIER. CERRO PASCO.

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July 15.—We got alfalfa for our mules, but it is now getting very scarce. The valley, after leaving San Rafael, is very narrow, and the road rises and falls along the bare flanks of the mountains. The character of the rock is a dark schist; the growth, willows—palma christi—maguey, (a species of cactus, with a very long, broad, yet sharp-pointed leaf,) which throws out from the centre of a clump of leaves a light stalk of three or four inches diameter at the base, and frequently thirty feet in height. This flowers towards the top, and bears a sort of nut-like fruit. The stem is much used for roofing houses, and the broad, thick leaves serve for thatch.

We shot at condors hovering over a dead mule, and saw a small hawk of variegated and pretty plumage, of a species which we had before seen near Oroya. About ten miles from San Rafael we were crossing the highest part of the chain. An opening in the mountains to the right gave us a view of some splendid snow-clad peaks. After an hour's ride over a precipitous and broken path, rendered dangerous in some places by the sliding of the earth and soft rock from above upon it, we commenced a very sharp descent, which brought us, in fifteen minutes, to fruit-trees and a patch of sugar-cane on the banks of the stream. The sudden transition from rugged mountain peaks, where there was no cultivation, to a tropical vegetation, was marvellous. A few miles further on we crossed the boundary-line between the provinces of Pasco and Huanuco. The transition is agreeable, and I was glad to exchange the mining for the agricultural country. At half-past four, we arrived at the town of *Ambo*, a village of one thousand inhabitants, situated at the junction of the rivers *Huacar* and Huallaga. The former stream comes down a ravine to the westward; each is about thirty-five yards broad, and, uniting, they pour their waters by the town with great velocity. The rock of this region is mostly an argillaceous schist, though just above Ambo the road was bordered by a perpendicular hill of beautiful red sandstone. The strata all along this route are nearly north and south in their directions, and have an inclination upwards towards the north of from forty to seventy degrees.

Two miles from Ambo, on the right or opposite bank of the river, is another very pretty little village, almost hiden in the luxuriant vegetation about it. The whole valley now becomes very beautiful. From the road on which we were travelling to the river's brink, (a breadth of quarter of a mile,) the land (which is a rich river bottom) is laid off into alternate fields of sugar cane and alfalfa. The blended green and yellow of this growth, divided by willows, interspersed with fruit-trees, and broken into wavy lines by the serpentine course of the river, pre-

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sented a gay and cheerful appearance, which, contrasting with the forbidding aspect of the rocks we had just left, filled us with pleasurable emotions, and indicated that we had exchanged a semi-barbarous for a civilized society. The only drawback with me was excessive fatigue. When Ijurra rode back to Cerro Pasco for the compass, he happened to be mounted on my mule. This gave her extra work; and the ride of to-day was a long one, so that the little beast by this time could barely put one foot before the other. There is scarcely anything more fatiguing than to ride a tired horse; and when I arrived (at five) at the hospitable gates of the hacienda of *Quicacan*, and with difficulty lifted myself out of the saddle, it was with the deep sigh which always accompanies relief from pain, and which was much more pleasurable than the sight of waving fields and babbling brooks.

The owner of the hacienda—an English gentleman, named Dyer, to whom I brought letters from Cerro Pasco—received me and my large party exactly as if it were a matter of course, and as if I had quite as much right to enter his house as I had to enter an inn. The patio was filled with horses, belonging to a large party from Huanuco bound to Lima, and every seat in the ample portico seemed filled. I was somewhat surprised at the size and appointments of the establishment. It looked like a little village of itself, with its offices and workshops. The dwelling—a large, substantial, though low building, with a corridor in front supported on massive arches, and having the spaces between the pillars enclosed with iron wire to serve for cages for numerous rare and pretty birds—occupied one side of the enclosed square; store-rooms occupied another; the sugar-house, another; and a chapel, the fourth. A bronze fountain, with an ample basin, decorated the centre. I was strongly reminded of the large farm-houses in some parts of Virginia: the same number of servants bustling about in each other's way; the children of the master and the servant all mixed up together; the same in the hospitable welcome to all comers; the same careless profusion. When I saw the servants dragging out mattresses and bed-clothing from some obscure room, and going with them to different parts of the house to make pallets for the visitors who intended to spend the night, I seemed carried back to my boyish days, and almost fancied that I was at a country wedding in Virginia. We dined at six in another spacious corridor, enclosed with glass, and looking out upon a garden rich with grape-vines and flowers. After dinner, the party broke up into groups for cards or conversation, which continued until ten o'clock brought tea and bed time.

I conversed with an intelligent and manly Frenchman named Escudero.

His account of the seeking and gathering of Peruvian bark was exceedingly interesting; and I should judge that it is an occupation which involves much fatigue and exposure. He spoke very highly of the mechanical abilities of my countryman, Miguel Hacket, and gave me a letter to deliver to him wherever I might find him.

I also had some talk with quite a pretty young woman, who had come from Quito by the way of the Pastaza, Marañon, and Huallaga rivers. She said she was scared at the *malos pasos*, or rapids of the river, and never could relish monkey soup; but what gave her most uneasiness was the polite attention of the *Huambisas* Indians. She declared that this was frightful, and swore a good round oath, (that might have satisfied Hotspur in a lady,) "*Caramba!* but they were mad for a white wife." Report here says that she prefers Yankee to Indian, and is about to bestow her hand upon a long countryman of ours, the head blacksmith, named Blake.

July 16.—Dyer had put me into a wide "four-poster." None but a traveller in these parts can imagine the intense pleasure with which I took off my clothes and stretched my weary limbs between linen sheets, and laid my head upon a pillow with a frilled case to it. I could scarcely sleep for the enjoyment of the luxury. Rest, too, has renewed my beast; and the little black, which I thought last night was entirely done up, is this morning as lively as a filly.

The sugar-mill of Quicacan is composed of an overshot wheel, turned by a race brought from the river far above, and giving motion to three heavy brass cylinders that crush the cane between them. The juice falls into a receptacle below, and is led off by a trough to the boilers, which are arranged in order over the furnaces like a common kitchen range. After a certain amount of boiling, it is poured by means of ladles into wooden moulds, greased and laid on the ground in rows. This makes the *chancaca*, so much used throughout Peru. It supplies the place, in this country, to the lower classes, which the wares of candy shops do in our own. Two of the moulds are put together and enveloped in the leaf of the cane. They make a pound, and are sold at the hacienda for six and a quarter cents.

Cutting the cane, bringing it in, stripping it and cutting off the tops, supplying the mill, boiling the sugar, and making the chancaca, employ about twenty men and four mules. With this force one hundred dollars' worth of chancaca may be made in a day; but Mr. Dyer says that he is not now making more than twenty or thirty dollars, and not paying his expenses. He attributes this to the fact that his fields are wearing out and require replanting. He thinks that cane should be

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replanted every ten or fifteen years. It is fit for cutting in twelve months after planting. This is a very extensive establishment; and Mr. Dyer, besides his cane-fields, which are on the river side, cultivates a farm for raising wheat, maize, peas, beans, and potatoes, on the hills above.

We left Quicacan at noon, in company with Mr. Dyer and my French friend; stopped at another hacienda, about a mile and a half from this, belonging to a gentleman named Ingunza, and at another a little lower down, called Andabamba, belonging to Señor San Miguel, to whom I brought letters from Lima. All these, with another on the same road, belonged to a Colonel Lucar, of Huanuco, who gave them to these gentlemen, his sons-in-law. Quicacan was the family mansion, and had been longest under cultivation. At half-past four we arrived at Huanuco, and, presenting a letter to Colonel Lucar, from his son-in-law Dyer, we were kindly received, and lodgings appointed us in his spacious and commodious house.

July 17.—Huanuco is one of the most ancient cities in Peru. It is prettily situated on the left bank of the Huanuco or Huallaga river, which is here about forty yards wide, and at this time (the dry season) about two feet deep in the channel. It, however, every two or three hundred yards, runs over rocks or a gravelly bed, which makes it entirely innavigable, even for canoes, though when the river is up I believe articles are transported on it from hacienda to hacienda in small scows. A smaller stream, called the Higueros, empties into it just above the city.

The houses are built of adobe, with tile roofs, and almost all have large gardens attached to them—so that the city covers a good deal of ground without having many houses. The gardens are filled with vegetables and fruit-trees, and make delightful places of recreation during the warmer parts of the day.

The population numbers from four to five thousand. They seem to be a simple and primitive people; and, like all who have little to do, are much attached to religious ceremonies—there being no less than fifteen churches in the city, some of them quite large and handsome. The people are civil and respectful, and, save a curious stare now and then at my spectacles and red beard, are by no means offensive in their curiosity, as Smyth represents them to have been some seventeen years ago.

The trade of the place is with Cerro Pasco on the one hand, and the villages of the Huallaga on the other. It sends chancaca, tobacco, fruit, and vegetables to the Cerro, and receives foreign goods (mostly English)

in return. A shop-keeper gave me the price of some of the articles in his store: Broad striped cassimere, such as gentlemen's trousers are made of, five and a half dollars the yard; very common silk handkerchiefs, one dollar; common silk hat, five dollars; blue cloth drillings, twenty-five cents the yard; baize, eighty-seven and a half cents; narrow ribbon, one dollar and twenty-five cents the piece; cotton handkerchiefs, two dollars and twenty-five cents the dozen; tolerable Scotch carpeting, one dollar and a half the vara, of thirty-three English inches; bayeta castilla, (a kind of serge or woollen cloth, with a long shag upon it, and of rich colors,) one dollar and seventy-five cents the vara. In the market, beef and mutton from the province of Huamalies sell at six and a quarter cents the pound; Indian corn, twenty-five cents the olla, of twenty-five pounds; potatoes, seventy-five cents for the *costal*, of fifty pounds; salt, from the coast at Huacho, six and a quarter cents the pound; sugar, generally from the coast, twenty-five cents the pound, (this in an eminently sugar country;) coffee, twelve and a half cents. Very little meat is raised. I saw a small quantity of pork, with plenty of tallow candles; and rotten potatoes for the consumption of the Indians. Bread is good, but is generally made, in the best houses, of American flour from Lima. Vegetables and fruit are abundant and cheap. This is, *par excellence*, the country of the celebrated chirimoya. In have seen this fruit in Huanuco quite twice as large as it is generally seen in Lima, and of most delicious flavor. They have a custom here to cover the finest specimens with gold leaf, and place them as a decoration on the altar of some patron Saint on his festival. The church afterwards sells them; and I have seen several on Colonel Lucar's table.

This gentleman is probably the richest and most influential man in Huanuco. He seems to have been the father of husbandry in these parts, and is the very type of the old landed proprietor of Virginia, who has lived always upon his estates, and attended personally to their cultivation. Seated at the head of his table, with his hat on to keep the draught from his head—and which he would insist upon removing unless I would wear mine—his chair surrounded by two or three little negro children, whom he fed with bits from his plate; and attending with patience and kindness to the clamorous wants of a pair of splendid peacocks, a couple of small parrots of brilliant and variegated plumage, and a beautiful and delicate monkey—I thought I had rarely seen a more perfect pattern of the patriarch. His kind and affectionate manner to his domestics, (all slaves,) and to his little grandchildren, a pair of sprightly boys, who came in in the evening from the college, was also very pleasing. There are thirty servants attached to the house, large

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and small; and the family is reduced to the Colonel and his lady, (at present absent,) and the boys.

The climate of Huanuco is very equable and very salubrious. There are no cases of affection of the chest which commence here; on the contrary, people with diseases caused by the inclemency of the weather about Cerro Pasco come to Huanuco to be cured. Dysentery and tabardillo are the commonest diseases; and I see many people (particularly women) with goitre. I saw a woman who had one that seemed to arise under each ear and encircle the throat like an inflated life-preserver. The affection is said to be owing to the impurity of the water, which is not fit to drink unless filtered. The lower class of people do not attend to this, and thus the disease is more general with them than with the higher classes. It is disagreeable to walk out in the middle of the day, on account of a strong northerly wind, which sets in at this season about noon, and lasts till dark, raising clouds of dust. The mornings and evenings are very pleasant, though the sun is hot for an hour or two before the breeze sets in. The height of Huanuco above the level of the sea is, by boiling point, five thousand nine hundred and forty-six feet.

There is a college with about twenty-two "internal," and eighty day-scholars. Its income, derived from lands formerly belonging to convents, is seven thousand and five hundred dollars yearly. It has a fine set of chemical and other philosophical apparatus, with one thousand specimens of European minerals. These things were purchased in Europe, at a cost of five thousand dollars; and the country owes them to the zeal for learning and exertions of Don Mariano Eduardo de Rivero, formerly prefect of the department, director general of the mines, and now consul general to the Netherlands, where he is said to be preparing a voluminous work on the antiquities of Peru. As I shall probably not have occasion to refer to him again, I must in this place express my sense of gratitude for the information I have received from his most valuable publication, "The Memorial of Natural Sciences, and of National and Foreign Industry," edited by himself and Don Nicolas Pierola, the modest and learned director of the museum at Lima. The Department of Junin owes much to its former prefect. He has founded schools, improved roads, built cemeteries, and, in short, whatever good thing I noticed on my route might generally be traced back to Rivero.

July 18.—I called on the sub-prefect of the province, and delivered an official letter from the prefect of the department, whom I had visited at Cerro Pasco. This gentleman's name is Maldonado. He received me courteously, and promised me any assistance I might stand in need

of. He seemed to be at bitter feud with all my friends; and they represented him as a high-handed personage. We met at Quicacan a colonel who was going to Lima, escorted by a number of his friends, to complain to the government of his having been illegally imprisoned by the sub-prefect. I believe the cause was an alleged libel, or libellous publication against the sub-prefect; and if it was of the nature of some of the publications daily seen in the Lima papers, he deserved imprisonment, or worse punishment, for they are generally the foulest and most scurrilous things, which no decent paper in the United States would publish, and which would certainly bring upon the writer a fine or the horse-whip.

People in Huanuco are fully alive to the importance of opening the navigation of the Huallaga to their city. They speak of it as a thing that would be of incalculable advantage to them; and their leaders and influential men have often urged them to be up and doing. But, although they cannot be stirred up to the undertaking themselves, they are jealous of the attempt by any other route. I had a visit this evening from my Cerro Pasco acquaintance, the Intendente of Pozuzu. The old gentleman discoursed long and earnestly about his route from the Cerro to Pozuzu, and thence to Mayro. When he went away, Colonel Lucar asked me what I called that science in my country that put people to sleep; and when I told him that it was animal magnetism, he said that that old man was a capital magnetiser, for he had been to sleep an hour. I think there was some jealousy in this.

Rice, tobacco, and straw hats, in small quantities, are now brought on the backs of Indians from the towns on the Huallaga to Huanuco.

Colonel Lucar showed me his "*cuarto de habios*," or room where he keeps all his horse furniture. He has at least a dozen saddles of various patterns, with bridles, pillons, horse-cloths, holsters, and everything complete. Most of the bridles and stirrups are heavily plated with silver. People take great care of their horses in this country, and are generally good horsemen. There are one or two carriages and gigs in Huanuco, made in England.

I sold my mules to the Colonel for half that I had given for them, with the condition that we should ride them as far as practicable and send them back by the arriero. The old gentleman agreed to it, though rather reluctantly. He said that some fifteen years ago, a countryman of mine, and calling himself an officer of the navy also, had sold him his mules for pistols and fowling-pieces, on the same terms; but when he arrived at the end of his journey, he sold the mules again, and went off with the proceeds. The Colonel could not give me the name of this

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honest individual. I afterwards ascertained that he was not an American, but a German.

July 22.—Much to my annoyance our servant Mauricio deserted this morning. Ijurra accuses me of having spoiled him by indulgence; and I, on the other hand, think that he had disgusted him by tyranny. I imagine he went back to Lima with *Castillo*, a young man who had been governor of the district of Tarapoto, on the Huallaga, and who was going to Lima with stuffed birds' skins to sell. This was an intelligent young man, who gave me information about the Montaña. He said I would be amply protected in my contemplated voyage up the Ucayali with twenty-five *Chasutinos*, (Indians of Chasuta,) for they were a brave and hardy people; but that the *Cocamas* and *Cocamillos*, from about the mouth of the river, were great cowards, and would desert me on the first appearance of the savages—that they had so treated him. I rather suspect that the reason for Don Mauricio's shabby behavior was, that we were getting into his own country, and that he had private reasons for desiring to avoid a visit home. He had asked me at Tarma to let him go with Gibbon.

Our arriero made his appearance at noon, instead of early in the morning, as he had promised; but we are now getting used to this. We did not ride our own mules, as they were sick and not in condition to travel, and the arriero supplied us with others. I got a horse, but did not derive much benefit from the exchange. Our course lay down the valley N. E., crossing the river soon after leaving the town by a rude bridge floored with the leaves of the maguey. We found the road good, but rocky, principally with the *debris* of quartz. Gold is occasionally found, but in small quantities, in the mountains bordering this valley. At six miles from Huanuco we passed the village of *Sta. Maria del Valle*, of three hundred inhabitants. We stopped and took some fruit and pisco with the curate, to whom also I had a letter from Lima.

Every traveller in this country should provide himself with letters of introduction. People, it is true, will receive him without them, but do not use that cordial and welcome manner which is so agreeable.

The cura had some fifty or sixty new and well-bound books on shelves, and seemed a man superior to the generality of his class. He said that Valle was a poor place, producing only sugar-cane, which the inhabitants put to no other use than to make *huarapo* to drink; and that, if it were not for the neighborhood of Huanuco, he thought that he should starve. Huarapo is the fermented juice of the cane, and is a very pleasant drink of a hot day.

We saw a few sheep and goats after leaving the village. The trees

were principally willow and fruit-trees, with here and there a cotton tree, bearing indifferent staple. The mountains on the left, or Huanuco side, send down spurs towards the river, between which are pretty little valleys, not deep and narrow, but spread out like a fan. In each one of these there is situated a small village or a hacienda, presenting, with its fields of cane and alfalfa, and, higher up, wheat, a very pretty appearance. It is not so on the right bank. The small streams that flow into the river from this side come down rugged ravines, with sides of soft rock and white earth, and are generally very muddy. We stopped two miles beyond Valle at a hacienda called *Chullqui*, and slept in an Indian hut with several other people, one a sick woman with a child two days old. Height of Chullqui, by B. P., five thousand six hundred and twenty-six feet above the level of the sea.

July 23.—Course still N. E. along the banks of the Huallaga. Trees principally small acacias. At six miles from Chullqui we crossd the river, turned to the north, and ascended a ravine (down which flowed a small stream) to the village of *Acomayo*. The river continues its course to the northward and eastward and sweeps around the base of the hills, which form (going up) the right-hand side of the Quebrada, up which we were travelling. The road which we had left, continuing along the banks of the river, leads to Panao, Muña, and Pozuzu; Smyth's route to the Pachitea.

Acomayo is a very pleasantly-situated village, of about three hundred inhabitants. When the authorities are asked concerning the population of any place, they always give the number of families. This place has seventy "casados," or couples of married people; and I judge, from experience, that five to each family is a fair allowance. The water here is very good, which was an agreeable change from the Huanuco water; and the fruits, oranges, figs, guavas, and chirimoyas, are of good quality. I noticed, also, a tree bearing a large bell-shaped flower, called *floripondio*. This is an old acquaintance of mine; it gives out a delicious fragrance at night, which, accompanied, as I have known it, by soft air, rich moon-light, and gentle company, makes bare existence a happiness.

About three miles up the "Quebrada" we turned to the northeast, and commenced the ascent of the *Cerro de Carpis*. This is one of a range of mountains running to the southward and eastward, forming the left-hand side of the valley of Acomayo, (looking down the stream,) and dividing the Sierra from the Montaña. The ascent is six miles long, and very tedious. I had no water to ascertain its height by the boiling-point apparatus, but judge, from the great descent to *Cashi*, (a

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distance of four miles, and so steep that we preferred to walk and lead our beasts,) that the pass is full eight thousand feet above the level of the sea; Cashi being six thousand five hundred and forty feet.

There is said to be a superb view of the Montaña from the summit of this hill, but the clouds (almost within reach of the hand) boiling up from the great deep below effectually cut it off, and we could see nothing. When we had got some distance down, and obtained a view through an opening in the thick growth of the mountain-side, we looked down upon the most rugged country I have ever seen. There seemed to be no order or regularity in the hills, which were thickly covered with forest; but the whole had the appearance of the surface of a vast boiling caldron suddenly stricken motionless. Just at the summit, and where the road turns to descend, hundreds of little wooden crosses were placed in the niches of the rock—votive offerings of the pious arrieros, either of gratitude for dangers passed, or for protection against dangers to come, in the ascent or descent of the mountain.

We walked down the descent, leading the beasts. The road was very rocky and muddy, and the mountain-side was clad with small trees and thick undergrowth. There were many creepers and parasitical plants, some of them very graceful and pretty. We stopped, at six, at a tambo called Cashi, built on a plat, about half-way down the mountain. We found our place of rest very agreeable; night clear, calm, and cold.

July 24.—An hour's travel brought us to the bottom of the hill, where we encountered the *Chinchao* valley coming down from the right. We crossed the stream that flowed through it, and travelled down the valley on its right bank, the road rising and falling on the sides of the hills. The character of the rock is a dark slate-stone, with occasional beds of gypsum. At seven miles from the tambo we passed the village of Chinchao, containing twelve houses and a church, with cotton, coffee, orange, and plantain trees scattered about the village. A pretty shrub, bearing a gay, red flower, in appearance like our crape myrtle, bordered the road-side. It is called *San Juan*, because it blooms about St. John's day, the 24th of June, like the *Amancaes* at Lima. The cultivation of the coca commences here.

I brought a letter from the sub-prefect at Huanuco, for the governor of Chinchao, but he was absent at his chacra, and not to be found. We then asked for the lieutenant governor; but though there seemed, from the general account, to be such a person, we could not find out exactly who he was, or where he lived. The arriero said he lived "a little lower down;" but at every house at which we called in our descent the reply still was *mas abajo*, (yet lower.) At last we seemed to have

treed him, and even the man's wife was produced; but after a little conversation it appeared that our friend was still *mas abajo*. I was tired and hungry enough to wish he was—where he could not get any lower, for we had depended upon our letter for a breakfast. We continued our weary route, and at the next house (the best-looking we had seen) encountered a white woman, rather shrewish-looking, indeed, but still a woman, synonym everywhere for kindness. Ijurra civilly inquired if we could get a few eggs. I think our appearance, particularly the guns slung behind the saddles, bred mistrust, for we met with the invariable lie, *no hay*, (haven't got any.) I couldn't be baffled in this way: so, taking off my hat, and making my best bow, in my most insinuating tones I said "that we had something to eat in our saddle-bags, and would be very much obliged if La Senora would permit us to alight and take our breakfast there." She softened down at once, and said that if we had any tea she could give us some nice fresh milk to mix with it. We had no tea, but declared, with many thanks, that the milk would be very acceptable. Whereupon, it was *put on* to boil; and, moreover, a dozen fresh eggs, and boiled to perfection, were also produced. I enjoyed the breakfast very much, and was pluming myself on the effect of my fine address, when (alas for my vanity!) the lady, after looking at my companion for some time, said to him, "Arn't you *un tal* (a certain) Ijurra? He said yes. "Then we are old playmates," said she. "Don't you recollect our play-ground, your old uncle's garden in Huanuco, and the apples you used to steal out of it to give me? I'm *Mercedes Prado*." Here was the solution to the enigma of our reception. Strange to say, the name awoke pleasant recollections in me also, and set before me the features of the gay and beautiful young girl whose quick repartee and merry laugh added so much to the charm of Valparaiso society.

The house of our hostess was very like a capsized ship, with the cut-water and upper part of the bows sawn off to make an entrance. It had a regular *breast-hook* made of saplings twisted together over the door, a *kelson* reaching from this to a very perfect *stern frame*, and, had the ribs been curved instead of straight, the likeness would have been exact. It was about fifty feet long, and made an airy and commodious residence. I was surprised to find that we were in the upper story of it, for we had entered from the ground without steps; but I afterwards discovered that we had entered from an esplanade cut in the side of the hill, levelled for the purpose of drying coca leaves, and that the lower story was at the bottom of the hill, the entrance facing the other way.

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We went on our way rejoicing. The arriero had gone on ahead; and when we arrived at a chacra, called *Atajo*, at half-past four, we found that he had unloaded the mules. I was quite angry at his stopping so soon, and ordered him to load up again; but finding that he went to work to do it, I let him off, cautioning him against unloading without orders. The means of living are getting very scarce. We could get nothing to eat, and had to draw upon our *charqui*. The people of the hut seem contented with a *chupe* made of lard, with ullucas and young onions. Nights still cool; Ther. at 7 p. m., 61°; elevation of "Atajo," three thousand nine hundred and ten feet.

July 25.—The road from this place leaves the banks of the stream and ascends the hills on the right by a very steep and tedious ascent. The rocks of the road are a mica slate, and at the top of the hills a dark schist, white on the outside from exposure to the atmosphere. After arriving at the summit, we turned N. E. by N., and passed the haciendas called *Mesa pata* (the top of the table) and *Casapi*, which seemed abandoned. The road hence is a very rough descent, and a mere path through the bushes; the earth white, like lime, with gypsum cropping out occasionally. Near night we stopped at *Chihuangala*, the last hacienda of the valley, and beyond which there is no mule-road. The arrieros left us to seek pasturage. This is our last dealing with this gentry. I was glad to dismount, for I was tired of riding; but in spite of the abuse that is generally heaped upon the arrieros, I think I have had little difficulty to complain of. They seem to be tolerably honest and faithful, (when once on the road,) and, with judicious treatment, one can get along with them very comfortably. It rained heavily all the latter part of the night.

July 26.—At this place we were to await the Indians from *Tingo Maria*, (a village at the head of canoe navigation on the Huallaga,) to carry our luggage on. Ijurra had written from Huanuco to the governor of Tingo Maria, requesting him to send them to us at Chihuangala, sending the letter by one of Castillo's company who was returning.

We had hard commons here, our charqui beginning to decay. No eggs; no potatoes; nothing, in fact, but yuccas and bananas. There were turkeys, chickens, and a pig running about the chacra; but no entreaty, nor any reasonable offer of money, could induce the people to sell us one. I offered the *patrona* a dollar and a half for a half-grown turkey; but she said she must wait till her husband came in from his work, so that she might consult him. When he came, after long debate, it was decided that they would sell me a chicken for breakfast tomorrow. I tried hard to find out why they were so reluctant to sell,

for they do not eat them themselves; but did not succeed. I believe it to be something like the miser-feeling of parting with property, the not being used to money, and also a dislike to kill what they have reared and seen grow up under their own eye.

Our patrona had six or seven children: one an infant, which, when she puts to sleep, she enwraps closely in a woollen cloth, and swathes tightly, over arms and all, with a broad thick band, so that it is perfectly stiff, and looks like a log of wood, or a roll of cloth. I asked why she did this, but could only get the reply that it was the "custom here." The young women of the country have very good features, and appear lively and good-tempered. Two daughters of the patrona came in on a visit to-day. I suppose they are out at work (probably as house servants) in some neighboring hacienda. They were dressed in red calicoes, always open in the back, and with the invariable shawl; and one of them had ruffles of cotton lace around the bottom of the sleeves, which did not reach to the elbow. The girls were nearly as dark as Indians, but I presume they had a mixture of white blood.

July 28.—I walked, in company with Ijurra, about three miles to visit a Señor Martins, at his hacienda of Cocheros. We found this gentleman a clever and intelligent Portuguese, who had passed many years in this country. He knew Smyth, and had helped him along on this route. His wife is *Doña Juana del Rio*, a very lady-like person, in spite of her common country costume. It was quite surprising to see a Limeña, and one who had evidently lived in the first circles of that city, in this wild country, and in this rude though comfortable house. The floor was earth, and I saw no chairs. The lady sat in a hammock, and the men either on the mud benches around the sides of the room, or on a coarse wooden one alongside of a coarse table. Part of the house was curtained off into small bed-rooms. There was evident plenty, and great comparative comfort about the house; also, a fine lot of handsome, intelligent-looking children. Señor Martins told me that this *Quebrada* produced seven hundred *cargas* of coca yearly. A carga is two hundred and sixty pounds. The value in Huanuco is generally three dollars the arroba. This would make the value of the crop twenty-one thousand eight hundred and forty dollars. The hire of the seven hundred mules required to carry it to Huanuco is two thousand eight hundred dollars, which reduces the value to about nineteen thousand dollars. There are not many haciendas, but a number of small farms; the owners of which sell their coca on the spot for two dollars the arroba. I asked Martins the reason why I had seen several of the haciendas abandoned, particularly his own large one of Casapi. He said there were two causes: one

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being a large ant that ate the coca leaves, and which, when once established in a plantation, was difficult to get rid of; and another was the scarcity of labor—that it was barely to be had in the Quebrada; that he had six laborers on his hacienda; and that he was at least two thousand dollars in advance to them. The money, of course, had been advanced to them in the shape of supplies, and I suppose these laborers are now as effectually slaves as if they were so by law.

Nothing is sold from this valley but coca. Only sufficient coffee and sugar cane are planted for the use of the inhabitants. Señor Martins gave us some very good caçacha, or rum made from the cane, and some tolerable pine-apples and plantains. A little cotton is cultivated, and a coarse cloth is woven by hand from it. Every old woman goes about her household avocations with a bunch of cotton in her hand, and a spindle hanging below. I was surprised not to see any wild animals, though I am told that there are deer, hares, tiger-cats, and animals of the mink kind, that occasionally run off with the poultry. There are not so many birds as I expected; those I have seen are generally of a gay and rich plumage. Insect life is very abundant, and nearly all sting or bite. The climate is very pleasant, though the sun is hot in mid-day. The diseases, which occur rarely, are cutaneous affections, tabardillo, and sometimes small-pox.

We met, at Cocheros, an English botanist, named *Nation*, upon whose track we have been ever since leaving Lima. He was the gardener of *Souza Ferreyra*, the Brazilian Chargé in Lima, and I believe was collecting plants for him. Poor fellow! he had had a hard time of it; he lost his mule not long after leaving Lima, and walked from Surco to Morococha, where some kind person supplied him with another. He has also had tertiana whenever he has gone into the Montaña. He was alone, and spoke no Spanish, but he had combatted obstacles and difficulties with a spirit and perseverance deserving all praise. I was sorry for his mishaps, but could not help laughing at him a little when I observed that the bats had nearly eaten his mule up. The poor beast was covered with blood all over, and had nearly lost an eye from their bites. Mr. Nation has sent a great many specimens of plants to Lima, and says that the "flora" of this country is rich, and almost identical with that of Brazil.

On our return from Cocheros we stopped at the house of a man who had, the day before, promised to sell us a fowl; with the usual want of good faith of these people, he now refused. Ijurra took the gun from my hand, and, before I was aware what he was about to do, shot a turkey. The man and his wife made a great outcry over it, and he was hurrying off, with furious gestures and menacing language, to report the matter to his *patron*, when a few kind words, the helping myself to a

chew of coca out of his *huallqui*, or leathern bag, in which it is carried, and the offer of a dollar and a half, which before he had indignantly spurned, changed his mood, and he smiled and expressed himself satisfied, now that the thing was done and it could not be helped. I had been often told by travellers that this was frequently necessary to get something to eat, but had always set my mind resolutely against any such injustice and oppression; and I expressed my opinion of the matter to Ijurra, and requested that the like should not occur again. The elevation of Chihuangala is three thousand four hundred and twenty-one feet above the level of the sea.

July 30.—At 10 a. m., when we had begun to despair of the coming of our Indians, and Ijurra was about to start alone for Tingo Maria, for the purpose of fetching them, they came shouting into the chacra, thirteen in number. They were young, slight, but muscular-looking fellows, all life and energy; and wanted to shoulder the trunks and be off at once. We, however, gave them some charqui, and set them to breakfast. At noon we started, and descended the valley of Chinchao in a N. N. E. direction; the path steep and obstructed with bushes.

At about six miles from Chihuangala we arrived at the junction of the Chinchao river with the Huallaga, in a heavy shower of rain, with thunder and lightning. By leaving the Huallaga at Acomayo, below Huanuco, crossing a range of mountains at the Cerro de Carpis, striking the head of the valley of Chinchao, and descending it, we had cut off a great bend of the river, and now struck it again at the junction of the Chinchao. It is here some sixty yards wide, and the Chinchao thirty, both much obstructed with shoals and banks of gravel. The peons waded the Huallaga above the junction, and brought up a canoe from the hacienda of *Chinchayvitoc*, a few hundred yards below, and on the opposite side. We passed in the canoe, which the Indians managed very well. It was a great treat, after the tedious walk we had had, to feel the free, rapid motion of the boat as it glided down the stream. The stream seemed to run at the rate of five or six miles the hour; but, by keeping close in shore, two Indians could paddle the light canoe against it very well.

Chinchayvitoc is a hacienda established by a Bolivian gentleman named Villamil, for the collection of Peruvian bark. He brought some Bolivians with him to search for the bark; but it is not to be found in this country of good quality, and the scheme seems a failure. There is a mayordomo and a family of Indians living at the hacienda, but nothing is doing. Our peons cooked our dinner of cheese and rice, and made us a good cup of coffee. These are lively, good-tempered fellows,

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and, properly treated, make good and serviceable travelling companions. Let them but be faithfully paid, a kind word now and then spoken to them, and their cargoes rather under than over the regular weight, (eighty-seven and a half pounds,) and they will serve faithfully and honestly, and go singing and chattering through the woods like so many monkeys. Above all, let them stop when they wish, and don't attempt to hurry them.

We had Mr. Nation in company. He had collected some valuable plants, and showed me one which he said was a present for an Emperor, and that its very name would make my journal famous. I of course did not ask it of him; but was very glad to be able to repay to him, in some slight measure, the many kindnesses I have received from his countrymen, by giving him a part of my bed-clothes, and making him comfortable for the night, which he seemed to be much in need of, for he was wet and sick; and to sleep on the ground in that condition must be very dangerous. There is much moisture in the atmosphere; and I find it almost impossible to keep the guns in serviceable order.

We met at this place some Indians carrying tobacco from *Tocache* and *Saposoa* (towns of the Huallaga) to Huanuco. Enterprising men have frequently tried to establish a trade along this river, carrying down cotton goods, knives, hatchets, beads, &c., and getting return-cargoes of tobacco, rice, straw hats, rare birds, and animals; but the difficulties of the route seem to have baffled enterprise. About two and a half years ago *Vicente Cevallos* made a large venture. He carried down thirty-five trunks or packages of goods, and the people of the river still talk of his articles of luxury; but in passing one of the *malos pasos*, or rapids of the river, his boat capsized, and he lost everything.

The Indians here had blue limestone, which they were burning to mix with their coca.

July 31.—I bathed in the river before starting. This is wrong in so humid an atmosphere. I became chilled, and did not get over it for some hours. A native traveller in these parts will not even wash his face and hands before the sun is well up. Soon after starting we crossed a small stream, and ascended a hill that overlooks the falls of *Cayumba*, beyond which canoes cannot ascend. I did not see the falls, but am told that there is no cascade of height, but rather a considerably inclined plain, much obstructed by drift. Smyth says: "From hence," (the cave of Cayumba, below the falls,) "we had a very picturesque view of both the Huallaga and Cayumba—the former rushing between two high perpendicular rocks, and the latter rolling down a steep ravine. They

unite with great violence at a point where there is a small island covered with trees, and roll past the cave in an impetuous torrent."

The ascent of the hill was very tedious, and I should complain of the fatigue but for shame's sake; for there were Indians along, young and rather small men, who were carrying a burden of nearly one hundred pounds on their back. Their manner of carrying cargoes is to have a sort of cotton satchel, of open work, with a broad stout strap to it. The end of the trunk or package, which is placed on end, is put into the bag, and the Indian, sitting down with his back to it, passes the strap over his forehead, and then, with a lift from another, rises to his feet, and, bending forward, brings the weight upon the muscles of his neck and back. A bit of blanket, or old cotton cloth, protects the skin of the back from chafe. The traveller in these parts should be as lightly clad and carry as little weight as possible, for the path is very steep and muddy. I had been thoughtless enough to wear my heavy Sierra clothes, and to load myself with a gun of a greater weight, I believe, than a standard musket—and so had occasion to envy Ijurra his light rig of nankeen trousers and cotton shirt, long but light staff, and twilled cotton "Jeffersons."

The descent of this hill, which is nearly as tedious as the ascent, brought us to the banks of the river opposite the mal-paso of *Palma*. This is the first rapid I have seen, and it looked formidable enough. The river, obstructed in its rapid course, breaks into waves, which dash with thundering violence against the rocks, and rush between them in sluices of dazzling velocity. Cargoes must always be landed at this place, and carried around. The canoe, thus lightened, under skilful and practical management, may shoot the rapid; but this should not be attempted where it can be avoided. By prudence, these malos pasos (the dread of travellers) are stripped of all danger; but the Indians sometimes get drunk and insist upon the attempt; and thus these places have become the graves of many. Since my return home I have a letter from Castillo, the young man I met in Huanuco, enclosing others which were sent to him at Tarapota from Lima to be forwarded to me. He begged me to excuse the condition in which I should receive these letters, for they had been shipwrecked in their transit. "Three persons," said he, "were drowned, but the letters *fortunately* escaped."

Nearly all the malos pasos are at the mouth of a tributary. These, in the floods, bring down quantities of drift, with heavy boulders, which, thrown crosswise into the stream, lodge and form the obstructions. Little labor would be required to clear away the rocks, and make the river passable for canoes at least, if not for light-draught steamboats.

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The trees of the forest are large, tall, and without branches for a great distance up. Ijurra pointed out one to me, of smooth bark, about four feet diameter near the ground, and which ran up sixty or seventy feet without a branch. He said that it was so hard that it resisted all attacks of the axe; and, to get it down, it was necessary to remove the earth and set fire to the roots; and that, suffered to lie in the water for a long time, it turned to stone of so hard a character, that, like flint, it would strike fire from steel. Unfortunately for the accuracy of the statement, we next day saw gigantic trees of this species that had been felled with an axe. The wood is, however, very hard and heavy—too much so for any practical use here. The tree is called *capirona*. It has a smooth bark, which it is continually changing. The old bark is a very pretty light-red; the new, a pea-green.

At half-past 4 p. m., we arrived at *the Cave*, a place where a huge rock, projecting from the hill-side, made a shelter which would cover and protect from dew or rain about a dozen persons. The Indian who carried my bag of bedding wished to make my bed there; but I decided that it was too damp, and made him spread it out on the shingle by the river brink. The largest part of the cargo had not arrived, and I feared that we were without drink or cigars, which would have been a great deprivation to us after the fatigue of the day. The rice and cheese were on hand; and, to our great delight, Ijurra found in his saddle-bags a bottle of sherry-brandy that Mr Jump had insisted upon our taking from Cerro Pasco, and which I had forgotten. A tin-pan of hot boiled rice flavored with cheese, a teacup of the brandy, and half a dozen paper cigars, made us very comfortable; and, lulled by the rustling of the leaves and the roar of the river, we slept in spite of the ants and other insects that left the mark of their bites upon our carcasses. I saw here, for the first time, the *luciernago*, or fire-fly of this country. It is, unlike ours, a species of beetle, carrying two white lights in its eyes, (or, rather, in the places where the eyes of insects generally are,) and a red light between the scales of the belly—so that it reminded me something of the ocean steamers. It has the power of softening the light of the eyes until it becomes very faint; but upon irritating it, by passing the finger over the eyes, the light becomes very bright and sparkling. They are sometimes carried to Lima, (enclosed in an apartment cut into a sugar-cane,) where the ladies, at balls or theatres, put them in their hair for ornament.

August 1.—We started, without breakfast, at a quarter to seven, thinking that we were near Tingo Maria. But it was ten miles distant, and I was weary enough ere we arrived. My principal source of annoyance was the having inadvertedly asked how far we were off from our destination. I would advise no traveller to do this; he is sure to be disappointed; and when he is told (as he will certainly be) that he is near, the miles appear doubly long. The Indians take no account of time or distance. They stop when they get tired, and arrive when God pleases. They live on plantains—roasted, boiled, and fried; and in the way of food, a yucca is their greatest good. Talking with a young Indian, who had a light load, and kept up with me very well, I was struck with the comparative value of things. A Londoner, who has been absent for some time from his favorite city, and subjected to some privations on that account, could not have spoken of the elegances and comforts of London with more enthusiasm than my companion spoke of *Pueblo Viejo*, a settlement of half a dozen Indians, which we were approaching. "There are plantains," said he; "there are yuccas; there is everything"—(*Hay platanos, hay yuccas, hay todo*)—and I really expected to be surprised and pleased when I arrived at Pueblo Viejo. The town, in fact, consisted of a single hut, with a plantain grove, a small patch of yuccas, and another of sugar-cane. In several places near by, people were felling the trees and forming chacras. The road lay sometimes across and sometimes along these huge trees; and I envied the bare feet and firm step of my companion, feeling that my tired legs and muddy boots might, at any moment, play me a slippery trick, and cost me a broken leg or sprained ankle.

At eleven we arrived at *Juana del Rio*, a settlement of five or six houses, on the right bank of the river, named after the lady of Señor Martins, whom we met at Cocheros. The houses were all shut up, and nobody seemed to be at home. Here we crossed the river, (one hundred yards broad, smooth, and deep,) and walked down the left bank about half a mile to the pueblo of San Antonio del Tingo Maria. *Tingo* is the Indian term for the junction of two rivers, the Monzon emptying into the Huallaga just above this. The governor, an intelligent and modest young man, a former friend of Ijurra, welcomed us cordially and gave us a capital breakfast of chicken broth.

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CHAPTER VII.

Itinerary—Tingo Maria—Vampires—Blow-guns—Canoe navigation—Shooting monkeys—Tocache—Sion—Salt hills of Pilluana.

The following table gives the distance between Lima and the head of canoe navigation on the Huallaga river:

From Lima to Chaclacayo	- - - - - -	18	miles.
" " to Santa Ana	- - - - - -	10	"
" " to Surco	- - - - - -	18	"
" " to San Mateo	- - - - - -	18	"
" " to Acchahuarcu	- - - - - -	13	"
" " to Morococha	- - - - - -	12	"
" " to Oroya	- - - - - -	17	"
" " to Tarma	- - - - - -	16	"
" " to Palcamayo	- - - - - -	15	"
" " to Junin	- - - - - -	18	"
" " to Carhuamayo	- - - - - -	15	"
" " to Cerro Pasco	- - - - - -	20	"
" " to Caxamarquilla	- - - - - -	15	"
" " to San Rafael	- - - - - -	15	"
" " to Ambo	- - - - - -	20	"
" " to Huanuco	- - - - - -	15	"
" " to Acomayo	- - - - - -	14	"
" " to Chinchao	- - - - - -	16	"
" " to Chihuangala	- - - - - -	20	"
" " to La Cueva	- - - - - -	20	"
" " to Tingo Maria	- - - - - -	10	"
		335	"

This distance of three hundred and thirty-five miles may be shortened twenty-eight by going direct from Lima to Cerro Pasco. (We passed round by Tarma.) The traveller will find that the distance is divided in the table into days' journeys nearly. Thus it will cost him, with loaded mules, twenty-one days to reach the head of canoe navigation on the Huallaga by this route, and nineteen by the other. The last thirty miles between Chihuangala and Tingo Maria are travelled on foot, though there would be no difficulty in opening a mule-road.

Any number of mules may be had in Lima at a hire of about seventy-five cents a day. I paid more; but this was to be expected, for I bargained with the muleteers that they were to stop where I pleased, and as long as I pleased. The feed of a mule will average twelve and a half cents per day. The load is two hundred and sixty pounds.

It would be difficult to persuade a muleteer to take a traveller all the distance. They do not like to leave their own *beat*, and the traveller has to change his mules, on an average, every hundred miles.

The passage of the Cordillera at the season of the year when we crossed is neither very tedious nor laborious. In fact, we enjoyed much the magnificent scenery; we were pleased with the manners and habits of a primitive people; and we met hospitality and kindness everywhere. In the season of the rains, however, the passage must be both difficult and dangerous.

August 2.—Tingo Maria is a prettily-situated village, of forty-eight able bodied men, and an entire population of one hundred and eighty-eight. This includes those who are settled at Juana del Rio and the houses within a mile or two.

The *pueblo* is situated in a plain on the left bank of the river, which is about six miles in length, and three miles in its broadest part, where the mountains back of it recede in a semi-circle from the river. The height above the level of the sea is two thousand two hundred and sixty feet. The productions of the plain are sugar-cane, rice, cotton, tobacco, indigo, maize, sweet potatoes, yuccas, *sachapapa*, or potato of the woods, (the large, mealy, purple-streaked tuberous root of a vine, in taste like a yam, and very good food.) The woods are stocked with game—such as *pumas*, or American tigers; deer; peccary, or wild hog; *ronsoco*, or river hog; monkeys, &c. For birds—are several varieties of "*curassow*," a large bird, something like a turkey, but with, generally, a red bill, a crest, and shining blue-black plumage; a delicate "*pava del monte*," or wild turkey; a great variety of parrots; with large, black, wild ducks, and cormorants. There are also rattlesnakes and vipers. But even with all these, I would advise no traveller to trust to his gun for support. The woods are so thick and tangled with undergrowth that no one but an Indian can penetrate them, and no eyes but those of an Indian could see the game. Even he only hunts from necessity, and will rarely venture into the thick forest alone, for fear of the tiger or the viper. There are also good and delicate fish in the river, but in no great abundance.

The inhabitants are of a tribe called *Cholones*, which was once large and powerful. I like their character better than that of any Indians

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whom I afterwards met with. They are good tempered, cheerful, and sober, and by far the largest and finest-looking of the aborigines that I have encountered. They are obedient to the church and attentive to her ceremonies; and are more advanced than common in civilization, using no paint as an ornament, but only staining their arms and legs with the juice of a fruit called *huitoc*, that gives a dark, blue dye, as a protection against the sand-flies, which are abundant, and a great nuisance. The place is generally very healthy. The common diseases are lymphatic swellings of the body and limbs, (supposed to be caused by exposure to the great humidity of the atmosphere while fishing at night,) and *sarna*, (a cutaneous affection, which covers the body with sores, making the patient a loathsome object.) These sores dry up and come off in scabs, leaving blotches on the skin, so that an Indian is frequently seen quite mottled. I imagine it is caused by want of cleanliness, and the bites of the sand-flies. They take, as a remedy, the dried root of a small tree called *sarnango*, grated and mixed with water. It is said to have a powerfully-intoxicating and stupefying effect, and to cause the skin to peal off.

The huitoc is a nut-like fruit, about the size of a common black walnut with its outer covering. It is, when ripe, soft, of a russet color outside, and filled with a dark purple pulp and small seeds. The tree is slender, and some fifteen or twenty feet high, shooting out broad leaves, with the fruit growing at their base and underneath, like the bread fruit. There is also here a small tree called *añil*, or indigo, with a leaf narrow at its base and broad near the extremity, which yields as deep a dye as the plant. There are also gay and fragrant flowers in the gardens of the Indians.

Ijurra shot a large bat, of the vampire species, measuring about two feet across the extended wings. This is a very disgusting-looking animal, though its fur is very delicate, and of a glossy, rich maroon color. Its mouth is amply provided with teeth, looking like that of a miniature tiger. It has two long and sharp tusks in the front part of each jaw, with two smaller teeth, like those of a hare or sheep, between the tusks of the upper jaw, and four (much smaller) between those of the lower. There are also teeth back of the tusks, extending far back into the mouth. The nostrils seem fitted as a suction apparatus. Above them is a triangular, cartilaginous snout, nearly half an inch long, and a quarter broad at the base; and below them is a semi-circular flap, of nearly the same breadth, but not so long. I suppose these might be placed over the puncture made by the teeth, and the air underneath exhausted by the nostrils, thus making them a very perfect cupping-

glass. I never heard it doubted, until my return home, that these animals were blood-suckers; but the distinguished naturalist, Mr. T. R. Peale, tells me that no one has ever seen them engaged in the operation, and that he has made repeated attempts for that purpose, but without success. On one occasion, when a companion had lost a good deal of blood, the doors and windows of the house in which his party was lying were closed, and a number of these bats, that were clinging to the roof, killed; but none of them were found gorged, or with any signs of having been engaged in blood-sucking. I also observed no apparatus proper for making a delicate puncture. The tusks are quite as large as those of a rat, and, if used in the ordinary manner, would make four wounds at once, producing, I should think, quite sufficient pain to awaken the most profound sleeper. Never having heard this doubt, it did not occur to me to ask the Indians if they had ever seen the bat sucking, or to examine the wounds of the horses that I had seen bleeding from this supposed cause. On one occasion I found my blanket spotted with blood, and supposed that the bat (having gorged himself on the horses outside) had flown into the house, and, fastening himself to the thatch over me, had disgorged upon my covering and then flown out. There was no great quantity of blood, there being but five or six stains on the blanket, such as would have been made by large drops. I presumed, likewise, from the fact of the drops being scattered irregularly over a small surface, that the bat had been hanging by his feet to the thatch, and swinging about. The discovery of the drops produced a sensation of deep disgust; and I have frequently been unable to sleep for fear of the filthy beast. Every traveller in these countries should learn to sleep with body and head enveloped in a blanket, as the Indians do.

I saw here, for the first time, the blow-gun of the Indians, called, by the Spaniards, *cerbatana;* by the Portuguese of the river, *gravatana*, (a corruption, I imagine, of the former, as I find no such Portuguese word;) and by the Indians, *pucuna*. It is made of any long, straight piece of wood, generally of a species of palm called chonta—a heavy, elastic wood, of which bows, clubs, and spears are also made. The pole or staff, about eight feet in length, and two inches diameter near the mouth end, (tapering down to half an inch at the extremity,) is divided longitudinally; a canal is hollowed out along the centre of each part, which is well smoothed and polished by rubbing with fine sand and wood. The two parts are then brought together; nicely woolded with twine; and the whole covered with wax, mixed with some resin of the forest, to make it hard. A couple of boar's teeth are fitted on each side of the mouth end, and one of the curved front teeth of a small animal

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resembling a cross between a squirrel and a hare, is placed on top for a sight. The arrow is made of any light wood, generally the wild cane, or the middle fibre of a species of palm-leaf, which is about a foot in length, and of the thickness of an ordinary lucifer match. The end of the arrow, which is placed next to the mouth, is wrapped with a light, delicate sort of wild cotton, which grows in a pod upon a large tree, and is called *huimba;* and the other end, very sharply pointed, is dipped in a vegetable poison prepared from the juice of the creeper, called *bejuco de ambihuasca*, mixed with *aji*, or strong red pepper, *barbasco*, *sarnango*, and whatever substances the Indians know to be deleterious. The marksman, when using his pucuna, instead of stretching out the left hand along the body of the tube, places it to his mouth by grasping it, with both hands together, close to the mouth-piece, in such a manner that it requires considerable strength in the arms to hold it out at all, much less steadily. If a practised marksman, he will kill a small bird at thirty or forty paces. In an experiment that I saw, the Indian held the pucuna horizontally, and the arrow blown from it stuck in the ground at thirty-eight paces. Commonly the Indian has quite an affection for his gun, and many superstitious notions about it. I could not persuade one to shoot a very pretty black and yellow bird for me because it was a carrion bird; and the Indian said that it would deteriorate and make useless all the poison in his gourd. Neither will he discharge his pucuna at a snake, for fear of the gun being made crooked like the reptile; and a fowling-piece or rifle that has once been discharged at an alligator is considered entirely worthless. A round gourd, with a hole in it for the huimba, and a joint of the *caña brava* as a quiver, completes the hunting apparatus.

August 3.—Went to church. The congregation—men, women, and children—numbered about fifty; the service was conducted by the governor, assisted by the alcalde. A little naked, bow-legged Indian child, of two or three years, and Ijurra's pointer puppy, which he had brought all the way from Lima on his saddle-bow, worried the congregation with their tricks and gambols; but altogether they were attentive to their prayers, and devout. I enjoyed exceedingly the public worship of God with these rude children of the forest; and, although they probably understood little of what they were about, I thought I could see its humanizing and fraternizing effect upon all.

At night we had a ball at the governor's house. The alcalde, who was a trump, produced his fiddle; another had a rude sort of guitar, or banjo; and under the excitement of his music, and the aguadiente of the governor, who had had his cane ground in anticipation of our arrival,

we danced till eleven o'clock. The custom of the dance requires that a gentleman should choose a lady and dance with her, in the middle of the floor, till she gives over, (the company around clapping their hands in time to the music, and cheering the dancers with *vivas* at any particular display of agility or spirit in the dance.) He then presents his partner with a glass of grog, leads her to a seat, and chooses another. When he tires there is a general drink, and the lady has the choice. The *Señor Commandante* was in considerable request; and a fat old lady, who would not dance with anybody else, nearly killed me. The governor discharged our guns several times, and let off some rockets that we had brought from Huanuco; and doubt if Tingo Maria had ever witnessed such a brilliant affair before.

August 4.—I waked up with pain in the legs and headache from dancing, and found our men and canoes ready for embarkation. After breakfast the governor and his wife, (though I greviously fear that there had been no intervention of the priest in the matter of the union,) together with several of our partners of the previous night, accompanied us to the port. After loading the canoes the governor made a short address to the canoe-men, telling them that we "were no common persons; that they were to have a special care of us: to be very obedient, &c., and that he would put up daily prayers for their safe return;" whereupon, after a glass all round, from a bottle brought down specially by our hostess, and a hearty embrace of the governor, his lady, and my fat friend of the night before, we embarked and shoved off; the boatmen blowing their horns as we drifted rapidly down with the current of the river, and the party on shore waving their hats and shouting their adieus.

We had two canoes; the largest about forty feet long, by two and a half broad; hollowed out from a single log, and manned each by five men and a boy. They are conducted by a *puntero*, or bowman, who looks out for rocks or sunken trees ahead; a *popero*, or steersman, who stands on a little platform at the stern of the boat and guides her motions; and the *bogas* or rowers, who stand up to paddle, having one foot in the bottom of the boat and the other on the gunwale. When the river was smooth and free from obstructions, we drifted with the current; the men sitting on the trunks and boxes, chatting and laughing with each other; but, as we approached a mal-paso, their serious looks, and the firm position in which each one planted himself at his post, showed that work was to be done. I felt a little nervous at first; but when we had fairly entered the pass, the rapid gesture of the puntero, indicating the channel; the elegant and graceful position of the

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popero, giving the boat a broad sheer with the sweep of his long paddle; the desperate exertions of the bogas; the railroad rush of the canoe; and the wild, triumphant, screaming laugh of the Indians, as we shot past the danger, made a scene that was much too exciting to admit of any other emotion than that of admiration.

We passed many of these to-day, and were well soaked by the canoes taking in water on each side; some of them were mere smooth declivities—inclined planes of gravel, with only three or four inches of water on them, so that the men had to get overboard, keep the canoes *head on* and drag them down. The average velocity of the river here is three and a half miles to the hour; but when it dashes down one of these declivities, it must be much more. The breadth of the river is a constantly varying quantity, probably never over one hundred and fifty yards, and never under thirty; banks low, and covered with trees, bushes, and wild cane. There were hills on each side, some distance from the bank, but now and then coming down to it. It is almost impossible to estimate the distance travelled with any degree of accuracy. The force of the current is very variable, and the Indians very irregular in their manner of rowing—sometimes paddling half an hour with great vigor, and then suffering the boat to drift with the tide. Averaging the current at three and a half miles the hour, and the rowing at one and a half, with nine hours of actual travel, we have forty-five miles for a day's journey at this season. I have estimated the number of travelling hours at nine, for we get off generally at 5 a. m., and stop at 5 p. m. We spend two hours for breakfast, in the middle of the day, and another hour is lost at the shallows of the river, or stopping to get a shot at an animal or bird.

At half-past five we camped on the beach. The first business of the boatmen when the canoe is secured, is to go off to the woods and cut stakes and palm branches to make a house for the *patron*. By sticking long poles in the sand, chopping them half in two, about five feet above the ground, and bending the upper parts together, they make, in a few minutes, the frame of a little shanty, which, thickly thatched with palm leaves, will keep off the dew or an ordinary rain. Some bring the drift-wood that is lying about the beach and make a fire; the provisions are cooked and eaten; the bedding laid down upon the leaves that cover the floor of the shanty; the mosquito nettings spread; and, after a cup of coffee, a glass of grog, and a cigar, (if they are to be had,) everybody retires for the night by eight o'clock. The Indians sleep around the hut, each under his narrow cotton mosquito curtain, which glisten in the moon-light like so many tomb-stones. This was

pleasant enough when provisions were plenty and the weather good; but when there was no coffee or brandy, the cigars had given out, and there was a slim allowance of only salt fish and plantains, with one of those nights of heavy rain that are frequent upon the Marañon, I could not help calling to mind, with some bitterness of spirit, the comforts of the ship-of-war that I had left, to say nothing of the luxuries of home.

August 6.—Started at eight. River seventy yards broad, nine feet deep, pebbly bottom; current three miles per hour. We find in some places, where hills come down to the river, as much as thirty feet of depth. There are some quite high hills on the right-hand side, that might be called mountains; they run north and south. I was surprised that we saw no animals all day, but only river birds—such as black ducks, cormorants, and king-fishers; also many parrots of various kinds and brilliant plumage, but they always kept out of shot. We camped at half-past five, tired and low-spirited, having had nothing to eat all day but a little rice boiled with cheese early in the morning. My wrists were sore and painful from sun-burn, and the sand-flies were very troublesome. Heavy clouds, with thunder and lightning, in the N. W. In the night, fresh breeze from that quarter. We heard tigers and monkeys during the night, and saw the tiger-tracks near the camp next morning.

August 6.—Soon after starting we saw a fine doe coming down towards the river. We steered in, and got within about eighty yards of her, when Ijurra and I fired together, the guns loaded with a couple of rifle-balls each. The animal stood quite still for a few minutes, and then walked slowly off towards the bushes. I gave my gun, loaded with three rifle-balls, to the puntero, who got a close shot, but without effect. One of the balls, a little flattened, was picked up close to where the deer stood. These circumstances made the Indians doubt if she were a deer; and I judge, from their gestures and exclamations, that they thought it was some evil spirit that was ball-proof. I imagine that the ball was flattened either by passing through the branch of a brush or striking some particularly hard bone of the animal, or it might have been jammed in the gun by the other balls.

These Indians have very keen senses, and see and hear things that are inaudible and invisible to us. Our canoe-men this morning commenced paddling with great vigor. I asked the cause, and they said that they heard monkeys ahead. I think we must have paddled a mile before I heard the sound they spoke of. When we came up to them, we found a gang of large red monkeys in some tall trees on the

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river-side, making a noise like the grunting of a herd of enraged hogs. We landed, and in a few minutes I found myself beating my way through the thick undergrowth, and hunting monkeys with as much excitement as I had ever hunted squirrels when a boy. I had no balls with me, and my No. 3 shot only served to sting them from their elevated position in the tops of the trees, and bring them within reach of the pucunas of the Indians. They got two and I one, after firing about a dozen shots into him. I never saw animals so tenacious of life; this one was, as the Indians expressed it, *bathed in shot*, (*bañado en municion.*) These monkeys were about the size of a common terrier-dog, and were clad with a long, soft, maroon-colored hair; they are called *cotomonos*, from a large goitre (coto) under the jaw. This is an apparatus of thin bone in the wind-pipe, by means of which they make their peculiar noise. The male, called *curaca*, (which is also the appellation of the chief of a tribe of Indians,) has a long red beard. They are called *guariba* in Brazil, where they are said to be black as well as red; and I believe they are of the species commonly called *howling monkeys*.

It is scarcely worth while to say that the Indians use parts of this animal for the cure of diseases, for I know no substance that could possibly be used as a remedial agent that they do not use for that purpose. The mother carries the young upon her back until it is able to go alone. If the dam dies, the sire takes charge. There are vast numbers in all the course of the river, and no day passes to the traveller that they are not heard or seen.

When I arrived at the beach with my game, I found that the Indians had made a fire and were roasting theirs. They did not take the trouble to skin and clean the animal, but simply put him in the fire, and, when well scorched, took him off and cut pieces from the fleshy parts with a knife; if these were not sufficiently well done, they roasted them farther on little stakes stuck up before the fire. I tried to eat a piece, but it was so tough that my teeth would make no impression upon it. The one I killed was *enciente;* the fœtus about double the size of a wharf-rat. I wished to preserve it, but it was too large for any bottles I had; whereupon the Indians roasted and ate it without ceremony.

We also saw to-day several river hogs, and had an animated chase after one, which we encountered on the river-side, immediately opposite a nearly precipitous bank of loose earth, which crumbled under his feet so that he could not climb it. He hesitated to take the water in face of the canoes, so that we thought we had him; but after a little play up and down the river-side, he broke his way through the line of his adversaries, capsizing two Indians as he went, and took to the water. This animal is amphibious, about the size of a half-grown hog, and reminded me, in his appearance and movements, of the rhinoceros. He is also red, and I thought it remarkable that the only animals we had seen—the deer, the monkeys, and the hog—should be all of this color. It is called *ronsoco* here, and *capiuara* in Brazil. In these Brazilian names I follow the spelling of Baeña.

We also heard the barking of dogs on the right or *Infidel* side of the river, in contradistinction to the other, which is called *La parte de la cristiandad*, supposed to be the dogs of the *Cashibos* Indians of the *Pachitea*.

Parrots and other birds were also more numerous than before.

We found the river to-day much choked with islands, shoals, and grounded drift-wood; camped at half-past five, and supped upon monkey soup. The monkey, as it regards toughness, was monkey still; but the liver, of which I ate nearly the whole, was tender and good. Jocko, however, had his revenge, for I nearly perished of nightmare. Some devil, with arms as nervous as the monkey's, had me by the throat, and, staring on me with his cold, cruel eye, expressed his determination to hold on to the death. I thought it hard to die by the grasp of this fiend on the banks of the strange river, and so early in my course; and upon making a desperate effort, and shaking him off, I found that I had forgotten to take off my cravat, which was choking me within an inch of my life.

August 7.—We got off at half-past eight; at a quarter to ten passed the port of *Uchiza*. This is a village nine miles from the river. The port itself, like that of Tingo Maria, is a shed for the accommodation of canoes and passengers. Nearly all the towns on the river are built six or eight miles from the banks, on account of the overflow of the country when the river is full. Some hill on the bank is generally selected as the port, and a road is made thence to the town. This hill is sometimes forty feet out of water, and sometimes covered, and the whole land between it and the town overflowed. At a quarter past ten we passed the Quebrada, or ravine of *Huinagua*, on the right. A small stream comes down this ravine, the water of which is salt. The people of Uchiza ascend it—a day's journey—to a salt hill, where they supply themselves with this indispensable article. At twenty minutes past eleven we passed another; and at 1 p. m. another, where the people of *Tocache* get their salt. It is a day's journey from Tocache to the mouth of the Quebrada, and another to the salt hills.

To-day presented a remarkable contrast to yesterday for sportsmen.

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We did not see a single animal, and very few birds; even parrots, generally so plentiful, were scarce to-day. It was a day of work; the men paddled well, and we must have made seventy miles. On approaching Tocache, which was their last stage with us, the Indians almost deafened me with the noise of their horns. These horns are generally made of pieces of wood hollowed out thin, joined together, wrapped with twine, and coated with wax. They are shaped like a blunderbuss, and are about four feet long; the mouth-piece is of reed, and the sound deep and mellow. The Indians always make a great noise on approaching any place, to indicate that they come as friends. They fancy that they might otherwise be attacked, as hostile parties always move silently.

We arrived at five. I was wearied with the monotonous day's journey and the heat of the sun, and anticipated the arrival with pleasure, thinking that we were going to stop at a large village and get something good to eat; but I was grievously disappointed. We arrived only at the port, which was, as usual, a shed on a hill; the village being nine miles off. There was nothing to eat here: so we determined to start inland and see what we could pick up. A rapid walk of an hour and a quarter brought us to *Lamasillo*, which I had been told was a pueblo of whites, but which we found to be but a single house with a "platanal" attached to it. There were other houses near, but none within sight. I had been under the impression that "pueblo" meant a village, but I think now it signifies any settled country, though the houses may be miles apart. With much persuasion we induced the people of the house to sell us a couple of bottles of aguadiente and a pair of chickens. The governor of the district had been at this place within the hour, but was gone to Tocache, which we understood to be two *coceadas* further on, or about the same distance that we had come over from the port to this place. Distance is frequently estimated by the time that a man will occupy in taking a chew of coca. From the distance between the port and Lamasillo, it appears that a chew of coca is about three-fourths of a league, or thirty-seven and a half minutes.

We walked back by moonlight, and had a fowl cooked forthwith; which, as we had had nothing but a little monkey soup early in the morning, we devoured more like tigers than Christian men. We found at the port several travelling merchants from Moyobamba. One party had been to Huanuco by land, with a cargo of straw hats and tobacco, which they sold at about fifty per cent. advance on prime cost. This is a miserable traffic, for the round trip occupies four months, and is one of great hardship. The other party were going by the river in

canoes to Huanuco, with the same cargo, and in addition some rice and rare birds. Travellers go up by the river when it is low, and by land when the river is high. The returning party were going down on *balsas*, which they had constructed at Tingo Maria. These balsas are logs of a light kind of wood, called balsa wood, placed side by side, half a foot apart, and secured by other pieces lashed athwart them. A platform raised on small logs is elevated amidships for the cargo to rest on; and the rowers, standing upon the lower logs, have their feet in the water all the time. After getting clear of all the rapids of a river, they of course may be built of any size, and comfortable houses erected on them. I should have preferred coming down the Amazon in that way, but that I contemplated ascending other rivers.

We made our beds in the canoes under the shed, and, tired as we were, slept comfortably enough. It seems a merciful dispensation of Providence that the sand-flies go to bed at the same time with the people; otherwise I think one could not live in this country. We have not yet been troubled with musquitoes. The sand-flies are here called "mosquitos," the diminutive of *mosca*, a fly; our musquitoes are called *sancudos*. The sand-flies are very troublesome in the day, and one cannot write or eat in any comfort. Everybody's hands in this country are nearly black from the effects of their bite, which leaves a little round black spot, that lasts for weeks. It is much better to bear the sting than to irritate the part by scratching or rubbing.

August 8.—I sent Ijurra to Tocache to communicate with the governor, while I spent the day in writing up my journal, and drying the equipage that had been wetted in the journey. In the afternoon I walked into the woods with an Indian, for the purpose of seeing him kill a bird or animal with his pucuna. I admired the stealthy and noiseless manner with which he moved through the woods, occasionally casting a wondering and reproachful glance at me as I would catch my foot in a creeper and pitch into the bushes with sufficient noise to alarm all the game within a mile round. At last he pointed out to me a toucan, called by the Spaniards *predicador*, or preacher, sitting on a branch of a tree out of the reach of his gun. I fired and brought him down with a broken wing. The Indian started into the bushes after him; but, finding him running, he came back to me for his pucuna, which he had left behind. In a few minutes he brought the bird to me with an arrow sticking in his throat. The bird was dead in two minutes after I saw it, and probably in two and a half minutes from the time it was struck. The Indian said that his poison was good, but that it was in a manner ejected by the flow of blood, which

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covered the bird's breast, and which showed that a large blood-vessel of the neck had been pierced. I do not know if his reasoning were good or not.

Ijurra returned at eight, tired, and in a bad humor. He reported that he had hunted the governor from place to place all day; had come up with him at last and obtained the promise that we should have canoes and men to prosecute our journey. My companion, who has been sub-prefect or governor of the whole province which we are now in, (Mainas,) and who has appointed and removed these governors of districts at pleasure, finds it difficult to sue where he had formerly commanded. He consequently generally quarrels with those in authority; and I have to put myself to some trouble, and draw largely upon my "bon homie" to reconcile the differences, and cool down the heats, which his impatience and irritability often occasion. He, however, did good service to the cause, by purchasing a hog and some chickens, which were to appear to-morrow.

August 9.—We had people to work killing and salting our hog. We had difficulty in getting some one to undertake this office, but the man from whom we purchased the hog stood our friend, and brought down his family from Lamasillo to do the needful. We had very little benefit from our experiment in this way. We paid eight dollars for the hog, twenty-five cents for salt, twenty-five cents to *Don* Isidro, who brought him down to the port, and fifty cents to the same gentleman for butchering him. The wife and children of the owner took their pay for salting and smoking out of the hog himself. Our friends going up stream (according to Ijurra) stole half, and what was left spoiled before we could eat it.

Everybody is a Don in this country. Our Indian boatmen, at least the Poperos, are Dons; and much ceremonious courtesy is necessary in intercourse with them. I have to treat the governors of the districts with all manner of ceremony; when, while he exacts this, and will get sulky, and afford me no facilities without it, he will entertain the proposition to go along with me as my servant.

I had a note from the governor, not written but signed by himself, requesting to know how many men I wanted, and saying that he hoped to see us in the pueblo early to-morrow. We excused ourselves from going to the town, and requested him to send the men down to the port for their pay. This he would not do, but insisted that we should pay at least at Lamasillo. We always pay in advance, and the boatmen generally leave their cotton cloth, in which they are nearly always paid, with their wives. These have preferred their pay partly in money.

August 10.—The party for Huanuco got off this morning, and left the shed to Ijurra and me. Whilst bathing in the river, I saw an animal swimming down the stream towards me, which I took to be a fox or cat. I threw stones at it, and it swam to the other side of the river and took to the forest. Very soon after, a dog, who was evidently in chase, came swimming down, and missing the chase from the river, swam round in circles for some minutes before giving it up. This animal, from my description, was pronounced to be an ounce, or tiger-cat. It is called *tigre* throughout all this country, but is never so large or ferocious as the African tiger. They are rather spotted like the leopard, than striped like the tiger. They are said, when hungry, to be sufficiently dangerous, and no one cares to bring them to bay without good dogs and a good gun.

We talked so much about tigers and their carrying off people whilst asleep, that I, after going to bed, became nervous; and every sound near the shed made me grasp the handles of my pistols. After midnight I was lulled to sleep by the melancholy notes of a bird that Lieutenant Smyth calls "Alma Perdida," or lost soul. Its wild and wailing cry from the depths of the forest seemed, indeed, as sad and despairing as that of one without hope.

August 11.—Ijurra went to Lamasillo to pay the boatmen, some of them having come down to the port to carry up the cotton cloth. This left me entirely alone. The sense of loneliness, and the perfect stillness of the great forest, caused me to realize in all its force the truth of Campbell's fine line—

"The soli ude of earth that overawes."

It was strange, when the scratch of my pen on the paper ceased, to hear absolutely no sound. I felt so much the want of society, that I tried to make a friend of the lithe, cunning-looking lizard that ran along the canoe at my side, and that now and then stopped, raised up his head, and looked at me, seemingly in wonder.

I could see no traces of the height of the river in the *crecido*, or full; but, from a mark pointed out by one of the Indians, I judged that the river has here a perpendicular rise and fall of thirty feet. He represents it at a foot in depth at high water on the hill upon which we now are, and its borders at three-fourths of a mile inland. Smyth speaks of the river having fallen ten feet in a single night.

The hill on which the port of Tocache is situated, is about thirty feet above the present level of the river, and by boiling point is one thousand five hundred and seventy-nine feet above the level of the sea.

A canoe arrived from *Juan Juy*, and a party of two from *Saposoa* by

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land. These are towns further down the river. Each party had its *pitakas*, (hide trunks,) containing straw hats, rice, tobacco, and *tocuyo listado*, a striped cotton cloth, much used in Huanuco for "tickings." It is astonishing to see how far this generally lazy people will travel for a dollar.

August 18.—Had a visit from the governor last night. He is a little, bare-footed Mestizo, dressed in the short frock and trousers of the Indians. He seemed disposed to do all in his power to facilitate us and forward us on our journey. I asked him about the tigers. He said he had known three instances of their having attacked men in the night; two of them were much injured, and one died.

Our boatmen made their appearance at 10 a. m., accompanied by their wives, bringing masato for the voyage. The women carry their children (lashed flat on the back to a frame of reeds) by a strap around the brow, as they do any other burden. The urchins look comfortable and contented, and for all the world like young monkeys.

The Indians of this district are *Ibitos*. They are less civilized than the Cholones of Tingo Maria, and are the first whose faces I have seen regularly painted. They seem to have no fixed pattern, but each man paints according to his fancy; using, however, only two colors—the blue of Huitoc and the red "Achote."

The population of the district is contained in the villages of Tocache, Lamasillo, *Isonga*, and *Pisana*, and amounts to about five hundred souls. The road between the port and Tocache is level and smooth; the soil dark, of a light character, and very rich, though thin. Nothing is sent from this district for sale, and the inhabitants purchase the cotton for their garments from the itinerant traders on the river, paying for it with tobacco. I should judge from the periodical overflow of the lands, the heat of the sun, and the lightness and richness of the soil, that this would be the finest rice country in the world.

We started at twelve with two canoes and twelve men; river fifty yards broad, eighteen feet deep, and with three miles an hour current; a stream called the Tocache empties into it about half a mile below the port. It forces its way through five channels, over a bank of stones and sand. It is doubtless a fine large-looking river when at high water. The country is hilly on the right and flat on the left-hand side. At 3 p. m. we entered a more hilly country, and began to encounter again the malos pasos; passed the *Rio Grande de Meshuglla*, which comes in on the left in the same manner as the Tocache, and soon after, the port of Pisana; no houses at the port; saw an old white man on the beach, who was a cripple, and said he had been bedridden for nine years. He

begged us for needles, or fish-hooks, or anything we had. We gave him a dollar. He is the first beggar for charity's sake that I recollected to have seen since leaving Lima. There are beggars enough, but they ask for presents, or, offering to buy some article, expect that it shall be given to them.

The river is now entirely broken up by islands and rapids. In passing one of these, we came very near being capsized. Rounding suddenly the lower end of an island, we met the full force of the current from the other side, which, striking us on the beam, nearly rolled the canoe over. The men, in their fright, threw themselves on the upper gunwale of the boat which gave us a *heel* the other way, and we very nearly filled. Had the popero fallen from his post, (and he tottered fearfully,) we should probably have been lost; but by great exertions he got the boat's head down stream, and we shot safely by rocks that threatened destruction.

At six we arrived at the port of *Balsayacu*. The pueblo, which I found, as usual, to consist of one house, was a pleasant walk of half a mile from the port. We slept there, instead of at the beach; and it was well that we did, for it rained heavily all night. The only inhabitants of the rancho seemed to be two little girls; but I found in the morning that one of them had an infant, though she did not appear to be more than twelve or thirteen years of age. I suppose there are more houses in the neighborhood; but, as I have before said, a pueblo is merely a settlement, and may extend over leagues. The sandy point at the port is covered with large boulders, mostly of a dark red conglomerate, though there were stones of almost every kind brought down by the stream and deposited there. We travelled to-day about twenty-five miles; course N. W. by N.; average depth of the reaches of the river sixteen feet; current three and a half miles to the hour.

August 13.—Last night Ijurra struck with a fire-brand one of the boatmen, who was drunk, and disposed to be insolent, and blackened and burned his face. The man—a powerful Indian, of full six feet in height—bore it like a corrected child in a blubbering and sulky sort of manner. This morning he has the paint washed off his face, and looks as humble as a dog; though I observed a few hours afterwards that he was painted up again, and had resumed the usual gay and good-tempered manner of his tribe.

Between ten and eleven we passed the mal-paso of *Mataglla*, just below the mouth of the river of the same name, which comes in on the left, clear and cool into the Huallaga. The temperature of this stream was 69; that of the Huallaga 74. Ijurra thought its waters were de-

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cidedly salt, though I could not discover it. This mal-paso is the worst that I have yet encountered. We dared not attempt it under oar, and the canoe was let down along the shore, stern foremost, by a rope from its bows, and guided between the rocks by the popero—sometimes with his paddle, and sometimes overboard, up to his middle in water. I am told that "balsas" pass in mid-channel, but I am sure a canoe would be capsized and filled. The mal-paso is a quarter of a mile long, and an effectual bar, except perhaps at high water, to navigation for any thing but a canoe or balsa. Just before reaching *Sion* we passed the *Pan de Azucar*, a sugar-loaf island of slate rock; white when exposed long to the atmosphere; seventy or eighty feet in height, and covered with small trees. It appears to have been a promontory torn from the main land and worn into its present shape by the force of the current.

The river to-day averages one hundred yards in breadth, eighteen feet of depth, and with four miles of current. Its borders are hilly, and it runs straighter and more directly to the north than before.

At 1 p. m. we arrived at the port of Sion. This is the port *de la madre*, or of the main river. There is another port situated on the Caño or arm of the main river, nearer the pueblo. The village lies in a S. W. direction, about a mile from the port. As our Tocache men were to leave us here, we had all the baggage taken up to the town. The walk is a pleasant one, over a level road of fine sand, well shaded with large trees. Ijurra, who went up before me, met the priest of Saposoa (who is on the annual visit to his parish) going south, and about to embark at the Caño port; and the governor of the district going north to *Pachiza*, the capital. This last left orders that we should be well received; and the lieutenant governor of the pueblo lodged us in the *convento*, or priest's house, and appointed us a cook and a servant.

I slept comfortably on the padre's bedstead, enclosed with matting to keep off the bats. The people appear to make much of the visit of their priest. I saw in the corner of the *sala*, or hall of the house, a sort of rude palanquin, which I understood to have been constructed to carry his reverence back and forth, between the city and port.

August 14.—We employed the morning in cleaning the arms and drying the equipage. Had a visit from some ladies, pretty Mestizas, (descendents of white and Indian,) who examined the contents of our open trunks with curiosity and delight. They refrained, however, from asking for anything until they saw some chancaca with which we were about to sweeten our morning coffee, when they could contain themselves no longer; but requested a bit. This seems an article of great request, for no sooner had the news spread that we had it, than the

alcalde brought us an egg to exchange for some; and even the lieutenant governor also expressed his desire for a little. We refused the dignitaries, though we had given some to the ladies; for we had but enough for two or three cups more. Their wants, however, were not confined to sugar. They asked, without scruple, after a while, for anything they saw; and the lieutenant wanted a little sewing cotton, and some of the soap we brought to wash ourselves with, to take for physic. These things we could more easily part with, and I had no objection to give him some, and also to regale his wife with a pair of pinchbeck earrings. There is nothing made or cultivated here for sale. They raise a few fowls and some yuccas and plantains for their own use; and it was well that we brought our own provisions along, or we might have starved.

I do not wonder at the indifference of the people to attempt to better their condition. The power of the governor to take them from their labor and send them on journeys of weeks' duration with any passing merchant or traveller, would have this effect. At this time they have furnished canoes and rowers for the priest, and a Señor Santa Maria, bound up the river; and for the governor and us, bound down; which has taken thirty-eight men out of a population of ninety. (The whole population of the town and neighborhood, reckoning women and children, is three hundred.)

The town appears to have been once in a better condition than it is now. There are remains of a garden attached to the convent, and also of instruments of husbandry and manufacture—such as rude mortars, hollowed out from the trunk of a tree, for beating (with pestles) the husk from rice, and a press for putting into shape the crude wax gathered from the hollow trees by the Indians, used by the friars "lang syne"—all now seem going to decay. The people are lazy and indifferent. They cultivate plantains sufficient to give them to eat, and yuccas enough to make masato to get drunk on; and this seems all they need. Most of their time is spent in sleeping, drinking, and dancing. Yesterday they were dancing all day, having a feast preparatory to going to work to clear ground, and make a chacra for our "Lady of something," which the priest, in his recent visit, had commanded; (the produce of this chacra is doubtless for the benefit of the church or its ministers;) and I have no doubt that the Indians will have another feast when the job is done.

The dance was a simple affair so far as figure was concerned—the women whirling round in the centre, and the men (who were also the musicians) trotting around them in a circle. The music was made by

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rude drums, and fifes of reed, and it was quite amusing to see the alcalde, a large, painted, grave-looking Indian, trotting round like a dog on a tread mill, with a penny whistle at his mouth. I am told that they will dance in this way as long as there is drink, if it reach to a month. I myself have heard their music—the last thing at night as I was going to bed, and the first thing in the morning as I was getting up—for days at a time. The tune never changes, and seems to be the same everywhere in the Montaña. It is a monotonous tapping of the drum, very like our naval *beat to quarters*.

We embarked at the Caño port, and dropped down the Caño, a mile and a half to the river. We found the river deep and winding, and running, generally, between high cliffs of a white rock. The white, however, is superficial, and seems to be imparted by age and weather. Where the action of the water had worn the white off, the rock showed dark brown, and in layers of about two feet thick, the seams running N. N. W. and S. S. E., and at an angle elevated towards the north of 45°. It is argillaceous schist, which is the character of most of the rock of this country.

We passed the mal-paso of *Shapiama*, and, with fifteen minutes' interval, those of *Savolayacu* and *Cachihuanushca*. In the first two the canoes were let down with ropes, and we shot the last under oar, which I was surprised at, as I had heard that it was one of the worst on the river. Malos pasos, however, which are formidable when the river is full, are comparatively safe when it is low; and *vice versa*. Smyth passed when the river was high—I at the opposite season; and for this reason our accounts of the rapids would vary and appear contradictory.

After passing the last we found the hills lower, the country more open, and the river wider and with a gentler flow. The average depth to-day in the smooth parts is thirty feet; current, three miles.

We passed the port of *Valle* on the left. A small stream enters here. The town, containing five hundred inhabitants, is six miles from the port.

About sunset we arrived at *Challuayacu*, a settlement of twenty houses. All the inhabitants, except those of one house, were absent. We were told that they had been disobedient in some matter to the governor of the district, and that he had come upon them with a force and carried them off prisoners to Juan Juy, a large town further down the river, where authority might be brought to bear upon them.

The village is situated in a large and fertile plain, which reaches from near the town of Valle, on the S. W., to Pachisa, on the N.; but this is not yet settled or cultivated, and, as at Sion, nothing is produced

except the bare necessaries of life. Some attempt, however, had been made at improvements, for there were two small horses, in tolerable condition, wandering about among the deserted houses of the village. They eat the tops of the sugar-cane, the skin of the plantain, or almost any vegetable. They were brought from somewhere below to turn a trapiche; but everything seems abandoned now, and, there being no one to take care of the horses, I fancy the bats will soon bleed them to death.

August 16.—Lovely morning. On stepping out of the house my attention was attracted by a spider's web covering the whole of a large lemon-tree nearly. The tree was oval and well shaped; and the web was thrown over it in the most artistic manner, and with the finest effect. Broad flat cords were stretched out, like the cords of a tent, from its circumference to the neighboring bushes; and it looked as if some genius of the lamp, at the command of its master, had exhausted taste and skill to cover with this delicate drapery the rich-looking fruit beneath. I think the web would have measured full ten yards in diameter.

The river opposite Challuayacu is one hundred yards broad, shallow and rapid. A few miles below, it spreads out to one hundred and fifty yards; and in what seemed mid-channel, there was but six feet water, with a bottom of fine sand, and a current of four miles the hour. Hills on the right, but retiring from the shores; a perfect plain, covered with trees, bushes, and wild cane, on the left.

At noon we arrived at the mouth of the *Huayabamba*, which is one hundred yards wide, has six feet water, and a beautiful pebbly bottom. A quarter of an hour's drag of the canoe along the right bank brought us to the village of *Lupuna*, the port of Pachiza. It contains fifteen houses and about seventy-five inhabitants. A little rice is grown; but the staple production is cotton, which seemed to be abundant. This may be called a manufacturing place; for almost every woman was engaged in spinning, and many balls of cotton-thread were hanging from the rafters of each house. A woman, spinning with diligence all day, will make four of these balls. These weigh a pound, and are worth twenty-five cents. They are very generally used as currency, there being little money in the country. I saw some English prints, which were worth thirty-seven and a half cents the yard; (cost in Lima twelve and a half;) they come either by the way of Huanuco, or across the country, by Truxillo, Chachapoyas, and Moyobamba; and are paid for in hats, wax, or these balls of cotton.

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We had a visit from the governor of Pachiza, which town is situated on the right bank of the river, three miles above Lupuna. I asked him why he had carried away prisoners nearly all the population of Challuayacu. He merely said that they had been rebellious, and resisted his authority, and therefore he had taken them to Juan Juy, where they could be secured and punished. I thought it a pity that a thriving settlement should be broken up, very probably on account of some personal quarrel.

The district comprises the pueblos of Pachiza, of eighty matrimonios; Valle, eighty; *Huicunga*, thirty; Sion, thirty; *Archiras*, sixteen; Lupuna, fifteen; *Shepti*, twelve; *Bijao*, four; and Challuayacu, three. The number of souls in a village, proportionate to the number of matrimonios, or married couples, is generally estimated at five for one. This would give the population of the district thirteen hundred and fifty. The people are indolent and careless; and although there could not well be a finer or more productive country than all this district, yet they barely exist.

After we had retired to our mats beneath the shed for the night, I asked the governor if he knew a bird called *El alma perdida*. He did not know it by that name, and requested a description. I whistled an imitation of its notes; whereupon, an old crone, stretched on a mat near us, commenced, with animated tones and gestures, a story in the Incar language, which, translated, ran somehow thus:

An Indian and his wife went out from the village to work their chacra, carrying their infant with them. The woman went to the spring to get water, leaving the man in charge of the child, with many cautions to take good care of it. When she arrived at the spring she found it dried up, and went further to look for another. The husband, alarmed at her long absence, left the child and went in search. When they returned the child was gone; and to their repeated cries, as they wandered through the woods in search, they could get no response save the wailing cry of this little bird, heard for the first time, whose notes their anxious and excited imagination "syllabled" into *pa-pa*, *ma-ma*, (the present Quichua name of the bird.) I suppose the Spaniards heard this story, and, with that religious poetic turn of thought which seems peculiar to this people, called the bird "The lost soul."

The circumstances under which the story was told—the beautiful still, starlight night—the deep, dark forest around—the faint-red glimmering of the fire, flickering upon the old woman's gray hair and earnest face as she poured forth the guttural tones of the language of a people now passed away—gave it a sufficiently romantic interest to an imagi-

native man. The old woman was a small romance in herself. I had looked at her with interest as she cooked our supper. She wore a costume that is sometimes, though not often, seen in this country. The body, or upper part of the dress, which was black, consisted of two parts—one coming up from the waist behind and covering the back, the other in front, covering the breast; the two tied together over each shoulder with strings, leaving her lank sides and long skinny arms perfectly bare.

August 17.—We procured a canoe sufficiently large to carry all our baggage, (we had hitherto had two,) with eight peons. We found hills now on both sides of the river, which a little below Lupuna has one hundred and twenty yards of breadth and thirty feet of depth. We passed a small raft, with a house built of cane and palm upon it, containing an image of the Virgin, which was bound up the river seeking contributions. The people buy a step towards Heaven in this way with their little balls of cotton.

We passed abreast of Juan Juy; but, a long island intervening, we did not see it. It is a large village of five hundred inhabitants; it is situated in a plain, a great part of which is overflowed by the river at the full; and much rice is cultivated there. I have met with the rice of Juan Juy everywhere on the river. Soon after we passed the mouth of the river *Sapo*, which is fifty yards broad, and muddy; navigable for large canoes for twenty miles to the town of Saposoa, which contains one thousand inhabitants, and is the capital of the comparatively populous district of that name.

The Huallaga, which for some miles above this has but six feet of water, at this place has eighteen; but it soon diminishes to six again.

We stopped at a collection of three or four huts called *Oge*, where there was a trapiche to grind sugar-cane; but the people only made bad rum of it. We tried to purchase yuccas and plantains; but though they had them, they did not care to sell. They only plant enough for their own necessities. Great quantities of yuccas are used to make their masato. Below this we passed a rancho on the right-hand side, where there was a fine field of maize. This is the first settlement we have seen on that bank; fear of the savages, (or *Infidels*,) as they are called, who dwell on that side, preventing it.

We stopped for the night at *Juan Comas*, a small village situated on a bluff of light sandy soil, on the left bank. The hills on the other side are much more bare than is common, having only a few small trees and scattering bushes on them. We were quite objects of curiosity, and most of the people of the village came in to see us; one man, a

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strapping fellow, came in, and after a brief but courteous salutation to me, turned to one of the women, and drove her out of the house with kicks and curses. He followed her, and I soon after heard the sound of blows and the cries of a woman; I suppose the fellow was either jealous, or the lady had neglected some household duty to gratify her curiosity.

August 18.—Just below Juan Comas the river has one hundred yards of width and forty-two feet of depth. This part of the river is called the "well" of Juan Comas; it is half a mile in length, and the current runs but one and a quarter mile the hour. The hills terminate just below this, and we have the country flat on both sides. We passed some rocky hills on the right-hand side, in one of which is a cave called "Puma-huasi," or Tiger house. It is said to be very extensive. Soon after we passed the mouth of the river *Hunanza*, a small stream coming in on the Infidel side of the river. Our popero says that the Infidels dwell near here, and the people of *Tarapoto* go a short distance up this river to capture the young Indians and take them home as slaves. I believe this story; for I found servants of this class in Tarapoto, who were bought and sold as slaves. Slavery is prohibited by the laws of Peru; but this system is tolerated on the plea that the Infidel is christianized and his condition bettered by it.

It is very easy for only a few white men, armed with guns, to rob the savages of their children; for these rarely live in villages, but in families of at most three or four huts, and widely separated from each other. They never assemble except for the purpose of war; and then the sound of a horn, from settlement to settlement, brings them together. They are also a timid people, and will not face the white man's gun.

It is possible that the story of the popero is not true, and that the whites may buy the children of the Indians; but if so, I imagine that the advantages of the bargain are all on one side.

Below the mouth of the Hunanza we have the same comparatively bare hills that I noticed opposite Juan Comas. They present ridges of red earth and dark stone, which curve from the south towards the northeast, and are elevated in that direction to about 20°. I suspect that they have veins of salt, particularly as the salt hills of *Pilluana* are of the same range, and present at a distance nearly the same appearance.

The hills of Pilluana, which we now soon passed, have their base immediately upon the river, on the right-hand side. They are about three hundred feet in height, and stretch along the banks of the river for a quarter of a mile. The salt shows like frost upon the red earth at

a distance; but seen nearer the heavy rains seem to have washed away the loose earth and left nearly the pure salt standing in innumerable cone-shaped pinnacles, so that the broken sides of the hills look like what drawings represent of the crater of a volcano, or the bottom of a geyser. Where the hills have been excavated, beautiful stalactites of perfectly pure salt hang from the roof in many varieties of shapes. There are much higher hills back of these, that appear also to contain salt; so that there seems a supply here for all people and for all time.

We passed the mouth of the river *Mayo*, that comes in on the left between moderately high hills, and five minutes after arrived at *Shapaja*, one of the ports of Tarapoto. The river, just above the junction of the Mayo, narrows to forty yards, has thirty and thirty-six feet of depth, and increases much in velocity. This is preparatory to its rush over the "*Pongo*," a strait of forty-five miles in length, where the river is confined between high hills, is much broken with malos pasos, and has its last considerable declivity.

Shapaja has twenty houses, mostly concealed in the high groves of plantains which surround them. Nearly all the men were away fishing, but the women (as always) received us kindly, and cooked our supper for us.

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CHAPTER VIII.

Tarapoto—Pongo of Chasuta—Chasuta—Yurimaguas—Sta. Cruz—Antonio, the Paraguá—Laguna—Mouth of the Huallaga.

August 19.—We started in company with a man who, with his peons, was carrying fish that he had taken and salted below Chasuta to Tarapoto. A smart walk of five hours (the latter part of it very quick, to avoid the rain that threatened us) brought us to the town. The road crossed a range of hills in the forest for about half the distance. The ascent and descent of these hills were tedious, because light showers of rain had moistened the surface of the hard-baked earth and made it as slippery as soap. For the other half of the distance the road ran over a plain covered with high, reedy grass, and some bushes; there was a short clump-grass underneath that would afford capital pasturage. The distance between Shapaja and Tarapoto, I judge to be fifteen miles, and the direction westerly, although I could not tell exactly, on account of the winding of the road.

Tarapoto—which is situated upon a moderate eminence near the western edge of the plain before spoken of, and surrounded by hills, which are mountains in the west—is by far the largest town I have seen since leaving Huanuco. The district—comprising the towns of Tarapoto, (which has three thousand five hundred inhabitants,) Chasuta, (which has twelve hundred,) Cumbasa, Morales, Shapaja, Juan Guerra, and Juan Comas—numbers six thousand inhabitants.

The principal productions are rice, cotton, and tobacco, all of which are articles of export, particularly the cloth called tocuyo, woven by the women from cotton. Nearly all the course of the river, as far as *Egas*, is supplied from Tarapoto with this article. As much as thirty-five thousand varas is said to be made in this place annually. It is valued here at twelve and a half cents the vara,* and increases in price as it floats down the river, until at Egas it is exchanged for the value of fifty cents in foreign articles from Pará. It also goes inland as far as Moyobamba, where it is exchanged for straw hats and English prints.

* This is its value in barter. It may be bought for six and a quarter cents money. The same is the case with the wax and the balls of thread, which are held at double the price for what they may be bought with coin.

There is little or no money in this country. Tocuyo, wax from the Ucayali, and balls of cotton thread, are used in its place. The English goods that come from the interior sell in Tarapoto for four times their cost in Lima: for example, a yard of printed calico, which costs in Lima twelve and a half cents, sells in this place for either a pound of wax, four yards of tocuyo, or two pounds of cotton thread. (It is worth twenty-five cents, money.)

I suppose there is a little money obtained for these articles in Huanuco and Chachapoyas, or left here by travelling strangers. But if so, it falls into the hands of the traders and is hoarded away. These traders are either Moyobambinos, (inhabitants of Moyobamba,) or foreigners of Spain, France, and Portugal. The Moyobambinos are the Jews of the country, and will compass sea and land to make a dollar. I met with them everywhere on the river; and I think that I did not enter an Indian village without finding a Moyobambino domiciliated and trading with the inhabitants. They are a thin, spare, sickly-looking people, of a very dark complexion, but seem capable of undergoing great hardship and fatigue, for they carry their cargoes to marts hundreds of leagues distant by roads or river that present innumerable difficulties.

They bear a bad character on the river, and are said to cheat and oppress the Indians; so that when I could not get a yucca for my supper without paying for it in advance, I vented my spleen by abusing a Moyobambino, who had treated the people so badly that they distrusted everybody. But I have had reason, once or twice, for abusing other people besides Moyobambinos on this account; for the governor of Tarapoto hesitated about trusting me with a canoe to descend the river, because a person representing himself as a countryman of mine had run off with one some years before. I imagine this is the same honest German who "did" Colonel Lucar at Huanuco.

I met at this place my countryman Hacket, whom I had heard spoken so highly of in Cerro Pasco and Huanuco. He is employed in making copper kettles (called *pailas*) for distilling, and in all kinds of blacksmith and foundry work. He seems settled in this country for life, and has adopted the habits and manners of the people. Poor fellow—how rejoiced he was to see the face and hear the speech of a countryman! I am indebted to him for the following statistics concerning Tarapoto:

"The population of Tarapoto, with its annexed ports of Shapaja and Juan Guerra, is five thousand three hundred and fifty souls. The births annually are from two hundred and twenty to two hundred and fifty; deaths, from thirty to fifty.

"The principal occupation of the people is the manufacture of cotton

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cloth, of which they make from thirty-five to forty thousand varas annually. This article is sold in Chachapoyas at twelve and a half cents the vara. This, tocuyo, and white wax, make the exchange of the place. Gold and silver are almost unknown, but they are articles which the people most desire to have. The white wax of Mainas is worth four yards of tocuyo the pound. A bull or cow of good size is sold for one hundred varas of tocuyo; a fat hog of ordinary size, for sixty; a large sheep, twelve; twenty-five pounds of salt fish of the *vaca marina*, or *paishi*, (equal in quality to cod-fish,) for twelve varas; twenty-five pounds of manteca (oil or lard) of vaca marina, twelve varas; twenty-five pounds of coffee, six varas; twenty pounds of rum—of thirty degrees, twenty-four varas; of sixteen degrees, twelve varas; twenty-five pounds of cotton in the seed, eight ounces of wax; a laying-hen, four ounces; a chicken, two ounces; twenty-five pounds of rice in the husk, half a pound; twenty-five pounds of Indian corn, two ounces; twenty-five pounds of beans, four ounces; a basket of yuccas, which weighs from fifty to sixty pounds, two ounces; a head of plantains, which will weigh from forty to fifty pounds, for three needles; or six heads, delivered in the house, four ounces of wax.

"A plantain-grove will give in full vigor for fifty or sixty years, without more attention than to clean it occasionally of weeds; cotton gives a crop in six months; rice in five; indigo is indigenous; cattle of all kinds augment with much rapidity.

"All transportation of cargoes by land is made upon the backs of Indians, for want of roads. The customary weight of a cargo is seventy-five pounds; the cost of its transportation to Moyobamba, (seventy miles,) is six varas of tocuyo; to Huanuco, (three hundred and ninety miles,) thirty-two varas, by water and by land; that is to say, eight Indians will receive in Tarapoto eight packages, of whatsoever goods, and carry them on their shoulders to the port of Juan Guerra, where they embark and carry them in a canoe to the port of Tingo Maria; there they shoulder them again, and carry them to Huanuco, (eighty miles.) It is to be understood that the owner of the cargo is to support the peons.

"The ascent of the Huallaga from Juan Guerra to Tingo Maria takes thirty days; the descent, eight. It has dangerous passes. It is easy to obtain, in the term of six or eight days, fifty or sixty peons for the transportation of cargoes, getting the order of the governor and paying the above prices.

"This town is, without dispute, the most important in Mainas, on account of its neighborhood to navigable rivers, united with an extension of land free from inundations. Its inhabitants are numerous, civilized, and docile."

The people have no idea of comfort in their domestic relations; the houses are of mud, thatched with palm, and have uneven dirt floors. The furniture consists of a grass hammock, a standing bed-place, a coarse table, and a stool or two. The governor of this populous district wore no shoes, and appeared to live pretty much like the rest of them.

August 20 we spent at Tarapoto, waiting for the peons. The governor preferred that I should pay them in money, which I much doubt if the peons ever saw. He will probably keep the money and give them tocuyo and wax. I paid one dollar and fifty cents for the canoe to carry me as far as Chasuta, a distance of about six hours down, with probably twenty-four to return, (that is, twenty-four working hours;) fifty cents to each peon; and a dollar to pay the people to haul the canoe up the bank and place it under the shed at Shapaja on its return.

The men who carried us from Tocache to Sion preferred half their pay in money; in all other cases I have paid in cotton cloth, valued at twenty-five cents the yard; (its cost in Lima was twelve and a half cents.) The amount of pay, generally fixed by the governor, is a yard per man per day, and about the same for the canoe.

An American circus company passed through Tarapoto a few months ago; they had come from the Pacific coast, and were bound down the Amazon. This beats the Moyobambinos for determined energy in making dollars. I imagine that the adventure did not pay, for I encountered traces of them, in broken down horses, at several of the villages on the river. They floated their horses down on rafts.

I spoke with an active and intelligent young Spanish trader, named Morey, about the feasibility of a steamboat enterprise upon these rivers, bringing American goods and taking return-cargoes of coffee, tobacco, straw-hats, hammocks, and sarsaparilla to the ports of Brazil on the river. He thought that it could not fail to enrich any one who would attempt it; but that the difficulty lay in the fact that my proposed steamer would never get as far as this, for that my goods would be bought up and paid for in return-cargoes long before she reached Peru. He thought, too, that the Brazilians along the river had money which they would be glad to exchange for comforts and luxuries.

Were I to engage in any scheme of colonization for the purpose of evolving the resources of the Valley of the Amazon, I think I should direct the attention of settlers to this district of Tarapoto. It combines more advantages than any other I know; it is healthy, fertile, and free from the torment of musquitoes and sand-flies. Wheat may be had

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from the high lands above it; cattle thrive well; and its coffee, tobacco, sugar-cane, rice, and maize are of fine quality. It is true that vessels cannot come up to Shapaja, the port of the town of Tarapoto; but a good road may be made from this town eighteen miles to Chasuta, to which vessels of five feet draught may come at the lowest stage of the river, and any draught at high water. Tarapoto is situated on an elevated plain twenty miles in diameter; is seventy miles from Moyobamba, the capital of the province, a city of seven thousand inhabitants; and has close around it the villages of Lamas. Tabalosas, Juan Guerra, and Shapaja.

The Ucayali is navigable higher up than this point, and the quality of cotton and coffee seems better, within certain limits, further from the equator. But the settler at the head-waters of the Ucayali has to place himself in a profound wilderness, with the forest and the savage to subdue, and entirely dependent upon his own resources. I think he would be better placed near where he can get provisions and assistance whilst he is clearing the forest and planting his fields. I am told that the governors of the districts in all the province of Mainas have authority to give titles to land to any one who desires to cultivate it.

I saw here very fine fields of Indian corn. The stalk grows quite as high as on our best bottom-lands in Virginia, and the ears were full, and of good grain. It may be planted at any time, and it yields in three months, thus giving four crops a year. A considerable quantity of tobacco is also cultivated in the neighborhood of Tarapoto. The tobacco seed is planted in carefully-prepared ground in October. At this time the forest is cleared to make the plantation. In January the seedlings are ready to transplant, when the wood that has been cut down is set fire to, and the plantation cleared up ready to receive the plants. When the plant is about two feet high, the top is cut off, and the lower leaves, which are generally injured by the dirt, pulled off, so that the force of the plant may be thrown into the middle leaves. The crop is gathered, as the leaves ripen, in July and August. They are put under shelter for a few days to turn yellow, and are then exposed for three or four days to the sun and dew. After this, they are sometimes sprinkled with a little molasses and water, and rolled out flat with a wooden roller; the larger stems are taken out, and they are then put up in long masses of about one and a half pound weight, and wrapped tightly and closely with some running vine of the forest. This is the common method; and the common tobacco of Tarapoto is worth twelve and a half cents (money) the mass there. A superior kind, made with more care, and put up in short, thick masses, called *andullo*, is also made in the province. This is worth twenty-five cents. The best tobacco is made in *Xeberos*, in the upper mission, and is sent to Lima.

August 21.—We started for Juan Guerra on horseback, in company with a large fishing-party, got up by the Padre for his own profit; he seemed to carry nearly the whole town with him. The mounted party consisted of eight. There were two ladies along, whose company added to the gaiety and pleasure of the canter through the woods. Used as I had become by my travels in various parts of the world to the free and easy, I must confess that I was a little startled to see these ladies, when we arrived at Juan Guerra, denude themselves to a silk handkerchief around the loins, and bathe in the river within forty yards, and in full sight of all the men.

Arrived at Juan Guerra, we embarked upon the Cumbasa, which empties into the Mayo. Half an hour's dragging of the canoe over the shoals, and between the fallen trees on this stream, and one and a half hour's navigation on the Mayo, carried us to its mouth, which is only a quarter of a mile above Shapaja, where Morey had the goodness to land us, and then shoved off to join the priest, who was to camp on a beach above.

The fishing-party of the padre was a large affair. They had four or five canoes, and a large quantity of barbasco. The manner of fishing is to close up the mouth of a caño of the river with a net-work made of reeds, and then, mashing the barbasco root to a pulp, throw it into the water. This turns the water white, and poisons it, so that the fish soon commence rising to the surface dead, and are taken into the canoes with small tridents. Almost at the moment of throwing the barbasco into the water, the smaller fish rise to the surface and die in two or three minutes; the larger fish survive longer; and, therefore, a successful fishing of this sort is a matter of half a day, or till the canoes are filled.

When we left Shapaja for Tarapoto, we placed our trunks, several without locks, in charge of the women who lived in the shed where we slept; and, although they knew that the trunks contained handkerchiefs, red cotton cloth, beads, scissors, &c., (things which they most desire,) we missed nothing on our return.

August 22.—Two miles below Shapaja is the mal-paso of Estero. A point of rocks, stretching out from a little stream that enters on the left, makes this rapid, which is considered a very dangerous one. The stream, rushing against these rocks, is deflected to a point of rocks that makes out into the river a little lower down on the other side; this turns it aside again, and the waves mingle and boil below. The canoe was unloaded, and conducted by *sogas* or ropes of vine, over and be-

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tween the rocks on the left-hand side. It took an hour to unload, pass the canoe, and load up again. Three miles further is the mal-paso of *Canoa Yacu*, (canoe water,) from many canoes having been wrecked here. This is by far the most formidable rapid I have seen. There is a small perpendicular fall on each side, and a shoot of 20° declivity in the middle, down which the water rushes with a velocity of at least ten miles the hour. The shoot looks tempting, and one is disposed to try the rush; but there are rocks below, over which the water dashes up some two or three feet in height; and I think no boat could shoot out of the force of the stream so as to avoid these rocks.

The river both here and at Estero is not more than thirty yards wide. The average velocity of the current through the Pongo is six miles the hour. It took one hour and a half to pass this obstruction. Two miles further down we shot the mal-paso of Matijuelo under oar; and immediately after, that of Chumia, where the canoe was let down as before, but without unloading. It took half an hour to do this. A quarter of an hour afterwards we passed the rapid of Vaquero; and at 2½ p. m. arrived at Chasuta. We were kindly welcomed and hospitably entertained by the Cura, Don Sebastian Castro.

Chasuta is the port of the district of Tarapoto. The traders have their cargoes carried on the backs of Indians between Tarapoto and Chasuta, and embark and disembark at the latter place to avoid the rapids of the Pongo. The distance by land, according to Hacket, is eighteen miles; and the cost of transportation, half a pound of wax for a cargoe of seventy-five pounds. There is from this point no further obstruction to navigation for canoes; and very little labor would enable a draught of six feet to reach Chasuta at the lowest stage of the river.

There were canoes in the port, just arrived from below, with salt fish and wax; and canoes about to start down with the products of the district. The annual value of the commerce between this place and below is fifteen hundred dollars. All articles which can readily be transported on the backs of mules, or Indians, come from Lima, by the way of Chachapoyas and Moyobamba. These are principally articles of wearing apparel, or stuff to make them of. Heavier articles—such as iron, iron implements, copper kettles, (for distilling,) guns, crockery, &c.—come from below. The axes are narrow, worthless things, made in Portugal, and sold in Tarapoto for a dollar in money, without handles. Iron (of which the inhabitants are very careful to buy Swedish only) is worth in Tarapoto twelve and a half cents the pound. A common plate for the dinner table is worth twenty-five cents; a cup and saucer, twelve and a half cents; a glass with handle to drink water, fifty cents;

a small glass to drink spirits, twenty-five cents; a small basin to wash the face in, twenty-five cents; looking-glass of one and a half foot long, and a foot wide, seventy-five cents; penknife of one blade, fifty cents; small hand-bells for the churches, fifty cents; a pair of coarse scissors, eighteen and three-quarter cents; a long-pointed, white-handled knife, thirty-seven and a half cents; small slates, with pencil and sponge, one dollar; coarse sabres, with wooden handle, seventy-five cents; jews-harp, twelve and a half cents; horn buttons, six and a quarter cents the dozen. Morey gave for a common Yankee clock, on the Amazon, seventeen dollars and fifty cents. These are money values.

One will be told that these articles are sold at double these prices; but money, on account of its scarcity, is worth double its nominal value; thus a yard of tocuyo, (the most common currency,) which is always valued in *Nauta*, *Pebas*, *Loreto*, &c., at twenty-five cents in exchange for *efectos*, or goods, may be bought there for twelve and a half cents specie. The traveller should be aware of this, or he may be paying double prices for things.

The salt fish brought up from below is in large pieces of about eight pounds each, cut from the *vaca marina*—the *payshi*, a fish of one hundred and fifty pounds weight—and the *gamitana*, a large flat fish, like the skate. The piece is worth twelve and a half cents, money, in Tarapoto, and twenty-five cents in Moyobamba.

The *vaca marina* (sea cow) of the Spaniards, and *peixe boy* (fish ox) of the Portugese, (also found in our Florida streams, and there called *manatee*,) is found in great numbers on the Amazon and its principal tributaries. It is an animal averaging, when full grown, about nine feet in length, and six in circumference. It has much the appearance of a large seal, with a smooth skin, dark on the back, a dirty white on the belly, and thinly sprinkled with coarse hairs. The eyes and ears (or rather holes for hearing) are very small. The mouth is also small, though it looks large on the outside, on account of a very thick and wide upper lip, which is shaped like that of an ox. In the one I examined, which was a young female, I could discover neither tongue nor teeth, but a thick, rough, and hard, fleshy cushion attached to both upper and lower jaws, which seemed to me very well adapted to masticating the grass which grows upon the banks of the river, and which is its principal food. The tail is broad and flat, and is placed horizontally. This, with two large fins far in advance, and very near the jaws, enables it to move in the water with considerable rapidity. It is not able to leave the water; but in feeding it gets near the shore and raises its head out. It is, when feeding, most often taken by the Indians. An ordi-

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nary-sized vaca marina will yield from thirty-five to forty pounds of manteca, which will sell in Tarapoto for three cents the pound, money; besides ten pieces of salt fish, worth twelve and a half cents each. Fifty cents is the common price of the fish where it is taken. The governor general of the missions told me that two men in his employment at *Chorococha*, on the Amazon, had taken seven for him in eight days. The flesh, salted or dried, is a good substitute for pork. It is put up in large jars in its own fat, and is called *michira*.

Chasuta is an Indian village of twelve hundred inhabitants, situated on a plain elevated about twenty-five feet above the present level of the river. It is frequently covered in the full, and the people take their canoes into their houses and live in them. The diseases, as all along the river, are pleurisy, tarbardillo, and sarna. The small-pox sometimes makes its appearance, but does little damage. It is a very healthy place, and few die.

The Indians of Chasuta are a gentle, quiet race; very docile, and very obedient to their priest, always saluting him by kneeling and kissing his hand. They are tolerably good boatmen, but excel as hunters. Like all the Indians, they are much addicted to drink. I have noticed that the Indians of this country are reluctant to shed blood, and seem to have a horror of its sight. I have known them to turn away to avoid killing a chicken, when it was presented to one for that purpose. The Indian whom Ijurra struck did not complain of the pain of the blow, but, bitterly and repeatedly, that "his blood had been shed." They eat musquitoes that they catch on their bodies, with the idea of restoring the blood which the insect has abstracted.

The padre told me that the fee for a marriage was four pounds of wax, which was the perquisite of the sacristan; for a burial, two, which went to the sexton; and that he was regaled with a fowl for a christening. He complained of the want of salary, or fees; and said that it was impossible for a clergyman to live unless he engaged in trade. Every year the governor appoints twelve men to serve him. The commission runs, "For the service of our holy mother church;" but it means the curate. It is an office of distinction, and the Indians crave it. They are called *Fiscales*. They work the padre's chacra and trapiche; fish for him; hunt for him; (the fishermen and hunters are called *mitayos;* this is a remnant of an oppressive old Spanish law called *mita*, by which certain services, particularly in the mines, were exacted of the Indians;) do his washing; wait upon his table; and carry on for him his traffic on the river, by which he gains his salt fish and the means to buy crockery for his table.

I bought wax of the curate to pay for the canoes and boatmen to *Yurimaguas*. The men desired money, and I told the curate that he had better let me pay them in money, as to be familiar with its use would tend to civilize them. But he said that they did not know its value, and would only hoard it up or use it as ornaments. I don't know what else he will do with it, for certainly it never circulates. I have not seen a dollar since I left Huanuco, except those that were in my own hands. That the Indians have no idea of its value is evident. I bought a pucuna of one. He desired money; and his first demand was four dollars; which I refused to give. He then said six reals, (seventy-five cents.) I gave him a dollar, which I thought would pay him for the time and labor necessary to make another.

As we were now clear of the dangers of the river, and were to be more exposed to sun and rain, we had coverings made of hoop-poles, and thatched with palm, fitted to the canoe. The one over the stern, for the accommodation of the patron, covers about six feet of it, and makes a good *den* to retreat to in bad weather. It is called by the Indians *pamacari*. The one fitted over the cargo, in the body of the boat, is called *armayari*. It is narrower than the other, allowing room for the Indians to sit and paddle on each side of it.

August 25.—We left Chasuta in company with two canoes; one belonging to a Portuguese, resident of Tarapoto, carrying a cargo to Nauta; and the other manned by the Fiscales, and carrying the padre's little venture of salt. We passed the salt hills of Callana Yacu, where the people of Chasuta and the Indians of Ucayali and Marañon get their salt. The hills are not so high as those of Pilluana, and the salt seems more mixed with red earth. It "crops out" on the banks of the river, which are shelving, and rise into gentle hills as they recede, covered with bushes and small trees. A quarter of an hour afterwards we entered a more hilly country; river narrow, shallow, and rapid; its depth fifteen feet, and its current four and a half miles the hour. Soon after we passed between cliffs of dark-red rocks, where the river deepened to forty-two feet. On one of these rocks, appearing like a gigantic boulder of porphyry, were cut rude figures of saints and crosses, with letters which are said to express "The leap of the Traitor Aguirre;" but they were too much worn by time and weather for me to make them out. There were more recent cuttings in the rock. One of them were the letters VR, the work, I imagine, of an Englishman belonging to the circus company. The pass is called "El Salto de Aguirre." We camped on the right bank of the river, having passed the country of the Infidels.

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August 26.—Being in company with Antonio, the Portuguese, who, knows how to arrange matters, we get a cup of coffee at the peep of day and are off by half past 5 a. m. At five miles of distance we passed the lower extremity of the Pongo, which commences at Shapaja. "Pongo" is an Indian word, and is applied to designate the place where a river breaks through a range of hills, and where navigation is of course obstructed by rocks and rapids. The place where the Marañon breaks its way through the last chain of hills that obstructs its course is called the Pongo de *Manseriche*. This is the Pongo de Chasuta. There is only one mal-paso below Chasuta; it is called the mal-paso *del Gabilan*, and is just below the Salto de Aguirre. It is insignificant, and I should not have noticed it at all, but that it was pointed out to me, and said to be dangerous for canoes in the full of the river.

After passing the Pongo, we entered upon a low, flat country, where the river spreads out very wide, and is obstructed by islands and sand-banks. This is the deposit from the Pongo. In the channel where we passed, I found a scant five feet of water; I suspect, but I could not find out, that more water may be had in some of the other channels. This shoal water is but for a short distance, and the soundings soon deepened to twelve and eighteen feet. Small pebbly islands are forming in the river, and much drift-wood from above lodges on them. After having stopped two hours to breakfast, we passed the mouth of the *Chipurana*, which is about twenty yards wide.

This river flows from the *Pampa del Sacramento*, and affords, when it is full, a canoe navigation of about forty miles, taking four days to accomplish it, on account of shoals and fallen trees. This distance brings the traveller to the port of *Yanayacu*, where, in 1835, when Lieutenant Smyth travelled this route, there was one hut; there is not one now. A walk over a plain for twenty-five miles reaches the village of *Sta. Catalina*, which then had thirty families; now one hundred and sixty inhabitants; so that it has changed very little in all this time. Embarking at Sta. Catalina, on the river of the same name, the traveller, in two days of a very difficult and interrupted navigation, enters the Ucayali; ascending which stream a day and a half, he arrives at *Sarayacu*.

I was desirous of going to Sarayacu by this route, but the river would not, at this season, afford sufficient water for my canoes to reach Yanayacu, and I moreover did not like to miss the lower part of the Huallaga.

River now two hundred yards wide, free from obstruction, with a gentle current, and between eighteen and twenty-four feet of depth.

We saw turtle-tracks in the sand to-day for the first time; camped on the beach.

August 27.—Saw flesh-colored porpoises; also a small seal, which looked like a fur-seal; got turtle-eggs. The turtles crawl out upon the beach during the night, deposit their eggs, and retreat before dawn, leaving, however, broad tracks in the sand, by which their deposits are discovered. We must have got upwards of a thousand; I counted one hundred and fifty taken from one hole. Since we have passed the Pongo we have encountered no stones; the beaches are all of sand.

August 28.—Arrived at Yurimaguas. This little village, situated upon a hill immediately upon the banks of the river, and numbering two hundred and fifty inhabitants, now appears almost entirely deserted. We could procure neither peons nor canoes. The men were away in the forest collecting wax for a fiesta, ordered by the curate; and the sub-prefect of the province, who had been gold-hunting up the Santiago, had taken all the canoes up the *Cachiyacu* with him on his return to Moyobamba. I was told that his expedition for gold up the Santiago, which consisted of a force of eighty armed men, had been a failure; that they got no gold, and had lost five of their company by the attacks of the Huambisas and other savages of the Santiago. This may not be true. The sub-prefect (I was told) said that the expedition had accomplished its purpose, which was simply to open friendly communications with the savages, with a view to further operations.

With great difficulty, and by paying double, I persuaded our *Chasutinos* to take us on to *Sta. Cruz*, where I was assured I could be accommodated both with boats and men. We could buy nothing at Yurimaguas but a few bunches of plantains and some salt fish out of a passing boat.

An island divides the river three-fourths of a mile above Yurimaguas. The southern branch is the channel; the northern one is closed at its lower end by a sand-bank opposite the village.

We left Yurimaguas after breakfasting. Half a mile below the village is the mouth of the Cachiyacu. This river is the general route between Moyobamba and the ports of the Amazon. It is navigable for large canoes, when full, (which is from January to June,) as far as *Balza Puerto*, a considerable village, five days' journey from Moyobamba. It takes nine days for a loaded canoe to ascend as far as Balza Puerto. Lieutenant Maw descended this river in 1827. Communication is also had by the Cachiyacu with many villages situated in the fine country between the Marañon and Huallaga rivers: so that Yurimaguas, situated at the mouth of this river, and having open communication with the Atlantic,

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may be considered as occupying an important position in any scheme for navigation and trade.

We met several canoes going up the river for salt; canoes passing each other on the river *speak* at a great distance apart. The Indians use a sing-song tone, that is heard and understood very far, without seeming to call for much exertion of the voice. Every year at this season the Indians of the Marañon and Ucayali make a voyage up the Huallaga for their supply of salt. They travel slowly, and support themselves by hunting, fishing, and robbing plantain patches on their way.

About eight miles below Yurimaguas, an island with extensive sand-flats occupies nearly the whole of the middle of the river. We passed to the right, and I found but a scant six feet of water. The popero said there was less on the other side; but Antonio, the Portuguese, passed there, and said there was more. He did not sound, however. We tried an experiment to ascertain the speed of the canoe at full oar, and I was surprised to find that six men could not paddle it faster than two miles the hour; ours is, however, a very heavy and clumsy canoe. We have had frequent races with Antonio and the Fiscales, and were always beaten. It was a pretty sight to see the boat of the latter, though laden with salt to the water's edge, dance by us; and, although beaten, we could not sometimes refrain (as their puntero, a tall, painted Indian, would toss his paddle in the air with a triumphant gesture as he passed) from giving a *hurrah* for the servants of the church.

August 29.—We met a canoe of *Conibos* Indians, one man and two women, from the Ucayali, going up for salt. We bought (with beads) some turtle-eggs, and proposed to buy a monkey they had; but one of the women clasped the little beast in her arms, and set up a great outcry lest the man should sell it. The man wore a long, brown, cotton gown, with a hole in the neck for the head to go through, and short, wide sleeves. He had on his arm a bracelet of monkey's teeth; and the women had white beads hanging from the *septum* of the nose. Their dress was a cotton petticoat tied round the waist; and all were filthy.

We are now getting into the lake country; and hence to the mouth of the Amazon, lakes of various sizes, and at irregular distances, border the rivers. They all communicate with the rivers by channels, which are commonly dry in the dry season. They are the resort of immense numbers of water-fowl, particularly cranes and cormorants; and the Indians, at the proper season, take many fish and turtles from them.

Many of these lakes are, according to the traditions of the Indians, guarded by an immense serpent, which is able to raise such a tempest

in the lake as to swamp their canoes, when it immediately swallows the people. It is called in the "Lengua Inga" "Yacu Mama," or mother of the waters; and the Indians never enter a lake with which they are not familiar that they do not set up an obstreperous clamor with their horns, which the snake is said to answer; thus giving them warning of its presence.

I never saw the animal myself, but will give a description of it written by Father Manuel Castrucci de Vernazza, in an account of his mission to the *Givaros* and *Zaparos* of the river *Pastaza*, made in 1845:

"The wonderful nature of this animal—its figure, its size, and other circumstances—enchains attention, and causes man to reflect upon the majestic and infinite power and wisdom of the Supreme Creator. The sight alone of this monster confounds, intimidates, and infuses respect into the heart of the boldest man. He never seeks or follows the victims upon which he feeds; but, so great is the force of his inspiration, that he draws in with his breath whatever quadruped or bird may pass him, within from twenty to fifty yards of distance, according to its size. That which I killed from my canoe upon the Pastaza (with five shots of a fowling-piece) had two yards of thickness and fifteen yards of length; but the Indians of this region have assured me that there are animals of this kind here of three or four yards diameter, and from thirty to forty long. These swallow entire hogs, stags, tigers, and men, with the greatest facility; but, by the mercy of Providence, it moves and turns itself very slowly, on account of its extreme weight. When moving, it appears a thick log of wood covered with scales, and dragged slowly along the ground, leaving a track so large that men may see it at a distance and avoid its dangerous ambush."

The good father says that he observed "that the blood of this animal flowed in jets, (salia á chorros,) and in enormous abundance. The prejudice of the Indians in respect to this species of great snakes (believing it to be the devil in figure of a serpent) deprived me of the acquisition of the dried skin, though I offered a large gratification for it."

It is almost impossible to doubt a story told with this minuteness of detail. Doubtless the padre met with, and killed the boa-constrictor; but two yards of thickness is scarcely credible. He writes it *dos varas de grosor*. (Grosor is thickness.) I thought the father might have meant two yards in circumference, but he afterwards says that the Indians reported them of three and four yards in diameter, (*de diametro*.)

We had a fresh squall of wind and rain from the northward and eastward. The Portuguese, who is a careful and timid navigator, and whose motions we follow because he is a capital caterer, and has a

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wife along to cook for us, pulled in for the beach, and we camped for the night. The beach where we pitched belongs to an island, or rather what is an island when the river is full, though the right-hand channel is now dry; the left-hand channel runs close to the shore, and I could find but five feet water in it, though there was probably more very close to the shore, which was bold. The obstruction is narrow, and could be readily cleared away.

Seventy miles below Yurimaguas is Sta. Cruz. This is an Indian village of a tribe called *Aquanos*, containing three hundred and fifty inhabitants. The lieutenant governor is the only white man in it. The women go naked down to their hips, and the children entirely so. I was quite an object of curiosity and fear to them; and they seemed never tired of examining my spectacles. The pueblo is situated on an eminence, as most of the villages of this country are, to avoid inundation. It has a small stream running by it, which empties into the river at the port, and is navigable in the rainy season for loaded canoes. The convento is the most respectable-looking house on the river. It is divided into apartments; has ceilings; and is plastered, inside and out, with a white clay. There was a portico in the rear, and it looked altogether as if it had been designed and built by a person who had some taste and some idea of personal comfort.

I obtained at this place the sap of a large tree called *catao*, which is said to be very poisonous. It appears to be acrid, and acts like a powerful caustic. The man who chopped the bark, to let the sap run, always turned away his face as he struck, for fear of its getting into his eyes. The Indians employ it for the purpose of curing old dull sores. The tree is generally very large; has a smooth bark, but with knots on it bearing short thorns. The leaf is nearly circular; it is called in Brazil *assacu*, and is there thought to be a remedy for leprosy. We gathered also some leaves and root of a running plant called *guaco*, which, steeped in spirits, and applied internally and externally, is said to be an antidote to the bite of a snake. I think it probable that this may be a fancy of the Indians, originating from the fact that the leaf has something the appearance and color of a snake-skin. There is a great abundance of it all over the Montaña.

We found difficulty in getting canoes at this place. The only one that would accommodate ourselves and baggage belonged to the church, and, like its mistress in Peru, it was in rather a dilapidated condition. We bargained for it with the curaca, (chief of the Indians, and second in authority to the lieutenant governor;) but when the lieutenant returned from his chacra, where he had been setting out plantains, he refused to let us

have it, on the ground that it wanted repairs. We were, therefore, obliged to take two small ones that would barely carry the trunks and boxes, and embark ourselves in the canoe of the Portuguese.

We have found this man, Don Antonio da Costa Viana, and his family, quite a treasure to us on the road. He is a stout, active little fellow, about fifty years of age, with piercing black eyes, long black curls, a face burned almost to negro blackness by the sun, deeply pitted with the small-pox, and with a nose that, as Ijurra tells him, would make a cut-water for a frigate. He is called *paraguá*, (a species of parrot,) from his incessant talk; and he brags that he is "as well known on the river as a dog." He has a chacra of sugar-cane and tobacco, with a trapiche, at Tarapoto. He sells the spirits that he makes for tocuyo, and carries the tocuyo, tobacco, and chancaca to Nauta, selling or rather exchanging as he goes. His canoe is fifty feet long and three broad, and carries a cargo which he values at five hundred dollars; that is, five hundred in *efectos*—two hundred and fifty in money. It is well fitted with armayari and pamacari, and carries six peons—Antonio, himself, his wife, and his adopted daughter, a child of ten years; besides affording room for the calls of hospitality. My friend is perfect master of all around him; (a little tyrannical, perhaps, to his family;) knows all the reaches and beaches of the river, and every tree and shrub that grows upon its banks. He is intelligent, active, and obliging; always busy: now twisting fishing-lines of the fibres of a palm called *chambira;* now hunting turtle-eggs, robbing plantain-fields, or making me cigars of tobacco-leaves given me by the priest of Chasuta. Every beach is a house for him; his peons build his rancho and spread his musquito curtain; his wife and child cook his supper. His mess of salt fish, turtle-eggs, and plantains is a feast for him; and his gourd of coffee, and pipe afterwards, a luxury that a king might envy. He is always well and happy. I imagine he has picked up and hoarded away, to keep him in his old age, or to leave his wife when he dies, some few of the dollars that are floating about here; and, in short, I don't know a more enviable person. It is true Doña Antonio gets drunk occasionally; but he licks her if she is troublesome, and it seems to give him very little concern.

I sometimes twit him with the immorality of robbing the poor Indians of their plantains; but he defends himself by saying, "That to take plantains is not to steal; to take a knife, or a hatchet, or an article of clothing, is; but plantains, not. Every body on the river does it. It is necessary to have them, and he is perfectly willing to pay for them, if he could find the owners and they would sell them." The old rascal is very religious too; he has, hanging under the parmacari of his boat, a

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silver Crucifix and a wooden St. Anthony. He thinks a priest next of kin to a saint, and a saint perfection. He said to me, as his wife was combing her hair in the canoe, "A bald woman, Don Luis, must be a very ugly thing: not so a bald man, because St. Peter, you know, was bald;" and I verily believe that, although he is very vain of his black curls, were he to lose them, he would find consolation in the reflection that he had made an approach, in appearance at least, towards his great exemplar.

We shoved off from Sta. Cruz at sunset, and camped on the beach a mile lower down. It is very well to do this, for the canoe-men are taken away from the temptation of the villages, and are sober and ready for an early start next morning.

August 31.—Started at 6 a. m.; camped on the beach at a quarter-past 5 p. m.

September 1.—Heavy clouds and rains both to the northward and eastward and southward and westward, with an occasional spit at us; but we set the rain at defiance under the palm-thatched roof of Antonio. At half-past 3 p. m. we arrived at *Laguna*. This town, the principal one of the district and the residence of the governor, is one and a half mile from the port. The walk is a pleasant one through the forest at this season, but is probably mud to the knees in the rains. It contains one thousand and forty-four inhabitants; and the productions of the neighborhood are wax, sarsaparilla, copal, copaiba, and salt fish. I have seen all these in the hands of the Indians, but in small quantities; there being so little demand for them.

The *Cocamillas*, who form the largest part of the population of Laguna, are lazy and drunken. They are capital boatmen, however, when they have no liquor; and I had more comfort with them than with any other Indians except those of Tingo Maria.

September 2.—Waiting for boats and boatmen. There are no large canoes, and we are again compelled to take two. I was surprised at this as I was led to believe—and I thought it probable—that the nearer we got to the Marañon the larger we should find the boats, and the means of navigation more complete. But I have met with nothing but misstatements in my whole course. The impression I received in Lima of the Montaña was, that it was a country abounding not only with the necessaries, but with the luxuries of life, so far as eating was concerned. Yet I am now satisfied that if one hundred men were to start without provisions, on the route I have travelled, the half must inevitably perish for want of food. Of meat there is almost none; and even salt fish, yuccas, and plantains are scarce, and often not to be had; game is

shy; and the fish, of which there are a great number, do not readily take the hook; of fruit I have seen literally none edible since leaving Huanuco.

At Chasuta I was assured that I should find at Yurimaguas every facility for the prosecution of my journey; yet I could get neither a boat nor a man, and had to persuade my Chasuta boatmen to carry me on to Sta. Cruz, where the Yurimaguas people said there would be no further difficulty. At Sta. Cruz I could get but two small and rotten canoes, with three men to each, for Laguna, which, being the great port of the river, could in the estimation of the people at Sta. Cruz, furnish me with the means of crossing the Atlantic if necessary. I had been always assured that I could get at Laguna one hundred Cocamillas, if I wanted them, as a force to enter among the savages of the Ucayali; but here, too, I could with difficulty get six men and two small canoes to pass me on to Nauta, which I expected to find, from the description of the people above, a small New York. Had it not been that Senhor Cauper, at that place, had just then a boat unemployed, which he was willing to sell, I should have had to abandon my expedition up the Ucayali, and build me a raft to float down the Marañon.

We found at the port of Laguna two travelling merchants, a Portuguese and a Brazilian. They had four large boats of about eight tons each, and two or three canoes. Their cargo consisted of iron, steel, iron implements, crockery-ware, wine, brandy, copper kettles, coarse, short swords, (a very common implement of the Indians,) guns, ammunition, salt fish, &c., which they expected to exchange in Moyobamba and Chachapoyas for straw-hats, tocuyo, sugar, coffee, and money. They were also buying up all the sarsaparilla they could find, and despatching it back in canoes. They gave for the arroba, of twenty-five pounds, three dollars and fifty cents in goods, which probably cost in Pará one dollar. They estimated the value of their cargoes at five thousand dollars. I have no doubt that two thousand dollars in money would have bought the whole concern, boats and all; and that with this the traders would have drifted joyfully down the river, well satisfied with their year's work. They invited us to breakfast off roast pig; and I thought that I never tasted anything better than the *farinha*, which I saw for the first time.

Farinha is a general substitute for bread in all the course of the Amazon below the Brazilian frontier. It is used by all classes, and in immense quantities by the Indians and laborers. Our boatmen in Brazil were always contented with plenty of salt fish and farinha. Every two or three hours of the day, whilst travelling, they would stop

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rowing, pour a little water upon a large gourd-full of farinha, and pass around the mass (which they called *pirào*) as if it were a delicacy.

The women generally make the farinha. They soak the root of the mandioc (Jatropha Manihot) in water till it is softened a little, when they scrape off the skin, and grate it upon a board smeared with some of the adhesive gums of the forest and sprinkled with pebbles. The white grated mass is put in a conical-shaped bag, made of the coarse fibres of a palm, and called *tapiti*. The bag is hung up to a peg driven into a tree, or a post of the shed; a lever is put through a loop at the bottom of the bag; the short end of the lever is placed under a chock nailed to the post below, and the woman hangs her weight on the long end. This elongates the bag, and brings a heavy pressure upon the mass within, causing all the juice to ooze out through the interstices of the wicker-work of the bag. When sufficiently pressed the mass is put on the floor of a mud oven; heat is applied, and it is stirred with a stick till it granulates in very irregular grains, (the largest about the size of our No. 2 shot,) and is sufficiently toasted to drive off all the poisonous qualities which it has in a crude state. It is then packed in baskets (lined and covered with palm-leaves) of about sixty-four pounds weight, which are generally sold, all along the river, at from seventy-five cents to one dollar. The sediment of the juice which runs from the tapiti is tapioca, and is used to make custards, puddings, starch, &c.

September 3.—Our boatmen came down to the port at 8 a. m. They were accompanied, as usual, by their wives, carrying their bedding, their jars of masato, and even their paddles; for these fellows are too lazy, when on shore, to do a hand's turn; though when embarked they work freely, (these Cocamillas,) and are gay, cheerful, ready, and obedient. The dress of the women is nothing more than a piece of cotton cloth, generally dark brown in color, wrapped around the loins and reaching to the knee. I was struck with the appearance of one, the only pretty Indian girl I have seen. She appeared to be about thirteen years of age, and was the wife of one of our boatmen. It was amusing to see the slavish respect with which she waited upon the young savage, (himself about nineteen,) and the lordly indifference with which he received her attentions. She was as straight as an arrow, delicately and elegantly formed, and had a free, wild, Indian look, that was quite taking.

We got off at a quarter past nine; the merchants at the same time; and the padre also returns to-day to Yurimaguas; so that we make a haul upon the population of Laguna, and carry off about seventy of its

inhabitants. Twenty-five miles below Laguna, we arrived at the mouth of the Huallaga. Several islands occupy the middle of it. The channel runs near the left bank. Near the middle of the river we had nine feet; passing towards the left bank we suddenly fell into forty-five feet. The Huallaga, just above the island, is three hundred and fifty yards wide; the Amazon, at the junction, five hundred. The water of both rivers is very muddy and filthy, particularly that of the former, which for some distance within the mouth is covered with a glutinous scum, that I take to be the excrement of fish, probably that of porpoises.

The Huallaga, from Tingo Maria, the head of canoe navigation, to Chasuta, (from which point to its mouth it is navigable for a draught of five feet at the lowest stage of the river,) is three hundred and twenty-five miles long; costing seventy-four working hours to descend it; and falling four feet and twenty-seven hundredths per mile. From Chasuta to its mouth it has two hundred and eighty-five miles of length, and takes sixty-eight hours of descent, falling one foot and twenty-five hundredths per mile. It will be seen that these distances are passed in nearly proportional times. This is to be attributed to the time occupied in descending the malos pasos, for the currrent is more rapid above than below. The difference between the times of ascent and descent is, on an average, about three for one. It is proper to state here that all my estimates of distance, after embarkation upon the rivers, being obtained from measurement by the *log-line*, are in geographical miles of sixty to the degree.

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CHAPTER IX.

Entrance into the Amazon—Nauta—Upper and Lower Missions of Mainas—Conversions of the Ucayali—Trade in sarsaparilla—Advantages of trade with this country.

The river upon which we now entered is the main trunk of the Amazon, which carries its Peruvian name of Marañon as far as Tabatinga, at the Brazilian frontier; below which, and as far as the junction of the Rio Negro, it takes the name of Solimoens; and thence to the ocean is called Amazon. It is the same stream throughout, and to avoid confusion I shall call it Amazon from this point to the sea.

The march of the great river in its silent grandeur was sublime; but in the untamed might of its turbid waters, as they cut away its banks, tore down the gigantic denizens of the forest, and built up islands, it was awful. It rolled through the wilderness with a stately and solemn air. Its waters looked angry, sullen, and relentless; and the whole scene awoke emotions of awe and dread—such as are caused by the funeral solemnities, the minute gun, the howl of the wind, and the angry tossing of the waves, when all hands are called to bury the dead in a troubled sea.

I was reminded of our Mississippi at its topmost flood; the waters are quite as muddy and quite as turbid; but this stream lacked the charm and the fascination which the plantation upon the bank, the city upon the bluff, and the steamboat upon its waters, lends to its fellow of the North; nevertheless, I felt pleased at its sight. I had already travelled seven hundred miles by water, and fancied that this powerful stream would soon carry me to the ocean; but the water-travel was comparatively just begun; many a weary month was to elapse ere I should again look upon the familiar face of the sea; and many a time, when worn and wearied with the canoe life, did I exclaim, "This river seems interminable!"

Its capacities for trade and commerce are inconceivably great. Its industrial future is the most dazzling; and to the touch of steam, settlement, and cultivation, this rolling stream and its magnificent water-shed would start up into a display of industrial results that would indicate the Valley of the Amazon as one of the most enchanting regions on the face of the earth.

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GIVARO.

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From its mountains you may dig silver, iron, coal, copper, quicksilver, zinc, and tin; from the sands of its tributaries you may wash gold, diamonds, and precious stones; from its forests you may gather drugs of virtues the most rare, spices of aroma the most exquisite, gums and resins of the most varied and useful properties, dyes of hues the most brilliant, with cabinet and building-woods of the finest polish and most enduring texture.

Its climate is an everlasting summer, and its harvest perennial. I translate from a book of travels in these countries, by Count Castelnau, (received since my return to the United States,) an account of the capacities of some of the southern portions of this vast water-shed:

"The productions of the country are exceedingly various. The sugar-cane, of which the crop is gathered at the end of eight months from the time of planting, forms the chief source of wealth of the province of *Cercado*.

"Coffee is cultivated also with success in this province, and in that of *Chiquitos* yields its fruit two years after having been planted, and requires scarcely any attention. Cocoa, recently introduced into these two provinces, gives its fruit at the end of three or four years at most. The tamarind, which thrives in the same localities, produces its harvest in five years. Cotton gives annual crops; there are two varieties—the one white, the other yellow. Tobacco grows, so to speak, without cultivation in the province of *Valle Grande*, where it forms the principal article of commerce. Indigo, of which there are three cultivated kinds and one wild, is equally abundant. Maize yields at the end of three months all the year round; it is also cultivated in the province of Cercado. The cassave produces in eight months after planting; there are two kinds of it—one sweet, and the other bitter; the first can replace the potato, and even bread; the second is only good for starch. There is an enormous amount of kinds or varieties of bananas, which produce in the year from seed; they are specially cultivated in the province of Cercado. Two kinds of rice—one white, the other colored—are cultivated in the two provinces of Cercado and Chiquitos. They produce every five or six months; they say it is found wild in the region of Chiquitos.

"The grape, which grows well everywhere, and especially in the province of *Cordilleras*, where it was cultivated in the Missions up to the time of the Independence, is nevertheless made no article of profit. It will some day, perhaps, form one of the principal sources of wealth of this country. Wheat, barley, and the potato might be cultivated with advantage in the provinces of Chiquitos and Cordilleras; but till now results have been obtained only in that of Valle Grande. The

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cultivation of cocoa has commenced in the province of Cercado, and it is also found in a wild state, as well as the Peruvian bark, on the mountains of *Samaripata.* As we have already said, fruits abound in this region. They cultivate there principally oranges, lemons, citrons, figs, papaws, pomegranates, melons, watermelons, chirimoyas, (which the Brazilians call *fruto de conde,*) pine apples, &c. The last of these fruits grow wild, and in great abundance, in the woods of Chiquitos. We met it, particularly the evening of our arrival, at Santa Ana. Its taste is excellent; but it leaves in the mouth such a burning sensation that I bitterly repented having tasted it. They cultivate in sufficient abundance, in the province, jalap, Peruvian bark, sarsaparilla, vanilla, rocou, copahu, ipecacuanha, caoutchouc, copal, &c. Woods for dyeing, cabinet making, and building, abound; and the people of the country collect carefully a multitude of gums, roots, and barks, to which they attribute medicinal virtues the most varied. In many points in the departments, and especially in the provinces of Valle Grande and Cordilleras, iron is found, and traces of quicksilver. Gold is found in the province of Cercado, near the village of *San Xavier.* The Jesuits wrought mines of silver in the mountains of *Colchis.* Don Sebastian Rancas, while governor of Chiquitos, announced to the government that diamonds, of very fine water, had been found in the streams in the environs of *Santo Corazon.*"

September 4.—The shores of the river are low, but abrupt. The lower strata next to the water's edge are of sand, hardening into rock from the superincumbent pressure of the soil with its great trees. There were a great many porpoises sporting in the river. At 3 p. m. we passed the narrow arm of the river that runs by *Urarinas*, a small village situated on the left bank. The channel inside the island seemed nearly dry. Ijurra, however, passed through it in a small canoe, and bought some fowls and a small monkey at the pueblo. The channel of the river runs near the right bank. Population of Urarinas, eighty.

September 5.—The *patos reales*, a large and beautiful species of duck with which the river abounds, are now breeding. We saw numbers of pairs conducting their broods over the water. Though the young ones could not fly, they could dive so long and fast that we could not catch them. I brought home a pair of these ducks, and find that they answer exactly to the description of the Egyptian goose. They have small horns on their wings.

We met canoes of Tarapoto from the Ucayali with salt fish; also one belonging to Urarinas, returning from carrying sarsaparilla to *Nauta.*

September 6.—Passed the mouth of the small river *Airico* on the left. One of our Indians says that the ascent of this river for a week brings the traveller to a lake, and for another week, to mountains.

We have had quite heavy squalls of wind and rain every day since entering the Amazon. The canoes are so low that they cannot ride the waves of mid-river, and are compelled to haul in for the land, and wait for the storm to pass. We saw alligators to-day, for the first time.

September 7.—Arrived at *Parinari.* This is an Indian village of three hundred and thirty inhabitants, situated on a hill on the right bank of the river. It is about twenty feet above the present level of the river, which rises, in the full, to within three feet of the houses. The people live principally by fishing, and gathering sarsaparilla to sell at Nauta. The lieutenant governor gave us some spirits made of plantains. It was vile stuff; very strong; and is said to be unwholesome.

September 8.—Saw Ronsocos; and the Fiscales killed six howling monkeys with their pucunas. Passed the mouth of *Tigre Yacu* on the left. It is seventy yards broad, and looks deep and free from obstruction. Its waters are much clearer than those of the Amazon. It is navigable for canoes a long way up; and a considerable quantity of sarsaparilla is gathered on its banks, though inhabited by savages, who are said to be warlike and dangerous. We camped at night on an island near the middle of the river. A narrow island lay between us and *San Regis*, a small pueblo on the left bank, whence we could hear the sound of music and merry-making all night. It has two hundred and ten inhabitants.

The Fiscales, cooking their big monkeys over a large fire on the beach, presented a savage and most picturesque night scene. They looked more like devils roasting human beings than like servants of the church.

September 9.—Passed a channel called *Pucati*, which is a small mouth of the Ucayali. It is now nearly dry. In the rainy season it is passable for canoes; but spreads out so much in its course (forming small lakes) that it leaves few places to kindle a fire on, or sleep; and is, for this reason, little used. It takes three days to come through it from the Ucayali to the Amazon; and six to traverse it the other way. Soon after leaving this, we passed another small channel, said to communicate with a large lake—a large one probably in the full, when this whole country between the Ucayali, Amazon, and channel of Pucati, is nearly overflowed. We arrived at Nauta at noon, having travelled two hundred and ten miles from the mouth of the Huallaga.

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We called on the governor general of the Missions of Mainas, Don José Maria Arebalo, who received us with some formality, and gave us lodgings in one of the houses of the village—I suspect, turning out the inhabitants for that purpose. My companion, Ijurra, was not sure of a cordial reception; for, when sub-prefect of the province, he had caused Arebalo to be arrested and carried prisoner from Balza Puerto to Moyobamba. But our friend was much too magnanimous to remember old feuds, and he and Ijurra soon became boon companions.

Nauta is a fishing village of one thousand inhabitants, mostly Indians of the *Cocama* tribe, which is distinct from that of the Cocamillas of Laguna. It has a few white residents engaged in trading with the Indians for salt fish, wax, and sarsaparilla, which are obtained from the Ucayali. Don Bernardino Cauper, an old Portuguese, does most of the business of the place. He sends parties of Indians to fish or gather sarsaparilla upon the Napo and Ucuyali; and he has two or three boats (called in this part of the country garreteas) trading down the river as far as Egas. He supplies all the country above with foreign articles from Brazil, and receives consignments from the upper country, which he sends to Egas.

Don Bernardino lives in a sort of comfort. He has plenty of meat, (calling turtle, salt fish, and fowls meat,) with farinha from below, and beans and onions from his little garden. There is good tobacco from above to smoke, and wholesome, though fiery, Lisbon wine to drink. I have been frequently struck during my journey with the comparative value of things. The richest man of a village of one thousand inhabitants, in the United States, would think Bernardino's table poorly supplied, and would turn up his nose at a grass hammock slung between two hooks in the shop for a bed-place. Yet these things were regal luxuries to us; and, doubtless, being the best that are to be had, Don Bernardino is perfectly contented, and desires nothing better.

The old gentleman is very pious. The Cura of Pebas was at this time in Nauta, attending to the repairs of the church; and we celebrated a nine-days' service (*Novena*) in honor of our Lady of Mercy, the patroness of the arms of Peru. The expenses of the service (being a fee for the padre and the lighting of the church with wax) were borne by individuals. The padre gave the first day; then Senhor Cauper; then his wife, his wife's sister, his son, his pretty Brazilian niece, Donna Candida; then came Arebalo; then Ijurra and I; the priest winding up on Sunday. But my old friend was not contented with this; and when I shoved off on Monday for the Ucayali, I left him engaged in another church service, setting off rockets, and firing, from

time to time, an old blunderbuss, loaded to the muzzle, in honor of a miracle that had happened in Rimini, in Italy, some year and a half ago, of which we had just received intelligence.

The governor general gave me some statistics, from which it appears that the province of Mainas is divided into the province proper, (of which the capital is Moyobamba,) the upper and lower Missions, and the Conversions of the Ucayali.

The upper Mission has four districts—Balza Puerto, Xeberos, Laguna, and Andoas; containing seventeen villages, and nine thousand nine hundred and eleven inhabitants. The lower Mission has two districts—Nauta and Loreto, with seventeen villages, and three thousand seven hundred and eighty-nine inhabitants. The Conversions of the Ucayali are confined to the villages of Sarayacu, Tierra Blanca, and Sta. Catalina, and number one thousand three hundred and fifty inhabitants, mostly converts of the Panos tribe. They are governed by priests of the College of Ocopa, who are under the spiritual direction of its guardian; but hold their temporal authority under the prefect of the department. Arebalo estimates the number of whites in the Missions and Conversions—counting men, women, and children—at four hundred and seven.

Both Missions are under the authority of a governor general, who holds his commission from the sub-prefect of the province. Each district has its governor, and each town its lieutenant governor. The other authorities of a town are curacas, captains, lieutenants, adjutants, ensigns, sergeants, alcaldes, and constables. (All these are Indians.) The office of curaca is hereditary. The right of succession is sometimes interfered with by the white governor; but this always gives dissatisfaction, and is occasionally (added to other grievances) the cause of rebellion and riot. The savages treat their curaca with great respect, and submit to corporal punishment at his mandate.

I know of no legal establishment in the Missions—the law proceeding out of the mouths of the governors. Indians are punished by flogging or confinement in the stocks; whites are sometimes imprisoned; but if their offence is of a grave nature, they are sent to be tried and judged by the courts of the capital.

Arebalo estimates the value of the commerce of the Missions with Brazil at twenty thousand dollars annually; and that with the Pacific coast, through Chachapoyas and Truxillo, at twenty thousand more. The vegetable productions of the Missions do not equal the value of the imports; but the people get some money from the coast for their manufactures of coarse cotton and straw-hats; and a little gold is occasionally obtained from the sands of the Napo and Pastaza.

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The Missions send to Chachapoyas and Truxillo tobacco, salt fish, straw-hats, coarse cotton cloths, wax, incense for the churches, balsam copaiba, and vanilla, and receive, in return, cattle, horses, goods of Europe, and a little money. The Brazilians bring up heavy articles—such as I described as composing the cargo of the traders we met at Laguna; and take back straw-hats, hammocks of the Indians, sarsaparilla, and money. The value of the sarsaparilla of the Missions is estimated at two thousand dollars at the place of production, and six thousand at its place of sale in Brazil; the value of the wax at the same at the place of production; and at four thousand dollars at place of sale. The greatest profit, however, is made on the fish, of which thirty thousand pieces are taken annually in the Ucayali and Amazon. It costs there about three cents the piece; and is worth in Tarapoto, Lamas, and other places of the province, about twelve and a half cents the piece.

Estimate of the expenses and returns of a canoe-load of salt-fish from Nauta to Balza Puerto.

Dr. A canoe-load of eight hundred pieces may be bought in Nauta for one yard of English cotton cloth (valued at twenty-five cents) for every eight pieces - - -	$25	00
Freight, or hire of canoe, for thirty-six days, from Nauta to Balza Puerto, at 3⅛ cents per day - - -	1	12½
Pay of seven peons, 12 yards of cotton cloth of Tarapoto, valued at 12½ cents the yard - - - -	10	50
Maintenance of the seven men for thirty-six days, at 3 cents per day - - - - - - -	7	56
	44	18½
Cr. Eight hundred pieces in Balza Puerto, at 12½ cents -	100	00
Profit - - - - - - - -	55	81½

or about one hundred and twenty-six per cent. in thirty-six days.

The return-cargo also yields a profit: so that my friend, the governor, who by virtue of his office can get as many men to take fish for him as he wants, will probably return to civilized parts in a few years with a snug little sum in his pocket. Old Cauper is rich, and the priest in comfortable circumstances.

Estimate of expenses and returns of an expedition from Nauta to the Ucayali for the collection of sarsaparilla. (*The expedition will occupy four months of time.*)

Dr. Hire of two *garreteas*, that will carry seventy-five arrobas each, at 3⅛ cents per day, (four months) - - -	$7	50
Eighteen peons from Nauta to Sarayacu, at ten yards of English cotton cloth each, (twenty-five cents) - -	45	00
Support of these peons for twenty days, at 3⅛ cents per man per day - - - - - - - - -	11	25
Contract with fifty Pirros or Conibos Indians (who now take the boats and go up the tributaries of the Ucayali) for the delivery by each man of three arrobas of sarsaparilla, at 75 cents the arroba - - - - -	112	50
Hire and support of peons for the return from Sarayacu to Nauta—being one-third of the amount for the trip up - - - - - - - - - -	18	75
	195	00
Cr. One hundred and fifty arrobas, worth in Nauta two dollars the arroba - - - - - - - - -	300	00
Profit in four months - - - - -	105	00

or about thirteen and a half per cent. per month.

The people engaged in this occupation make, however, more profit, by cheating the Indians in every possible mode. They also own the garreteas; and, by management, support their peons for less than three cents per day.

This is an estimate made up from information given by Arebalo. Hacket makes a much better business of it. He says, "Eighty working hours above Sarayacu, on the Ucayali, is the mouth of the river *Aguaytia*, on the banks of which grows sarsaparilla in sufficient quantity not only to enrich the province of Mainas, but all the department of Amazonas. Its cost is eight varas of tocuyo the hundred pounds, undertaking the work of gathering it with formality—that is to say, employing one hundred persons under the direction of a man of talent, and paying them a monthly salary of twenty-four varas of tocuyo each; quadruple the price that is generally paid in Mainas.

"It sells in Nauta, Peruate, and Loreto for nine dollars the hundred pounds, gold or silver coin; in Tabatinga, (frontier of Brazil,) for ten dollars and fifty cents; in Pará, for twenty-five dollars; and in Europe, for from forty to sixty dollars, in times of greatest abundance."

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Sarsaparilla is a vine of sufficient size to shoot up fifteen or twenty feet from the root without support. It then embraces the surrounding trees, and spreads to a great distance. The main root sends out many tendrils, generally about two lines in diameter, and five feet long. These are gathered and tied up in large bundles of about a Portuguese arroba, or thirty-two pounds of weight. The main root, or *madre*, should not be disturbed; but the Indians are little careful in this matter, and frequently cut it off, by which much sarsaparilla is destroyed. The digging up of the small roots out of the wet and marshy soil is a laborious and unhealthy occupation.

It is to be found on the banks of almost every tributary of the great streams of the Montaña; but a great many of these are not worked, on account of the savages living on their banks, who frequently attack the parties that come to gather it. On the "*Pangoa*" are the *Campas;* on the "Pachitea," the "Aguaytia," and the "Pisque," are the "Cashibos;" and the whole southern border of the Amazon, from the mouth of the Ucayali to that of the *Yavari*, is inhabited by the "Mayorunas;" all savages, and averse to intercourse with the white man. The same is the case on the "Tigreyacu," where there is said to be much sarsaparilla. Padre Calvo, the president of the Missions at Sarayacu, told me that, although he has the exclusive right, by order of the prefect, of collecting all the sarsaparilla on the Ucayali and its tributaries, he could not, if I were willing to pay any price, supply me with more than three hundred arrobas per annum, on account of the difficulty of getting laborers who are willing to brave the attacks of the savages.

I have estimated the annual cost of running a small steamer between Loreto, the frontier port of Peru and Chasuta, a distance of eight hundred miles, entirely within the Peruvian territory, at twenty thousand dollars, including the establishment of blacksmiths' and carpenters' shops at Nauta for her repairs. According to the estimate of Arebalo, (and I judge that he is very nearly correct,) the value of the imports and exports to and from Brazil is twenty thousand dollars annually. I have no doubt that the appearance of a steamer in these waters would at once double the value; for it would, in the first place, convert the thousand men who are now employed in the fetching and carrying of the articles of trade into producers, and would give a great impulse to trade by facilitating it. A loaded canoe takes eighty days to ascend these eight hundred miles. A steamer will do it in twelve, giving ample time to take in wood, to land and receive cargo at the various villages on the river, and to lay by at night. When the river becomes better known she can run for a large part of the night, and thus shorten her time

nearly one-half. Men shrink at the eighty days in a canoe, when they will jump at the twelve in a steamer.

The steamer will also increase commerce and trade by creating artificial wants; men will travel who did not travel before; articles of luxury—such as Yankee clocks, cheap musical instruments, &c.—will be introduced, and the Indians will work to obtain them; and, in short, when the wonders that the steamboat and railroad have accomplished are taken into consideration, I shall not be thought rash in predicting that in one year from the time of the appearance of the steamer, Arebalo's twenty thousand dollars will be made forty thousand.

Thus we shall have twenty thousand dollars' worth of goods going up from Loreto to Chasuta, paying at least one hundred per cent.; and twenty thousand dollars going down, paying another hundred per cent.; giving to the steamboat company (who would monopolize the trade) forty thousand dollars a year, against twenty thousand dollars of expenses.

There would be no difficulty in getting a supply of fuel. My Peruvian steamer would have to make her way slowly up, for the first time, by collecting and cutting up the abundant drift-wood on the islands; but she could readily contract with the governors of the thirty-six villages between Pará and Chasuta for a regular supply. The Brazilian government has an organized and enlisted corps of laborers, under the orders of the military commandants, and I should suppose would be willing to employ them in furnishing wood, on account of the great advantages to be derived from the increase of trade. The Indians of the Peruvian villages are entirely obedient to their governors; and a sufficient number of them may always be had, at wages of twelve and a half cents per day, with about three cents more for their maintenance. This amount of wages may be reduced one-half by paying them in articles for their consumption, bought at Pará or brought from the United States.

The only difficulty that I have in my calculations is that I know there are not forty thousand dollars in the whole province; its productions must find their way to the Pacific, on the one hand, and to the Atlantic, on the other, before they can be converted into money. My steamer, therefore, to be enabled to buy and sell, must communicate at Loreto with a larger steamer, plying between that place and Barra, at the mouth of the Rio Negro, a distance of eight hundred and forty miles; and this with another still larger, between Barra and Pará, a distance of a thousand miles.

These three steamers (however much I may be out of my calculations

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regarding the one confined to the Peruvian territory (could not fail to enrich their owners; for they would entirely monopolize the trade of the river, which is fairly measured by the imports and exports of Pará, which amounted in 1851 to two millions of dollars.

These two millions are now brought down to Pará, and carried away from Pará, (with the exception of what is consumed in the city,) by clumsy, inefficient river-craft, which would vanish from the main stream at the first triumphant whistle of the engine. These would, however, until the profits justified the putting on of more steamers, find ample employment in bringing down and depositing upon the banks of the main stream the productions of the great tributaries.

I can imagine the waking-up of the people on the event of the establishment of steamboat navigation on the Amazon. I fancy I can hear the crash of the forest falling to make room for the cultivation of cotton, cocoa, rice, and sugar, and the sharp shriek of the saw, cutting into boards the beautiful and valuable woods of the country; that I can see the gatherers of India-rubber and copaiba redoubling their efforts, to be enabled to purchase the new and convenient things that shall be presented at the door of their huts in the wilderness; and even the wild Indian finding the way from his pathless forest to the steamboat depôt to exchange his collections of vanilla, spices, dyes, drugs, and gums, for the things that would take his fancy—ribbons, beads, bells, mirrors, and gay trinkets.

Brazil and Peru have entered into arrangements, and bound themselves by treaty, to appropriate money towards the establishment of steamboat navigation on the Amazon. This is well. It is doing something towards progress; but it is the progress of a denizen of their own forests—the sloth. Were they to follow the example lately set by the republics of the La Plata, and throw open their rivers to the commerce of the world, then the march of improvement would be commensurate with the importance of the act; and these countries would grow in riches and power with the rapidity of the vegetation of their own most fertile lands.

We, more than any other people, are interested in the opening of this navigation. As has been before stated, the trade of this region *must* pass by *our* doors, and mingle and exchange with the products of *our* Mississippi valley. I am permitted to take extracts bearing upon this subject from a letter of an eminent American citizen residing in Lima to the Superintendent of the National Observatory, whose papers upon the Amazon, its resources and future importance, have attracted the attention, not only of our own people, but that of those who dwell or

have territorial possessions upon this great water-shed; and to whom belongs the honor of originating the mission upon which I have been engaged.

This gentleman in Lima, whose comprehensive mind and ripe judgment had been attracted to the subject by Maury's pen, says to the Lieutenant, under date of July, 1852:

"Since I last wrote to you, I have made the acquaintance of Don ———, a native of Chili, and whom Gibbon saw at Cochabamba, in Bolivia. This is undoubtedly a clever man; but I suspect that he has also come to act as a secret agent of Belzu, the President of Bolivia. However that may be, he pretends that Belzu is favorably disposed towards us, and would grant privileges to a steam navigation company, were application made to him in due form. As I know of no other individual in Bolivia with whom I could communicate on the subject of Amazonian navigation, I did not hesitate to make use of him; for, in my opinion, there is no time to be lost if the United States intend to secure the interior trade of South America for its citizens.

"Don ——— declares that the Mamoré is navigable for steamers from a point near Cochabamba to its confluence with the Guaporé or Itenez, and so onward to the junction of the latter with the Beni, forming together the Rio Madeira; that the 'Cachuelas,' or falls of the Madeira, are neither impassable nor formidable, and may be easily ascended by steamers, as there is plenty of water and no rocks. To prove this, he asserts that a Brazilian schooner ascended the Mamoré to Trinidad, and fired a salute at that place, about two years ago. After passing the falls, the river is, of course, navigable to the Amazon. Admitting this statement of Don ——— to be true, (and I am inclined to believe it, as the Brazilians constantly ascend the Itenez to Matto Grosso,) there is open navigation from Pará to within a few leagues of Cochabamba, at least two thousand miles; and this is not so incredible when we consider the length of navigation on the Missouri river. The accessibility of the Bolivian rivers will, however, be ascertained with greater certainty after Gibbon has passed through the Cachuelas of the Madeira, as it is to be hoped that he will sound, and otherwise minutely examine, the different rapids of that river, and correct the errors which Don ——— says are in the chart made by ———, a copy of which I sent you by Mr. O'Brian for Herndon.

"The account Don ——— gives of the products of the country lying on the banks of the Mamoré is very glowing. He says that the richest cocoa and coffee grow almost wild, and that the greatest part of the former is consumed by the monkeys and birds, for the want of means

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of transporting it to a market. Sugar-cane of gigantic dimensions is found everywhere, with white and yellow cotton of a staple equal to Sea island. Several kinds of cascarilla grow in abundance, as also sarsaparilla and gums, ornamental and other woods, and honey and wax, in immense quantities. Crossing the Mamoré from Exaltacion to the southwest, you arrive at the river Machuno, which, according to Don ———, is a small 'Pactolus;' and he assures me that the whole country between the Mamoré and the Itenez, from latitude 14° to the north, is a gold district as rich as California.

"*My opinion* decidedly is, that the whole country traversed by the rivers issuing from the slope of the Eastern Cordillera, from Santa Cruz de la Sierra, in Bolivia, to the mouth of the Ucayali, in Peru, is one immense gold and silver region; gold being found in the flats near the rivers, and silver in the mountains. I will venture to predict that the same region contains diamonds and other precious stones, some of which are probably unknown to the lapidary at present. The silver mines of Carabaya were immensely productive when worked by Salcedo; so much so, that the vice-regal government trumped up an accusation against him, tried him, and ordered his execution, to obtain possession of the mines by confiscation. The attempt failed, as the Indians, who were devoted to Salcedo, refused to give any information to the government respecting the mines; and they have remained unworked up to the present time.

"Gold is known to exist in considerable quantities at Carabaya, and in the Pampa del Sacramento. I have seen specimens from the former place; but gold is the least attraction for emigration to Bolivia; the soil and its products are the source from which the wanderers from foreign lands are to find plenty and happiness. The climate is said to be good, and the Indians, except upon the lower part of the Beni, peaceable and well disposed to the whites. In short, according to Don ———, the east of Bolivia affords the greatest sphere for trade and colonization.

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"For myself, I feel full of this vast subject; for I know that within less than one hundred leagues of me is the margin of those great solitudes: replete with riches, and occupying the wild space where millions of the human race might dwell in plenty and happiness; where nature annually wastes more than would support the population of China in comfort; and where the most luxurious fruits and fairest flowers grow and bloom unknown and unnoticed. When I reflect on this, and on the miles of rivers rolling on in silence and neglect, I feel doubly the want

of power and money to accomplish their introduction to the civilized world.

* * * * * * * * * * *

"I think that the energies and influence of all the friends of South American internal navigation and colonization should be directed towards forming a company, with a large capital, and to obtain the aid and support of the Congress of the United States. I know how difficult an undertaking it is to wring an appropriation out of our national legislature, for any purpose; but if the subject could be fairly brought before it, and some of the leading senators and representatives could be excited to take a patriotic interest in it, perhaps something might be done.

"We must, on our side, do all we can, and by dint of perseverance we may succeed at last in accomplishing our object. Should we do so, it will be a proud satisfaction to ourselves; though the public may, and probably will, leave us to exclaim—

"'Hos ego versiculos feci, tulit alter honores!'

"I shall continue working on and writing to you whenever I have anything of the least interest to communicate."

The greatest boon in the wide world of commerce is in the free navigation of the Amazon, its confluents and neighboring streams. The back-bone of South America is in sight of the Pacific. The slopes of the continent look east; they are drained into the Atlantic, and their rich productions, in vast variety and profusion, may be emptied into the commercial lap of that ocean by the most majestic of water-courses.

The time will come when the free navigation of the Amazon and other South American rivers will be regarded by the people of this country as second only in importance to the acquisition of Louisiana.

Having traversed that water-shed from its highest ridge to its very caves and gutters, I find my thoughts and reflections overwhelmed with the immensity of this field for enterprise, commercial prosperity, and human happiness.

I can bear witness to the truth of the sentiment expressed by my friend, Mr. Maury, that the Valley of the Amazon and the Valley of the Mississippi are commercial complements of each other—one supplying what the other lacks in the great commercial round. They are sisters which should not be separated. Had I the honor to be mustered among the statesmen of my country, I would risk political fame and life in the attempt to have the commerce of this noble river thrown open to the world.

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CHAPTER X.

Nauta—River Ucayali—Sarayacu—The Missionaries—The Indians of the Ucayali.

Señor Cauper has four or five slaves in his house—blacks, which he brought from Brazil. This is contrary to the law, but it is winked at; and I heard the governor say that he would like much to have a pair. Mr. Cauper said they would be difficult to get, and would cost him five hundred dollars in money. A slave that is a mechanic is worth five hundred dollars in Brazil.

Arebalo gave us specimens of the woods of the country; they are called *aguano*, *ishpingo*, *muena*, *capirono*, *cedro*, *palo de cruz*, (our lignum-vitæ,) and *palo de sangre*—all good, whether for house or ship-building; and some of them very hard, heavy, and beautiful. The palo de sangre is of a rich red color, susceptible of a high polish; and a decoction of its bark is said to be good to stay bloody evacuations. I had no opportunity of testing it, but suspect it is given on the homœopathic principle, that "like cures like," because it is red. I thought the same of the guaco, in the case of the snake-bite.

The temperature of Nauta is agreeable. The lowest thermometer I observed was 71° at 6 a. m., and the highest 89° at 3 p. m. We have had a great deal of cloudy weather and rain since we have been on the Amazon; and it is now near the commencement of the rainy season at this place. No one suffers from heat, though this is probably the hottest season of the year; the air is loaded with moisture; and heavy squalls of wind and rain sweep over the country almost every day. In the dry months—from the last of February to the first of September—a constant and heavy breeze blows, nearly all day, against the stream of the river; the wind, at all seasons, is generally easterly, but is at this time more fitful and liable to interruption; so that sail-boats bound up make, at this season, the longest passages. The river, which is three-fourths of a mile wide opposite Nauta, and has an imposing appearance, has risen four feet between the sixteenth and twenty-fifth of September.

The town is situated on a hill, with the forest well cleared away from around it, and is a healthy place. I saw only two cases of sickness during my stay of two weeks. They were acute cases of disease, to which people are liable everywhere. Both patients died; probably for

want of medical attention. I gave the man who had the dysentery some doses of calomel and opium, (a prescription I had from Dr. Smith, of Lima;) but he died with the last dose. Though solicited, I would have nothing to do with the other case. It was a woman; and I had no confidence in my practice. I could only add my mite to a subscription raised by the whites for the benefit of her orphan children.

The Cocamas of Nauta are great fishermen and boatmen, and I think are bolder than most of the civilized tribes on the river. They make incursions, now and then, into the country of the Mayorunas—savages who inhabit the right banks of the Ucayali and Amazon—fight battles with them, and bring home prisoners, generally children. When travelling in small numbers, or engaged in their ordinary avocations on the river, they studiously avoid the country of their enemies, who retaliate whenever opportunity offers.

These Indians are jealous, and punish conjugal infidelity with severity, and also departure from the laws of chastity on the part of the unmarried female.

Arebalo thinks that the population of the Missions is increasing, and found by the census, taken carefully last year by himself, that the number of women exceeded that of the men by more than one thousand.

A boat came in from above on the eighteenth, and reported the loss of another belonging to Enrique, one of the traders we had met at Laguna. She was loaded with salt and cotton cloth; and, in passing the mouth of Tigre Yacu in the night, struck upon a "sawyer," capsized, and went down. A boy was drowned. Macready would have envied the low, soft, sad tones and eloquent gestures, expressive of pity and horror, with which an Indian told us the disastrous story.

September 20.—We paid twelve rowers and a popero, and set them to work to fit up our boat with decks and coverings. I had purchased this boat from Mr. Cauper for sixty dollars, the price he paid for it when it was new. Most persons on the river held up their hands when I told them what I had paid for it; but I thought it was cheap, especially as I was obliged to have it on any terms. He had it repaired and calked for us.

The boat (called garretea) is thirty feet long, seven wide in its widest part, and three deep. The after-part is decked for about ten feet in length with the bark of a palm-tree, which is stripped from the trunk and flattened out by force. The deck is covered over by small poles, bent in hoop-fashion over it, and well thatched with palm-leaves; making quite a snug little cabin. The pilot stands or sits on this roof to direct and steer, and sleeps upon it at night, to the manifest danger

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of rolling off. About twelve feet of the middle of the boat is covered and decked in like manner; but the covering is lower and narrower, giving room for the rowers to sit on each side of it to paddle. Most of the cargo is stowed under the decks, thus leaving a cabin for both Ijurra and myself. There is a space between the two coverings which is not decked over, that gives a chance for bailing the boat when she takes in water; and a sufficient space is left in the bow on which to place a large earthen vessel to make a fire in.

I bought from Senhor Cauper some Portuguese axes, some small fish-hooks, (called by the Indians *mishqui*,) and some white beads, which are most coveted by the savages of the Ucayali.

We had several fishing pic-nics with the priest and governor, and altogether a pleasant time at Nauta.

September 25.—Having engaged a servant, a Tarapotino, named Lopez, and embarked our luggage and provisions, I hoisted a small American flag, given me from the frigate Raritan, and got under way for the Ucayali. We started with ten peons, but were joined by two others in a skiff (called *montaria*) next morning. In fifty-five minutes we arrived at the mouth of the Ucayali. It is a beautiful stream, with low, shelving, green banks at its mouth. But I was disappointed in its size; it was not more than half as wide as the Amazon. It is the longest known tributary above Brazil, and is therefore called by some the main trunk of the Amazon. We poled and paddled slowly up the left bank for four and a half miles, and stopped at a bluff where there were one or two huts of Nauta people. Threatening rain, we attempted to sleep in the boat; but our musquito curtains not being properly prepared, we passed a wretched night.

September 26.—Taking advantage of the eddies and still water near the shore, we paddled and poled along at about the rate of a mile and a half per hour. Our men work well. They commence paddling with a strong, slow stroke, of about fifteen or twenty to the minute, and gradually quicken them till they get to be half-second strokes. They keep this up for about half an hour, when, at a shout from the bowman, they toss their paddles in the air, change sides, and commence the slow stroke again. They, however, prefer poling to paddling, and will always make for a beach, where they can use their poles, which they do in a lazy, inefficient manner.

The shores of the river to-day, on the left bank, are abrupt, and about ten or fifteen feet high. They are of a light, loose earth, that is continually caving in by the action of the current, and carrying trees into the stream. On the other side the shores are low, green, and

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shelving. I think they are the shores of low, narrow islands. The trees are not very thick, and the country is more open than on the banks of the Huallaga. After breakfast we pulled nearly to the middle of the river, and, anchoring in thirty-three feet water, we found the current, by the log, to be a mile and three-quarters the hour. We passed the mouth of a small stream called Chingana, up which there is a settlement of the Mayorunas. Our men are much afraid of this people, and always sleep on the left bank so long as they are in their country. All the peons on this river have their musquito curtains painted black, so that the Mayorunas may not see them in the night. The mode of attack of these savages is to wait till the travellers have fallen asleep, and then rush upon the musquito nets and plunge in their lances. None of the Indians that I have travelled with seem to have any idea of the propriety of posting a sentinel. At noon the river, which has been from its mouth less than a quarter of a mile wide, spreads out, and is divided by islands. We anchored in twelve feet water, sixty yards from the shore, and slept without musquito netting. It was windy, and these troublesome insects did not come off. Rain nearly all night.

September 27.—Two of our turtles died yesterday, and the Indians are eating them to-day. Ijurra suspects that they killed them by putting tobacco in their mouths, knowing that we would not eat them, and that they consequently would get them. But Ijurra is of a suspicious nature, especially where Indians are concerned, whom he thinks to be the vilest and most worthless of mankind. We found the current to-day to be two miles the hour. A fish about two feet long, and sharp-built, like a dolphin, jumped into the boat. It had two curved and very sharp teeth, like those of a squirrel, or the fangs of a serpent, in the lower jaw. It made us a very good mess. The river to-day is much divided by islands, the passages from one hundred to one hundred and fifty yards wide. When running between the main shore, the river is about a quarter of a mile wide.

September 28.—Passed the outlet of a lake said to be a day distant. There are many lakes on each side of the river, where the Indians fish with barbasco. At this season most of the outlets are dry. Passed two balsas loaded with sarsaparilla, gathered in the river Aguaytia, above Sarayacu. One was in charge of a Brazilian negro, the other of a Portuguese; they were dependants of a trading establishment at Loreto. The crew were Conibos Indians of the Ucayali. They had a floating turtle-pen along, and gave us a turtle. When we stopped to breakfast our people hid their jars, which they had emptied of their masata, to pick up on the return. Banks of the river, as usual, about ten or

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fifteen feet high. Beaches few and small, running out in ridges; so that at one moment our men could not touch bottom with their long poles, and at the next the boat was aground.

September 29.—We passed a place in the river where there was a beach on each side, and a tree grounded in the middle. On the side which we passed, which was to the right of the tree, we had but four feet water sixty yards from the beach. I suspect the tree was grounded on a sand-flat at the upper end of an island, the lower end of which we had not noticed, and that the channel was on the other side, and close to the right bank of the river. Passed the mouth of the Caño Pucati, which communicates with the Marañon just below San Regis. It is now entirely dry, and appears a mere fissure in the bank between the cane and small trees growing near it. The sand which is heaped up at its entrance, is four feet above the present level of the river.

Stopped and bought some turtle, salt, and salted *curassows*, (a large, black, game bird, nearly the size, and with something the appearance, of a turkey, called *piuri*,) from some San Regis people, who were salting fish, which they had taken in a lake near. Their ranchos were built upon a bluff on the right bank. I could not stay among them for the musquitoes, and had to retreat to the boat. Two large turtles, three salted birds, and half a peck of salt, cost us six strings of small beads.

September 30.—Passed the mouth of an arm of the river, which is said to leave the main river many miles above, and make the large island of *Paynaco*. It is navigable for canoes in the wet season; but, on account of its windings, it takes nearly as long to pass it as it does to pass the main river; and it is seldom navigated. We see many cranes and *huananas*, (the Egyptian goose before described,) but no animals except flesh colored porpoises, of which there are a great many. Occasionally we hear "cotomonos," or howling monkeys, in the woods. Dull work ascending the river; anchored near low sand islands with abrupt banks, which were continually tumbling into the stream.

October 1.—After daylight we landed and shot at cotomonos. One is not aware of the great height of the trees until he attempts to shoot a monkey or a bird out of the topmost branches. He is then surprised to find that the object is entirely out of reach of his fowling-piece, and that only a rifle will reach it. The trees throughout this country grow with great rapidity, and, being in a light, thin soil, with a substratum of sand, the roots are superficial, and the trees are continually falling down. Nature seems to have made a provision for their support, for, instead of coming down round to the ground, the trunk, about

ten feet above it, divides into thick, wide tablets, which, widening as they come down, stand out like buttresses for the support of the tree; but even with this provision no day passes that we do not hear the crashing fall of some giant of the forest. Re-stowed the boat, and repaired Ijurra's palace, making it narrower and higher.

October 3.—Many huananas, with their broods, upon the river. Shot a large brown bird called *chansu*, (*cigana* in Brazil;) it has a crest, erectile at pleasure, and looks like a pheasant. Large flocks frequent the cane on the banks of the river; they have a very game look, and are attractive to the sportsman; but the Indians call them a foul bird, and do not eat them; the crop of this was filled with green herbage.

October 4.—Clear all night, with heavy dew. The anchor, which is a sixty-four pound weight, had sunk so deep in the thick dark sand of the bottom as to require the united exertions of all hands to get it. Met three canoes going down loaded with sarsaparilla; bought some yuccas and plantains at a settlement of five families of Conibos, on the left bank of the river. Got also specimens of the black wax of the country, and "lacre," or sealing-wax, which is the gum of a tree, colored red with achote. The black wax is the production of a small bee very little larger than an ant, which builds its house in the ground. The white wax is deposited in the branches of a small tree, which are hollow, and divided into compartments like the joints of a cane. The wood is sufficiently soft to be perforated by the bee; the tree is called *cetica*, and looks, though larger, like our alder bush.

October 5.—Stopped at a Conibo rancho on the right bank. Three men and six women, with children, were living in the rancho; they were very poor, and could sell us nothing. The river rose six inches from eight last night to five this morning. Shores to-day low, with large sand beaches; only four feet of water fifty or sixty yards from them. Current two and a quarter miles.

October 6.—Passed a settlement of Conibos on left bank—four houses, eight men and twenty-five women and children. It was quite a treat to see so familiar a flower as the convolvulus growing on the bank. It was not so large or so gay as in our gardens, but had a home look that was very pleasing. Passed a ravine, up which there is a settlement of Amajuacas Indians. These men are hunters, who live in the interior, and seldom come down upon the rivers. The Pirros and Conibos sometimes make war upon them, and bring away captives. Yesterday two men—one a Pano, from Sarayacu, and the other an Amajuaca—joined us to work their passage to Sarayacu. The Amajuaca was so good a

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fellow, and worked so well, that I paid him as the others. Current two and a quarter miles.

October 7.—River half a mile wide and rising fast. Trunks of trees begin to come down. Stopped at a settlement called *Guanache.* I saw only two houses, with four or five men and women ; they said that the others were away gathering sarsaparilla. These people cannot count, and can never get from them any accurate idea of numbers. They are very little removed above the "beasts that perish." They are filthy, and covered with the sores and scars of sarna. The houses were very large, measuring between thirty and forty feet of length, and ten or fifteen in breadth. They consist of immense roofs of small poles and cane, thatched with palm, and supported by short stakes four feet high and three inches in diameter, planted in the ground three or four feet apart, and having the spaces, except between two in front, filled in with cane. Many persons "pig" together in one of these houses. Cotton was growing here. Current three and one-third miles.

October 9.—Stopped at the village of Sta. Maria, a Pirros settlement, on the left bank, of one hundred and fifty souls. The curaca, who seemed a more rational and respectable being than the rest, and whom I afterwards saw in Nauta, told me that there were thirty-three *Matrimonios.* These Indians ascend the Ucayali in their canoes to a point not very far from Cuzco, where they go to exchange rare birds and animals for beads, fish-hooks, and the little silver ornaments which they wear in their noses. They bury their dead in his canoe under the floor of his house. The curaca said that the Conibos buried the personal effects of the deceased with him, differing in this from his people, the Pirros. Their language is also different; but in all other things they are as like as peas. They have no idea of a future state, and worship nothing. In fact, I think they have no ideas at all, although they can make a bow or a canoe, and take a fish; and their women can weave a coarse cloth from cotton, and dye it. They asked us if we had not in our boxes some great and infectious disease, which we could take up and let loose among their enemies, the Cashibos of the Pichitea.

There were two Moyobambinos domiciliated in the village, purchasing salt fish from the Indians. One of them told me that an Indian would furnish eighty pieces of salt fish for eight yards of tocoyo; this man may have "let the cat out of the bag," and showed me how they cheat the Indians. A yard of tocuyo is the general price of three pieces. A fish called payshi, which is the fish ordinarily salted, was brought in and cut up whilst we were here. It is a powerful fish, about six feet long and one and one-fourth in diameter. The head is fourteen inches long, with

short jaws and rather small mouth. The tongue, when dried, is as hard as bone, and is commonally used as a rasp. The scales of the belly and tail are bordered with a bright red streak, which makes the fish appear to be nearly encircled with a number of scarlet rings, and gives it a very pretty appearance. (It is called *pirarucu* in Brazil.)

Just below Sta. Maria is the mouth of a creek, or small channel of the river, which, cutting across a narrow neck of land, connects two parts of a great bend of the river. These canals across an isthmus are called by the Indians tepishka. This one is only navigable when the river is full.

Two hours after leaving Sta. Maria we arrived at a beach where there was an establishment of Senhor Cauper's, for salting fish. These establishments are called *factorias.* A nephew of the old man has been here for two months, attending to the business. Instead of employing the Infidels, he brings Indians of Nauta with him—people generally who are in Mr. Cauper's debt. Twenty-five Indians collect and salt four thousand pieces of fish in six weeks.

Bought fifty pieces at six and a quarter cents for the support of my peons. From eight last night to six this morning, the river rose but two inches, and seems to be now falling.

The Indians on this river have in their houses cotton, maize, ground peas, (mani,) sweet potatoes, yuccas, plantains, fowls and fish, bows and arrows, lances, clubs, paddles, and pretty baskets made of cane. The women weave their own clothes, and those of their husbands, and manage to paint figures and devices on the cotton after it is woven. The Pirros and Conibos seem taller than they really are, on account of their costume, which is a long cotton gown. I have seen a fellow in one of these gowns, slowly striding over a beach, look, at a distance, like a Roman patrician in his "toga."

October 10.—River fell last night four inches. Stopped on *Puiri* island to breakfast. There is a pretty little lake occupying nearly the whole centre of the island. We passed through a shallow and narrow arm of the river between Puiri island and the right bank. River a quarter of a mile wide above the island.

Met a Conibo, with his wife and two children, on the beach. This man was evidently the dandy of his tribe. He was painted with a broad stripe of red under each eye; three narrow stripes of blue were carried from one ear, across the upper lip, to the other—the two lower stripes plain, and the upper one bordered with figures. The whole of the lower jaw and chin were painted with a blue chain-work of figures, something resembling Chinese figures. Around his neck was a broad tight necklace of black and white beads, with a breastplate of the

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same hanging from it, and partly concealed by the long gown, or *cushma*. His wrists were also adorned with wide bracelets of white beads, and above these a bracelet of lizard skins, set round with monkeys' teeth. He wore a little silver shield hanging from his nose, and a narrow, thin plate of silver, shaped like a paddle, two and a half inches long, thrust through a hole in the lower lip, and hanging on the chin. He had been to Cuzco, where he got his silver ornaments, and said it was a journey of four moons. We anchored in thirty-six feet water, and found a current of three miles the hour. Calm, clear night; much dew.

October 11.—Stopped to breakfast on a beach on the left bank, back of which, on the firm land, were two houses of *Remos* Indians. There were twenty-two of them—men, women, and children—with three men of the *Shipebos* tribe. There seemed to be no uniformity in their paint, each one consulting his own taste; though there was one man and a woman, whom I understood to be man and wife, painted exactly alike. The Remos were low and small; the Shipebos taller. They were dressed in the common costume of the Ucayali, (the cushma,) and had their hair cut straight across the forehead, just above the eyes, so as to show the face, set, as it were, in a frame of hair. They are all filthy, and some have sarna. As far as I have observed, more women have this disease than men. Passed more huts afterwards, and some Indians seeking the young of the turtle on a beach. These people eat anything. I have known them to eat the eggs of the turtle with the young in them, and also turtle that had died a natural death and had become offensive.

October 12.—Passed a settlement of Conibos on the right bank, numbering twenty-five or thirty. They said that the inhabitants of a village called *Huamuco*, which Smyth places near this place, had gone to the Pachitea.

October 13.—At breakfast we found a smaller kind of turtle called *charapilla*, better and more tender than the large turtle which is called charapa. Stopped at a little settlement of Shipebos on the right bank—twenty-five all told. Met three negroes, with a crew of Conibos, who had been up the river for sarsaparilla. They gathered the principal part of what they had (about sixty arrobas) in the Aguaytia, but had been five days up the Pachitea, and six up the Ucayali, above the Pachitea. They say that the Cashibos of that river would come to the beach in hostile attitude; but when they found that the strangers were not Indians of the Ucayali, but wore trousers and had guns, they fled.

Passed two houses of Conibos, about fifteen in number. One of them, taking us for padres, insisted that Ijurra should baptize his child;

which was accordingly done. He gave it the name of the officiating priest, writing it on a bit of paper and giving it to the mother, who put it away carefully. I believe my companion was upbraided by the priest at Sarayacu for doing so. The head of the infant had been bound in boards, front and rear, and was flattened and increased in height. I do not observe that the heads of the adults bear any trace of this custom.

October 15.—Arrived at the village of Tierra Blanca, belonging to the Mission, having passed yesterday several settlements of the Indians, and seen for the first time the hills in the neighborhood of Sarayacu. It is a clean little town, of two hundred inhabitants, situated on an eminence on the left bank about twenty-five feet above the present level of the river. In the full the water approaches within a few feet of the lower houses.

A priest from Sarayacu, "Father Juan de Dios Lorente," has charge of the spiritual and pretty much of the temporal concerns of the village. He is here at this time celebrating some feast, and is the only white man present. The Indians, as usual at a feast time, were nearly all drunk, and made my men drunk also. When I wished to start, I sent Ijurra to a large house where they were drinking to bring our people to the boat; he soon came back, foaming with rage, and demanded a gun, that he might bring them to obedience; I soothed him, however, and went up to the house, where, by taking a drink with them, and practising the arts that I have often practised before in getting off to the ship refractory sailors who were drinking on shore, I succeeded in getting off a sufficient number of them to work the boat, and shoved off with as drunken a boat's crew as one could desire, leaving the small boat for the others to follow; this they are sure to do when they find that their clothes and bedding have been taken away. The padre said that if Ijurra had shot one, they would have murdered us all; but I doubt that, for we were well armed, and the Indians are afraid of guns.

Padre Lorente, when he joined the Mission, came down the Pachitea in nine days from Mayro to Sarayacu in the month of August; if so, there must have been an enormous current in the Pachitea and Ucayali above, for it takes thirty days to reach the mouth of the Pachitea from Sarayacu, which distance Padre Lorente descended in six; and Padre Plaza (who is said, however, to be a slow traveller) took eighteen to ascend the Pachitea from its mouth to Mayro, which Padre Lorente accomplished downwards in three. I judged from the short course of this river, and the great descent, that it had a powerful current. The padre said that, a day's journey above the mouth of the Pachitea, his

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men had to get overboard and drag the canoe over the bottom for five hundred yards. He also said that the attempt to ascend at this season must result in failure; that it can only be done after Easter, when the current is not so rapid. The Aguaytia and Pishqui are also small streams, where the Indians have to wade and drag the canoes.

October 16.—Started at 6 a. m.; stopped at half-past five opposite the mouth of the river Catalina. It seemed thirty yards wide, and had a small island in front.

The ascent of the river is very tedious; we barely creep along against the force of the current, and day after day "wearies by" in the most monotonous routine. I frequently land, and with gun on shoulder, and clad only in shirt and drawers, walk for miles along the beaches. My greatest pleasure is to watch the boat struggling up against the tide. This is always accompanied with emotions of pride, mingled with a curious and scarcely definable feeling of surprise. It was almost startling to see, at her mast-head, the beautiful and well-beloved flag of my country dancing merrily in the breeze on the waters of the strange river, and waiving above the heads of the swarthy and grim figures below. I felt a proud affection for it; I had carried it where it had never been before; there was a bond between us; we were alone in a strange land; and it and I were brothers in the wilderness.

October 17.—Met ten canoes of Conibos—twenty-eight men, women, and children—who had been on an excursion, with no particular object, as far as the first stones in the Ucayali. This is about thirty-eight days above Sarayacu, at a place called in Quichua "Rumi Callarina," or commencement of the rocks; river rising for the last two or three days; passed a village of Shipebos, called Cushmuruna; hills in sight, bearing south.

October 18.—At 11 a. m. we entered the Caño of Sarayacu; at this season this is not more than fifteen or eighteen feet wide, and nearly covered with a tall grass something like broom-corn, or a small species of cane. (This is the food for the vaca marina.) The caño has as much as six feet depth in the middle for two miles, but it soon contracts so as scarcely to allow room for my boat to pass, and becomes shallow and obstructed with the branches of small trees which bend over it. It also, about two miles from its mouth, changes its character of caño, or arm of the main river, and becomes the little river of Sarayacu, which retires and advances in accordance with the movements of its great neighbor.

We could not get our boat nearer than within a quarter of a mile of the town; so we took small canoes from the bank, and carried up our

equipage in them. We were hospitably received by the padres, and lodgings were given us in the convento, a large house with several rooms in it.

We found Sarayacu a rather neat-looking Indian village, of about one thousand inhabitants, including Belen, a small town of one hundred and fifty inhabitants, one and a half mile distant. It, or rather the missionary station—including the towns of Sta. Catalina and Tierra Blanca—is governed by four Franciscan friars, of the college of Ocopa. The principal and prefect, Padre Juan Chrisostomo Cimini, being now absent on a visit to Ocopa, the general direction is left in the hands of Father Vicente Calvo, assisted by the Fathers Bregati and Lorente, who have charge respectively of Sta. Catalina and Tierra Blanca.

Father Calvo, meek and humble in personal concerns, yet full of zeal and spirit for his office, clad in his long serge gown, belted with a cord, with bare feet and accurate tonsure, habitual stoop, and generally bearing upon his shoulder a beautiful and saucy bird of the parrot kind, called *chiriclis*, was my beau ideal of a missionary monk. He is an Arragonese, and had served as a priest in the army of Don Carlos. Bregati is a young and handsome Italian, whom Father Calvo sometimes calls St. John. Lorente was a tall, grave, and cold-looking Catalan. A lay-brother named Maquin, who did the cooking, and who was unwearied in his attentions to us, made up the establishment. I was sick here, and think that I shall ever remember with gratitude the affectionate kindness of these pious and devoted friars of St. Francis.

The town is situated on a level plain elevated one hundred feet above the rivulet of the same name, which empties into the Ucayali at three miles distant.

The rivulet does not afford sufficient water for a canoe in the dry season; but at that time a fine road might be made through the forest to the banks of the Ucayali; this probably would be miry and deep in the rainy season, which is from the first of November to Easter. We had rain nearly every day that we were there, but it was in passing showers, alternating with a hot sun. The climate of Sarayacu is delightful; the maximum thermometer, at 3 p. m., being 84½°; the minimum, at 9 a. m., 74. The average temperature of the day is 79; the nights are sufficiently cool to allow one to sleep with comfort under a musquito curtain made of gingham. These insects are less troublesome here than might be expected, which may be seen from the fact that the priests are able to live without wearing stockings; but it is a continual penanc , quite equal, I should think, to self-flagellation once a week.

The soil is very prolific, but thin and light; at half a foot below the

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surface there is pure sand; and no Indian thinks of cultivating the same farm longer than three years; he then clears the forest and plants another. There is nothing but a little coffee produced for sale in the neighborhood of the town. The fathers extract about three hundred arrobas of sarsaparilla, from the small streams above, and sell it to Senhor Cauper in Nauta. This gives them a profit of about five hundred dollars. The College at Ocopa allows them a dollar for every mass said or sung. The four padres are able to perform about seven hundred annually, (those for Sundays and feast-days are not paid for;) and this income of twelve hundred dollars is appropriated to the repairs of the churches and conventos, church furniture, the vestments of the priests, their table and chamber furniture, and some little luxuries—such as sugar, flower, vinegar, &c., bought of the Portuguese below.

The padres have recently obtained an order from the prefect of the department of Amazonas, giving them the exclusive right of collecting sarsaparilla on the Ucayali and its tributaries; but I doubt if this will benefit them much, for, there being no power to enforce the decree, the Portuguese will send their agents there as before.

Each padre has two *Mitayos*, appointed monthly—one a hunter, the other a fisherman—to supply his table with the products of the forest and the river. The Fiscales cultivate him a small farm for his yuccas and plantains, and he himself raises poultry and eggs; they also make him rum from the sugar-cane, of which he needs a large supply to give to the constables, (*Varayos*, from "vara," a wand, each one carrying a cane,) the Fiscales, and the Mitayos.

The government is paternal. The Indians recognise in the padre the power to appoint and remove curacas, captains, and other officers; to inflict stripes; and to confine in the stocks. They obey the priest's orders readily, and seem tractable and docile. They take advantage, however, of Father Calvo's good nature, and are sometimes a little insolent. On an occasion of this kind, my friend Ijurra, who is always an advocate of strong measures, and says that in the government of the Indians there is nothing like the *santo palo*, (sacred cudgel,) asked Father Calvo why he did not put the impudent rascal in the stocks. But the good Father replied that he did not like to do it—that it was cruel, and hurt the poor fellow's legs.

The Indians here, as elsewhere, are drunken and lazy. The women do most of the work; carry most of the burdens to and from the chacras and canoes; make the masato, and the earthen vessels out of which it is drunk; spin the cotton and weave the cloth; cook and take care of the children. And their reward is to be maltreated by their husbands, and,

in their drunken frolics, to be cruelly beaten, and sometimes badly wounded.

The town is very healthy, there being no endemics, but only acute attacks from great exposure or imprudence in eating and drinking. From the parish register it appears that in the year 1850 there were ten marriages, sixty two births, and twenty-four deaths. This appears, from an examination of the other years, to be a pretty fair average; yet the population is constantly decreasing. Father Calvo attributes this to desertion. He says that many go down the Amazon with passengers and cargoes, and, finding the return difficult, they either settle in the villages upon the river or join the *Ticumas*, or other Infidel tribes, and never come back.

The Spaniards, from the Huallaga, also frequently buy the young Indians from their parents, and carry them off for domestic services at home. Father Calvo spoke with great indignation of this custom; and said if he could catch any person stealing his people he would hang him in the plaza. Our servant Lopez desired me to advance him nine hatchets, for the purpose of buying a young Indian which his father wished to sell. But I told Lopez of Father Calvo's sentiments on the subject, and refused him. Two boys, however, put off in a canoe the day before we did on our return, and joined us below Tierra Blanca. I did not clearly understand who they were, or I should have sent them back.

We afterwards met with a boat's crew of twelve, who had come off with a young Spaniard of Rioja, (a village between the Huallaga and Marañon,) who did not intend returning; and I fear that many of those that came down with me did not get back for years, if at all; though I did all I could to send them back.

Thus Sarayacu is becoming depopulated in spite of the paternal kindness and mild government of Father Calvo. My own impression as to the reason of their desertion is, not that it is on account of the difficulties of the return, or indifference, or a proclivity to fall back into savage life; but that the missionaries have civilized the Indians in some degree—have taught them the value of property, and awakened in their minds ambition and a desire to improve their condition. For this reason the Indian leaves Sarayacu and goes to Brazil. In Sarayacu there are comparatively none to employ him and pay for his services. In Brazil, the Portuguese "commerciante," though he maltreats him, and does not give him enought to eat, pays him for his labor. Thus he accumulates, and becomes a man of property; and in the course of time possibly returns to his family in possession of a wooden trunk painted

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blue, with a lock and key to it, and filled with hatchets, knives, beads, fish-hooks, mirrors, &c. He has seen the world, and is an object of envy to his kinsmen and neighbors.

Not included among the deaths of 1850 are those of four men who died from poison. In one of their drunken frolics the Indians were discoursing of the properties of a small tree or shrub, called corrosive sublimate of the forest, "soliman del monte," and they determined to test it. They rasped a portion of the bark into their masato, and five men and two women partook of it. Four of the men died in three-quarters of an hour, in great agony, and the others were ill for a long time.

Growing in the padre's garden was a small tree bearing a fruit about the size of our hickory nut, which contained within a small, oblong nut, called *piñon.* This has a soft shell; and the substance of the nut is a mild, safe, and efficient purgative. There was also a bush called "*guayusa,*" a decoction of the leaves of which is said to be good for colds and rheumatism. It is also believed to be a cure for barrenness.

The friars entertained us on Sunday evening with a dance of Indians. These were dressed in frocks and trousers, but had head-dresses made of a bandeau or circlet of short and rich-colored feathers, surmounted with the long tail-feathers of the scarlet macaw. They had strings of dried nut shells around their legs, which made an agreeable jingling in the dance. The half-bent knee, and graceful waive of the plumed hat towards the priest before the dance commenced, with the regularity of the figure, gave unmistakable evidence of the teaching of the Jesuits, who appear to have neglected nothing, however trivial, that might bind the affections of the proselytes, and gain themselves influence.

The inhabitants of Sarayacu are divided into three distinct tribes, called Panos, Omaguas, and Yameos. They dwell in different parts of the town. Each tribe has its peculiar dialect; but they generally communicate in the Pano language. These last are the whitest and best-looking Indians I have seen.

I was unable to gather much authentic information concerning the Infidels of the Ucayali. The padres had only been in Sarayacu a few years, and had never left their post to travel among the Indians.

The Campas are the most numerous and warlike tribe, and are resolute in forbidding strangers to enter their territory. They inhabit all the upper waters of the Ucayali; and I think it probable that they are the same who, under the name of Chunchos, are so hostile to the whites about Chanchamayo, and on the haciendas to the eastward of Cuzco. These are the people who, under Juan Santos Atahaullpa, in 1742, swept away all the Missions of the Cerro de la Sal; and I have very

little doubt that they are descendants of the Inca race. From the extent of their territory, one might judge them to be the most numerous body of savages in America; but no estimate can be formed of their numbers, as no one capable of making one ever ventures among them.

The cashibos, or *Callisecas,* are found principally on the Pachitea. They also make war upon the invaders or visiters of their territory; but they only venture to attack the Indians who visit their river, and who often come to make war upon them and carry off their children. They rarely trust themselves within gun-shot of the white man; they are bearded, and are said to be cannibals. A small tribe called *Lorenzos* live above these on the head waters of the Pachita and banks of the river of Pozuzu.

The *Sencis* occupy the country above Sarayacu, and on the opposite side of the river. They are said by Lieutenant Smyth, from information supplied by Father Plaza, (the missionary governor, succeeded in his office by my friends,) who had visited them, to be a numerous, bold, and warlike tribe. He said that some whom he saw at Sarayacu exhibited much interest in his astronomical observations. They had names for some of the fixed stars and planets, two of which struck me as peculiarly appropriate. They called the brilliant Canopus "Noteste," or thing of the day, and the fiery Mars "Tapa," (forward;) Jupiter they called *Ishmawook;* Capella was *Cuchara,* or spoon; and the Southern Cross *Nebo,* (dew-fall.) I saw some of these people at Sarayacu. They frequently come to the mission to get their children baptized, to which ceremony most of the Indians seem to attach some virtue, (as they probably would to any other ceremony,) and to purchase the iron implements they may stand in need of; but I saw no difference in appearance between them and the other Indians of the Ucayali, and did not hear that there was anything peculiar about them.

Smyth also states (still quoting Father Plaza) that the Sencis are a very industrious people, who cultivate the land in common, and that they kill those who are idle and are indisposed to do their fair share of the work. If this be true, they are very different from the savages of the Ucayali whom I have met with, who are all drones, and who would be rather disposed to kill the industrious than the lazy, if they were disposed to kill at all, which I think they are not.

The Conibos, Shipebos, Setebos, Pirros, Remos, and Amajuacas are the vagabonds of the Ucayali, wandering about from place to place, and settling where they take a fancy. They are great boatmen and fishermen, and are the people employed by the traders to gather sarsaparilla and salt fish, and make oil or lard from the fat of the vaca

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marina, and turtle's eggs. They have settlements on the banks of the river; but many of them live in their canoes, making huts of reeds and palms upon the beaches in bad weather. I could never ascertain that they worshipped anything, or had any ideas of a future state. Many have two or three wives; they marry young and have many children, but do not raise more than half of them. They seem docile and tractable, though lazy and faithless. They will not trust the white man, for which they have probably good cause; and the white man would not trust them if he could help it; but the Indian will do nothing unless he is paid in advance.

Finally, the Mayorunas occupy the right bank of the Ucayali, near its mouth, and extend along the southern borders of the Amazon as far as the Yavari. Very little is known of this tribe. They are said to be whiter than the other tribes, to wear their beards, and to go naked. They attack any person who comes into their territory; and our Nauta boatmen were careful not to camp on their side of the river.

When I left Nauta I intended to ascend the Ucayali, if possible, as far as Chanchamayo, and also to examine the Pachitea. On arriving at Sarayacu I consulted Father Calvo on the subject. He at first spoke discouragingly; said that the larger part of the population of his village were away fishing, and that I would have great difficulty in recruiting a sufficient number of men for the expedition; for that Padre Cimini, year before last, with a complement of one hundred and fifty men, had been beaten back by the Campas when within one day of Jesus Maria, at the confluence of the Pangoa and Perene, and had declared it was folly to attempt it with a less number, and these well armed. Father Calvo also said that, could he raise the men by contributions from Tierra Blanca and Sta. Catalina, he could not possibly furnish provisions for half that number. I told him I was ready to start with twenty-five men: fifteen for my own boat, and ten for a lighter canoe, to act as an advanced guard, and to depend upon the river itself for support; that I had no idea of invading the Infidel country, or forcing a passage; and that the moment I met with resistance, or want of provisions, I would return.

Upon this reasoning the padre said he would do his best, and sent off expresses to Fathers Bregati and Lorente with instructions to recruit men in Tierra Blanca and Sta. Catalina, and send them, with what provisions could be mustered, to Sarayacu. In the mean time we commenced beating up recruits, and gave orders to make farinha, gather barbasco for fishing on the route, and distil aguadiente.

We found, however, although I offered double pay, that we could not get more than eight men in Sarayacu who were willing to go at this

season. Many of the Sarayacu people had been with Father Cimini on his expedition. They said that the current was so strong then, when the river was low, that they were forced to drag the canoes by ropes along the beaches; that now the current was stronger, and the river so full that there were no beaches, and consequently no places for sleeping, or on which to make fires for cooking. In short, they made a thousand excuses for not going; but I think the principal reason was, fear of the Campas.

Fathers Bregati and Lorente reported that they could not raise a man, so that I saw myself obliged to abandon the expedition upon which I had rather set my heart; for I thought it possible that I might gather great reputation with my Chanchamayo friends by joining them again from below, and showing them that their darling wish (a communication with the Alantic by the Perene and Ucayali) might be accomplished.

I felt, in turning my boat's head down stream, that the pleasure and excitement of the expedition were passed; that I was done, and had done nothing. I became ill and dispirited, and never fairly recovered the gayety of temper and elasticity of spirit which had animated me at the start, until I received the congratulations of my friends at home.

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CHAPTER XI.

Upper Ucayali—M. Castelnau—Length of navigation—Loss of the priest—Departure from Sarayacu—Omaguas—Iquitos—Mouth of the Napo—Pebas—San José de los Yaguas—State of Indians of Peru.

I have the less regret, however, in that M. Castelnau has given so exact and interesting an account of the descent of this river.

This accomplished traveller and naturalist left Cuzco on the 21st July, 1846. His party consisted of himself, M. D'Osery, M. Deville, M. Saint Cric, (who joined the party in the valley of *Sta. Ana*,) three officers of the Peruvian navy, seven or eight domestics and muleteers, and fifteen soldiers as an escort. After seven days of travel (passing a range of the Andes at an elevation of fourteen thousand eight hundred feet) he arrived at the village of *Echaraté*, in the valley of Sta. Ana.

He remained at this place until the 14th of August, when the canoes and rafts which he had ordered to be constructed were ready. He then embarked on a river called by the various names of Vilcanota, Yucay, Vilcomayo, and Urubamba, in four canoes and two balsas.

The difficulties of the navigation, dissensions with the Peruvian officers, and desertions of the peons, soon reduced the expedition to a lamentable state of weakness and destitution.

On the 17th M. D'Osery was sent back with a large part of the equipage, and most of the instruments and collections in natural history. This unfortunate gentleman was murdered by his guides on his route from Lima to rejoin M. Castelnau on the Amazon. After passing innumerable cascades and rapids, M. Castelnau reached, on the 27th of August, the lowest rapid on the river, that is an effectual bar to navigation. This is one hundred and eighty miles from his point of embarkation at Echaraté. An idea may be formed of the difficulties of the passage when it is reflected that it cost him thirteen days to descend this one hundred and eighty miles, with a powerful current in his favor.

He found this point, by the barometer, to be about nine hundred and sixteen feet below Echaraté; thus giving the river a fall of a little more than five feet to the mile. He afterwards found that the mouth of the Ucayali, which is one thousand and forty miles down stream of the cas-

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Ackerman Lith. 379 Broadway NY

ZAPARO.

Hunting Costume.

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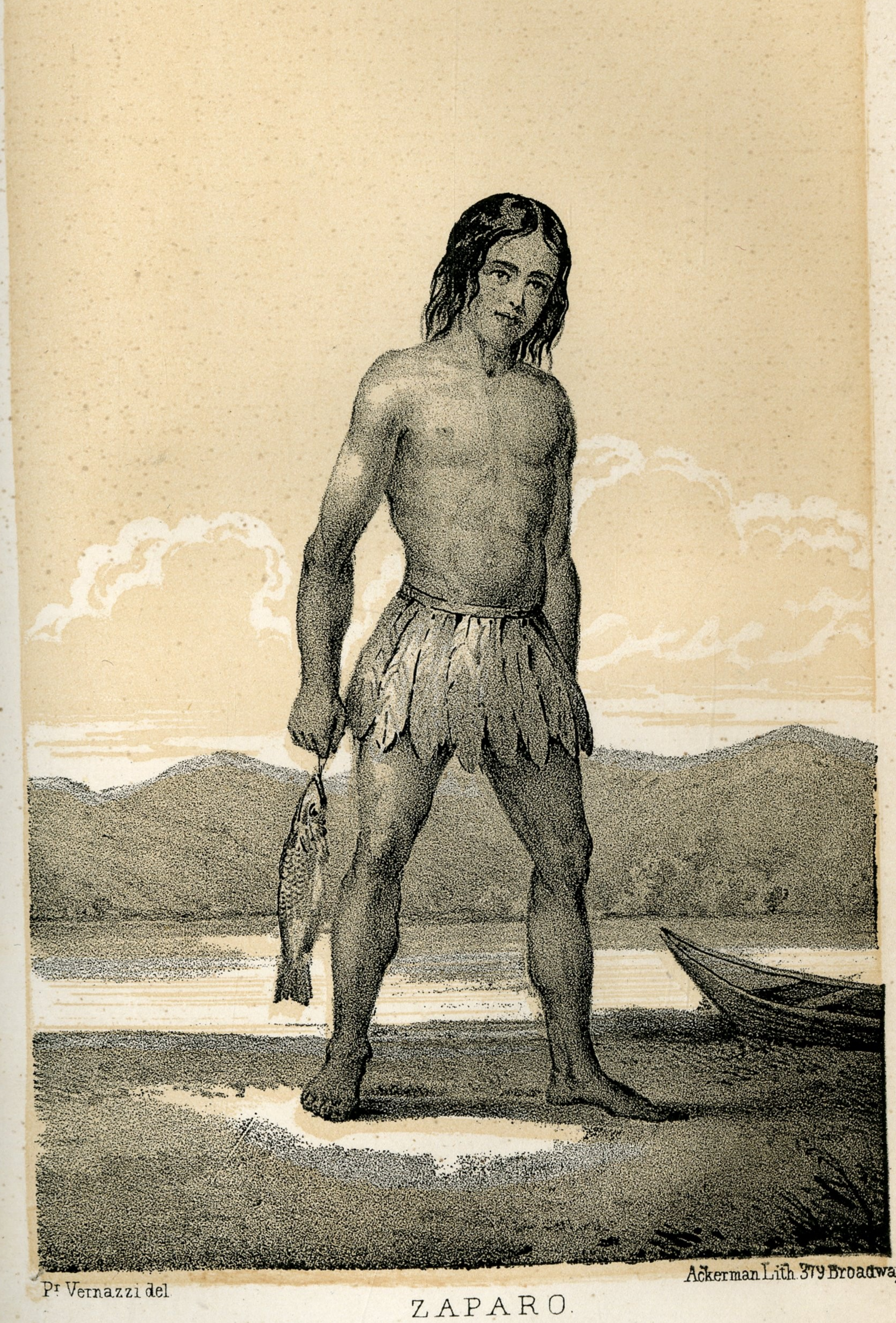

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cade, was, by the barometer, nine hundred and four feet below it; thus giving the river a fall of .87 of a foot per mile.

He says that if the navigation of the Ucayali is attempted, it would be well to make a port at this point, and open a road thence to the valley of Sta. Ana, in which Echaraté is situated, and which is exceedingly fertile, producing large quantities of Peruvian bark, with coca, and many other tropical productions.

M. Castelnau thinks that this last cascade is the first impassable barrier to the navigation of the Ucayali upwards; but he found many places below this where the river had but a depth of three feet, and many, though unimportant, rapids. Indeed, two hundred and seventy miles below this, he describes a strait, called the *Vuelta del Diablo*, as a dangerous passage, blocked up by heavy trunks of trees, against which the current dashes with great violence.

At two hundred and sixteen miles below the cascade he passed the mouth of the river Tambo, the confluence of which with the Urubamba makes the Ucayali.

Two hundred and fifty-two miles below the mouth of the Tambo he passed the mouth of the Pachitea, which he describes as being about the size of the Seine at Paris; and the Ucayali, after the junction of this river, as like the Thames at London.

Sarayacu is two hundred and ninety-seven miles below the mouth of the Pachitea.

From the Vuelta del Diablo to Sarayacu is four hundred and ninety-five miles. From Sarayacu to the mouth of the Ucayali is two hundred and seventy five miles; so that we have an undoubtedly open navigation on this river of seven hundred and seventy miles; and, taking M. Castelnau's opinion as correct, there are two hundred and seventy miles more to the foot of the last cascade on the Urubamba; making a total of one thousand and forty miles. Well, then, may he call this stream the main trunk of the Amazon; for, taking my estimate of the distance from the mouth of this river to the ocean, at two thousand three hundred and twenty miles, we have an uninterrupted navigation of three thousand three hundred and sixty miles, which will be found in no other direction. I estimate the distance from the Pongo de Chasuta, the head of clear navigation on the Huallaga, to the sea, at two thousand eight hundred and fifteen miles.

An idea may be formed of the difficulties and dangers of passing the rapids of these rivers from the following description, given by this accomplished gentleman and clever writer:

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"We started about 8 o'clock, and employed an hour and a half in passing the cascade, which was composed of two strong rapids. Immediately after this, two other rapids arrested our course. We passed the first by the left bank; but, as it was impossible to continue our route on that side, after consultation, we embarked to cross to the right bank.

"We found the current of exceeding rapidity; and the second cataract roared and foamed only one hundred metres below us. The Indians at every instant cast anxious glances over the distance that separated them from the danger. At one moment our frail canoe manifestly lost ground; but the Indians redoubled their efforts, and we shot out of the strength of the current.

"At this moment we heard cries behind us, and an Indian pointed with his finger to the canoe of M. Carrasco, within a few yards of us. It was struggling desperately with the violence of the current; at one instant we thought it safe, but at the next we saw that all hope was lost, and that it was hurried towards the gulf with the rapidity of an arrow. The Peruvians and the Indians threw themselves into the water; the old priest alone remained in the canoe, and we could distinctly hear him reciting the prayer for the dying until his voice was lost in the roar of the cataract. We were chilled with horror; and we hastened to the bank, where we met our companions successively struggling to the shore from the lost canoe. M. Bizerra, particularly, encountered great danger, but he evinced a remarkable *sang froid*, and, amidst his difficulties, never let go the journal of the expedition, which he carried in his teeth.

"Poor little Panchito, the servant of the priest, wept bitterly, and begged us to let him seek the body of his benefactor; but an hour was already lost, and our absolute want of provisions forbid us from acceding to his sad demand.

"We deeply regretted the loss of our companion, whose death was as saint-like as his life."

The party suffered greviously from the hardships of the voyage and the want of food. They were at the point of starvation when they arrived at Sarayacu, forty-four days after their embarkation at Echaraté. M. Castelnau's description of their condition when they arrived is quite touching.

"At 3 p. m., after a journey of thirty miles, the Indians all at once turned the canoe to a deserted beach, and told us that we were arrived at Sarayacu. Before us was the bed of a little river nearly dry, to which they gave this name. The absence of any indication of habitations, and the dark forest which surrounded the beach, made us believe for the instant that we were the victims of some terrible mistake. We

thought that the mission so ardently desired had been abandoned. Among our people only one knew the place, and his canoe had not yet arrived. We set ourselves to search out a path through the forest, but without success; we were completely discouraged, and our eyes filled with tears." (The gallant Frenchman must have suffered much to have been brought to such a condition as this.) "We were in this state of anxiety more than an hour; at last our guide arrived; he told us that the town was some distance from the river, and, after considerable search, he found in a ravine the entrance to the narrow path which led to it. M. Deville and I were so enfeebled, and our legs so swollen, that we could not travel it. M. Carrasco, anxious to arrive, started in company with his friends; and Florentino (the servant of the count) accompanied them. We were thus sadly detained upon the beach, when, towards nine o'clock, we thought we heard singing in the woods; the voices soon became distinct, and we could recognise the airs. An instant after, the good Florentino rushed to us in the height of joy. He was followed by a dozen Indians of the Mission carrying torches, and a man dressed in European costume. This last gave us an affectionate shake of the hand, and told us, in English, that his name was Hackett; that the prefect of the Missions, the celebrated Padre Plaza, had sent him to welcome us and to beg us to excuse him, in that his great age had not permitted him to come himself. The Indians brought us fowls, eggs, and a bottle of wine; supper was instantly prepared; and Mr. Hackett, who seemed sensibly touched with our misery, staid with us till midnight. He told us that the Mission was nearly six miles in the interior, but that he would send us Indians early in the morning to conduct us to it. We learned that the Peruvian government, faithful to its engagements, had announced our voyage in the Missions, and that the Bishop of Mainas had sent an express messenger to that effect; but Padre Plaza, regarding our voyage from Cuzco to the Missions as an absolute impossibility, had supposed that we were dead, and had celebrated masses for the weal of our souls."

I could get any number of men for the voyage down, and on October 28th, at 10 a. m., we left Sarayacu and dropped down to the mouth of the caño, where we stopped to re-stow and shake things together. We found the Ucayali a very different-looking stream from what it was when we left it; it was much higher, with a stronger current, and covered with floating trees. At 3 p. m. we took leave of good Father Calvo with much regret, and started in company with Father Bregati, (who was returning to his cure of Catalina,) and with a large canoe that we were carrying down for the return of our peons from Pebas.

I was much pleased with our new men, particularly with our pilot,

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old Andres Urquia, a long, hard-weather, Tom-Coffin-looking fellow, whom travel and exposure for many years seemed to have hardened into a being insensible to fatigue, and impervious to disease. He has navigated the rivers of the country a great deal; was with Father Cimini when driven back by the Campas; and says that he has passed, in company with a Portuguese, named Da'Costa, from the Yavari to the Ucayali in two weeks, by a small inosculating stream called *Yana Yacu*, and returned in four by the ravine of Maquia. He says that there is another natural canal called *Yawarangi*, which connects the two rivers. These canals are all very narrow, and are passed by pushing the canoe with poles; though Andres says there is plenty of water, but not room enough for such a boat as mine.

We passed the distance from Sarayacu to Nauta in eight days, which had cost us twenty-three in the ascent. The distance from Sarayacu to the mouth by the channel is two hundred and seventy miles—in a straight line one hundred and fifty. We travelled all one night when near the mouth; but this is dangerous on the Ucayali and Huallaga. The channels on these rivers are frequently obstructed by grounded trees, striking one of which the boat would almost inevitably perish. It is safer on the broader Amazon.

The Ucayali, as far as Sarayacu, averages half a mile of width, twenty feet of depth at its lowest stage, and three miles the hour of current. I fear that there is a place at the great bend of the river, just below Sarayacu, where there are islands with extensive sand-flats, that may form, at the lowest stage of the river, an obstruction to navigation for a vessel of greater draught than ten feet. At this place, going up, we were paddling close in to the left bank, with apparently deep water, when, seeing a beach on what I thought was the opposite side of the river, probably two hundred and fifty yards distant, I directed the pilot to go over and camp for the night. To my surprise, almost immediately from the moment of his turning the boat's head outward to cross over, the men dropped their paddles, and, taking to their poles, shoved the boat over in not more than four or five feet water. I observed, when we had crossed, that we were on the beach of an island, and asked the pilot if there was more water in the other channel, on the right bank. He said, yes; that, when the river was very low, this side was dry, but the other never.

It is difficult, on account of the roving habits of the people who live upon the Ucayali, to make any estimate concerning the increase and decrease of the population. I scarcely find a village that Smyth names when he passed in 1835, and find several which he does not mention. *Tipishka Nueva*, which he says was the largest settlement on the river next to Sarayacu, and had a population of two hundred, has now entirely disappeared; and Sta. Maria, of which he makes no mention, has probably been settled since he was here, and has at present one hundred and fifty souls. I thought it singular (but of course a casualty) that, in summing up my estimates of the number of the people on the river, between its mouth and Sarayacu, I find it to amount to six hundred and thirty-four, and that Smyth's estimate makes it six hundred and forty. As it regards the length and direction of the reaches of the river, I find that officer remarkably correct. He descended about the 1st of March, and of course had the river wider and deeper, and the current stronger than I found it; for this reason our accounts differ somewhat.

The difference between high and low-water mark is about thirty-five feet. I planted a pole at a settlement called Guanache as I went up, on the 9th of October; when I passed it going down, on the 1st of November, I found the river had risen nine feet seven inches. It did not, however, commence its regular and steady rise till the 15th of October. A mile inside of the mouth, in the middle of the river, I found seventy-two feet of depth, and two and three-quarter miles current per hour. The bottom of the river is full of sunken trees. I lost two sounding-leads and three axe-heads in the descent. My sounding-line, however, had become very rotten from the dampness of the atmosphere, and did not even stand the strain of the current upon the log-chip, which I also lost.

I had intended to stay at Nauta some days, for I found that so much canoe life was beginning to affect my health, and that I was getting weaker day by day; but Nauta seemed a different place than when I left it. Arebalo, the priest, and Antonio the Paraguá, were gone, and Senhor Cauper seemed out of humor, and not glad to see us. I expect the old gentleman was troubled in his mind about his fish. He had three thousand pieces on a beach of the Ucayali, with the river rising fast and threatening its safety; while his boats had just got off to fetch them away, and were travelling very slowly up.

I wished to get a few more peons; but there were no authorities, and the Indians were engaged in drinking and dancing. Two of my men, whom I had picked up at a settlement called Santos Guagua, on the Ucayali, deserted, though paid as far as Pebas. I feared to lose more; and, collecting the few birds and animals I had left here, I started at half-past 5 p. m. on the 5th of November, having slept in my boat on the night of the 4th for the want of a house, and been nearly devoured by the musquitoes.

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I left Lopez, the servant, who had only engaged for the Ucayali trip, and two of my Sarayacu people, who were reported to have gone into the woods to gather chambira, but who I suspected were drinking with the Cocamas, and did not wish to be found.

We drifted with the current all night. The soundings at the mouth of the Ucayali were forty-two feet. The Amazon looked grand in the moonlight, below the island of Omaguas, where I judged it to be a mile and a half wide.

November 6.—We arrived at Omaguas at 5 a. m. The two Sarayacu men that I had left at Nauta joined us in the montaria which I had left there for them, carrying off their bedding.

Omaguas is situated on a height on the left bank, and is screened from the river, at this season, by a small island, which is covered in the full. The entrance now is by a narrow creek, to the southward of the town. The number of inhabitants is two hundred and thirty-two, of the tribes of Omaguas and Panos. They are peons and fishermen; cultivate chacras; and live in the usual filthy and wretched condition of all these people. I gave some calomel, salts, and spermaceti ointment to the governor's wife, who was a pitiable object—a mere skeleton, and covered with inveterate-looking sores. I was reminded of Lazarus, or old Job in his misery. I doubt if my remedies were of the proper sort; but her husband and she were anxious to have them; and she will probably die soon at any rate, and cannot well be worsted.

Left Omaguas at a quarter past nine; at eleven, anchored near midstream in eighty-four feet water, and found two and one-third miles current; river three-fourths of a mile wide; shores low, and wooded with apparently small trees, though they may have appeared small on account of the width of the river; sand beaches few and small.

At noon, moderate breeze from the northward and eastward. Thermometer 86°. Most of the men and animals fast asleep. Even the monkeys, except a restless friar, (who seems as sleepless as I am,) are dozing. The friar gapes and closes his eyes now and then; but at the next instant appears to have discovered something strange or new, and is as wide awake and alert as if he never slept.

There was a great disturbance among the animals this morning. The *Pumagarza*, or tiger crane, (from being speckled and colored like the tiger of the country,) with a bill as long and sharp as an Infidel's spear, has picked to pieces the head of a delicate sort of turkey-hen, called *Pava del Monte*. The *Diputado* (as we call a white monkey, because Ijurra says he is the image of the worthy deputy in Congress from Chachapoyas) has eaten off the ear of the *Maquisapa*, (a stupid-

looking black monkey, called Coatá in Brazil,) and the tail of another, called *Yanacmachin*. Some savage unknown, though I strongly suspect my beautiful chiriclis, has bitten off the bill of the prettiest paroquet. There was a desperate battle between the friar and the chiriclis, in which one lost fur and the other feathers; and symptoms of warfare between a wild pig, called *Huangana*, and a *Coati*, or Mexican mongoose. The latter, however, fierce as he generally is, could not stand the gnash of the wild boar's teeth, and prudently "fled the fight." The life of the fowls is a state of continued strife; and nothing has kept the peace except an affectionate and delicate Pinshi monkey, (Humboldt's Midas Leonina,) that sleeps upon my beard, and hunts game in my moustachios.

We *spoke* two canoes that had come from near Quito by the Napo, and were bound to Tarapoto. This party embarked upon the Napo on the 3d of October. They told me that I could reach the mouth of the river *Coca*, which empties into the Napo, in two and a half months from the mouth; but could go no further in my boat for want of water. There are very few christianized towns upon the Napo, and the rowers of these boats were a more savage looking set than I had seen. I have met with a good many inhabitants of Quito in the Missions of the Huallaga; and very many of the inhabitants are descendants of Quiteños. In fact, these Missions were formerly under the charge and direction of the Bishopric of Quito, and most of the Jesuits who first attempted the conversion of these Indians came from that quarter. There is a report now current in these parts that thirty Jesuits recently banished from New Granada have gone to Ecuador; have been well received at Quito, and have asked for the ancient Missions of the company, which has been conceded to them as far as Ecuador has jurisdiction. This party from the Napo also reported that the governor (Gefe Politico) of the Ecuador territory of the Napo had left his place of residence and gone up the river for the purpose of supplying with laborers a French mining company, that had recently arrived and was about to commence operations. It is generally thought that much gold is mixed with the sands of the Napo; but I think that the Moyobambinos would have it if it were there. They get a quill full of gold dust, now and then, from the Indians; but no regularly organized expedition for collecting it has been successful. It is said that the Indians of the Napo formerly paid their contributions to the government in gold dust, but now that they are relieved (as are all the Missions by express exception) from the burden of the contribution, there is no more gold collected.

The inhabitants of the Missions of Mainas are exempted, by special

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legislation, from the payment of the contribution of seven dollars per head, paid towards the support of the government by all the other Indians of Peru. This exception was made on the ground that these people had the forest to subdue, and were only able to wring a hard-earned support from the cultivation of the land.. Many persons belonging to the province think that this was an unwise law, and that the character of the Indian has deteriorated since its passage. They think that some law compelling them to work would be beneficial to both country and inhabitants.

Fearful of going to the right of Iquitos island, and thus passing the town, I passed to the left of some islands, which Smyth lays down on his chart as small, but which are at this season large; and in running between the one just above Iquitos island and the left bank of the river, the boat grounded near the middle of the passage, which was one hundred and fifty yards broad, and came near rolling over from the velocity of the current. We hauled over to the left bank and passed close along it in forty two feet water. At half-past 9 p. m. we arrived at Iquitos.

November 7.—Iquitos is a fishing village of two hundred and twenty-seven inhabitants; a considerable part of them, to the number of ninety-eight, being whites and Mestizos of San Borja, and other settlements of the upper Mission, who were driven from their homes a few years ago by the Huambisas of the Pastaza and Santiago. This occurred in 1841. In 1843, these same Indians murdered all the inhabitants of a village called Sta. Teresa, situated on the upper Marañon, between the mouths of the rivers Santiago and Morona. My companion Ijurra was there soon after the occurrence. He gave the dead bodies burial, and published in his *Travels in Mainas* a detailed account of the affair.

In October, 1843, Ijurra, with seventeen other young men of Moyobamba, formed a company for the purpose of washing for gold the sands of the Santiago; they were furnished with arms by the prefecture, and recruited sixty-six Cocamillas of Laguna, armed with bows and arrows, as a light protecting force. They also engaged eighty-five of the Indians of Jeveros as laborers at the washings; and, after they started, were joined by four hundred and fifty of the people who had been expelled in 1841 from Santiago and Borja, desirous of recovering their homes and taking vengeance of the savages.

The party went by land from Moyobamba to Balza Puerto; thence north to Jeveros; and thence to the port of Barranca, at the mouth of the river *Cahuapanas*, when they embarked to ascend the Amazon to the mouth of the Santiago. At Barranca they received intelligence of the massacre at Sta. Teresa, with the details.

A Moyobambino, Canuto Acosta, fearing that the company would get all the gold, and that he should not be able to collect a little that was due him by the people about Sta. Teresa, hastened on before. He met at Sta. Teresa with a large party of Huambisas, who had come down the Santiago for the ostensible purpose of trade. Conversing with the curaca of the tribe, named Ambuscha, Acosta told him that a multitude of Christians were coming with arms in their hands to conquer and enslave his people. The curaca, turning the conversation, asked Acosta what *he* had in his packages. The reply was more foolish and wicked than the other speech; for, desirous to play upon the credulity of the Indian, or to overawe him, he said that he had in his packages a great many epidemic diseases, with which he could kill the whole tribe of the Huambisas. It was his death warrant. The curaca plunged his spear into his body, and giving a shrill whistle, his people, who were scattered about among the houses, commenced the massacre. They killed forty-seven men, and carried off sixty women; some few persons escaped into the woods. The Indians spared two boys—one of seven and one of nine years—and set them adrift upon the Amazon on a raft, with a message to the gold-hunting company that they knew of their approach, and were ready, with the assistance of their friends, the Paturos and Chinganos, to meet and dispute with them the possession of the country. The raft was seen floating past Barranca and brought in.

The gold-seekers found no gold upon the borders of the Marañon; quarrelled; became afraid of the savages; broke up and abandoned their purpose before they reached the mouth of the Santiago.

Ijurra and a few others then turned their attention to the collection of Peruvian bark. They spent two or three years in the woods, about the mouth of the Huallaga; gathered an enormous quantity, and floated it down to Pará on immense rafts, that Ijurra describes as floating-houses, with all the comforts and conveniences of the house on shore.

When they arrived at Pará the cargo was examined by chymists; said by them to be good; and a mercantile house offered eighty thousand dollars for it. They refused the offer; chartered a vessel, and took the cargo to Liverpool, where the chymist pronounced the fruit of years of labor to be utterly worthless.

The village of Iquitos is situated on an elevated plain, which is said to extend far back from the shores of the river. This is different from the situation of many towns upon the Amazon, most of which are built upon a hill, with a low, swampy country behind them. There are cotton and coffee-trees growing in the streets of the village, but no attention is paid to the cultivation of either. A small stream, said to be one of the

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mouths of the river *Nanay*, enters the Amazon just above the town. The main mouth of the Nanay is five miles below; it is said to communicate, back of the plain, with the Tigre Yacu, which empties into the Marañon above San Regis; and branches of it, which run to the northward and eastward, inosculate with the Napo.

We left Iquitos at half past 9 a. m. The shores of the river just below are bold, and of white clay; at a quarter to eleven we passed the mouth of the Nanay, about one hundred and fifty yards broad. The depth of the Amazon at the junction of the two rivers is fifty feet; the current a mile and two-thirds the hour. After passing several small islands, where the river appeared two miles wide, it seemed to contract within its own banks to half a mile, immediately in front of a settlement of two or three houses, called *Tinicuro*, where I found no bottom at one hundred and eighty feet; at half-past five we arrived at *Pucallpa*, where we passed the night.

November 8.—Pucallpa, or New Oran, is a small settlement, of twenty houses, and one hundred and eleven inhabitants, who formerly belonged to Oran, but who, finding their situation uncomfortable, removed and settled here. It is one of the most pleasantly-situated places I have seen—on a moderate eminence, with green banks shelving to the river. The water is bold (twenty-five to thirty feet deep) close to the shore. Two islands—one above and one below the town, with a narrow opening in front—gave the place the appearance of a snug little harbor.

We bought at this place two of the great cranes of the river, called Tuyuyú. These were gray. A pair that I succeeded in getting to the United States were white. Started at 4 a. m.; high white chalky banks just below Pucallpa. At nine we arrived at the mouth of the Napo; we found it two hundred yards broad, and of a gentle current. The soundings across the mouth were thirty-five and forty feet; stopped at Chorococha, a settlement of eighteen inhabitants, just below the mouth of the Napo. We found some of our Nauta friends here salting fish, and got a capital breakfast from them. After leaving, we anchored near the head of a small island, where I supposed we would feel the effect of the current of the Napo; but had but a mile and two-thirds current.

November 9.—We started at 5, and arrived at Pebas at 10 a. m. We found that the people of Pebas, under the direction of Father Valdivia, (my Nauta friend,) were establishing a new town about a quarter of a mile up a stream called Ambiyacu, which enters into the Amazon two miles above Pebas. We pulled up this stream, and found the good priest and the governor general busy in directing the felling of trees and building of houses. I determined to stay here for some

time, for I was now getting so weak that I could scarcely climb the banks upon which the towns are situated. Father Valdivia received us with great cordiality, and gave us quarters in a new house he was building for himself.

The new settlement had not yet a name; Ijurra wished it called Echenique, after the new president; while I insisted on "Ambiyacu," as being Indian and sonorous. The population already numbered three hundred and twenty-eight—almost all the people of Pebas having come over. The inhabitants are principally *Oregones*, or Big Ears, from the custom of introducing a bit of wood into a slit in the ear and gradually increasing the size of it until the lobe hangs upon the shoulder. They have, however, now discontinued the custom, and I saw only a few old people thus deformed.

They are fishermen, and serve as peons; but their condition seems better than that of the inhabitants of the other towns on the river, which is doubtless owing to the presence and exertions of the good priest, who is very active and intelligent.

Visited Pebas in the afternoon. We found it nearly abandoned and overgrown with grass and weeds. We saw some cattle roving about among the houses, which were fat, and otherwise in good condition. The town is situated immediately on the banks of the river, which is here unbroken by islands, three-quarters of a mile broad, and apparently deep and rapid. We carried over to the new town specimens of black clay slate that crops out in narrow veins on the banks, and made a fire of it, which burned all night, with a strong bituminous smell.

November 10.—I gave Arebalo the message sent him by Padre Calvo, which was a request that he would send the Sarayacu men back in the larger canoe that we had brought down for that purpose. He, however, was careless in the matter, and two of them went up the river with a trader, and one down. The others started back in the canoe; but much to my surprise, and even regret, I found in the evening that they had returned, turned over their canoe, sold their pots and other utensils to Arebalo, and expressed their determination to go down the stream. They said that if I would not take them they would go with anybody that would. I of course was glad to have them, and I quieted my conscience in thus robbing Father Calvo by the reflection that if they went with me to the end of my voyage, I could give them my boat and fit them out for the return; whereas, if they separated, they might never go back. I think that Arebalo winked at their conduct in returning, because he and the padre were busy with their new town, and did not wish to furnish me with men of their own.

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think we are all culpable. The peons were culpable for not going back; I was culpable for taking them further; and Arebalo was culpable for permitting it; and thus it is that the population of Sarayacu diminishes, and the friars are cheated out of the hard earned fruits of their labor.

November 15.—Ijurra and I went with the padre to visit his mission of *San José of the Yaguas.* This is a settlement of Yaguas Indians, of two hundred and sixty inhabitants, about ten miles in a N. E. direction from Ambiyacu, or (as I find by a letter received from Ijurra since my return home) from Echenique.

San José is reached by a path through the woods over a rather broken country. There were two or three rivulets to pass on the road, which have pebbly beds, with black slate rock cropping out of the sides of the ravine—the first stones I have seen since leaving the Pongo of Chasuta. The soil is dark clay, and deeper than I have seen it elsewhere on the river. Birds of a brilliant plumage occasionally flitted across our path, and the woods were fragrant with aromatic odors.

The Yaguas received their priest in procession, with ringing of the church bell and music of drums. They conducted him, under little arches of palm branches stuck in the path, to the convento, and politely left us to rest after the fatigue of the walk. These are the most thorough-looking savages in their general appearance and costume, though without anything savage in the expression of their countenances, which is vacant and stupid. Their ordinary dress consists of a girdle of bark around the loins, with a bunch of fibres of another kind of bark, looking like a swab or mop, about a foot in length, hanging down from the girdle in front and rear. Similar, but smaller bunches, are hung around the neck and arms by a collar and bracelets of small beads. This is the every-day costume. On festivals they stain all their bodies a light brown, and on this ground they execute fantastic devices in red and blue. Long tail-feathers of the macaw are stuck in the armlets, reaching above the shoulders, and a chaplet, made of white feathers from the wings of a smaller bird, is worn around the head. This generally completes the costume, though I did see one dandy who had stuck short white feathers all over his face, leaving only the eyes, nose, and mouth exposed.

The curaca, and some one or two of the Varayos, wore frocks and trousers; but I was told they had the national costume underneath these. The dress of the women is a yard or two of cotton cloth rolled around the hips. They are strong people for drinking and dancing, and hate work.

Their houses are peculiar. Very long, slender poles are stuck in the ground opposite each other, and about thirty feet apart; their ends are brought together at the top, forming a Gothic arch about twenty feet high. Similar poles, of different lengths, are planted in front of the openings of the arch, and their ends are brought down and lashed to the top and sides of the openings. They are secured by cross-poles, inside and out, and the whole is thickly thatched to the ground, leaving two or three apertures for entrance. The house looks, on the outside, like a gigantic bee-hive. On the inside, small cabins of cane are built at intervals around the walls, each one of which is the sleeping-room of a family. Four or five families generally occupy one house, and the middle space is used in common. This is never cleaned, nor even levelled, and is littered with all manner of abominations. There is a puddle of water before each door; for, from the construction of the house, the rain, both from the heavens and the roof, pours directly into it.

After evening service, the Indians went off to their houses to commence the festival. They kept the drums going all night, and until 10 o'clock next morning, when they came in a body to conduct us to mass. Most of them were the worse for their night's debauch, and sat upon the ground in a listless and stupid manner; occasionally talking and laughing with each other, and little edified, I fear, by the sacred ceremony.

I was annoyed at the poverty of the church, and determined, if I ever went back, that I would appeal to the Roman Catholics of the United States for donations. The priestly vestments were in rags. The lavatory was a gourd, a little earthern pitcher, and a jack towel of cotton; and it grieved me to see the host taken from a shaving box, and the sanctified wine poured from a vinegar cruet.

After mass, and a procession, the Indians went back with us to the convento, and entertained us with music whilst we breakfasted. It was well that the drums were small, or we should have been fairly deafened. There were six of them, and they were beaten without intermission. One fellow dropt to sleep, but we gained nothing by this, for his neighbor beat his drum for him. Nearly the whole male population were crowded into the convento. The breakfast was furnished by the Indians; each family contributing a dish. The old women were proud of their dishes, and seemed gratified when we partook of, and commended them. They continued their frolic all day and night.

On Monday we visited the houses of the Indians to see what curiosities we could get. We found the men stretched in their hammocks,

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sleeping off the effects of the masato; and the patient, much-enduring women at work twisting chambira for hammocks, or preparing yuccas or plantains to make drink for their lords. We could get nothing except a hammock or two, and some twisted chambira to make me a lead line. The Indians had hidden their hammocks; and we had to go poking about with our sticks, and searching in corners for them. The reason of this was that most of them owe the padre; and this paying of debts seems as distasteful to the savage man as to the civilized.

The only article of manufacture is a coarse hammock, made of the fibres of the budding top of a species of palm, called chambira in Peru, and *tucum* in Brazil. The tree is very hard, and is defended with long sharp thorns, so that it is a labor of a day to cut a "Cogollo," or top; split the leaves into strips of convenient breadth; and strip off the fibres, which are the outer covering of the leaves, and which is done very dexterously with the finger and thumb. A "top" of ordinary size yields about half a pound of fibres; and when it is reflected that these fibres have to be twisted, a portion of them dyed, and then woven into hammocks of three or four pounds weight, it will be seen that the Indian is very poorly paid for his labor when he receives for a hammock twelve and a half cents in silver, or twenty-five cents in *efectos*.

The women twist the thread with great dexterity. They sit on the ground, and, taking two threads, which consist of a number of minute fibres, between the finger and thumb of the left hand, they lay them, separated a little, on the right thigh. A roll of them down the thigh. under the right hand, twists each thread; when, with a scarcely perceptible motion of the hand, she brings the two together, and a roll up the thigh makes the cord. A woman will twist fifty fathoms about the size of a common twine in a day.

The Indians brought me some few birds; but they were too drunken and lazy to go out into the forest to hunt rare birds, and only brought me those that they could shoot about their houses.

The climate of San José is very agreeable. It seems drier and more salubrious than that of Pebas; and there are fewer musquitoes. The atmosphere was very clear for the two nights I spent there; and I thought I could see the smaller stars with more distinctness than I had seen them for a long time.

The history of the settlement of this place is remarkable, as showing the attachment of the Indians to their pastor and their church.

Some years ago, Padre "Jose de la Rosa Alva" had established a mission at a settlement of the Yaguas, about two days' journey to the northward and eastward of the present station, which he called Sta.

Maria, and where he generally resided. Business took him to Pebas, and unexpectedly detained him there for fifteen days. The Indians, finding he did not return, reasoned with themselves and said, "Our father has left us; let us go to him." Whereupon they gathered together the personal property the priest had left; shouldered the church utensils and furniture, even to the doors; set fire to their houses, and joined the padre in Pebas. He directed them to the present station, where they builded houses and established themselves.

Our little padre has also considerable influence over them; though, when he will not accede to all their demands, they contrast his conduct with that of Father Rosa; call him mean, get sulky, and won't go to mass.

It is sad to see the condition of the Peruvian Indians. (That of the Indians of Brazil is worse.) They make no progress in civilization, and they are taught nothing. The generally good, hard-working, and well-meaning padres, who alone attempt anything like improvement, seem contented to teach them obedience to the church, observance of its ceremonies, and to repeat the "doctrina" like a parrot, without having the least idea of what is meant to be conveyed. The priests, however, say that the fault is in the Indian—that he cannot understand. Padre Lorente, of Tierra Blanca, thought he had his flock a little advanced, and that now he might make some slight appeal to their understanding. He accordingly gathered them together, and exhibiting a little plaster image of the Virgin that they had not yet seen, he endeavored to explain to them that this figure represented the Mother of God, whom he had taught them to worship and pray to; that She was the most exalted of human beings; and that through Her intercession with Her Son, the sins and crimes of men might be forgiven, &c. The Indians paid great attention, passing the image from hand to hand, and the good father thought that he was making an impression; but an unlucky expression of one of them showed that their attention was entirely occupied with the image, and that the lesson was lost upon them. He stopped the priest in his discourse, to know if the image were a man or a woman. The friar gave it up in despair, and fell back upon the sense-striking ceremonial of the church, which I think (humanly speaking) is far better calculated to win them to respect and obedience, and thus advance them in civilization, than any other system of religious teaching.

The mind of the Indian is exactly like that of the infant, and it must grow rather by example than by precept. I think that good example, with a wholesome degree of discipline, might do much with this docile people; though there are not wanting intelligent men, well acquainted

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with their character, who scruple not to say that the best use to which an Indian can be put is to hang him; that he makes a bad citizen and a worse slave; and (to use a homely phrase) "that his room is more worth than his company." I myself believe—and I think the case of the Indians in my own country bear me out in the belief—that any attempt to communicate with them ends in their destruction. They cannot bear the restraints of law or the burden of sustained toil; and they retreat from before the face of the white man, with his improvements, till they disappear. This seems to be destiny. Civilization must advance, though it tread on the neck of the savage, or even trample him out of existence.

I think that in this case the government of Peru should take the matter in hand—that it should draw up a simple code of laws for the government of the Missions; appoint intelligent governors to the districts, with salaries paid from the treasury of the country; suppress the smaller villages, and gather the Indians into fewer; appoint a governor-general of high character, with dictatorial powers and large salary; tax the inhabitants for the support of a military force of two thousand men, to be placed at his disposal; and throw open the country to colonization, inducing people to come by privileges and grants of land. I am satisfied that in this way, if the Indian be not improved, he will at least be cast out, and that this glorious country may be made to do what it is not now doing—that is, contribute its fair proportion to the maintenance of the human race.

November 18.—Returned to Echenique; the walk occupied three hours without stopping. Although the Orejones have left off some of their savage customs, and are becoming more civilized, they are still sufficiently barbarous to permit their women to do most of the work. I saw to day twenty of the lazy rascals loitering about, whilst the same number of women were fetching earth and water, trampling it into mud, and plastering the walls of the convento with it. I also saw the women cleaning up and carrying away the weeds and bushes of the town; most of them, too, with infants hanging to their backs. These marry very young. I saw some, whom I took to be children, with babies that I was told were their own. They suffer very little in parturition, and, in a few hours after the birth of a child, they bathe, go to the chacra, and fetch home a load of yuccas.

The musquitoes are very troublesome here. I write my journal under a musquito curtain; and whilst I am engaged in skinning birds, it is necessary to have an Indian with a fan to keep them off; even this does not succeed, and my face and hands are frequently quite bloody, where

he has to kill them with his fingers. The Indians bring me a number of very beautiful birds every even[illegible] and I have my hands full, even with the occasional assistance of Areba[illegible] and the padre's servant. I do not know if it arises from the constant tugging at the birds' skins, or the slovenly use of arsenical soap, but the blood gathered under nearly all the nails of my left hand, and they were quite painful.

We have increased our stock of animals largely at this place. They now number thirteen monkeys, a mongoose, and a wild pig, (the Mexican peccary,) with thirty-one birds, and one hundred skins. I bought a young monkey of an Indian woman to-day. It had coarse gray and white hair; and that on the top of its head was stiff, like the quills of the porcupine, and smoothed down in front as if it had been combed. I offered the little fellow some plantain; but finding he would not eat, the woman took him and put him to her breast, when he sucked away manfully and with great "gusto." She weaned him in a week so that he would eat plantain mashed up and put into his mouth in small bits; but the little beast died of mortification, because I would not let him sleep with his arms around my neck.

I had two little monkeys not so large as rats; the peccary ate one, and the other died of grief. My howling monkey refused food, and grunted himself to death. The friars ate their own tails off, and died of the rot; the mongoose, being tied up on account of eating the small birds, literally cut out his entrails with the string before it was noticed. The peccary jumped overboard and swam ashore; the tuyuyús grabbed and swallowed every paroquet that ventured within reach of their bills; and they themselves, being tied on the beach at *Eyas*, were devoured by the crocodiles. My last monkey died as I went up New York bay; and I only succeeded in getting home about a dozen *mutuns*, or curassows; a pair of Egyptian geese; a pair of birds, called pucacunga in Peru, and jacu in Brazil; a pair of macaws; a pair of parrots; and a pair of large white cranes, called jaburú, which are the same, I believe, as the birds called adjutants in India.

November 24.—Preparing for departure. Our boat, which had been very badly calked in Nauta, required re-calking. The tow, or filling, used is the inner bark of a tree called *machinapuro*, beaten and mashed into fibres. It answers very well, and there is great abundance in the forest. Its cost is twelve and a half cents the mantada, or as much as an Indian can carry in his blanket. An Indian can gather and grind two mantadas in a day. Ten or twelve mantadas are required to calk such a boat as mine. The pitch of the country is said to be the deposit of an ant in the trees. I never saw it in its original state. It is gathered

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by the Indians; heated till soft; made into the shape of wide, thin bricks; and is worth sixty-two and a half cents the arroba. It is very indifferent. A better kind is made by mixing black wax with gum copal.

Father Valdivia entertained us most kindly. His aguadiente gave out; and he occasionally regaled us with a glass of wine, bought for the church in Loreto. It is a weak white wine. I suppose I could not drink it at home, but here it seems very good. I find that this is the case with a great many things. The green plantains, roasted, which were at first an abomination to me, have now become a very good substitute for bread; and a roasted yucca is quite a treat. We have some small red-headed pan fish that are very fine; and, at my suggestion, the padre had two or three fried, added to his usual evening cup of chocolate. I look forward to this meal with considerable pleasure. I do not know if it arises from the fact of our seeing so few things that are good to eat, or from the freshness of the cocoa, but chocolate, which I could not touch before this, is now very palatable and refreshing. The bean is simply toasted and pulverized, and the chocolate is made nearly as we make coffee.

After supper, we—that is, the padre, the governor general, Ijurra, and I, provided with fans to keep off the musquitoes—light our cigars, stretch ourselves at full length in a hammock, and pass an hour before bed-time in agreeable conversation. The priest, in this country, has more power, though it is by force of opinion, than the governor of the districts, or even than the governor general. I saw an instance in Nauta, where a man withstood Arebalo to his face, but yielded without a struggle, though growlingly, to the mandate of the padre. In fact, Father Valdivia, though half Indian, and exceedingly simple-minded, is a very resolute and energetic person. On one occasion the governor of Pebas succeeded in carrying off the Indians of that village to the Napo to gather sarza, against the wish of the padre, who wanted them to clear the forest and build the new town. When the governor returned, the priest told him that they two could not live together; that one or the other must resign his office and go away; and the man, knowing the power and influence of the priest, retired from the contest and his post. The padre had great opposition and trouble in forming his new settlement. Even the women (wives of the white men) of Pebas came over to laugh at and ridicule his work; but the good father called his Varayos, had the ladies conducted to their canoes, and, with much ceremonious politeness, directed them to be shoved off.

We obtained from the Indians more of the poisonous milk of the catao, and also the milk of the cow-tree. This they drink when fresh;

and, when brought to me in a calabash, it had a foamy appearance, as if just drawn from the cow; and looked very rich and tempting. It, however, coagulates very soon, and becomes as hard and tenacious as glue. The Indians make use of this property of it to eradicate their eyebrows. This is not so painful an operation as it would seem; for the Indians have never suffered the eyebrows to grow and become strong, and the hair is only down, which is easily plucked up. When the milk coagulates, it expands, so that it forced the glass stopper out of the bottle I put it in, though sealed with pitch. We also got some of the almonds of the country, which I have not seen elsewhere. They are about the size, and have something the appearance, of our common black walnut, with a single oblong kernel, similar in taste to the Brazil nut.

November 26.—We had much heavy rain for the last day or two. A number of persons were affected with catarrh and headache. The padre told me that half of the population were ill of it, and that this always happens at the commencement of the rains. The disease is called *romadizo*, and is like our influenza. Ijurra and I were both indisposed with rheumatic pains in the back of the neck and shoulders. I don't wonder at this, for we have slept all the time in a room just plastered with mud, and so damp that, where my bed-clothes came in contact with the wall, they were quite wet; and the rain beat in upon my head and shoulders through an open window nearly over head. My boots are covered with mould every morning, and the guns get half-full of water.

I gave the padre's servant, who was suffering very much from romadizo, fifteen grains of Dover's powder, (Heaven knows if it were proper or not,) and also to the padre's sister, who had been suffering for some days with painful diarrhœa, forty drops of laudanum. The old lady was cured at once, and said she had never met with so great a remedio. I left her a phial of it, with directions for its use; telling her (at which she looked aghast) that it was a deadly poison. It is curious to see how entirely ignorant the best-informed people out here are concerning the properties of medicines. Most of them do not know the names, much less the effects, of even such common drugs as calomel and opium. I suspect this is the case among most Spanish people, and think that Spanish physicians have always made a great mystery of their science.

We sailed from Echenique at half-past 1 p. m. Father Valdivia, who is musical, but chanted the mass in a falsetto that would be very difficult to distinguish, at a little distance, from the rattling of a tin pan,

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commissioned me to bring him out (should I ever return) a small piano and a French horn, which he would pay for in salt fish and sarsaparilla. I cannot refrain from expressing my grateful thanks, for much attention and much information, to my friends—the well-informed and gentleman-like Arebalo, and the pious, simple-minded, single-hearted little Indian priest of Pebas. We arrived at Cochiquinas (twenty-five miles distant) at half-past 8 p. m.

CHAPTER XII.

Cochiquinas—Caballo Cocha—Alligators—Indian Incantations—Loreto—Tabatinga—River Yavari—San Paulo—River Içа—Tunantins—Making manteiga—River Jutay—Fonteboa—River Juruá—River Japurá.

Cochiquinas, or New Cochiquinas, is a miserable fishing village of two hundred and forty inhabitants; though at this time there did not appear to be forty in the village, most of them being absent fishing and seeking a livelihood. Old Cochiquinas is four miles further down the river, and seems a far better situation; but the people there were afraid of the attacks of the savages of the Yavari, and removed up to this place.

The old town, to which place we dropped down to breakfast, has one hundred and twenty inhabitants, of which twenty-five are white, and the rest Indians of the Yavari, called *Marubos*. These are dressed with even more simplicity than the Yaguas, dispensing with the mop behind. They have small, curly moustaches and beards; are darker than the other Indians; and do nothing but hunt for their living.

The governor treated us very civilly, and gave us a good breakfast of soup, chickens, rice, and eggs, with milk just taken from the cow. What a luxury! I saw before his door a large canoe filled with unshelled rice, of very good quality. The governor told us that rice grew very well, and gave about forty-fold in five months. He seemed a very gay and good-tempered young person, with a fine family of a wife and eleven remarkably handsome children—some born in lawful wedlock, others natural—but all cared for alike, and brought up together. I had the impertinence to ask him how he supported so many people. He said that the forest and the river yielded abundantly, and that he occasionally made an expedition to the Napo, and collected sarsaparilla enough to buy clothes and luxuries for his family in Loreto. The Napo, he says, is very full of sand-banks, and that twenty days from its mouth the men have to get overboard and drag the canoes.

The Yavari may be reached from this point by land in four days. The banks of the river at this place are steep, and about thirty feet in height above the present level. Veins of the same black clay slate that we saw at Pebas, and that burned with a bituminous smell, also crop out of the banks here.

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We sailed at noon, and arrived at *Peruaté* at 5 p. m., (twenty miles.) The population of this village is one hundred, made up of remnants of different tribes—*Ticunas*, and natives of the towns of Barranca, on the upper Amazon, and Andoas, on the Pastaza. I talked with an old negro who had been many times up the Napo. He confirmed the accounts that I had from other people.

November 28.—From Peruaté to Camucheros is thirty miles. This place has only a population of four families, recently settled there, who have cleared away a small portion of the forest and commenced their plantations of yuccas, maize, and rice. Just below Camucheros we had apparently all the width of the river in view—about a mile broad. I was surprised to find, near the middle of it, only thirty feet of water. I think a sand-bank stretches out a long way from the left shore. The velocity of the current was two and a quarter miles the hour. We arrived at Moromoroté at a quarter past 6 p. m., (distance fifteen miles.)

This consists of one house of Christianized Indians. There is a house of Ticunas a mile further inland. We could hear the sound of their music, and sent them word that we wanted to buy animals and food from them. They came to see us after night, but were drunk, and had nothing to sell.

November 29.—We passed to-day a number of small islands. Between one of them and the right bank, where the river was at least a quarter of a mile wide, we saw many trees grounded, and, in what appeared the deepest part, found but twelve feet of water. Doubtless there is more in the other channels, and more might possibly be found in this.

At 9 a. m., after a journey of twenty miles, we entered the caño of *Caballococha*, (Horse lake.) It is about eighty yards wide, and has eighteen feet of depth in the middle. The water is clear, and makes an agreeable contrast with the muddy waters of the Amazon; but, there being no current in the caño, the water is supposed to be not so good to drink as that of the main river, which is very good when it is allowed to settle.

The village is situated on the caño, about a mile and a half from the entrance, and at the same distance from the lake. It contains two hundred and seventy-five inhabitants, mostly Ticunas Indians. These are darker than the generality of Indians of the Marañon, though not so dark as the Marubos; and they are beardless, which frees them from the negro-look that these last have. Their houses are generally plastered with mud inside, and are far neater-looking, and more comfortable, than the other Indian residences that I have seen. This is, however, entirely owing to the activity and energy of the priest, Father Flores, who seems

to have them in excellent order. They are now building a church for him, which, when finished, will be the finest in the Montaña.

The men are all decently clad in frocks and trousers; and the women, besides the usual roll of cotton cloth around the loins, wear a short tunic covering the breast. I think that Father Flores, though he wants the honest simplicity and kindness of heart of Valdivia, and the noble patience, magnanimity, and gentleness of dear Father Calvo, is a better man for the Indians, and more successful in their management, than either of the others. He does not seem to care about their coming to church; for there was not an Indian at mass Sunday morning, (though the padre did give us a little homily on the importance of attending worship; but he has them afraid of him, keeps them at work, sees that they keep themselves and houses clean, and the streets of the village in order; and I saw none of the abominable drinking and dancing with which the other Indians invariably wind up the Sunday.

The town is situated on quite an extensive plain; the soil is of a light, and rather sandy character, which, even in the rainy season, quickly absorbs the water, and makes the walking always agreeable. This is very rarely the case with the other villages of the Amazon. The climate is said to be very hot; and, from the fact that the village is yet closely surrounded by the forest, which keeps off the breeze, I suspect this is the case in the dry season. I did not find it so at this time.

It is very dangerous to bathe in the caño, on account of the alligators. Not long before my arrival, a woman, bathing after night-fall, in company with her husband, was seized and carried off by one of those monsters. She was not even in the caño, but was sitting on the bank, pouring water over her head with a gourd, when the reptile crawled from behind a log, where it had been lying, and carried her off in its mouth, though struck several heavy blows with a stick by the unfortunate husband. The padre next morning declared war upon the alligators, and had the Indians out with their harpoons and lances to destroy them. They killed a number; and they thought it remarkable that the first they killed should have parts of the woman yet undigested in its stomach. I think it probable that a good many alligators had a bite.

The lake is a pretty and nearly circular sheet of water of two and a half miles in diameter, and is twenty feet deep in the centre. There were a great many water-fowl in it, but principally cranes and cormorants.

Padre Flores, as usual gave us a room in his house, and seats at his table. I admired a very old looking silver spoon that he had on the table, and which Ijurra judged to be of the date of Ferdinand and Isabella, from the armed figures and lion's head upon the handle; where-

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upon the padre, with the courtesy that belongs to his race, insisted upon my accepting it. I was glad to have it in my power to acknowledge the civility by pressing upon the padre a set of tumblers neatly put up in a morocco case, which had been given me by R. E. Johnson, first lieutenant of the Vandalia.

After dark he proposed that we should go out and see some of the incantations of the Indians for the cure of the sick. We heard music at a distance, and approached a large house whence it proceeded, in which the padre said there was almost always some one sick. We listened at the door, which was closed. There seemed to be a number of persons singing inside. I was almost enchanted myself. I never heard such tones, and think that even instrumental music could not be made to equal them. I have frequently been astonished at the power of the Indians to mock animals; but I had heard nothing like this before. The tones were so low, so faint, so guttural, and at the same time so sweet and clear, that I could scarcely believe they came from human throats; and they seemed fitting sounds in which to address spirits of another world.

Some one appearing to approach the door, the priest and I fled; for, though we were mean enough to listen at a man's door, we were ashamed to be caught at it; but hearing nothing further we returned, and Ijurra, with his usual audacity, pushed open the door and proposed to enter. The noise we made in opening the door caused a hasty retreat of some persons, which we could hear and partly see; and when we entered, we found but two Indians—an old man and a young one—sitting on the floor by a little heap of flaming copal, engaged in chewing tobacco and spitting in an earthern pot before them. The young man turned his face to the wall with a sullen look, and although the old man smiled when he was patted on the head and desired to proceed with his music, yet it was with a smile that had no mirth or satisfaction in it, and that showed plainly that he was annoyed, and would have expressed his annoyance had he dared.

The hut was a large one, and appeared larger in the gloom. There was a light burning in the farther end of it, which looked to be a mile off; Ijurra strode the distance and found it to be just twenty-four paces. There were a number of hammocks slung one above the other between the posts that supported the roof, and all seemed occupied. In one corner of the house was built a small partition of cane, in which I understood was confined a young girl, who was probably looking at us with curious eyes, but whom we could not see. I had been told before that it was the custom among most of the Indians of the Montaña to

shut up a girl when she entered into the period of womanhood, until the family could raise the means for a feast, when every body is invited; all hands get drunk; and the maiden is produced with much ceremony, and declared a woman of the tribe, whose hand may be sought in marriage. The confinements sometimes last several months; for the Indians do not hurry themselves in making their preparations, but are ready when the yuccas are gathered, the masato made, and there is a sufficient quantity of dried monkey in the house; so that it sometimes happens, when the poor girl is brought out that she is nearly white. It is said that she frequently conceals her situation from her family, preferring a sound beating, when time betrays her, to the dreary imprisonment.

December 1.—I lost my beautiful and valued chiriclis, which died of the cold; it was put to bed as usual under the wash-basin, but the basin was not put under the armayari, its usual place, and it rained heavily all night. I was surprised at the delicacy of feeling shown by my Indian boatmen on the occasion; they knew how much I was attached to the bird, and, instead of tossing the carcass overboard, as they would have done with that of any other animal that I had, one of them brought it into my room before I was awake, and laid it decently, and with care, on a table at my bed-side. I felt the loss very sensibly—first, because it was a present from good Father Calvo, upon whose head and shoulder I had so often seen it perched; and, secondly, on account of the bird itself. It was beautiful, gentle, and affectionate; and so gallant that I called it my Mohawk chief; I have seen it take the food, unresisted, out of the mouths of the parrots and macaws many times its size, by the mere reputation of its valor; and it waged many a desperate battle with the monkeys. Its triumphant song when it had vanquished an adversary was most amusing. It was very pleasant, as the cool of night came on, to find it with beak and claws, climbing up the leg of my trousers until it arrived at the opening of my shirt, and to hear its low note of satisfaction as it entered and stowed itself snugly away in my armpit. It was as sensible of caresses, and as jealous, as a favorite; and I could never notice my little Pinshi monkey in its sight that it did not fly at it and drive it off.

This bird is the *psit melanocephalus* of Linneus. It is about the size of a robin; has black legs, yellow thighs, a spotted white breast, orange neck and head, and a brilliant green back and wings. There is another species of the same bird in Brazil. It is there called "periquito," and differs from this in having the feathers on the top of the head black, so as to have the appearance of wearing a cowl. Enrique Antonii, an Italian resident at Barra, gave me one of this species, which was even

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more docile and affectionate than the present of Father Calvo; but, to my infinite regret, he flew away from me at Pará.

I noticed growing about the houses of the village a couple of shrubs, six or eight feet high, called, respectively, *yanapanga* and *pucapanga*. From the leaves of the first is made a black dye, and from those of the second a very rich scarlet. I surmised that a dye, like the indigo of commerce, though of course of different color, might be made of these leaves; and when I arrived in Brazil, I found that the Indians there were in the habit of making a scarlet powder of the pucapanga, called carajurú, quite equal, in brilliancy of color, to the dye of the cochineal. I believe that efforts have been made to introduce this dye into commerce, and I do not know why they have failed. I brought home a specimen.

Two brothers of Father Flores were quite sick with a "tertiana," taken in gathering sarsaparilla up on the Napo. This is an intermittent fever of a malignant type. The patient becomes emaciated and yellow, and the spleen swells. I saw several cases as I came down the Marañon, but all were contracted on the tributaries. I saw or heard of no case that originated upon the main trunk.

December 2.—Much rain during the night. Sailed from Caballococha at half past 2 p. m. Ijurra liked the appearance of things so much at this place that he determined, when he should leave me, to return to it and clear land for a plantation, which he has since done.

I lost my sounding-lead soon after starting, and had no soundings to Loreto, where we arrived at half-past 7 p. m., (twenty miles.) The river is much divided and broken up by islands, some of them small, and with sand-beaches. I believe they change their shape and size with every considerable rise of the river.

Loreto is situated on an eminence on the left bank, having the large island of *Cacao* in front. The river is three-fourths of a mile wide, and has one hundred and two feet of depth in mid-stream, with three miles the hour of current. The soil is a light-colored, tenacious clay, which, in the time of the rains, makes walking almost impossible, particularly as there are a number of cattle and hogs running about the village and trampling the clay into mire.

There are three mercantile houses in Loreto, all owned by Portuguese. They do a business of about ten thousand dollars a year—that is, that value in goods, from above and below, passes through their hands. They tell me that they sell the goods from below at about twenty per cent. on Pará prices, which of course I did not believe. *Senhor Saintem*, the principal trader, told me that the business above was very

mean; that there was not a capitalist in Moyobamba able or willing to buy one thousand dollars' worth of goods; and that they pay for their articles of merchandise from below almost altogether in straw-hats, as the Tarapoto people do in tocuyo. I saw a schooner-rigged boat lying along-side the bank. She was about forty feet long and seven broad; was built in Coari, and sold here for two hundred dollars, silver. The houses at Loreto are better built, and better furnished, than those of the towns on the river above. We are approaching civilization.

The population of Loreto is two hundred and fifty, made up of Brazilians, mulattoes, negroes, and a few Ticunas Indians. It is the frontier post of Peru. There are a few miles of neutral territory between it and *Tabatinga*, the frontier of Brazil.

December 4.—We left Loreto at half past 6 a. m., with a cold wind from the northward and eastward, and rain. Thermometer, 76°. It seems strange to call the weather cold with the thermometer at 76°; but I really was very uncomfortable with it, and the monkeys seemed nearly frozen.

I estimate the length of the neutral territory, by the windings of the river, at twenty miles.

Since I purchased a boat at Nauta I had worn an American flag over it. I had been told that I probably would not be allowed to wear it in the waters of Brazil. But when the boat was descried at Tabatinga, the Brazilian flag was hoisted at that place; and when I landed, which I did dressed in uniform, I was received by the commandant, also in uniform, to whom I immediately presented my Brazilian passport, of which the following is a translation:

[SEAL OF THE LEGATION.]

I, Sergio Teixeira de Macedo, of the Council of his Majesty, the Emperor of Brazil, his Envoy Extraordinary and Minister Plenipotentiary near the United States of America, Officer of the Imperial Order of the Rose, Grand Cross of that of Christ, and *Commendador* of various Foreign Orders, &c., &c.:

Make known to all who shall see this passport, that *William L. Herndon*, lieutenant of the navy of the United States, and *Lardner Gibbon*, passed midshipman of the same, prosecute a voyage for the purpose of making geographical and scientific explorations from the republic of Peru, by the river Amazon and adjacent parts, to its mouth; and I charge all the authorities, civil, military, and policial, of the empire, through whose districts they may have occasion to pass, that they place no obstacle in the way, as well of them as of the *persons of their*

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company; but rather that they shall lend them all the facilities they may need, for the better prosecution of their enterprise.

For which purpose I have caused to be issued this passport, which I sign and seal with the seal of my arms.

IMPERIAL LEGATION OF BRAZIL, IN WASHINGTON,

February 27, 1851.

[SEAL.] SERGIO TEIXEIRA DE MACEDO.

By order of his Excellency:

ANTO. ZE DUARDE GONDIM,

Secretary of Legation.

As soon as my rank was ascertained, (which appeared to be that of a captain in the Brazilian army,) I was saluted with seven guns. The commandant used much stately ceremony towards me, but never left me a moment to myself until he saw me safely in bed on board my boat. I did not know, at first, whether this was polite attention or a watch upon me; but I think it was the latter, for, upon my giving him the slip, and walking over towards the old fort, he joined me within five minutes; and when we returned to his house he brought a dictionary, and, pointing with a cunning expression to the verb *traçar*, (to draw,) asked me to read it. I did so, and handed the book back to him, when he pointed out to me the verb *delinhar*. I was a little fretted, for I thought he might as well ask me at once, and told him that I had no intention of making any drawings whatever, and had merely intended to take a walk. He treated me with great civility, and entertained me at his table, giving me roast-beef, which was a great treat.

It was quite pleasant, after coming from the Peruvian villages, which are all nearly hidden in the woods, to see that Tabatinga had the forest cleared away from about it, for a space of forty or fifty acres; was covered with green grass; and had a grove of orange-trees in its midst, though they were now old and past bearing. There are few houses to be seen, for those of the Ticunas are still in the woods. Those that are visible are the soldiers' quarters, and the residences of a few whites that live here—white, however, in contradistinction to the Indian; for I think the only pure white man in the place was a Frenchman, who has resided a long time in Brazil, and has a large Brazilian family. The post is garrisoned by twenty soldiers, commanded by *O Illustrissimo Senhor Tenente José Virisimo dos Santos Lima*, a cadet, a sergeant, and a corporal. The population of Tabatinga is about two hundred; mostly Indians of the Ticuna tribe. It is well situated for a frontier post, having all the river in front, only about half a mile wide, and

commanded from the fort by the longest range of cannon-shot. The fort is at present in ruins, and the artillery consists of two long brass twelve-pounder field-guns.

I did not hoist my flag again, and the commandant seemed pleased. He said that it might give offence down the river, and told me that Count Castelnau, who had passed here some years before, borrowed a Brazilian flag from him and wore that. He also earnestly insisted that I should take his boat in lieu of my own, which he said was not large enough for the navigation of the lower part of the Amazon. I declined for a long time; but finding that he was very earnest about it, and embarrassed between his desire to comply with the request of the Brazilian minister at Washington, contained in my passport—"that Brazilian authorities should facilitate me in my voyage, and put no obstacle in my way"—and the requirements of the law of the empire forbidding foreign vessels to navigate its interior waters, I accepted his proposition, and exchanged boats; thus enabling him to say, in a frontier passport which he issued to me, that I was descending the river in Brazilian vessels.

He desired me to leave his boat at Barra, telling me he had no doubt but that the government authorities there would furnish me with a better one. I told him very plainly that I had doubts of that, and that I might have to take his boat on to Pará; which I finally did, and placed it in the hands of his correspondent at that place. I was correct in my doubts; for, so far from the government authorities at Barra having a boat to place at my disposal, they borrowed mine and sent it up the river for a load of wood for building purposes. The commandant at Tabatinga, I was told, compelled the circus company that preceded me to abandon their Peruvian-built raft and construct another of the wood of the Brazilian forests.

There is nothing cultivated at Tabatinga except a little sugar cane to make molasses and rum, for home consumption. I was told that Castelnau found here a fly that answered perfectly all the purposes of cantharides, blistering the skin even more rapidly. I heard that he also found the same fly at Egas, lower down. Senhor Lima instituted a search for some for me, but there were none to be had at this season. He showed me an oblong, nut-shaped fruit, growing in clusters at the base of a lily-like plant, called *pacova catinga*, the seed of which was covered with a thick pulp, which, when scraped off and pressed, gave a very beautiful dark-purple dye. This, touched with lime juice, changed to a rich carmine. He tells me that the trade of the river is increasing very fast; that in 1849 scarce one thousand dollars' worth of

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goods passed up; in 1850, two thousand five hundred dollars; and this year, six thousand dollars.

December 5.—We were employed in fitting up the new boat, to which the commandant gave his personal attention. I asked him to give me some more peons. He said, "Certainly;" sent out a guard of soldiers; pressed five Tucunas, and put them in the guard house till I was ready to start; when they were marched down to the boat, and a negro soldier sent along to take charge of them. He gave me all the beasts and birds he had, a demijohn of red wine, salt fish, and farinha for my men, and in short loaded me with kindness and civility. I had already parted with all the personal "traps" that I thought would be valuable and acceptable to my friends on the route, and could only make a show of acknowledgment by giving him, in return, a dozen masses of tobacco—an article which happened at this time to be scarce and valuable.

December 6.—We embarked at half-past 1 p. m., accompanied by the commandant, the cadet, and the Frenchman, *Jeronymo Fort*, who had been kind enough to place his house at Egas at my disposal. Ijurra had privately got all the guns and pistols ready, and we received the commandant with a salute of, I should think, at least one hundred guns; for Ijurra did not leave off shooting for half an hour. They dropped down the river with us till 5 p. m., when, taking a parting cup (literally tea-cup) of the commandant's present to the health of his Majesty the Emperor, we embraced and parted. I have always remembered with pleasure my intercourse with the Commandante Lima.

We passed the end of the island of *Aramasa*, which fronts the mouth of the river Yavari, at 6, and camped on the right bank of the river at half-past 7.

From a chart in the possession of M. Castelnau, and in the correctness of which he places confidence, it appears that the Yavari river has a distance from its mouth upwards of two hundred and seventy miles, and a course nearly east and west. At this point it bifurcates. The most western branch, which runs E. N. E., is called the Yavarisinho, and is a small and unimportant river. The eastern branch, called *Jacarana*, runs N. E. The authors of the chart (whom M. Castelnau thinks to be Portuguese commissioners, charged with the establishment of the boundaries) ascended the Yavari and Jacarana two hundred and ten miles in a straight line. But M. Castelnau says that this river is more than ordinarily tortuous, and estimates their ascent, by its sinuosities, at five hundred and twenty five miles.

A small river, called Tucuby, empties into the Yavari at forty-five miles from its mouth, and on the eastern side. A hundred and fifty miles further up enters a considerable river, called the Curuzá, also from the east. M. Castelnau thinks, however, from report, that the Curuzá is not navigable upwards more than ninety miles. Sugar-cane is sometimes seen floating on the water of the Jacarana, which indicates that its upper parts are inhabited by people who have communication, more or less direct, with white men. (Castelnau, vol. 5, page 52.)

December 7.—The river now has lost its name of Marañon, and, since the junction of the Yavari, is called *Solimoens*. It is here a mile and a half wide, sixty-six feet deep in the middle, and has a current of two miles and three-quarters per hour. The small boat in which we carry our animals did not stop with us last night, but passed on without being noticed. She had all our fowls and turtles; so that our breakfast this morning consisted of boiled rice. We drifted with the tide all night, stopping for an hour in consequence of a severe squall of wind and rain from the eastward.

December 8.—Rainy morning. We arrived at *San Paulo* at 10 a. m. This village is on a hill two or three hundred feet above the present level of the river—the highest situation I have yet seen. The ascent to the town is very difficult and tedious, particularly after a rain, the soil being of white clay. On the top of this hill is a moist, grassy plain, which does not extend far back. The site is said not to be healthy, on account of swamps back of it. The population is three hundred and fifty, made up of thirty whites, and the rest Tucunas and *Juries* Indians. The commandant is the Lieutenant Don "José Patricio de Santa Ana." He gave us a good breakfast and some statistics. The yearly exports of San Paulo are eight thousand pounds of sarsaparilla, worth one thousand dollars; four hundred and fifty pots of manteca, or oil made from turtle-eggs, worth five hundred and fifty dollars; and three thousand two hundred pounds of cocoa, worth sixty-four dollars. These are all sent to Egas. Common English prints sell for thirty cents the covado, (about three-fourths of a yard,) and coarse, strong cotton cloth, (generally American,) for thirty-seven and a half cents the vara, (three inches less than a yard.) We left San Paulo at half-past 3 p. m., and drifted with the current all night. Distance from Tabatinga to San Paulo, ninety-five miles.

December 9.—At half-past 8 a. m. we arrived at Maturá, a settlement of four or five huts, (with only one occupied,) on a muddy bank. Its distance from San Paulo is fifty miles. The shores of the river are generally low, though there are reaches where its banks are forty

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or fifty feet high, commonly of white or red clay. There is much colored earth on the banks of the river—red, yellow, and white—which those people who have taste make use of to plaster the inside of their houses. The banks are continually falling into the stream, sometimes in very large masses, carrying trees along with them, and forming one of the dangers and impediments to upward navigation where the boats have to keep close in shore to avoid the current.

We passed through a strait, between two islands, where the river was not more than eighty yards wide. It presented a singular contrast to the main river, to which we had become so much accustomed that this looked like a rivulet. It had forty eight feet depth, and two and a quarter miles current.

At half-past four we entered the mouth of the Içа, or Putumayo, fifteen miles from Maturá. This is a fine-looking river, half a mile broad at the mouth, and opening into an estuary (formed by the left bank of the Amazon and islands on the right hand) of a mile in width. We found one hundred and thirty-eight feet in the middle of the mouth, and a current of two miles and three-quarters an hour. The water is clearer than that of the Amazon. A man at *Tunantins*, who had navigated this river a good deal, told me that one might ascend in a canoe for three and a half months, and that the current was so rapid that the same distance might be run down in fifteen days. This I think incredible; but there is no doubt that the Içа is a very long and very rapid river. He described it as shallow after two months of navigation upwards, with large sand-beaches, and many small streams emptying into it, on which is found much sarsaparilla. Many slaves of the Brazilians escape by way of this river into New Grenada.

San Antonio is a village about two miles below the mouth of the Içа. It is a collection of four or five houses of Brazilians, and a few Indian huts. The people seemed mad for tobacco, and begged me earnestly to sell them some. I told them I would not sell for money, but I was willing to exchange for things to eat, or for rare birds and beasts. They ransacked the town, but could only raise five fowls, half a dozen eggs, two small turtles, and three bunches of plantains. They had no animals but such as I already had, and I only bought a macaw and a "pavoncito," or little peacock. The little tobacco I gave for these things, however, was not enough to give everybody a smoke, and they implored me to sell them some for money. They came to the canoe after night, and showed so strong a desire to have it that I feared they would rob me. Finding me inexorable, they went off abusing me, which excited the wrath of Ijurra to a high pitch. Our stock of tobacco, which we had bought in Nauta, was now very much reduced. We had used it, during our voyage on the Ucayali, to purchase food and curiosities, and to give to the peons, who were not satisfied or contented unless they had an occasional smoke. We also had been liberal with it to governors and curates, who had been civil to us; and now we had barely enough for our own use to last us to Barra. I gave twenty-five cents the mass for it in Nauta, though the "Paraguá" cheated me, and should only have charged me twelve and a half. We could have sold it all the way to Barra for thirty-seven and a half, and fifty cents.

December 10.—Between San Antonio and Tunantins we met the governor of San Antonio, a military-looking white man, returning with his wife and children from a visit to Tunantins. I showed him my passport, which he asked for, and we interchanged civilities and presents; he giving me a "chiriclis," like the one I lost at Caballo-cocha, and water-melons; and I making him a present of tobacco and a tinder-box. The species of bird he gave me is called, in Brazil, *Marianita*. This one took a singular disease by which it lost the use of its legs—hopped about for some days on the knee-joints, with the leg and foot turned upwards in front, and then died. At twenty miles from San Antonio we entered the mouth of the Tunantins river. It is about fifty yards broad, and seems deep, with a considerable current. The town is prettily situated on a slight green eminence on the left bank, about half a mile from the mouth. The population is said to be between two and three hundred, though I would not suppose it to be near as much. It is composed of the tribes of Cayshanas and Juries, and about twenty-five whites.

One sees very few Indians in the Portuguese villages. They seem to live apart, and in the woods; and are, I think, gradually disappearing before the advance of civilization. They are used as beasts of burden, and are thought no further of. At 2 p. m. we left Tunantins. The river has eighteen, twenty-four, and thirty feet down to its entrance into the Amazon, where it forms a bar of sand, stretching some hundreds of yards out and downwards, on which is only six feet of water.

December 11.—We stopped at a *factoria* on the left bank, sixty-five miles from Tunantins, where people were making manteiga. The effect of "mirage," was here very remarkable. When within a mile or two of the factoria, I thought I saw quite a large town, with houses of two or three stories, built of stone and brick, with large heaps of white stone lying about in several places. There was a vessel lying off the town that I was satisfied was a large brig-of war; but upon drawing near, my three-story houses dwindled to the smallest palm ranchos; my heaps of build-

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ing stones to piles of egg-shells; and my man-of-war to a schooner of thirty tons.

The season for making manteiga on the Amazon generally ends by the first of November; but the rise of the river this year has been unusually late and small. The people are still collecting the eggs, though they all have young turtles in them.

A commandant, with soldiers, is appointed every year by some provincial or municipal authority to take care of the beaches, prevent disorder, and administer justice.

Sentinels are placed at the beginning of August, when the turtles commence depositing their eggs, and are withdrawn when the beach is exhausted. They see that no one wantonly interferes with the turtles, or destroys the eggs. Those engaged in the making of manteiga pay a capitation tax of twelve and a half cents duty to the government.

The process of making it is very disgusting. The eggs, though they be rotten and offensive, are collected, thrown into a canoe, and trodden to a mass with the feet. The shells and young turtles are thrown out. Water is poured on, and the residue is left to stand in the sun for several days. The oil rises to the top; is skimmed off and boiled in large copper boilers. It is then put in earthern pots of about forty-five pounds weight. Each pot of oil is worth on the beach one dollar and thirty cents, and in Pará usually sells at from two and a half to three dollars.

A turtle averages eighty eggs; forty turtles will give a pot. Twenty-five men will make two hundred pots in twelve days. The beaches of the Amazon and tributaries yield from five to six thousand pots annually. The empty pot costs twelve and a half cents in Pará. Prolific as they are, I think the turtle is even now diminishing in number on the Amazon. Vast numbers of the young are eaten by the Indians, who take them by the time they are able to crawl, and when they do not measure more than an inch in diameter; boil them, and eat them as a delicacy. One Indian will devour two dozen of these three or four times a day. The birds also pick up a great number of them as they crawl from their nest to the water; and I imagine the fish, too, make them pay toll as they pass. I heard complaints of the growing scarcity, both of fish and manteiga, as I came down the river.

This factoria is a small one, and will give but two or three hundred pots. One requires a good stomach to be able to eat his breakfast at one of these places. The stench is almost intolerable; the beach is covered with greedy and disgusting-looking buzzards, and the surface of the water dotted with the humps of the deadly alligator.

By visiting the factoria, I missed the mouth of the Jutay, which is

on the other side. I was misled by Smyth's map. He places the island of Mapaná some distance above the mouth of the Jutay, and represents the Amazon as clear of islands where that river enters. A large island commences just abreast the factoria, which the people then told me was called Invira, though they did not seem certain of this. They told me that in rounding the lower end of that island I would find myself at the mouth of the Jutay. This was not so, for, when I doubled the point, I was two or three miles below it. I saw where it emptied into the Amazon; but both myself and people were too tired to turn back and examine it.

The Indians of the Jutay are Maraguas, (christianized Indians,) who inhabit the banks at a distance of two days up. (Their houses are built of wood and plastered, and they show a taste and fondness for mechanics.) Maragua-Catuquinas, of whom a few are baptized, two days further up; and Catuquinas Infidels, four days still further.

The products of the river are one hundred and fifty arrobas of sarsaparilla yearly, one hundred pots of manteiga, and a great quantity of farinha. In the last four years, five men of Egas have been killed by the Indians of the Jutay. My informant is Senhor Batalha, a merchant at Egas. M. Castelnau estimates, from the report of traders, that this river is navigable upward for about five hundred and forty miles, and that its sources are not far from those of the Yavari. From Tunantins to the mouth of the Jutay is seventy-five miles.

I was surprised to find in this part of the river between Tunantins and Fonteboa but a mile and a quarter current per hour. I attributed it to bad measurement—from having only a two-pound weight as a lead; yet as the line was not larger than ordinary twine, and was suffered to run freely over the gunwale of the boat, without friction or impediment of any kind, I can scarcely suppose that the lead dragged. The frequent remark of both Ijurra and myself was "The river does not run." (*No corre el rio.*) Below Fonteboa, where I bought a four-pound lead, I found the current at its usual velocity of two and a half miles. I think that I have used up nearly all the four-pound weights on the river, having lost at least half a dozen. My lines, generally made of chambira, rot with the rain and sun, and break with little strain. We anchored at 8 p. m. off a sandy beach, where there was another factoria, thirty miles distant from the upper one.

The Ticunas whom I brought with me from Tabatinga are even more lazy and careless than the Sarayaquinos. I fancied that it was because they were forced into the service, and did not think that they would be paid; so I gave each one, as a gratuity, a knife, a pair of

Velocity

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scissors, and a small mirror; but they were no better afterwards than before. Poor fellows! they have been abused and maltreated so long that they are now insensible even to kindness. The negro soldier who was sent along, either as a pilot or to govern the Ticunas, or as a watch upon me, is drunken and worthless. He knows nothing of the river, and I believe steals my liquor.

December 12.—There are evidently many newly-formed islands in the river. We ran, all the morning, through narrow island passages; the channels, in some places, not over forty yards wide, but of twenty and thirty feet of depth. We passed another factoria on a point of an island near the main river, with a schooner moored off; and stopped at a quarter past six on the sandy point of a small island, where there were mandioca and water-melons. I am surprised at the quality of the soil in which this madioc grows. To a casual observation it appears pure sand.

December 13.—At 8 a. m. we entered a narrow arm of the river, sixty miles from the mouth of the Jutay, that leads by Fonteboa. This canal separates the island of "Cacao" (on which much cocoa grows wild) from the main land. The caño is not more than twenty yards broad. The least water I found was nine feet. Fonteboa is about eight miles from the entrance of the canal. It is situated on a hill a quarter of a mile within the mouth of the river of the same name that empties into the canal. Smyth says that the town gets its name from the clearness of the water of the river; but it is not so at this season. There is no current in the river at the village, and the water was very nearly quite as muddy as that of the Amazon.

The population of Fonteboa is two hundred and fifty. There are eighty whites. We met several traders at this place bound up and down the river. One, named Guerrero, an intelligent-looking person, from Obydos, was going up with a cargo that I heard valued at twenty contos of reis, (about ten thousand five hundred dollars.) This was manifestly an exaggeration. His schooner, of some thirty-five tons burden, I think, could not carry the value of that sum in the heavy and bulky articles usually sent up the river. He had, however, a variety of articles. I bought some red wine and rum for stores; and Ijurra bought very good shoes and cotton stockings. This gentleman invited us to breakfast with him. His plates and cups were of pewter, and he seemed well equipped for travelling. He said that nearly all the cultivable land about Obydos, Santarem, and Villa Nova was already occupied; that most of it was so low and swampy that it was valueless; and that people would soon have to come up here where the ground

was high and rich. He was sixty-two working days from Obydos, and expected to be thirty to Loreto.

Sailed at 3 p. m.; found but five feet of water where the river of Fonteboa joins the caño. The distance by the caño to its outlet into the main river is two miles. The banks below Fonteboa are quite high, and of red and white clay. Stopped for the night at half past 6 p. m.

December 14. Started at half past 4 a. m. Misty morning. At ten entered the mouth of the Juruá, thirty-six miles from Fonteboa. Its left bank is very low, and covered with grass and shrub willows; the right bank high and wooded. It has half a mile of width at the mouth; but, a mile up, it seemed divided into two narrow channels by a large island. The Amazon is a mile and a quarter wide where the Juruá enters; but here is a large island in front, and the river is probably equally as wide on the other side. We pulled half a mile up the stream. The water was clearer, though more yellow, than that of the Amazon. In running out the half-mile that I had pulled up, which we did in mid-stream, the soundings deepened, as fast as I could heave the lead, from thirty six to seventy-eight feet. Just at the mouth they lessened again to sixty-six. The current was a mile and three-quarters the hour. The bottom was of white and black sand; temperature of the water 82°; the same with the temperature of the air and with that of the water of the Amazon.

The Indians of the Juruá, I was afterwards told by Senhor Batalha, are *Arauas* and *Catauxis*, who are met with at eight days' journey up. Some of these are baptized Indians; but the Arauas are described as a treacherous people, who frequently rob and murder the traders on the river. Two months further up are the *Culinos* and *Nawas* Infidels. Between these two was a nation called the *Canamaris*, but they have been nearly entirely destroyed by the Arauas. It is almost impossible to get an accurate idea of the number of the Indians; but I judge, from what I have seen, and from the diversity of names of the tribes, that this is not great. The production of the Juruá are sarza, manteiga, copaiba, seringa, (India rubber,) cocoa, and farinha. At the mouth of a creek (Igarapé) called *Menerua*, there are Brazil nuts. This year all the expeditions to the Juruá were failures, on account of the hostility of the Arauas.

M. Castelnau, in summing up the accounts of this river, which he had from traders on it, supposes that it may be ascended about seven hundred and eighty miles, or to near the twelfth degree of south latitude. A man showed him a small medal that he had taken from an

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Indian on the *Taruaca*, a tributary of the Juruá, which he recognised as a Spanish quarter of a dollar. A short distance above the junction of the Taruaca, the Juruá bifurcates. The principal arm, which comes from the left, has its waters of a white color; and the Indians who dwell upon its branches say that the whites have a village near its sources. (Castelnau, vol. 5, pp. 89, 90.)

M. Castelnau collected some very curious stories concerning the Indians who dwell upon the banks of the Juruá. He says, (vol. 5, p. 105,) "I cannot pass over in silence a very curious passage of Padre Noronha, and which one is astonished to find in a work of so grave a character in other respects. The Indians, *Cauamas* and *Uginas*, (says the padre,) live near the sources of the river. The first are of very short stature, scarcely exceeding five palms, (about three and a half feet;) and the last (of this there is no doubt) have tails, and are produced by a mixture of Indians and *Coata* monkeys. Whatever may be the cause of this fact, I am led to give it credit for three reasons: first, because there is no physical reason why men should not have tails; secondly, because many Indians, whom I have interrogated regarding this thing, have assured me of the fact, telling me that the tail was a palm and a half long; and, thirdly, because the Reverend Father Friar José de Santa Theresa Ribeiro, a Carmelite, and Curate of Castro de Avelaeñs, assured me that he saw the same thing in an Indian who came from Japurá, and who sent me the following attestation:

" 'I, José de Santa Theresa Ribeiro, of the Order of our Lady of Mount Carmel, Ancient Observance, &c.. certify and swear, in my quality of Priest, and on the Holy Evangelists, that, when I was a missionary in the ancient village of Parauaù, where was afterwards built the village of Noguera, I saw, in 1755, a man called Manuel da Silva, native of Pernambuco, or Bahia, who came from the river Japurá with some Indians, amongst whom was one—an Infidel brute—who the said Manuel declared to me had a tail; and as I was unwilling to believe such an extraordinary fact, he brought the Indian and caused him to strip, on pretence of removing some turtles from a 'pen,' near which I stood to assure myself of the truth. There I saw, without possibility of error, that the man had a tail, of the thickness of a finger, and half a palm long, and covered with a smooth and naked skin. The same Manuel assured me that the Indian had told him that every month he cut his tail, because he did not like to have it too long, and it grew very fast. I do not know to what nation this man belonged, nor if all his tribe had a similar tail; but I understood afterwards that there was a

tailed nation upon the banks of the Juruá; and I sign this act and seal it in affirmation of the truth of all that it contains.

"ESTABLISHMENT OF CASTRO DE AVELAENS, *October* 14, 1768.

"FR. JOSE DE STA. THERESA RIBEIRO."

M. Baena (Corog, Pará) has thought proper to repeat these strange assertions. "In this river," says he, speaking of the Juruá, (p. 487,) "there are Indians, called Canamas, whose height does not exceed five palms; and there are others, called Uginas, who have a tail of three or four palms, (four palms and an inch, Portuguese, make nearly an English yard,) according to the report of many persons. But I leave to every one to put what faith he pleases in these assertions."

M. Castelnau says, after giving these relations, "I will add but a word. Descending the Amazon, I saw one day, near Fonteboa, a black Coata. of enormous dimensions. He belonged to an Indian woman, to whom I offered a large price, for the country, for the curious beast; but she refused me with a burst of laughter. 'Your efforts are useless,' said an Indian who was in the cabin; 'that is her husband.'"

These Coatas, of which I had several, are a large, black, pot-bellied monkey. They average about two and a half feet of height, have a few thin hairs on the top of their head, and look very like an old negro.

We breakfasted at the mouth of the river. After breakfast one of the Ticunas from Tabatinga was directed by the soldier to take up one of the macaws that was walking on the beach and put it in the boat preparatory to a start. The man, in an angry and rude manner, took the bird up and tossed it into the boat, to the manifest danger of injuring it. I was standing in the larger boat close by, and saw his insolent manner. I took up a paddle and beckoned him to come to me; but he walked sulkily up the beach. I thought it a good time to see whether, in the event of these surly fellows becoming mutinous, I could count upon my Sarayacu people; so I directed two of them to bring the Ticuna to me. They turned to obey, but slowly, and evidently unwillingly, when my quick and passionate friend Ijurra sprang upon the Indian, and, taking him by the collar, jerked him to where I was. I made great demonstrations with my paddle, though without the slightest idea of striking him, (for I always shunned, with the utmost care, the rendering myself amenable to any of the tribunals or authorities of Brazil,) and abused him in English, which I imagine answered quite as well as any other language but his own would have done. I think this little "fracas" had a happy effect upon all the Indians, and they improved in cheerfulness and wil-

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lingness to work afterwards. The Ticunas that I had with me, however, were far the laziest and most worthless people that I had hitherto had anything to do with. I believe that this is not characteristic of the tribe, for they seemed well enough under Father Flores at Caballo-cocha, and they have generally rather a good reputation among the whites on the river. I imagine that the proximity of the garrison at Tabatinga has not a good effect upon their manners and morals; but, however that may be, these men were too lazy to help to cook the provisions; and when we stopped to breakfast they generally seated themselves on the thwarts of the boat, or on the sand of the beach, whilst the Sarayaquinos fetched the wood and made the fire. They were ready enough to eat when the breakfast was cooked. I couldn't stand this, when I observed that it was a customary thing, and accordingly caused the provisions issued to be divided between the two parties, and told my Ticuna friends, "No cook, no eat." It would take many years of sagacious treatment on the part of their rulers to civilize this people, if it be possible to do so at all.

December 15.—We travelled till 11 p. m., for want of a beach to camp on; the men disliking to sleep in the woods on account of snakes.

December 16.—Finding that I was on the southern bank, and having an opening between two islands abreast of me, I struck off to the eastward for the mouth of the Japurá. We ran through island passages till we reached it at 3 p. m., distant one hundred and five miles from the mouth of the Juruá.

The Japurá has two mouths within a few hundred yards of each other. The one to the westward is the largest, being about one hundred yards wide. It is a pretty stream of clear, yellow water, with bold and abrupt, though not high banks, (ten or fifteen feet.) I pulled up about half a mile, and in mid-stream found fifty-seven feet of water, which shoaled to the mouth to forty-two; the bottom soft mud to the touch; but the arming of the lead brought up small quantities of black and white sand. There was very little current—only three-fourths of a mile per hour. I thought it might be affected by the rush of its greater neighbor, and that the water so near the mouth was "back water" from the Amazon; but the current was quite as great close to the mouth as it was half a mile up. The temperature of the water, to my surprise, was 85°; that of the Amazon, a quarter of an hour afterwards, was 81°. I had heard that, on account of the gentleness of the current of the Japurá, a voyage of a month up this river was equal in distance to two on the Içá. A month up the Japurá reaches the first impediment to navigation, where the river breaks through hills called "As Serras das Araras," or hills of the

macaws; and where the bed of the stream is choked with immense rocks, which make it impassable even for a canoe. A gentleman at Egas told me of an extraordinary blowing cave among these hills.

The Indians of the Japurá are called *Mirauas*, (a large tribe,) *Curitus*, and *Macus*. The traveller reaches them in sixteen days from the mouth. The Macus have no houses, but wander in the woods; infest the river banks; and rob and kill when they can. (These are the fruits of the old Brazilian system of hunting Indians to make slaves of them.) The products of the Japurá are the same as those of the Juruá; and, in addition, a little carajurú, a very brilliant scarlet dye, made of the leaves of a bush called pucapanga in Peru. The Indians pack it in little bags made of the inner bark of a tree, and sell at the rate of twenty-five cents the pound. I am surprised that it has never found its way into commerce. I think it of quite as brilliant and beautiful a color as cochineal.

I judge the width of the Amazon, opposite the mouth of the Japurá, to be four or five miles. It is separated into several channels by two or three islands. We camped at half past 6 p. m., on an island where there was a hut and a patch of mandioc and Indian corn, but no people. We had a clear night, (with the exception of a low belt of stratus clouds around the horizon,) the first we have seen for more than a week.

December 17.—Started at 4 a. m. It was too dark to see the upper point of an island between us and the southern shore till we had passed it; so that we had to pull up for an hour against the current, so as to pass the head of this island, and not fall below Egas. At half-past eight we entered a narrow channel between a small island and the right bank, which conducted us into the river of Teffé, about a mile inside of its mouth. The river at this point is one hundred and eighty yards broad; water clear and apparently deep. Just below Egas, where we arrived at half-past ten, it expands into a lake; or, rather, the lake here contracts into the river. The town is situated on a low point that stretches out into the lake, and has a harbor on each side of it. The point rises into a regular slope, covered with grass, to the woods behind. The lake is shallow, and is sometimes, with the exception of two or three channels, which have always six or eight feet of water in them, entirely dry from Egas to Nogueyra, a small village on the opposite side.

On landing we showed our passports to the *sub-delegado*, an officer of the general government who has charge of the police of the district, and to the military commandant, and forthwith inducted ourselves into the house of M. Fort, our French friend of Tabatinga, who had placed it at our disposal.

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CHAPTER XIII.

Egas—Trade—Lake Coari—Mouth of Rio Negro—Barra—Trade—Productions.

Egas has a population of about eight hundred inhabitants, and is the largest and most thriving place above Barra. It occupies an important position with regard to the trade of the river, being nearly midway between Barra and Loreto, (the Peruvian frontier,) and near the mouths of the great rivers Juruá, Japurá, and Teffé.

There are now eight or ten commercial houses at Egas that drive a tolerably brisk trade between Peru and Pará, besides employing agents to go into the neighboring rivers and collect from the Indians the productions of the land and the water.

Trade is carried on in schooners of between thirty and forty tons burden, which commonly average five months in the round trip between Egas and Pará, a distance of fourteen hundred and fifty miles, with an expense (consisting of pay and support of crew, with some small provincial and church taxes) of about one hundred and fifty dollars. M. Castelnau estimates these provincial and church taxes at about thirteen per cent. on the whole trade. Here is the bill of lading of such a vessel bound down: 150 arrobas of sarsaparilla: cost at Egas, $4 the arroba; valued in Pará at from $7 to $7 50. 300 pots manteiga: cost at Egas, $1 40 the pot; value in Pará, $2 50 to $3 50. 200 arrobas of salt fish: cost at Egas, 50 cents the arroba; value in Pará, $1 to $1 25.

Thus it appears that the cargo, which cost at Egas about thirteen hundred dollars, is sold in Pará, in two months, for twenty-six hundred dollars. The vessel then takes in a cargo of coarse foreign goods worth there twenty-five hundred dollars, which she sells, in three months, in Egas, at twenty per cent. advance on Pará prices; making a profit of six hundred and twenty-five dollars. This added to the thirteen hundred of profit on the down trip, and deducting the one hundred and fifty of expenses, will give a gain of seventeen hundred and seventy-five dollars in five months, which is about two hundred and seventy-five dollars more than the schooner costs.

There are five such vessels engaged in this trade, each making two trips a year; so that the value of the trade between Pará and Egas may be estimated at thirty-eight thousand dollars annually. Between

Egas and Peru, it is about twenty thousand dollars. I myself know of about ten thousand dollars on its way, or about to be on its way up. A schooner came in to-day ninety-two days from Pará, which is bound up with a greater part of its cargo. I met one belonging to Guerrero at Fonteboa. Marcus Williams, a young American living at Barra, has one now off the mouth of the river, which has sent a boat in for provisions and stores; and Batalha himself is about to send two.

Major Batalha (for my friend commands a battalion of the *Guarda Policial* of the province divided between San Paulo, San Antonio, Egas, and Coari) complains, as all do, of the want of energy of the people. He says that as long as a man can get a bit of turtle or salt fish to eat, a glass of caçacha, and a cotton shirt and trousers, he will not work. The men who fish and make manteiga, although they are employed but a small portion of the year in this oocupation, will do nothing else. There is wanting an industrious and active population, who know what the comforts of life are, and who have artificial wants to draw out the great resources of the country.

Although the merchants sell their foreign goods at an advance of twenty-five per cent. on the cost at Pará, yet this is on credit; and they say they could do much better if they could sell at fifteen per cent. for cash. Moreover, in this matter of credit they have no security. When a trader has made sufficient money to enable him to leave off work with his own hands, the custom is for him to supply some young dependant with a boat-load of goods and a crew, and send him away to trade with the Indians, depending upon his success and honesty for the payment of the twenty-five per cent. The young trader has no temptation to desert or abandon his patron, (*habilitador;*) but much is lost from the dangers incident to the navigation, and the want of judgment and discretion in the intercourse of the employer with the Indians, and in the hostile disposition of the Indians themselves.

There is much in this life of the "*habilitado*," or person employed by the traders, to attract the attention of the active, energetic young men of our country. It is true that he will encounter much hardship and some danger. These, however, are but stimulants to youth. It is also true that he will meet with a feeling of jealousy in the native towards the foreigner; but this feeling is principally directed towards the Portuguese, who are hard-working, keen, and clever; and who, as a general rule, go to that country to make money, and return home with it. This is their leading idea, and it makes them frugal, even penurious, in their habits, and indisposes them to make common cause with the natives of the country. Not so with the Italians, the French,

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the English, and the Americans, whom I have met with in this country. I do not know more popular people than my friends Enrique Antonii, the Italian, and his associate, Marcus Williams, the Yankee, who are established at Barra. Everywhere on the river I heard sounded the praises of my countryman. At Sarayacu, at Nauta, at Pebas, and at Egas, men said they wished to see him again and to trade with him. He himself told me that, though the trade on the river was attended with hardships, exposure, and privation, there was a certain charm attending the wild life, and its freedom from restraint, that would always prevent any desire on his part to return to his native country. I heard that he carried this feeling so far as to complain bitterly, when he visited Norris, the consul at Pará, of the restraints of society that compelled him to wear trousers at dinner.

Any number of peons, or as they are called in Brazil, *Tapuios*, may be had for an almost nominal rate of pay for this traffic with the Indians.

All the christianized Indians of the province of Pará (which, until within the last two or three years, comprehended all the Brazilian territory drained by the Amazon and the lower part of its tributaries on each side, but from which has been lately cut off and erected into a new province the Comarca of Alto Amazonas, comprising the Brazilian territory between Barra and Tabatinga) are registered and compelled to serve the State, either as soldiers of the Guarda Policial, or as a member of "Bodies of Laborers," (*Corpos de Trabalhadores,*) distributed among the different territorial divisions (*comarcas*) of the province. There are nine of these *bodies*, numbering in the aggregate seven thousand four hundred and forty-four, with one hundred and eighty-two officers. A better description of the origin and character of these bodies of laborers cannot be given than is given in the message to the Provincial Assembly of the President of the Province, Jeronimo Francisco Coelho, for the year 1849. This distinguished official, whose patriotism, talents, and energy are still spoken of with enthusiasm throughout the province, says:

"A sentiment of morality and of order, created by the impression of deplorable and calamitous facts, gave birth to this establishment; but abuse has converted it into a means of servitude and private gain. The principal object of the law which created it was to give employment to an excessive number of tapuios, negroes, and mestizos—people void of civilization and education, and who exceeded in number the worthy, laborious, and industrious part of the population by more than three-quarters. This law founded, in some measure, a system which

appeared to anticipate the theory of the organization of labor. In Europe this is a desideratum among the inferior classes of the community, who are oppressed by want, by pauperism, and by famine. For these to have work, is to have the bread of life and happiness; but in the fertile provinces of Pará, where nature gives to all, with spontaneous superabundance, the necessaries of life, work is held by these classes to be an unnecessary and intolerable constraint. Our Tapuio, who erects his palm-leaf hut on the margin of the lakes and rivers that are filled with fish, surrounded with forests rich with fruits, drugs, and spices, and abounding in an infinite variety of game, lives careless and at his ease in the lap of abundance. If these circumstances give him a dispensation from voluntary labor, with what repugnance and dislike will he render himself to compulsory toil, and especially when the obligation to work, imposed by the law, has so generally been converted into vexatious speculation by abuse!

"Last year I gave my opinion to you at length upon this subject: I will not now tire you with a repetition. A very general idea prevails that the best method to do away with the abuses of this institution of laborers is its total abolition. But remember that the adoption of this measure imposes upon you a rigorous obligation to have a care of, and give direction (*dar destino*) to, nearly sixty thousand men, who, deprived by the law of political rights, without any species of systematic subjection, unemployed, and delivered up to their own guidance, and to an indolent and unbridled life, live floating among the useful and laborious part of the population, who are in a most disproportionate minority.

"Your penetration and wisdom will find a means which will guaranty protection to one, security to the other, and justice to all. A convenient law, based upon a regular enlistment, moderate employment in cases, and at places well defined, and subjection to certain and designated local authorities, may give this means; and it was upon these principles that I formed the project, which I presented to you last year, of converting the corps of laborers into municipal companies, to be added to the battalions of the Nacional Guard. But said project depended upon the reorganization of this guard; and this failing, it of course fell through.

"The question relative to the corps of laborers is, as I have said, a problem of difficult solution, but which must necessarily be solved. The how and the when belongs to you."

It is from these *bodies* that the trader, the traveller, or the collector of the fruits of the country, is furnished with laborers; but, as is seen from the speech of the President, little care is taken by the government officials in their registry or proper government, and a majority of them

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are either entire drones, or have become, in fact, the slaves of individuals. It is now difficult for the passing traveller to get a boat's crew; though I have no doubt that judicious and honest dealing with them would restore to civilization and to labor many who have retired from the towns and gone back to a nomadic, and nearly savage life.

Most of the leading men at Egas own negro slaves; but these are generally employed in household and domestic work. A young negro man is worth two hundred and fifty dollars—if a mechanic, five hundred dollars. Major Batalha tells me that he will purchase no more slaves; he has had ill-luck both with them and with his Tapuois. The slaves desert to Spain, (as Peru, Ecuador, and New Granada are called here,) and he has lost six Tapuios, by a sort of bloody flux, within the last two months. I asked him if the disease was confined to his household; but he told me that it was general, and supposed that it was caused by drinking the water of the lake, which was thought to be, in some small degree, impregnated with the poisonous milk of the *assacu*, (the Peruvian catao,) many of which trees grow on its borders. I have no idea that this is the cause, but suppose the disease originates from exposure, bad food, and an imprudent use of fruit, thongh I see no fruit except a few oranges and limes. It is even difficult to purchase a bunch of bananas. There are no other diseases in Egas except tertiana, caught in gathering sarsaparilla on the tributaries.

December 25.—We are very gay at Egas with Christmas times. The people keep it up with spirit, and with a good deal of spirits, too, for I see a number of drunken people in the streets. I attended midnight mass last night. The church was filled with well dressed people, and with some very pretty, though dark-complexioned ladies. The congregation was devout, but I could not very well be so, on account of the music, which was made by a hand-organ that wouldn't play. It gave a squeak and a grunt now and then, but there were parts of the music when nothing could be heard but the turning of the handle. There was also a procession on the lake. A large, very well illuminated boat, with rockets and music moving about, and a long line of lights on logs or canoes anchored in the lake, had a very pretty effect. Processions of negroes, men and women, with songs and music of tambourines and drums, were parading the streets all night.

The higher classes are taking a little Champagne, Teneriffe wine, or English ale. Ginger beer is a favorite and wholesome drink in this climate. I was surprised to see no cider. I wonder some Yankee from below has not thought to send it up. Yankee clocks abound, and are worth from ten to twenty dollars.

December 26.—I had requested the commandante-militar to furnish me with a few more Tapuios, and he had promised to send out an expedition to catch me some. He now says there are none to be had; but I suspect he gave himself no trouble about it. Many persons go down the river with only two rowers and a steersman; and I having six, I have no doubt he thought that I had a sufficient number.

My Ticunas, and the negro soldier sent with them, gave me a great deal of trouble—the soldier with his drunkenness and dishonesty, and the Indians by their laziness and carelessness; suffering the boat to be injured for the want of care, and permitting the escape and destruction of my animals and birds. It is as much as my patience and forbearance towards a suffering and ill-treated people can stand, to refrain from reporting them to the commandant, who would probably punish them with severity. Last night they broke the leg of one of my tuyuyús, and an alligator carried off the other. I am told that these animals have killed three persons at this same place. I had bathed there twice a day until I heard this; but after that, although I knew that they only seize their prey at night, it was going too close to danger, and I chose another place.

I saw a very peculiar monkey at Egas. It is called *Acaris*, and has a face of a very pretty rose color. The one I saw here was nearly as large as a common baboon. He had long hair, of a dirty-white color, and was evidently very old. Two that I saw at a factoria, on a beach of the Amazon, had hair of a reddish-yellow color; the tail is very short. Castelnau says that the vermilion color of the face disappears after death; and during life it varies in intensity, according to the state of the passions of the animal. The owners would not sell me those at the factoria, and I would not buy the one at Egas, because his face was blotched with some cutaneous affection, and he was evidently so old that he would soon die.

During our stay at Egas we had our meals cooked by an old negro woman who has charge of M. Fort's house, furnishing her with money to buy what she could. It is very difficult to get anything but turtle even here. I counted thirty-nine cattle grazing on the green slope before our door; yet neither for love nor money could we get any beef, and with difficulty a little milk for our coffee. We sent to Nogueyra for fowls and eggs, but without success. These are festival times, and people want their little luxuries themselves, or are too busily engaged in frolicking to care about selling.

Major Batalha treated us with great kindness, sending us delicacies from his own table—the greatest of which was some well-made bread.

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We had not tasted any since leaving Huanuco—now five months; and of course it was very welcome. On Christmas day he sent us a pair of fine, large, sponge-cakes. A piece of these, with a glass of tolerable ale, was a princely luncheon to us wayfarers, who had lived so long on salt fish and farinha. It fairly made Ijurra grin with delight. We could always get a cup of very good chocolate by walking round to the Major's house; and the only thing I had to find fault with was, that I was always received in the shop. The Brazilians, as a general rule, do not like to introduce foreigners to their families, and their wives lead a monotonous and somewhat secluded life.

An intelligent and spirited lady friend told me that the customs of her country confined and restrained her more than was agreeable, and said, with a smile, that she would not like to say how much she had been influenced in the choice of a husband by the hope that she would remove to another country, where she might see something, learn something, and be somebody.

December 28.—We left Egas at half-past 2 p. m., in the rain. We seemed to have travelled just ahead of the rainy season; and whenever we have stopped at any place for some days, the rains have caught up with us.

I now parted with my Sarayacu boatmen, and very sorry I was to lose them. They were lazy enough, but were active and diligent compared with the stupid and listless Ticunas. They were always (though somewhat careless) faithful and obedient. I believe that the regret at parting was mutual. Their earnest tone of voice and affectionate manner proclaimed their feeling; and a courtier, addressing his sovereign, would have envied the style in which old Andres bent his knee and kissed my hand, and the tremulous tones, indicating deep feeling, with which he uttered the words "*A dios, mi patron.*" They are all going back to Sarayacu but one, who has engaged himself to Senhor Batalha. It is a curious thing that so many Peruvian Indians should be working in Brazil; but it shows that they are removed above the condition of savages, for, though worse treated in Brazil, and deprived of the entire freedom of action they have in Peru, yet they are paid something; they acquire property, though it be nothing more than a painted wooden box with hinges and a lock to it, (the thing they most covet,) with a colored shirt and trousers to lock up in it and guard for feast-days. With such a box and contents, a hatchet, a short sabre, and red woollen cap, the Peruvian Indian returns home a rich and envied man, and others are induced to *go below* in hopes of similar fortune. They are frequently gone from their homes for years. Father Calvo complained

that they abandoned their families; but in my judgment this was a benefit to them, rather than an injury, for the man at home is, in a great measure, supported by the woman.

I could not make an estimate of the number of Peruvian Indians in Brazil; but I noticed that most of the tapuios were Cocamas and Cocamillas, from the upper Amazon.

We entered the Amazon at 4 p. m. The mouth of the Teffé is three hundred yards wide, and has thirty feet of depth and one mile per hour of current. This is an inconsiderable stream, and may be ascended by canoes to near its sources in twenty days. In ten or twelve days' ascent, a branch called the Rio Gancho is reached, which communicates by a portage with the Juruá. Indians of the Purus, also, sometimes descend the Teffé to Egas.

I was surprised to find the temperature of boiling water at Egas to be but 208°.2, the same within .2 of a degree that it was at a point one day's journey below Tingo Maria, which village is several hundred miles above the last rapids of the Huallaga river; at Sta. Cruz, two days above the mouth of the Huallaga, it was 211°.2; at Nauta, three hundred and five miles below this, it was 211°.3; at Pebas, one hundred and seventy miles below Nauta, 211°.1. I was so much surprised at these results that I had put the apparatus away, thinking that its indications were valueless; but I was still more surprised, upon making the experiment at Egas, to find that the temperature of the boiling water had fallen three degrees below what it was at Sta. Cruz, thus giving to Egas an altitude of fifteen hundred feet above that village, which is situated more than a thousand miles up stream of it. I continued my observations from Egas downwards, and found a regular increase in the temperature of the boiling water until our arrival at Pará, where it was 211°.5.

M. Castelnau gives the height of Nauta at four hundred and five feet above the level of the sea; the temperature of boiling water gives it at three hundred and fifty-six. Both these, I think, are in error; for, taking off forty feet for the height of the hill on which Nauta is situated, we have three hundred and sixty-five for the height of the river at that point above the level of the sea. Now, that point I estimate at two thousand three hundred and twenty-five miles from the sea, which would give the river only a fall of about sixteen-hundredths of a foot per mile—a descent which would scarcely give the river its average velocity of two and a half miles per hour.

From an after-investigation, I am led to believe that the cause of this phenomenon arises from the fact that the trade-winds are dammed

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up by the Andes, and that the atmosphere in those parts is, from this cause, compressed, and consequently heavier than it is farther from the mountains, though over a less elevated portion of the earth. The discovery of this fact has led me to place little reliance in the indications of the barometer for elevation at the eastern foot of the Andes. It is reasonable, however, to suppose that this cause would no longer operate at Egas, nearly one thousand miles below the mouth of the Huallaga.

I shall, therefore, give the height of Egas above the level of the sea, from the temperature of boiling water, (208°.2,) at two thousand and fifty-two feet. Egas is about eighteen hundred miles from the sea; this would give the river a descent of a little more than a foot per mile, which would about give it its current of two and a half miles per hour.

December 29.—We drifted with the current, and a little paddling on the part of the crew, until 10 p. m., when we made fast to a tree on the right bank.

December 30.—We started at 5 a. m. At 3 p. m., where the river was quite a mile wide, I found but thirty feet in mid-channel; and about two hundred yards on our right hand was a patch of grass, with trees grounded on it. At 6 p. m., I judged from the appearance of the shores on each side (bold, red cliffs) that we had all the width of the river. It was only about a mile wide, and I thought it would be very deep; but I found only sixty feet. I could not try the current for the violence of the wind. At seven we arrived at the mouth of the Lake Coari, one hundred and fifteen miles from Egas, and made fast to a schooner at anchor near the right bank.

This schooner seemed to have no particular owner or captain, but to be manned by a company of adventurers; for all appeared on an equality. They were from Obidos, upwards of two months; and twenty-eight days from Barra, which place we reached from here in five. They were travelling at their leisure, but complained much of the strength of the current and the want of strength of the easterly winds. I heard the same complaints at Egas, but I have found the winds quite fresh from the eastward, and the current, compared with that above, slight. But there is a wonderful difference in the estimation of a current, or the strength of a wind, when voyaging with and against them.

The fault of the vessels navigating the Amazon is the breadth of beam and want of sail. I am confident that a clipper-built vessel, sloop, or rather ketch-rigged, with a large mainsail, topsail, topgallant-sail, and studding sails—the last three fitted to set going up before the wind, and to strike, masts and all, so as to beat down with the current

under mainsail, jib, and jigger—would make good passages between Pará and Egas. The vessels used now on the river are built broad and flat-bottomed, to warp along shore when the wind is light or contrary. Their sails are much too small, and are generally made of thin, bad material.

December 31.—We pulled into the Lake of Coari; but being told that it would take nearly all day to reach the village of Coari, and that it was an insignificant place, where I would get neither supplies nor information, I decided not to go.

It may seem strange that just out of Egas I should need supplies, but all I could purchase there were half a dozen fowls, four turtles, and some farinha; and upon opening the baskets of farinha, it was found to be so old and sour that, though the Indians could eat it, I could not; and thus we had no bread, nor even the substitute for it—plantains and farinha; and had to eat our meat with some dried peas that we fortunately found at Egas.

The entrance to the Lake of Coari is about four hundred yards wide, and half a mile long. It expands, particularly on the right hand, suddenly into the lake, which at once shows itself six or seven miles wide, having a large island extending apparently nearly across it. The entrance has forty-two feet of depth in the middle, and, being faced by an island at both mouths, (the one into the lake, the other into the river,) appears land-locked, and makes a beautiful harbor. The banks are very low, of a thin, sandy soil, covered with bushes; and the right bank is perforated with small channels, running into the Amazon. The water of the lake is beautifully clear, and of a brown color; it runs into the Amazon at the rate of three-fourths of a mile per hour.

We pulled up the right bank of the lake about a mile, and stopped at a little settlement of ten or twelve houses, but could get nothing. The people seemed afraid of us, and shut their doors in our faces. The lieutenant, or principal man of the place, said that if we would give him money, he would send out and get us some fowls and plantains; but as he was a little drunk at this hour, (seven in the morning,) I would not trust him. We breakfasted, and sailed at 11.

We passed several small streams coming into the river on the right bank. Some of these are probably "*Furos*," or small mouths of the Purus. *Igarapé* is the Indian name for a creek or ditch, which is filled with "back-water" from the river; and the term *Paranamiri* (literally, little river) is applied to a narrow arm of the main river, running between the main bank and an island near to it.

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January 1, 1852.—At 9 a. m. we had the easterly breeze so strong that we were compelled to keep close in shore to avoid the sea raised by it. Our heavy flat-bottomed boat rolls nearly *gunwales under*. Some of the Indians look alarmed, and *Tomas*, a servant whom we brought from Caballo-cocha, is frightened from all propriety. He shouts to the men to make for the land; and, seizing a paddle, makes one or two vigorous strokes, but fear takes away his strength, and he stretches himself on his face, and yields to what appears his inevitable destiny. Ijurra is much scandalized at his cowardice, and asks him what he would do if he got upon the sea.

At 12 m. we passed another mouth of the Purus. These mouths can only be navigated at high water, and in small canoes. At half-past four we passed the mouth of the *Codajash*. We were on the opposite side of the river, and had nearly passed before I was aware of it. Smyth places the islands of *Coro* and *Onça* above it. They are really below. The mouth appeared a quarter of a mile wide; but I was afterwards told that this was not the largest mouth, and that the true mouth lay opposite to the island of Coro. I learned from some persons who were engaged in salting fish upon a small sand island just below this mouth, (one of whom had visited it,) that it is an arm of the river communicating with a large lake abounding with fish, vaca marina, and turtle; and had growing on its shores many resins and oils, particularly the copaiba. It requires three days to ascend the arm of the river to the lake, and two more to reach the head of the lake, which is fed by small streams that are said to communicate with the Japurá, on one hand, and the Rio Negro, on the other.

The Amazon, at this little island, commenced falling day before yesterday. A boat which arrived at Egas from Tabatinga the day before we left there, reported that the river had commenced falling at Tabatinga on the twentieth of December. This is probably the fall due to the "Verano del Niño" of the Cordillera, and will only last a week or ten days, when the river will again commence to swell.

At seven we stopped at a factoria on Coro island, where the party who were working it had made one thousand pots of manteiga, and were about starting for below. Camped on the beach on right bank at half-past 11 p. m.

January 2.—The usual fresh easterly wind commenced at nine. The only time to make progress is at night; during the day the breeze is so fresh, and the sea so high, that very little is made. The wind usually subsides about 4 or 5 p. m., and concludes with a squall of wind and rain; leaving heavy looking thunder-clouds in the southward and westward. The easterly wind often rises again, and blows for a few hours at night.

January 3.—We stopped to breakfast at nine, in company with a schooner bound up. She was three months from Pará, and expected to be another month to Egas. Two others also passed us at a distance this morning. We arrived at the mouth of the Purus, one hundred and forty-five miles from Lake Coari. The Amazon is a mile and a half wide from the right bank to the island of Purus, (which is opposite the mouth of the river.) The mouth of the Purus proper is three-quarters of a mile wide; though a little bay on the left, and the trend of the right bank off to the northeast, make the two outer points more than a mile apart. It is a fine-looking river, with moderately bold shores, masked by a great quantity of bushes growing in the water. These bushes bore a great number of berries, which, when ripe, are purple, and about the size of a fox-grape. They were, at this time, green and red. The pulp is sweet, and is eaten.

The water of the river is of the same color, and scarcely clearer, than that of the Amazon. We pulled in about a mile, and found one hundred and eight feet of water, rather nearer the left than the right bank, with a bottom of soft blue mud. In mid-stream there was seventy-eight feet, with narrow streaks of sand and mud. In the strong ripples formed by the meeting of the waters of the two rivers, we found ninety-six feet; and when fairly in the stream of the Amazon, one hundred and thirty-eight feet. I am thus minute in the soundings, because, according to Smyth, Condamine found no bottom at six hundred and eighteen feet. A person sounding in a strong tide-way is very apt to be deceived, particularly if he has a light lead and the bottom is soft; for if he does not feel it the instant the lead touches the bottom, the current will cause the line to run out as fast as the lead would sink; so that the lead may be on the bottom, and yet the observer, finding the line not checked, may run out as many fathoms as he has, and think that he has found no bottom. Ijurra has frequently run out one hundred fathoms where I have afterwards found fifteen and seventeen. The current of the Purus is, at this time, very sluggish—not over three-quarters of a mile per hour. Temperature of the water, 84½°; that of the Amazon, 83°; and the air, 82°. Drifted with the current all night; beautifully calm and clear.

January 4.—We travelled slowly all day, on account of the fresh wind and sea. At 7 p. m. we stopped at the village of *Pesquera*, at the mouth of the Lake *Manacapuru*, forty-five miles from the mouth of the Purus. It has only three or four houses, and is situated on a knee-cracking eminence of one hundred feet in height. The entrance

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to the lake is bold and wide—quite three hundred yards across—and with no bottom, at its mouth, in one hundred and twenty feet. A man at Pesquera, just from the lake with a cargo of manteiga, and bound to Pará, told me that it was two days' journey to the opening of the lake; that the lake was very long, and about as wide as the Amazon at this place, (three miles;) that it was full of islands, and that no one knew its upper extremity; but that it was reported to communicate with the Japurá. All this country seems cut up with channels from river to river; but I believe they are canoe channels, and only passable for them at high water. In many instances these channels, in the rainy season, widen out into lakes.

The banks of the river are now losing the character of savage and desolate solitude that characterizes them above, and begin to show signs of habitation and cultivation. We passed to-day several farms, with neatly framed and plastered houses, and a schooner-rigged vessel lying off several of them.

January 5.—At 3 a. m. we passed a rock in the stream called *Calderon*, or Big Pot, from the bubbling and boiling of the water over it when the river is full. At this time the rock is said to be six or eight feet above the surface of the water. We could hear the rush of the water against it, but could not see it on account of the darkness of the night.

We stopped two hours to breakfast, and then drifted with the current broadside to the wind, (our six men being unable to keep the boat "head to it,") until four, when the wind went down. At five we entered the Rio Negro. We were made aware of our approach to it before getting into the mouth. The right bank at the mouth is broken into islands, and the black water of the Negro runs through the channels between these islands and alternates, in patches, (refusing to mingle,) with the muddy waters of the Amazon. The entrance is broad and superb. It is far the largest tributary of the Amazon I have yet seen; and I estimate its width at the mouth at two miles. There has been no exaggeration in the description of travellers regarding the blackness of its water. Lieut. Maw describes it perfectly when he says it looks like black marble. It well deserves the name of "Rio Negro." When taken up in a tumbler, the water is a light-red color, like a pale juniper water; and I should think it colored by some such berry. A body immersed in it has the color, though wanting the brilliancy, of red Bohemian glass.

It may have been fancy, but I thought the light cumuli that hung over the river were darker here than elsewhere. These dark, though peaceful-looking clouds, the setting sun, the glitter of the rising moon

upon the sparkling ripples of the black water, with its noble expanse, gave us one of the fairest scenes upon our entrance into this river that I ever recollect to have looked upon.

The mouth of the river is about fifty miles below Pesquera. I found one hundred and five feet of depth in the middle, with a muddy bottom, and little or no current. We pulled across and camped at half-past six, on a small sand-beach on the left bank.

January 6.—Started at 1 a. m. Moderate breeze from the eastward, blowing in squalls, with light rain. The left bank of the river is bold, and occasionally rocky. At 5 a. m. we arrived at Barra. My countryman, Mr. Marcus Williams, and Senhor Enrique Antonii, an Italian, (merchants of the place,) came on board to see me. Williams was fitting out for an expedition of six months up the river; but Antonii took me at once to his house, and established me there snugly and comfortably. The greatest treat I met here, however, was a file of New York papers. They were not very late, it is true, but still six months later than anything I had seen from home; and I conned them with great interest and no small anxiety.

The *Comarca* of the Rio Negro, one of the territorial divisions of the great province of Pará, has, within the last year, been erected into a province, with the title of *Amazonas*. The President, Senhor *João Baptista de Figuierero Tenreiro Aranha*, arrived at the capital (Barra) on the first of the month, in a government steamer, now lying abreast of the town. He brought most of the officers of the new government, and the sum of two hundred *contos* of reis, (one hundred and four thousand one hundred and sixty-six dollars,) drawn from the custom-house at Pará, to pay the expenses of establishing the new order of things until the collection of customs shall begin to yield.

This territory, whilst a Comarca, was a mere burden upon the public treasury, and will probably continue to be so for some time to come. I have not seen yet any laws regulating its trade, but presume that a custom-house will be established at Barra, where the exportation duties of seven per cent., and the *meio dezimo*, a duty of five per cent. for the support of the church, now paid at Pará, will be collected. Goods also pay a provincial tax of one and a half per cent. on foreign articles, and a half per cent. on articles of domestic produce. The income of the province would be much increased by making Barra a port of entry for the trade with Peru, Bolivia, Ecuador, Venezuela, and New Grenada; and I have no doubt that industry and enterprise will, in the course of time, bring goods of European manufacture from Demarara, by the

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Essequibo and Rio Branco, to Barra, and foreign trade may likewise grow up along the banks of the *Oronoco*, *Cassiquiari*, and Rio Negro.

The province has six hundred thousand square miles of territory, and but thirty thousand inhabitants—whites and civilized Indians. (No estimate can be made of the number of "*Gentios*," or savages, but I think this is small.) It is nobly situated. By the Amazon, Ucayali, and Huallaga, it communicates with Peru; by the Yavari, Jutay, Jurua, Purus, and Madeira, with Peru and Bolivia; by the Santiago, Pastaza, and Napo, with Ecuador; by the Içа and Japurá, with New Grenada; by the Negro and Branco, with Venezuela and the Guayanas; and by the Madeira, Tapajos Tocantins, and Xingu, with the rich interior provinces of Brazil. I presume that the Brazilian government would impose no obstacles to the settlement of this country by any of the citizens of the United States who would choose to go there and carry their slaves; and I know that the thinking people on the Amazon would be glad to see them. The President, who is laboring for the good of the province, and sending for the chiefs of the Indian tribes for the purpose of engaging them in settlement and systematic labor, said to me, at parting, "How much I wish you could bring me a thousand of your active, industrious, and intelligent population, to set an example of labor to these people;" and others told me that they had no doubt that Brazil would give titles to vacant lands to as many as came.

Foreigners have some advantage over natives in being exempt from military and civil services, which are badly paid, and a nuisance. There is still some jealousy on the part of the less educated among the natives against the foreigners, who, by superior knowledge and industry, monopolize trade, and thus prosper. This produced the terrible revolution of the *Cabanos* (serfs, people who live in cabins) in the years from 1836 to 1840, when many Portuguese were killed and expelled. These are the most numerous and active foreigners in the province. I have been told that property and life in the province are always in danger from this cause; and it was probably for this reason that the President, in his speech to the provincial assembly, before quoted, reminded that body, in such grave terms, that laws must be made for the control and government of the sixty thousand tapuios, who so far outnumbered the property-holders, and who are always open to the influence of the designing, the ambitious, and the wicked.

The military force of the province of Amazonas consists of two battalions of a force called Guarda Policial, numbering about thirteen hundred, and divided amongst the villages of the province. They are not paid; they furnish their own uniform, (a white jacket and trousers;) and small

bodies of them are compelled by turns to do actual military service in the barracks of some of the towns, for which time they are paid at the same rate as the soldiers of the line. This is a real grievance. I have heard individuals complain of it; and I doubt if the government would get very effective service from this body in the event of civil war. This organization took the place of the national guard, disbanded in 1836. Since I left the country the national guard has been reorganized, and the military force of the province placed upon a better footing.

I am indebted to Senhor Gabriel de Guimaraēs, an intelligent citizen of Barra, for the following table of the annual exports of the Comarca, being the mean of the three years, from 1839 to 1842, with the prices of the articles at Barra:

Sarsaparilla,	4,000	arrobas, *a*	$3 00	$12,000
Salt fish,	8,500	"	50	4,250
Brazilian nutmegs,	73	"	1 00	73
Tonka beans,	3	"	1 00	3
Tow,	360	"	25	90
Pitch,	132	"	32	42
Carajurú,	320	pounds,	50	160
Cocoa,	1,200	arrobas,	50	600
Coffee,	1,000	"	1 00	1,000
Tobacco,	140		3 00	720
Copaiba,	400	canadas,	2 50	1,000
Mixira,	750	pots,	1 00	750
Oil of turtle-eggs,	6,000	"	1 00	6,000
Farinha,	300	alquieres,	40	120
Brazil nuts,	1,400	"	25	350
Tapioca,	30	"	50	15
Hides,	100		50	50
Hammocks,	2,000		25	500
Heavy boards,	480		1 25	600
				28,323

These are the exports of the whole province, including the town of Egas, (the exports of which alone I estimate now at thirteen thousand dollars,) with the little villages of Tabatinga, San Paulo, Tunantins, &c. Very little, however, of the trade of these last-named places passes Barra, and goes on to Pará. We will now see how much the trade has increased by examining the following table of the exports of Barra *alone* for the year 1850. This was also furnished me by the Senhor Guimaraēs.

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Exports of the town of Barra for 1850.

Hammocks,	ordinary,	40	*a* $1 50	-	-	$60 00
"	superior,	15	4 00	-	-	60 00
"	de travessa,*	100	5 00	-	-	500 00
"	feathered,	2	30 00	-	-	60 00
"	bags containing 25,	9	5 00	-	-	45 00
"	boxes,	1	10 00	-	-	10 00
Bird-skins,	"	2	10 00	-	-	20 00
Tiger-skins,		4	50	-	-	2 00
Hides,		27	50	-	-	13 00
Oil of turtle-eggs,	pots,	1,212	1 50	-	-	1,818 00
Copaiba,	"	27	2 50	-	-	67 50
Mixira,	"	66	1 50	-	-	99 00
Linguicas,†	"	2	1 50	-	-	3 00
Rope of piasaba,‡	inches,	1,792	50	-	-	896 00
Piasaba, in bundles,	arrobas,	4,292	42	-	-	1,802 64
Brazil nuts,	alquieres,	10,406	50	-	-	5,203 00
Salt fish,	arrobas,	14,002	50	-	-	7,001 00
Coffee,	"	316	1 50	-	-	474 00
Cocoa,	"	631	1 00	-	-	631 00
Tow,	"	119	42	-	-	50 00
Tobacco,	"	154	4 00	-	-	616 00
Sarsaparilla,	"	786	4 00	-	-	3,144 00
Peixe-boi,	"	50	42	-	-	21 00
Brazilian nutmeg,	"	20	5 00	-	-	100 00
Guaraná,§	pounds,	18	31	-	-	5 00

* Hammocks, "de travessa," are those that are woven with close stripes across them.

† Sausages made from the flesh of the Peixe-boi.

‡ Piasaba is a palm, from the bark of which is made nearly all the rope used upon the Amazon. The appearance of the rope made from it is exactly that of the East India *coir*. It is very strong, but liable to rot in the heat and moisture of this climate. The fibres of the bark are brought down the rivers Negro and Branco, put up in large bundles, and are at Barra made into cables and running rigging. The coils are always sixty fathoms in length, and they are sold at so much per inch of circumference.

§ Guaraná is the fruit of a low wide-spreading tree. It is about the size of a common walnut, and contains, within, five or six small seeds. These seeds are toasted, ground, mixed with a little water, pressed into moulds, and dried in an oven. Two spoonfuls, grated into a tumbler of water, is thought to make a very refreshing drink. It is said to be a stimulant to the nerves, and, like strong tea or coffee, to take away sleep. It grows principally on the banks of the upper Tapajos, and is much used by the inhabitants of *Matto Grosso*.

* This is isinglass, taken from a fish called *piraiba*. I heard in Pará of a fish called gurijuba, which yielded an isinglass worth sixteen dollars the arroba.

Tonka beans,	arrobas,	4	*a* $5 00	-	-	$20 00
Grude de piraiba,*	"	1	*a* 3 50	-	-	3 50
Plank,	feet,	10,000	*a* 2½	-	-	250 00
						22,975 00

In this last list there appears to be no carajurú, pitch, farinha, tapioca, or planking for vessels. In place of these we find a greater variety of hammocks, bird-skins, tiger-skins, guaraná, grude de paraiba, and boards. This last article, however, was only furnished for one year; the saw-mill was burned, and no one seemed disposed to take the speculation up again.

The Brazilian nutmeg (Puxiri) is the fruit of a very large tree that grows in great abundance in the low lands (frequently covered with water) that lies between the river Negro and Japurá, above Barcellos, a village situated on the banks of the first-named river. Its value seems to have increased between the dates of the two tables, or between the years 1840 and 1850, from one dollar the arroba to five. The fruit is round, and about the size of our common black walnut. Within a hard outer shell are contained two seeds, shaped like the grains of coffee, though much longer and larger, which are ligneous and aromatic, and are grated for use like the nutmeg of commerce. It is not equal in flavor to the Ceylon nutmeg; but this may be owing to the want of cultivation.

Tonka beans (Cumarú) are found in great abundance on the upper waters of the Rio Negro. This is also the nut-like fruit of a large tree. It is the aromatic bean that is commonly used to give flavor to snuff.

I thought it a curious fact that nearly all the valuable fruits of this country are enclosed either in hard ligneous shells, or in acid pulps; and judge that it is a provision of nature to protect them from the vast number of insects with which this region abounds. Thus we have the coffee and the cocoa enveloped in an acid, mucilaginous pulp, and the Castanhas de Maranham, or Brazil nuts, the Sapucaia nut, the Guaraná, the Puxiri, and the Cumarú, covered with a hard outer shell, that neither the insects nor the monkeys are able to penetrate.

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It appears from an examination of the tables, that the exports of Barra alone, in the year 1850, are not in value far below those of the whole Comarca in the year 1840. I have no doubt, as in the case of Egas, that the value of the imports is very nearly double that of the exports; so that the present trade of Barra with Pará may fairly be estimated at sixty thousand dollars per annum.

CHAPTER XIV.

Town of Barra—Foreign residents—Population—Rio Negro—Connexion with the Oronoco—River Purus—Rio Branco—Vegetable productions of the Amazon country.

The town of Barra, capital of the province of Amazonas, is built on elevated and broken ground, on the left bank of the river, and about seven miles from its mouth. Its height above the level of the sea is, by boiling point, one thousand four hundred and seventy-five feet. It is intersected by two or three ravines, containing more or less water, according to the state of the river, which are passed on tolerably constructed wooden bridges. The houses are generally of one story, though there are three or four of two, built of wood and adobe, and roofed with tiles. The floors are also of tiles, and the walls are plastered with the colored earth which abounds on the banks of the Amazon.

Every room has several hooks driven into the walls, for the purpose of hanging hammocks. People find it more comfortable, on account of the heat, to sleep in hammocks, though I always suffered from cold, and was obliged every night to wrap myself in a blanket. There are few musquitoes, these insects always avoiding black water.

I was surprised to find, before I left Barra, that provisions were getting very scarce. The supply of flour gave out, so that for some time there was no bread in the city; and beef was killed but once a fortnight. Even the staples of the country were difficult to procure; and I heard the President say that he was desirous of recruiting some fifty or sixty tapuios to work on the new government buildings, but that he really did not know where he should get a sufficient quantity of salt fish and farinha to feed them on. Just before I sailed, a boat-load of turtles came up from the Amazon for Henrique, and his house was besieged by the poorer part of the population, begging him to sell to them.

Soon after my arrival the President did me the honor to ask me to dine with him, to meet the officers of the new government. There seemed then a great abundance of provisions. We had fish, beef, mutton, pig, turtle, and turkey. There are very fine fish taken about Barra; they come, however, from the Amazon, and, unless cooked immediately on their arrival, invariably spoil. The best fish is called *pescado;* it is very delicate, and quite equal, if not superior, to our striped bass, or

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rock-fish, as it is called in the Southern States. Cut into pieces, fried, and potted, with vinegar and spices, it makes capital provisions for a voyage of a week or two.

Williams is the only American resident in Barra. He was in partnership with an Irishman named Bradley, who died a few months ago of yellow fever, in Pará; he, however, had been very sick, but a short time before, of the tertiana of the Rio Negro, and had not fairly recovered when he went to Pará. There had been another American in Barra a year ago. This was a deaf mute named Baker, who was travelling in this country for his amusement. He carried with him tablets and a raised alphabet, for the purpose of educating the deaf, dumb, and blind. He died on the 29th of April, 1850, at San Joachim, the frontier port of Brazil, on the Rio Branco.

I heard some muttered suspicions that the poor man had possibly met with foul play, if not in relation to his death, at least in relation to his property; and understanding that the soldier in whose house he died was then in prison in Barra, I directed a communication to the President, requesting an interview with this soldier. His Excellency did not think proper to grant that, but sent for the soldier, and himself examined him. He then replied to my communication, that he could find nothing suspicious in the matter of Mr. Baker's death, but enough in regard to his property to induce him to send for the commandant of the port of San Joachim, and bring the whole matter before a proper tribunal, which he should do at the earliest opportunity, and communicate the result to the American Minister at Rio.

Enrique had told me that he saw in Mr. Baker's possession a rouleau of doubloons, which he judged amounted to two thousand dollars, besides a large bag of silver. A military gentleman whom I was in the habit of meeting at Enrique's house, told me that he himself had heard the soldier say that he should be a rich man when he got back to San Joachim; all of which I communicated to the President. The soldier's imprisonment at Barra was on account of some military offence, and had nothing to do with this case.

The President also sent me a list of the personal effects of Mr. Baker, which had been sent down by the commandant of San Joachim to Col. Albino, the *Commandante Geral* of the *Comarca*. Amongst them were some things that I thought might be valuable to his family—such as daguerreotypes, maps, and manuscripts; and I requested his Excellency to place them at my disposal for transportation to the United States; but he replied that by a law of the empire the effects of all foreigners belonging to nations who have no special treaty upon the subject, who

die in Brazil, are subject to the jurisdiction of the *Juiz de Orfaos y Difuntos;* and that it was therefore out of his power to comply with my request. I am told (though this may be scandal) that if property once gets into this court, the heir, if he ever succeeds in getting a settlement, finds but a *Flemish account* of his inheritance.

Our intelligent and efficient consul at Pará, Henry L. Norris, has represented this matter to the government in strong terms, showing the effect that such a law has upon the credit and standing of large mercantile houses in Brazil. I am not aware of any other nation than the French being exempted from its operation. It is clear that the credit of a house whose property may be seized by such a court as this on the death of its resident principal will not be so good, *cæteris paribus*, as that of a house exempted from the operation of such a law. The Brazilian authorities are very rigid in its execution; and I was told that a file of soldiers was sent (I think in Maranham) to surround the house of a dying foreigner, to see that no abstraction of property was made, and that the whole might be taken possession of, according to law, on the decease of the moribund.

There were two English residents at Barra—Yates, a collector of shells and plants; and Hauxwell, a collector of bird-skins, which he prepares most beautifully. He used the finest kind of shot, and always carried in his pocket a white powder, to stop the bleeding of the birds when shot. In the preparation of the skins he employed dry arsenic in powder, which is much superior, in this humid climate, to arsenical soap. He admired some of my birds very much, and went with Williams up to Pebas, in Peru, where I procured most of them.

There were also two English botanists, whose names I have forgotten, then up the Rio Negro. One had been very sick with tertiana, but was recovering at latest accounts.

The chief engineer of the steamer was a hard-headed, hot-tempered old Scotchman, who abused the steamer in particular, and the service generally, in no measured terms. He desired to know if ever I saw such beef as was furnished to them; and if we would give such beef to the dogs in my country. I told him that I thought he was fortunate to get beef at all, for that I had not seen any for a fortnight, and that if he had made such a voyage as I had recently, he would find turtle and salt fish no such bad things. The steamer, though preserving a fair outside, is, I believe, very inefficient—the machinery wanting in power, and being much out of order; indeed, so much so that on her downward passage she fairly broke down, and had to be towed into Pará. She, however, made the trip up in eighteen days, which, considering that

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the distance is full a thousand miles; that this was the first trip ever made up by steam; that the wood prepared for her had not had time to dry; and that there is nearly three-miles-an-hour current against her for about one-third of the distance, I do not consider a very bad run. The officers did not call to see me or invite me on board their vessel, though I met some of them at the dinner and evening parties of the President.

Mr. Potter, a daguerreotypist, and watchmaker, who came up in the steamer, and my good friend Enrique Antonii, the Italian, with his father-in-law, Senhor Brandâo, a Portugese, make up the list of the foreigners of Barra, as far as I know them. Senhor Brandâo, however, has lived many years in the country; has identified himself with it; and all his interests are Brazilian. He is a very intelligent man; and I observe that he is consulted by the President and other officials in relation to the affairs of the new government.

Whilst speaking of persons, I should be derelict in the matter of gratitude if I failed to mention Donna Leocadia, the pretty, clever, and amiable wife of Enrique. She exhibited great interest in my mission, and was always personally kind to myself. When our sunrise meal of coffee and buttered toast gave out, she would always manage to send me a tapioca custard, a bowl of caldo, or something nice and comfortable for a tired invalid. Unlike most Brazilian ladies, whenever her household duties would permit, she always sat with the gentlemen, and bore an intelligent part in the conversation, expressing her desire to speak foreign languages, and to visit foreign countries, that she might see and know what was in the world. A son was born to her whilst I was in the house, and we had become such friends that the young stranger was to be called *Luis*, and I was to be *compadre*, (godfather.) But the church, very properly, would not give its sanction to the assumption of the duties belonging to such a position by a heretic.

Ijurra left me here, and returned up stream with Williams. He laid out nearly all the money received for his services in such things as would best enable him to employ the Indians in the clearance of the forest, and the establishment of a plantation, which he proposed to "*locate*" at Caballo-cocha, saying to me that he would have a grand crop of cotton and coffee ready against the arrival of my steamer.

Ijurra has all the qualities necessary for a successful struggle with the world, save two—patience and judgment. He is brave, hardy, intelligent, and indefatigable. The river beach and a blanket are all that are necessary to him for a bed; and I believe that he could live on coffee and cigars. But his want of temper and discretion mars every scheme

for prosperity. He spent a noble fortune, dug by his father from the *Mina del rey*, at Cerro Pasco, in the political troubles of his country. He was appointed governor of the large and important province of Mainas, but, interfering with the elections, he was driven out. He then joined a party for the purpose of washing the sands of the Santiago for gold, but quarrels with his companions broke that up. With infinite labor he then collected an immense cargo of Peruvian bark; but, refusing eighty thousand dollars for it in Pará, he carried it to England, where it was pronounced worthless; and he lost the fruits of his enterprise and industry.

He gave me infinite concern and some apprehension in the management of the Indians; but I shall never forget the untiring energy, the buoyancy of spirits, and the faithful loyalty, that cheered my lonely journey, and made the little Peruvian as dear to me as a brother.

The official returns for the year 1848 gave the population of the town of Barra at three thousand six hundred and fourteen free persons, and two hundred and thirty-four slaves; the number of marriages, one hundred and fifteen; births, two hundred and fifty; and deaths twenty-five; the number of inhabited houses, four hundred and seventy; and the number of foreigners, twenty-four. There are three or four large and commodious two-story houses that rent for two hundred and fifty dollars a year. The ordinary house of one story rents for fifty dollars. The town taxes are ten per cent. on the rent of houses, a dollar a year for a slave, and three dollars a year for a horse. There are no other taxes except the custom-house dues. The soil in the immediate neighborhood of Barra is poor, and I saw no cultivation except in the gardens of the town.

The rock in the neighborhood of Barra is peculiar; it is a red sandstone, covered with a thin layer of white clay. At a mill-seat about three miles from the town, a shallow stream, twenty yards broad, rushes over an inclined plane of this rock, and falls over the ledge of it in a pretty little cataract of about nine feet in height. The water is the same in color with that of the Rio Negro, when taken up in a tumbler—that is, a faint pink. It is impossible to resist the impression that there is a connexion between the color of the rock and the color of the water. Whether the water, tinged with vegetable matter, gives its color to the rock, or the rock, cemented with mineral matter, has its effect upon the water, I am unable to say. The rock on which the mill stands, which is at the edge of the fall, is covered with very hard white clay, about the eighth of an inch in thickness.

The mill was built upon a platform of rock at the edge of the fall,

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and the wheel placed below. There was no necessity for dam or race, or, at least, a log, placed diagonally across the stream, served for a dam. It was built by a Scotchman, in partnership with a Brazilian. The Brazilian dying, his widow would neither buy nor sell, and the mill was finally burned down. I judge that it was not a good speculation; there is no fine timber in the immediate neighborhood of Barra, and no roads in the country by which it may be brought to the mill.

The Indians of the neighborhood are called *Muras;* they lead an idle, vagabond life, and live by hunting and fishing. A few of them come in and take service with the whites; and nearly all bring their children in to be baptized. Their reason for this is, not that they care about the ceremony, but they can generally persuade some good-natured white man to stand as godfather, which secures the payment of the church fee, (a cruzado) a bottle of spirits to the father, and a yard or two of cotton cloth to the mother. Antonii tells me he is *compadre* with half the tribe.

They are thorough savages, and kill a number of their children from indisposition to take care of them. My good hostess told me that her father, returning from a walk to his house in the country, heard a noise in the woods; and, going towards the spot, found a young Indian woman, a tapuia of his, digging a hole in the ground for the purpose of burying her infant just born. He interfered to prevent it, when she flew at him like a tiger. The old gentleman, however, cudgelled her into submission and obedience, and compelled her to take the child home, where he put it under the care of another woman.

The women suffer very little in parturition, and are able to perform all the offices of a midwife for themselves. I am told that sometimes, when a man and his wife are travelling together in a canoe, the woman will signify to her husband her desire to land; will retreat into the woods, and in a very short time return with a newly-born infant, which she will wash in the river, sling to her back, and resume her paddle again. Even the ladies of this country are confined a very short time. The mother of my little namesake was about her household avocations in seven days after his birth. This probably arises from three causes: the climate, the habit of wearing loose dresses, and the absence of dissipation.

The Rio Negro, opposite the town, is about a mile and a half wide, and very beautiful. The opposite shore is masked by low islands; and, where glimpses of it can be had, it appears to be five or six miles distant. The river is navigable for almost any draught to the Rio Maraya, a distance of twenty-five days, or, according to the rate of travelling on these

streams, about four hundred miles; there the rapids commence, and the further ascent must be made in boats. Though large vessels may not ascend these rapids, they descend without difficulty. Most of the vessels that ply both on the Rio Negro and Oronoco are built at or near *San Carlos*, the frontier port of Venezuela, situated above the rapids of the Negro, and are sent down those rapids, and also up the Cassiquiari and down the Oronoco to Angostura, passing the two great rapids of *Atures* and *Maypures*, where that river turns from its westerly course toward the north. They cannot again ascend these rapids. Antonii has a new vessel lying at Barra, built at San Carlos; it is one hundred tons burden, and is well constructed, except that the decks, being laid of green wood, have warped, and require to be renewed. It cost him one thousand dollars. Brazilians pay a tax of fifteen per cent. on prime cost on foreign-built vessels. Foreigners not naturalized cannot sail vessels in their own name upon the interior waters of the empire.

It takes fifty-one days to go from Barra, at the mouth of the Negro, to San Fernando, on the Oronoco. This is by ascending the Negro above the mouth of the *Cassiquiari*, taking the caño of *Pimichim* and a portage of six hours to the headwaters of a small stream called *Atabapo*, which empties into the Oronoco. A small boat may be dragged over this portage in a day; to go between the same places by the Cassiquiari requires ten days more at the most favorable season, and twenty when the Oronoco is full.

From the journal of a voyage made by Antonii in the months of April, May, and June, 1844, it appears that from Barra to Airâo is five days; thence to the mouth of Rio Branco, four; to Barcellos, three; to Moreira, three; to Thomar, two; to San Isabel, five; to Rio Maraia, three; to Castanheiro, two; to Masarabi, one; to San Gabriel, six; to Santa Barbara, one; to Sta. Ana, one; to N. S. de Guia, one; to Mabé, one; to Sta. Marcellina, one; to Maribitano, one; to Marcellera, one; to San Carlos, two; to Tiriquim, one; to Tomo, two; to Marâo, one; to Pimichim, one; to Javita, one; to Baltazar, one; to San Fernando, one.

A few hours above Barcellos is the mouth of the river Quiuni, which is known to run up to within a very short distance of the Japurá; nearly opposite to San Isabel is the mouth of a river called Jurubashea, which also runs up nearly to the Japura. Between these rivers is the great Puxiri country; it is covered with water when the rivers are full. There is a vagabond tribe of Indians living in this country called Magu. They use no canoes, and when they cannot travel on the land, for the depth of water, they are said to make astonishing progress from tree to

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tree, like monkeys; the men laden with their arms and the women with their children.

Just above San Isabel are found great quantities of the Brazil nut; and a little further up is the mouth of the river Cababuri, where sarsaparilla, estimated at Pará as being better in quality than that of any other in the valley of the Amazon, is gathered; still higher up, above San Carlos, is cocoa of very superior quality, and in great abundance.

I have estimated that the distance between Barra and San Carlos at the mouth of the Cassiquiari is about six hundred and sixty miles. A flat-bottomed iron steamer calculated to pass the rapids of the Rio Negro will make seventy-five miles a day against the current. This will take her to San Carlos in nine days. She will ascend the Cassiquiari one hundred and eighty miles in two and a half days. From the junction of the Cassiquiari and the Oronoco to Angostura is seven hundred and eighty miles. The steamer has the current with her, and, instead of seventy-five, will run one hundred and twenty-five miles a day. This will bring her to Angostura in six days; thence to the ocean, two hundred and fifty miles, in two days. This allows the steamer abundance of time to take in fuel, and to discharge and take in cargo, at the many villages she finds on her route; with a canal cut over the portage of six hours at Pimichim, she will make the voyage in five days less. Thus by the natural canal of the Cassiquiari the voyage between Barra, at the mouth of the Negro, and the mouth of the Oronoco, may be made by steam in nineteen and a half days; by the canal at Pimichim in fourteen and a half days.

I shall have occasion hereafter to speak of the portage between the river *Tapajos* (one of the southern confluents of the Amazon) and the headwaters of the *Rio de la Plata*. This gives another immense inland navigation.

The mind is confused with the great images presented to it by the contemplation of these things. We have here a continent divided into many islands, (for most of its great streams inosculate,) whose shores produce, or may be made to produce, all that the earth gives for the maintenance of more people than the earth now holds. We have also here a fluvial navigation for large vessels, by the Amazon and its great tributaries, of (in round numbers) about six thousand miles, which does not include the innumerable small streams that empty into the Amazon, and which would probably swell the amount to ten thousand; neither does it include the Oronoco, with its tributaries, on the one hand, nor the La Plata, with its tributaries, upon the other; the former of which communicates with the valley of the Amazon by the Cassiquiari, and the latter merely requires a canal of six leagues in length, over very practicable ground, to do the same.

Let us now suppose the banks of these streams settled by an active and industrious population, desirous to exchange the rich products of their lands for the commodities and luxuries of foreign countries; let us suppose introduced into such a country the railroad and the steamboat, the plough, the axe, and the hoe; let us suppose the land divided into large estates, and cultivated by slave labor, so as to produce all that they are capable of producing: and with these considerations, we shall have no difficulty in coming to the conclusion that no territory on the face of the globe is so favorably situated, and that, if trade there is once awakened, the power, the wealth, and grandeur of ancient Babylon and modern London must yield to that of the depots of this trade, that shall be established at the mouths of the Oronoco, the Amazon, and the La Plata.

Humboldt, by far the greatest cosmographer that the world has yet known, and one of the most learned men and profoundest thinkers of any time, in contemplating the connexion between the valleys of the Oronoco and the Amazon by the Cassiquiari, speaks thus of its future importance:

"Since my departure from the banks of the Oronoco and the Amazon, a new era unfolds itself in the social state of the nations of the West. The fury of civil discussions will be succeeded by the blessings of peace and a freer development of the arts of industry. The bifurcation of the Oronoco," (the Cassiquiari,) "the isthmus of Tuamini," (my portage of Pimichim,) "so easy to pass over by an artificial canal, will fix the attention of commercial Europe. The Cassiquiari—as broad as the Rhine, and the course of which is one hundred and eighty miles in length—will no longer form in vain a navigable canal between two basins of rivers, which have a surface of one hundred and ninety thousand square leagues. The grain of New Grenada will be carried to the banks of the Rio Negro; boats will descend from the sources of the Napo and the Ucayali, from the Andes of Quito and upper Peru, to the mouths of the Oronoco—a distance which equals that from Timbuctoo to Marseilles. A country nine or ten times larger than Spain, and enriched with the most varied productions, is navigable in every direction by the medium of the natural canal of the Cassiquiari and the bifurcation of the rivers. This phenomenon, which one day will be so important for the political connexions of nations, unquestionably deserves to be carefully examined."

If these things should, in the estimation of Humboldt, "fix the atten-

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tion of commercial Europe," much more should they occupy ours. A glance at the map, and a reflection upon the course of the trade-winds, will show conclusively that no ships can sail from the mouths of the Amazon and Oronoco without passing close by our southern ports. Here, then, is the natural depot for the rich and varied productions of that vast region. Here, too, can be found all that the inhabitants of that region require for their support and comfort; and I have not the slightest doubt, if Brazil should pursue a manly policy, and throw open her great river to the trade of the world, that the United States would reap far the largest share of the benefits to be derived from it.

Whilst at Barra, I had conversations with a man who had made several trading voyages up the "Purus." Ever since I had read the pamphlet of Father Bobo de Revello, in which he attempts to show that a navigable river, which he saw to the eastward of Cuzco, and which he calls Madre de Dios, is identical with the Purus, this river has had for me a great interest. I sent Mr. Gibbon to look for its head-waters, and I determined, if possible, to ascend it from its mouth. I am not aware of the reasons which induced Gibbon to abandon the search for its sources, though I suspect they arose from the well-known fierce and hostile character of the savages who dwell on its upper banks. But, for myself, I am compelled to acknowledge that when I arrived at Barra, near the mouth of the Purus, I was broken down, and felt convinced that I could not stand the hardship and exposure necessary for a thorough examination of this river.

According to the statements of my informant—a very dark Brazilian, named Seraphim—the Purus commences to rise in October, and to fall in May. The best time to ascend it is when the river is quite full and done rising—in May. The beaches are then covered, and slack water is found close in to the proper shores of the river.

Fifteen days, or about two hundred and fifty miles from the mouth, is the mouth of a stream called *Parana-pishuna*, which, by a succession of lakes and a portage of a day, connects the Purus with the Madeira. The connexion is only passable when the river is full. About the mouth of this stream, the *sezoens*, or intermittent fevers, are said to be very fatal; but a few days of navigation takes the voyager above their locality and out of their influence. There are several large lakes between the mouth of the Purus and that of the Parana-pishuna.

Thirty days from the mouth of the Purus is the mouth of a river called the *Mucuin*, which also communicates with the Madeira, above the rapids of that river. The banks of the Mucuin are low and level; the river is shallow, and the rocks make the passage up and down tedious

and laborious in the dry season, which is from May to October. The ascent of the Mucuin takes thirty-five days to arrive at the "Furo," which connects it with the Madeira; and the navigation of the Furo takes ten more. I did not understand from Senhor Seraphim that there were any whites on the banks of the Mucuin; but he told me there were broad-tailed sheep there—such as are called in Brazil sheep of five quarters, on account of the weight and value of the tail. If this be true, I suspect that the Mucuin runs through a portion of the great department of Beni, belonging to Bolivia; that it communicates with the Madeira by means of the river Beni; and that these sheep have either been stolen by the Indians, or have strayed from whites who live about the little town of Cavanas, situated on a tributary of the Beni.

Four years ago Senhor Seraphim, in one of his voyages, encountered the wreck of a boat stranded on a beach of the Purus. He knew that it was not a Brazilian boat, on account of its construction, and from the fact that he at that time was the only trader on the river. He also knew that it was not an Indian's boat, from the iron ring in its bow; and the only conclusion that he could come to was that the boat had broken adrift from civilized people above, and been wrecked and broken in passing the rapids. The Indians who were with Seraphim told him that ten days higher up (though the river was broken by *caxoeiras*) would reach white people, who rode on horseback, and had flocks and herds. Seraphim was then probably about six hundred miles from the mouth of the Purus. His last voyage occupied eighteen months, and he brought down two hundred and twenty-five pots of copaiba, and one hundred and fifty arrobas of sarsaparilla.

The *catauxis* and the Indians generally of the Purus build their houses exactly as I have described those of the Yaguas. There is rarely ever more than one house at a settlement; it is called a *malocca*, and ten or fifteen families reside in it. Children are contracted in marriage at birth and are suffered to come together at ten or twelve years of age. The capacity of a boy to endure pain is always tested before he is permitted to take his place as a man in his tribe. The dead are buried in the same position as that used by the ancient Peruvians. The knees and elbows are tied together, and the body placed in a sitting position in a large earthern jar. This jar is placed in a hole dug in the floor of the malocca, and is filled in around the body with earth. Two smaller jars are then placed, with mouth downwards, over the large jar, and the whole is covered up with earth.

The Indians of the Purus, as elsewhere in the valley of the Amazon,

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are careless and lazy; most of them go naked. They cultivate a little maize and mandioc for sustenance, and make a little carajurú to paint their bodies and weapons with. Seraphim, however, had no difficulty in getting Indians to collect copaiba and sarsaparilla for him. He was not long from the Purus when I arrived at Barra; poor fellow! he was a martyr to the rheumatism, and his hands and legs were positively black from the marks left by the musquitoes. I sent him from Pará physic, which is highly esteemed upon the Amazon, called Ioduret of potassa, and "Le Roi," in return for his information, and some presents of arms &c., from the Purus.

The Amazon at Barra ordinarily commences to rise about the fifteenth of November, and continues filling till the end of December. It falls through the month of January, when it again rises till June, about the end of which month it begins to fall.

I found the Rio Negro stationary during the month of January. It commenced rising about the first of February; it is full in June. I believe it follows the laws of the Amazon, and had risen through the month of December. These laws are subject to considerable fluctuations, depending upon the greater or less quantity of rain at the sources of the rivers.

The Rio Branco, the greatest tributary of the Negro, is low in January. This river is navigable for large craft for about three hundred miles from its mouth; thence it is broken into rapids, only passable for large flat-bottomed boats. It is very thickly wooded below the first rapids; above these the trees disappear, and the river is bordered by immense plains, which would afford pasturage to large numbers of cattle. Barra is supplied with beef from the Rio Branco, where it must cost very little, as it is sold in Barra at five cents a pound.

Strong northeasterly winds make the ascent of the river tedious. A boat will come down from San Joachim, near the sources of the river, to Barra, a distance of five hnndred miles, and passing many rapids, in twelve days.

A portage of only two hours divides the head-waters of the Branco from those of the Essequibo. I saw fowling pieces, of English manufacture, in Barra, that had been bought by the traders on the Rio Branco from Indians, who had purchased them from traders on the Essequibo. They were of very good quality, but had generally been damaged, and were repaired by the blacksmiths of Barra. Beautiful specimens of rock crystal are brought from the highlands that divide the Branco and Essequibo. The tertianas are said to be very malignant on the Rio Branco.

There is scarcely any attempt at the regular cultivation of the earth in all the province of Amazonas; but the natural productions of its soil are most varied and valuable. In the forest are twenty-three well-known varieties of palm, all more or less useful. From the piassaba bark (called by Humboldt the chiquichiqui palm) is obtained cordage which I think quite equal in quality to the *coir* of India. From the leaves of the *tucum* are obtained the fibres of which all the hammocks of the country are made. Roofs of houses thatched with the gigantic leaves of the *bussu* will last more than ten years. The seed of the *urucurí* and *inaja*, are found to make the best fires for smoking India-rubber; and most of the palms give fruit, which is edible in some shape or other.

Of trees fitted for nautical constructions, there are twenty-two kinds; for the construction of houses and boats, thirty-three; for cabinet-work, twelve, (some of which—such as the *jacarandá*, the *muirapinima*, or tortoise-shell wood, and the *macacauba*—are very beautiful;) and for making charcoal, seven.

There are twelve kinds of trees that exude milk from their bark; the milk of some of these—such as the arvoeiro and assacú—is poisonous. One is the seringa, or India-rubber tree; and one the *mururé*, the milk of which is reported to possess extraordinary virtue in the cure of mercurialized patients, or those afflicted with syphilitic sores. Mr. Norris told me that a young American, dreadfully afflicted with the effects of mercury, and despairing of cure, had come to Pará to linger out what was left of life in the enjoyment of a tropical clime. A few doses of the mururé sent him home a well man, though it is proper to say that he died suddenly a few years afterwards. Captain Littlefield, the master of the barque "Peerless," told me that he had a seaman on board his vessel covered with sores from head to foot, who was radically cured with a few teaspoonfuls of mururé. Its operation is said to be very powerful, making the patient cold and rigid, and depriving him of sense for a short time. Mr. Norris has made several attempts to get it home, but without success. A bottle which I brought had generated so fetid a gas that I was glad to toss it from my hand when I opened it at the Observatory.

It is idle to give a list of the medicinal plants, for their name is legion. The Indians use nearly everything as a "remedio." One, however, is peculiar—it is called *manacá*. Von Martius, a learned German, who spent several years in this country, thus describes it: "Omnis planta magna radix potissimum, systema lymphaticum summa efficacia excitat, particulas morbificas liquescit, sudore et urina eliminat. Magni usus in

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syphilitide, ideo *mercurio vegetal* a quibusdam dicitur. Cortex interior et omnes partes herbaceæ amaritudine nauseosa, fauces vellicante, pollent. Dosi parva resolvit, majore exturbat alvum et urinam ciet, abortum movet, venenum a morsu serpentum excutit; nimia dosi tamquam venenum acre agit. De modo, quo hauriri solet, conferas Martium, in Buchner Repertor. Pharm. XXXI, 379. Apud nonnullas Indorum gentes in regione Amazonica habitantes ejus extractum in venenum sagittarum ingreditur."

Its virtue in rheumatic affections was much extolled; and, as I was suffering from pains in the teeth and shoulder, I determined to try its efficacy; but, understanding that its effects were powerful, and made a man feel as if a bucket of cold water were suddenly poured down his back, I begged my kind hostess, Donna Leocadia, to make the docoction weak. Finding no effects from the first teacupful, I took another; but either I was a peculiar patient, or we had not got hold of the proper root. I felt nothing but a very sensible coldness of the teeth and tip of the tongue. Next morning I took a stronger decoction, but with no other effect. I think it operated upon the liver, causing an increased secretion of bile. I brought home the leaves and root.

The root of the *murapuama*, a bush destitute of leaves, is used as an analeptic remedy, giving force and tone to the nerves.

A little plant called *douradinha*, with a yellow flower, something like our dandelion, that grows in the streets at Barra, is a powerful emetic.

A clear and good burning oil is made from the Brazil nut; also from the nut of the andiroba, which seems a sort of bastard Brazil nut, bearing the same relation to it that our horse-chestnut does to the edible chestnut. Both these oils, as also the oil made from turtle-eggs, are used to adulterate the copaiba. The trader has to be on the alert that he is not deceived by these adulterations. Another very pretty oil or resin is called *tamacuaré;* its virtues are much celebrated for the cure of cutaneous affections.

The banks of the rivers and inland lakes abound with wild rice, which feeds a vast number of water-fowl; it is said to be edible.

The *Huimba* of Peru—a sort of wild cotton, with a delicate and glossy fibre, like silk, and called in Brazil *sumauma*—abounds in the province. It grows in balls on a very large tree, which is nearly leafless; it is so light and delicate that it would be necessary to strip a number of these large trees to get an arroba of it. It is used in Guayaquil to stuff mattresses. I brought home several large baskets of it. Some silk manufacturers in France, to whom Mr. Clay, our chargé d'affaires at Lima, sent specimens, thought that, mixed with silk, it would make a

cheap and pretty fabric; but they had not a sufficient quantity to test it. Where cotton is cultivated in the province, it is sown in August, and commences to give in May; the bulk and best of the harvest is in June and July. The tree will give good cotton for three years.

Tobacco, of which that cultivated at Borba, on the Madeira, is the best in Brazil, is planted in beds during the month of February. When the plants are about half a foot high, which is in all the month of April, they are set out; the force of the crop is in September. The plant averages four feet in height. Good Borba tobacco is worth in Barra seven dollars the arroba, of thirty two pounds; it does not keep well, and therefore the price in Pará varies much.

The tree that gives the Brazil nut is not more than two or three feet in diameter, but very tall; the nuts, in number about twenty, are enclosed in a very hard, round shell, of about six inches in diameter. The crop is gathered in May and June. It is quite a dangerous operation to collect it; the nut, fully as large and nearly as heavy as a nine-pounder shot, falls from the top of the tree without warning, and would infallibly knock a man's brains out if it struck him on the head.

Humboldt says, "I know nothing more fitted to seize the mind with admiration of the force of organic action in the equinoctial zone than the aspect of these great ligneous pericarps. In our climates the *cucurbitaceæ* only produce in the space of a few months fruits of an extraordinary size; but these fruits are pulpy and succulent. Between the tropics the *bertholletia* forms, in less than fifty or sixty days, a pericarp, the ligneous part of which is half an inch thick, and which it is difficult to saw with the sharpest instrument." He speaks of them as being often eight or ten inches in diameter; I saw none so large.

There is a variety of this tree, called *sapucaia*, that grows on low lands subject to overflow. Ten or fifteen of the nuts, which are long, corrugated, and very irregular in shape, are contained in a large outer shell; the shell, unlike that of the *castanha*, does not fall entire from the tree, but when the nuts are ripe the bottom falls out, leaving the larger part of the shell, like the cup of an acorn, hanging to the tree. The nuts are scattered upon the water that at this season surrounds the trees, and are picked up in boats or by wading. The bark of the nut is fragile; easily broken by the teeth; and its substance is far superior in delicacy of flavor to that of the Brazil nut. This nut as yet must be scarce, or it would have been known to commerce. The tree is a very large one; the flowers yellow and pretty, but destitute of smell. The wood is one of those employed in nautical construction.

Shell lime, which is made in Pará, sells in Barra for one dollar and

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twenty-five cents the alquier, of sixty-four pounds; stone lime is double in price.

Salt is worth one dollar and twenty-five cents the panero, of one hundred and eight pounds.

Rains at Barra commence in September; the force of the rain is in February and March, but there is scarcely ever a continuous rain of twenty-four hours—one day rainy and one day clear.

The Vigario Geral, an intelligent priest, named Joaquin Gonzales de Azevedo, told me that there was a sharp shock of an earthquake in this country in the year 1816. The ground opened at "Serpa," a village below Barra, to the depth of a covado, (three-fourths of a yard.)

CHAPTER XV.

Departure from Barra—River Madeira—Serpa—Villa Nova—Maués—River Trombetas—Cocoa Plantations—Obidos—Santarem.

Having had my boat thoroughly repaired, calked, and well fitted with palm coverings, called in Brazil *toldos*, with a sort of Wandering-Jew feeling that I was destined to leave every body behind and never to stop, I sailed from Barra on the eighteenth of February. The President had caused me to be furnished with six tapuios, but unwilling to dispossess himself at this time of a single working hand, he could not let them carry me below Santarem. The President is laboring in earnest for the good of the province; and if anything is to be done for its improvement he will do it. He paid me every attention and kindness during my stay at Barra.

But to my host (Antonii, the Italian) I am most indebted for attention and information. From his having been mentioned by Smyth as at the head of trade at Barra sixteen years ago, I had fancied that I should find him an elderly man; but he is a handsome, gay, active fellow, in the prime of life. His black hair is somewhat sprinkled with gray, but he tells me that this arises not from age, but from the worry and vexation he has had in business on account of the credit system. He is as agreeable as good sense, much information about the country, and open-hearted hospitality can make a man. I asked him to look out for Gibbon and make him comfortable; and was charmed with the frank and hearty manner in which he bade me to "have no care of that."

I fear that I behaved a little churlishly about the mails. There are post offices established in the villages on the Amazon, but no public conveyances are provided to carry the mails. The owner or captain of every vessel is required to report to the postmaster before sailing, in order to receive the mails; and he is required to give a receipt for them. I did not like to be treated as an ordinary voyager upon the river, and, therefore, objected to receipt for the mails, though I offered to carry all letters that should be intrusted to my care. My principal reason, however, for declining was, that my movements were uncertain, and I did not wish to be trammelled. The postmaster would not give me the mail without a receipt, but I believe I brought away all the letters.

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I am now sorry, as I came direct, that I did not give the required receipt in return for the kindness that had been shown me.

Mr. Potter, the daguerreotypist and watchmaker, sailed in company with me. We found the current of the "Negro" so slight that, with our heavy boat and few men, we could make no way against a smart breeze blowing up the river: we, therefore, a mile or two below Barra, pulled into the shore and made fast till the wind should fall, which it did about 3 p. m., when we got under way and entered the Amazon.

Entering this river from the Negro, it appears but a tributary of the latter, and it is generally so designated in Barra. If a fisherman just in is asked where he is from, he will say "from the mouth of the Solimoens." It has this appearance from the Negro's flowing in a straight course; while the Solimoens makes a great bend at the junction of the two rivers.

It is very curious to see the black water of the Negro appearing in large circular patches, amid the muddy waters of the Amazon, and entirely distinct. I did not observe that the water of the Amazon was at all clearer after the junction of the Negro; indeed, I thought it appeared more filthy. We found one hundred and ninety-eight feet of depth in the bay or large open space formed by the junction of the two rivers.

About sixty miles below the mouth of the Rio Negro we stopped at the establishment of a Scotchman, named McCulloch, situated on the left bank of the river. There is a very large island opposite, which reduces the river in front to about one hundred yards in width; so that the establishment seems to be situated on a creek.

McCulloch, in partnership with Antonii, at Barra, is establishing here a sugar plantation, and a mill to grind the cane. He dams, at great cost of time and labor, a creek that connects a small lake with the river. He will only be able to grind about six months in the year, when the river is falling and the water runs from the lake into the river; but he proposes to grind with oxen when the river is rising. The difference between high and low-water mark in the Amazon at this point is, by actual measurement of McCulloch, forty-two feet. He works with five or six hands, whom he pays a cruzado, or a quarter of a dollar each, per day. There is a much greater scarcity of tapuios now than formerly. Antonii, who used always to have fifty in his employ, cannot now get more than ten.

McCulloch has already planted more than thirty acres of sugar-cane on a hill eighty or one hundred feet above the present level of the river. It seems of tolerable quality, but much overrun with weeds, on account of want of hands. I gave him a leaf from my experience, and advised

him to set fire to his field after every cutting. The soil is black and rich-looking, though light; and McCulloch supposes that in such soil his cane will not require replanting for twenty years. The cane is planted in December, and is ready to cut in ten months.

This is the man who, in partnership with the Brazilian, built the saw-mill at Barra, which was afterwards burned down. He sawed one hundred and thirty thousand feet the first year, but not more than half that quantity the second; in the third, by making a contract with Antonii, who was to furnish the wood and receive half the profits, he sawed eighty thousand. This plank is sold in Para at forty dollars the thousand; but the expenses of getting it there, and other charges, reduce it to about twenty-eight dollars. The only wood sawed is the *cedro;* not that it is so valuable as other kinds, but because it is the only wood of any value that floats; and thus can be brought to the mills. There are no roads or means of hauling timber through the forests. McCulloch told me that a young American, in Para, offered to join him in the erection of a saw-mill, and to advance ten thousand dollars towards the enterprise. He said that he now thought he was unwise to refuse it, for with that sum he could have purchased a small steamer (besides building and fitting the mill) with which to cruise on the river, picking up the cedros and taking them to the mill.

These are not our cedars, but a tall, branching tree, with leaves more like our oak. There are two kinds—red and white; the former of which is most appreciated. Some of them grow to be of great size; between Serpa and Villa Nova we made our boat fast to one that was floating on the river, which measured in length from the swell of the root to that of the first branches (that is a clear, nearly cylindrical trunk) ninety-three feet, and was nineteen feet in circumference just above the swell of the roots, which would probably have been eight feet from the ground when the tree was standing.

McCulloch gave me some castanhas in the shell, and some roots of a cane-like plant that grows in bunches, with very long, narrow leaves, and bears a delicate and fragrant white flower, that is called, from its resemblance in shape to a butterfly, *borboleta.*

The distance hence to the mouth of the Madeira is about thirty miles. After passing the end of the long island, called *Tamitari*, that lies opposite McCulloch's, we had to cross the river, which there is about two miles wide. The shores are low on either hand, and well wooded with apparently small trees. I always felt some anxiety in crossing so large an expanse of water in such a boat as ours, where violent storms of wind are of frequent occurrence. Our men, with their light paddles, could

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not keep such a *haystack* as our clumsy, heavy boat either head to wind or before it, and she would, therefore, lie *broadside to* in the trough of the sea, rolling fearfully, and threatening to swamp. I should have had sails fitted to her in Barra.

After crossing the river, we passed the mouth of two considerable streams. The lower one, called *Uauta*, is two hundred yards wide at its mouth, and has a considerable current. It is said to have a large lake near its headwaters, with outlets from this lake, communicating with the Amazon above, and also with the Madeira; that is, it is a paranamiri of the Amazon, widening into a lake at some part of its course. At half-past 8 p. m. we made fast for the night to some bushes on the low, western bank of the Madeira.

A large island occupies the middle of the Amazon, opposite the mouth of the Madeira. This mouth is also divided by a small island. The western mouth, up which I pulled nearly to the head of the island, (a distance of about a mile,) is three-quarters of a mile wide, with sixty-six feet of depth, and a bottom of fine white and black sand. The current runs at the rate of three and a quarter miles the hour. This current, like that of all the rivers, varies very much, according to the season. I was told afterwards, in Obidos, that, when the river was low—in the months of August, September, and October—there was very little current, and that a vessel might reach Borba from the mouth in three days; but that, when it is full and falling—in the months of March, April, and May—there is no tributary of the Amazon with so strong a current; and then it requires twenty days to reach Borba.

The eastern mouth is a mile and a quarter wide. The island which divides the mouth, is low and grassy at its outer extremity, but high and wooded at its upper. I looked long and earnestly for the broad *L* that Gibbon was to cut on a tree at the mouth of whatever tributary he should come down, in hopes that he had already come down the Madeira, and, not being able to go up stream to Barra, had gone on down; but it was nowhere to be seen.

The Madeira is by far the largest tributary of the Amazon. Once past its cascades, which are about four hundred and fifty miles from its mouth, and occupy a space of three hundred and fifty miles in length, it is navigable for large vessels by its great tributaries—the Beni and Mamoré—into the heart of Bolivia; and by the Guaporé or Itenes, quite through the rich Brazilian province of Matto Grosso. The Portuguese astronomers, charged with the investigation of the frontiers, estimate that it drains a surface equal to forty-four thousand square leagues. We shall, however, know more of this river on the arrival of Mr. Gibbon, whom last accounts left at Trinidad de Moxos, on the Mamoré, one of the tributaries of this great stream.

The rapids of the Madeira are not impassable; Palâcios, the Brazilian officer before quoted, descended and ascended them in a canoe, though he had occasionally to drag the canoe over portages. And Mr. Clay, our chargé at Lima, was told that a Brazilian schooner-of-war had ascended the Madeira above the rapids, and fired a salute at *Exaltacion*, which is in Bolivia, above the junction of the Beni. Palâcios probably descended at low water, and the schooner went up when the river was full.

The village of Serpa, where we arrived in the afternoon, is situated on the left bank of the Amazon, thirty miles below the mouth of the Madeira. It is a collection of mud-hovels of about two hundred souls, built upon a considerable eminence, broken and green with grass, that juts out into the river. There is a point of land just above Serpa, on the opposite side, which, throwing the current off, directs it upon the Serpa point, and makes a strong eddy current for half a mile above the town close in shore.

Serpa has a considerable lake back of it called Saracá, on the lower end of which is the village of Silves, a little larger than Serpa. That entrance to the lake which communicates with the Amazon near Serpa is not large enough for my boat to enter; that near Silves will admit large schooners. A mark on a tree shows that the river rises about twelve feet above its present level.

We left Serpa at 6 p. m., and drifted all night. We are compelled to travel at night, for there is so much wind and sea during the day that we make no headway. We are frequently compelled to lay by, and are sometimes in danger of being swamped, even in the little nooks and bays where we stop. The most comfortable way of travelling is to make the boat fast to a floating tree, for this keeps the boat head on to the wind and sea, and drags her along against these with the velocity of the current.

About fifteen miles above Villa Nova, which is one hundred and fifty miles below Serpa, a boat manned by soldiers pulled out from a hut on the shore, and told us we must stop there until examined and despatched by the officer in charge, called inspector. I could not well pull back against the stream, for we had already passed the hut; so I sent word to the inspector that I had letters from the President, and pulled in shore abreast of where I was. The inspector had the civility to come down to me and inspect my papers. This is a "resisto," or coast-guard, stationed above the port of entry of Villa Nova, to stop vessels from

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passing, and to notify them that they must go into that port. There is another below Villa Nova, to stop vessels coming up, and to examine the clearances from the custom-house of those coming down.

Within a quarter of a mile from the shore I found one hundred and twenty feet of depth, and three miles the hour of current. The current of the Amazon has increased considerably since the junction of the Madeira.

The inspector told me I was within four hours of Villa Nova; but I kept in shore, for fear of squalls; and thus, in the darkness of night, pulled around the shore of a deep bay, where there was little current, and did not arrive for eight hours, passing the mouth of the small river Limaõ, about a mile and a half above Villa Nova, where we arrived at 2 a. m.

Villa Nova de Rainha is a long straggling village of single story mud-huts, situated in a little bend on the right bank of the Amazon. The temperature of boiling water gives its elevation above the level of the sea at nine hundred and fifty-nine feet. It contains about two hundred inhabitants, and the district to which it belongs—embracing several small villages in the interior, with cocoa plantations on the banks of the river—numbers four or five thousand. The productions of the district are cocoa, coffee, and a few cattle, but principally salt fish. The whole country back of the village is vey much cut up by lakes, (with water communications between them,) where the greater part of the fish is taken. The sub-delegado gave me a sketch of it from his own personal knowledge and observation.

This being the frontier town of the province of Amazonas, there is a custom-house established here. I heard that it had collected one thousand dollars since the steamer passed up in December. This gives an indication of the trade of the country; foreign articles, which are the cargoes of vessels bound up, paying one and a half per cent. on their value; and articles of domestic produce, which the vessels bound down carry, paying a half per cent. The collection of one thousand dollars was made in two months.

The people valued their fowls at fifty cents apiece. We thought them extortionate, and would not buy; but we happened to arrive on fresh-beef day, and got a soup-piece. These fresh-meat days are a week apart, though this is a cattle producing country. It is an indication of the listless indifference of the people.

Just before reaching Villa Nova, my sounding-lead had hung in the rocks at the bottom, and a new *piassaba* line, which I had made in Barra, of about the size of a common log or cod-line, parted as if it had been pack-thread. I bought another lead at the village; this also hung at the first cast, and the line again parted close to my hand, so that I lost nearly all. My line must have been made of old fibres of the piassaba which had been in store some time. The bottom of the river near Villa Nova is very uneven and rocky.

About a league below Villa Nova we passed the mouth of the river *Ramos* on the right. It is two hundred yards wide, and is a paranimiri, which leaves the Amazon nearly opposite Silves. It has many small streams emptying into it in the interior, and sends off canals, joining it with other rivers, one of which is the Madeira. It is the general route to *Maués*—a considerable village in the interior, four days from the mouth of the Ramos.

The country about *Maués* is described as a great grazing plain, intersected and cut up with streams and canals, all navigable for the largest class of vessels that now navigate the Amazon. The soil is very rich, and adapted to the cultivation of cotton, coffee, and cocoa. The rivers give abundance of fish; any number of cattle may be pastured upon the plains; and the neighboring woods yield cloves, cocoa, castanhas, India-rubber, guaraná, sarsaparilla, and copaiba. If this country be not sickly (and the sub-delegado at Villa Nova, who gave me a little sketch of it, told me that it was not) it is probably the most desirable place of residence on the Amazon.

Baéna, in his chorographic essay on the province of Pará, says of Maués, that it is situated upon a slight eminence on a bay of the river Mauéuassu, which empties into the Furo, or canal of Ururaia, by means of which, and the river Tupinambaranas, one may enter the river Madeira thirteen leagues above its mouth. He gives the number of inhabitants in 1832 at one thousand six hundred and twenty-seven. The official report for 1850 states it at three thousand seven hundred and nine whites, and eighty-two slaves. This official report makes an ugly statement as regards its health; it gives the number of births in a year at seventy-four, and deaths at one hundred and thirty-one. I have no confidence in this statement, and it looks like a misprint. This report stated the number of inhabited houses at Barra as one hundred and seventy. This I knew was an error, and I took the liberty of making it four hundred and seventy.

Just below the mouth of the Ramos, quite a neatly rigged boat, carrying the Brazilian flag, put off from a house on shore, and seemed desirous to communicate with us; but she was so badly managed that, although there was a fine breeze, (directly ahead, however,) she could not catch us, though we were but drifting with the current. Had I known

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her character I would have paddled up against the stream to allow her to join company; but my companion, Mr. Potter, said that she was a boat belonging to the church, and begging for Jerusalem.

Finding that she could not come up with us, she put back, and a light canoe with a soldier in it, soon overtook us. The soldier told me that this was another custom-house station, and that I must pull back and show my clearance from the collector at Villa Nova. I was a good deal annoyed at this, for I thought the said collector, to whom I carried letters from the President, might have had the forethought to tell me about this station, so that I might have stopped there and saved the time and labor of pulling back. The soldier, seeing my vexation, told me that if I would merely pull in shore and wait, the inspector, who was then a few miles down the river, would soon be by on his way up, and I could communicate with him there.

To do this even carried me some distance out of my way; but I had previously resolved to conform scrupulously to the laws and usages of the country; so I smothered my annoyance, pulled in, and had the good luck to meet the inspector before reaching the land. This was a mere boy, who looked at my papers coldly, and without comment, except (prompted by an old fellow who was steering his boat) he asked me if I had no paper from the collector at Villa Nova. I told him no, that I was no commerciante, had nothing to sell, and that he had read my passports from his government. After a little hesitation he suffered me to pass.

The pull into the right bank had brought me to the head of an island. The inspector told me that the passage was as short on that side, but that it was narrow, and full of *carapana*, as musquitoes are called on the Amazon. Although I have a musquito curtain which protects me completely, yet the tapuios had none, and, whenever I stopped at night, they had a wretched time, and could not sleep a moment. This was one of the reasons why I travelled at night. All persons are so accustomed to travel from Barra downwards at night, and to keep out far from the shore, that they do not carry musquito curtains, which the travellers on the upper Amazon and its tributaries would perish without.

We pulled back into the main stream and drifted all night, passing the small village of *Parentins*, situated on some high lands that form the boundary between the provinces of Pará and Amazonas.

We now enter the country where the cocoa is regularly cultivated, and the banks of the river present a much less desolate and savage appearance than they do above. The cocoa-trees have a yellow-colored leaf, and this, together with their regularity of size, distinguishes them

from the surrounding forest. At 8 p. m., February 25, we arrived at Obidos, one hundred and five miles below Villa Nova. Several gentlemen offered to furnish me a vacant house; but I was surly, and slept in my boat.

Whilst at Obidos, I took a canoe to visit the *cacoaes*, or cocoa plantations, in the neighborhood; the fruit is called *cacao*. We started at 6 a. m., accompanied by a gentleman named Miguel Figuero, and stopped at the mouth of the *Trombetas*, which empties into the Amazon four or five miles above Obidos. It enters the Amazon by two mouths within sight of each other, (the island dividing the mouth being small;) the lower and smaller mouth is called Sta. Teresa, and is about one hundred and fifty yards wide; the upper (Boca de Trombetas) is half a mile wide, and enters the Amazon at a very sharp angle; its waters are clear, and the dividing-line between them and those of the Amazon is preserved distinct for more than a mile.

The Trombetas is said to be a very large river; in some places as wide as the Amazon is here—about two miles. It is very productive in fish, castanhas, and sarsaparilla, and runs through a country well adapted to raising cattle. I have heard several people call it a world; they may call it so on account of its productions, or it may be a "world of waters," for the whole country, according to the description of it, is entirely cut up with lakes and water-communications. The river is only navigable for large vessels five or six days up, and is then obstructed by rocks and rapids, which make it impassable. Little is known of the river above the falls; it is very sickly below them with tertianas, which take a malignant type.

Near the mouth of this river we stopped at an establishment for making pots and earthenware generally, belonging to a gentleman named Bentez, who received us with cordiality. This country house was neat, clean, and comfortable. I caught glimpses of some ladies neatly dressed, and with very pretty faces; and was charmed with the sight of a handsome pair of polished French leather boots sitting against the wall. This was the strongest sign of civilization that I had met with, and showed me that I was beginning to get into communication with the great world without.

Senhor Bentez gave me some eggs of the "enambu," a bird of the pheasant or partridge species, some of which are as large as a turkey. There are seven varieties of them, and an intelligent young gentleman, named D'Andrade, gave me the names, which were Enambu-assu, (assu is *lingoa geral*, and means large,) Enambu-toro, Peira, Sororina, Macucana, Urú, and Jarsana.

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In crossing the Amazon we were swept by the current below the plantation we intended to visit, and thus had a walk of a mile through the cocoa plantations, with which the whole right bank of the river between Obidos and Alemquer is lined. I do not know a prettier place than one of these plantations. The trees interlock their branches, and, with their large leaves, make a shade impenetrable to any ray of the sun. The earth is perfectly level, and covered with a carpeting of dead leaves; and the large golden-colored fruit, hanging from branch and trunk, shine through the green with a most beautiful effect. The only drawback to the pleasure of a walk through them arises from the quantity of musquitoes, which in some places, and at certain times, are unendurable to one not seasoned to their attacks. I could scarcely keep still long enough to shoot some of the beautiful birds that were flitting among the trees.

This is the time of the harvest, and we found the people of every plantation engaged, in the open space before the house, in breaking open the shells of the fruit, and spreading the seed to dry in the sun on boards placed for the purpose. They make a pleasant drink for a hot day by pressing out the juice of the gelatinous pulp that envelops the seeds; it is called cacao wine; is a white, rather viscid liquor; has an agreeable, acid taste, and is very refreshing; fermented and distilled, it will make a powerful spirit.

The ashes of the burnt hull of the cacao contains a strong alkali, and it is used in all the "cacoaes" for making soap.

We were kindly received by the gentleman whom we went to visit, Senhor José da Silva, whom we found busily engaged in gathering the crop. When he discovered that we had eaten nothing since daylight, he called out in true hospitable country fashion, "Wife, cook something for these men; they are hungry;" and we accordingly got some dinner of turtle and fowl.

In addition to the gathering of his cocoa, Senhor da Silva was engaged in expressing a clean, pretty-looking oil from the castanha. The nut was first toasted in the oven; then pulverized in a wooden mortar; and the oil was pressed out in the same sort of wicker-bag that is used for straining the mandioc. He said that the oil burned well, and was soft and pleasant to put on the skin or make unguents of, though it had not a pleasant smell. This oil has not yet found its way into foreign commerce.

From the statements of this gentleman, I gathered the following facts regarding the cocoa:

The seed is planted in garden beds in August. When the plants

come up, it is sometimes necessary to water them, also to protect them from the sun by arbors of palm, and to watch carefully for their protection from insects. In January, the plants are removed to their permanent place, where they are *set out* in squares of twelve palms. Plantains, Indian corn, or anything of quick growth, are planted between the rows, for their further protection from the sun whilst young. These are to be grubbed up so soon as they begin to press upon the cocoa trees.

In good land the trees will give fruit in three years, and will continue to give for many years; though tradition says they begin to fail after seventy or eighty.

The trees bud and show fruit in October or November for the first crop, and in February and March for the second. The summer harvest commences in January and February; and the winter crop, which is the largest, is gathered in June and July. One crop is not off the trees before the blossoms of the second appear. We saw no blossoms; and I heard at Obidos that the winter crop had probably failed entirely.

Every two thousand fruit-bearing trees require, for their care and croppage, the labor of one slave.

When they are young they need more attention, and two are necessary. The trees are kept clean about the roots, and insects are carefully destroyed; but the ground is never cleared of its thick covering of dead leaves, which are suffered to rot and manure it.

The earth of the cacoaes that I saw opposite Obidos is a rich, thick, black mould, and is the best land I have seen. It is low, particularly at the back of the plantations; and the river, by means of creeks, finds its way there, and frequently floods the grounds, destroying many trees. The banks of the river are five or six feet high; but the river is constantly encroaching upon them. Senhor Silva told me that, when he first took possession of the place, he had seven rows of trees between the house and the river; now, only three rows remain. The houses have frequently to be moved further back, so that these cocoa plantations must, in the course of time, be destroyed.

In good ground, and without accident, every thousand trees will give fifty arrobas of the fruit; but the average is probably not over twenty-five. A tree in good condition, and bearing well, is worth sixteen cents; the land in which it grows is not counted in the sale. One slave will take care of two thousand trees. The value of the arroba in Pará is one dollar. With these data, calculation will make the cultivation of the cocoa, in the neighborood of Obidos, but a poor business; and, indeed, I heard that most of the cultivators were in debt

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to the merchants below. Should the thousand trees give fifty arrobas, and the price of the arroba run up to one dollar and twenty-five cents, and one dollar and fifty cents, as it does sometimes in Pará, it would then be a very profitable business.

Obidos is situated upon a high, bold point, and has all the river (about a mile and a half in width) in front of it. The shores are bold, and the current very rapid. I had heard it stated that bottom could not be obtained in the river off Obidos, and I bought six hundred feet of line and a seven-pound lead to test it. In what was pointed out as the deepest part, I sounded in one hundred and fifty, one hundred and eighty, and two hundred and ten feet, with, generally, a pebbly bottom. In another place I judged I had bottom in two hundred and forty feet; but the lead came up clean. I may not have had bottom, or this may have been of soft mud, and washed off from the arming of soap that I used. It is a very difficult thing to get correct soundings in so rapid a current, and in such deep water.

The land on which Obidos is situated may be called mountainous, in comparison to the general low land of the Amazon; and far back in the direction of the course of the Trombetas were seen some very respectable mountains.

The coast, from the mouth of the Trombetas to Obidos, is about one hundred and fifty feet in height; is of red earth; and is supported upon red rock, of the same nature as that at Barra. This rock is very hard at bottom, but softer above, and many king-fishers build their nests in it. The general height is broken in one or two places, where there are small lakes. One of these, called Tiger lake, would afford a good mill-seat, which might grind for six or seven months in the year.

The town of Obidos proper contains only about five hundred inhabitants; but the district is populous, and is said to number about fourteen thousand. There is quite a large church in the town, built of stone and mud, with some pretensions to architecture; but, though only built in 1826, it seems already falling into ruins, and requires extensive repairs.

There are several shops, apparently well stocked with English and American cloths, and French fripperies. I heard a complaint that the trade was monopolized by a few who charged their own prices; but I judged, from the number of shops, that there was quite competition enough to keep the prices down to small profits. The value of the imports of the district of Obidos is nearly double that of the exports, the staple articles of which are cacao and cattle.

I have my information from Senhor Antonio Monteiro Tapajos, who

was very kind to me during my stay in Obidos. He gave me some specimens of Indian pottery; and his wife, a thin, delicate-looking lady, apparently much oppressed with sore eyes and children, (there being nine of the latter, the oldest only thirteen years of age,) gave me a very pretty hammock.

Senhor Joao Valentin de Couto, whose acquaintance I made by accident, gave me a live young Peixe-boi, which unfortunately died after it had been in my possession but a day. He also made me a present of some statistical tables of the affairs of the province; and not being able to find, at the time, the report of the President that accompanied these tables, he had the courtesy to send it to me in a canoe, after I had left the place and was engaged in sounding the river.

It will be seen that here, as elsewhere, during my travels, I met with personal attention, kindness, and liberality. Every one whom I conversed with on the subject of the Amazon advocates with earnestness the free navigation of the river, and says that they will never thrive until the river is thrown open to all, and foreigners are invited to settle on its banks. think that they are sincere, for they have quite intelligence enough to see that they will be benefitted by calling out the resources of the country.

Obidos has a college, lately established, which has some assistance from the government. It has yet but twenty-four scholars, and one professor—a young ecclesiastic, modest and intelligent; and enthusiastic and hopeful about the affairs of his college.

Antonio, a Portuguese, with whom I generally got my breakfast, told me that there were many poisonous serpents in the neighborhood of Obidos, and showed me a black swelling on the arm of his little son, the result of the bite of a scorpion. In five minutes after the boy was bitten, he became cold and senseless, and foamed at the mouth, so that for some hours his life was despaired of. The remedies used were homœopathic, and, what is a new thing to me, were put in the corners of the eye, as the boy could not swallow. I found homœopathy a favorite mode of practice from Barra downwards. It was introduced by a Frenchman, a few years ago, and there are now several amateur practitioners of it.

We left Obidos, in the rain, at 1 p. m., on the 29th February. Our long stay at Barra had brought the rains upon us, and we now had rain every day.

We travelled all night, and at half past 9 a. m., on the 1st of March, we entered a furo of the *Tapajos*, which, in one hour and three-quarters, conducted us into that river opposite the town of Santarem. This

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canal has a general width of one hundred yards, and a depth, at this season, of thirty feet. There are several country houses and cocoa plantations on its banks. It is called *Igarapé Assu.*

The Tapajos at Santarem, which is within one mile of the mouth, is about a mile and a half wide. Its waters are nearly as dark as those of the Negro; but, where stirred with the paddle, it has not the faint red color of that river, but seems clear white water. Large portions of the surface were covered with very minute green leaves and vegetable matter.

We presented our passports and letters to the Delegado, Senhor Miguel Pinto de Guimaraèns, and obtained lodgings in the hired house of a French Jew of Pará, who was engaged in peddling watches and jewelry in Santarem.

CHAPTER XVI.

Santarem—Population—Trade—River Tapajos—Cuiaba—Diamond region—Account of the Indians of the Tapajos.

Santarem, four hundred and sixty miles from the mouth of the Rio Negro, and six hundred and fifty miles from the sea, is the largest town of the province, after Pará. By official returns it numbers four thousand nine hundred and seventy-seven free, (eighty-seven being foreigners,) and one thousand five hundred and ninety-one slave inhabitants. There were two hundred and eighty-nine births, forty-two deaths, and thirty-two marriages in the year 1849.

I would estimate the population of the town of Santarem at about two thousand souls. In the official returns, all the settlers on the cocoa plantations for miles around, and all the tapuios engaged in the navigation of the river, are reckoned in the estimate. This, I believe, is the case with all the towns; and thus the traveller is continually surprised to find population rated so high in places where he encounters but few people.

There is said to be a good deal of elephantiasis and leprosy among the poorer class of its inhabitants. I did not visit their residences, which are generally on the beach above the town, and therefore saw nothing of them; nor did I see much poverty or misery.

There are tokens of an increased civilization in a marble monument in the cemetery, and a billiard table. The houses are comfortably furnished, though I believe every one still sleeps in a hammock. The rides in the environs are agreeable, the views picturesque, and the horses good. A tolerably good and well-bitted horse may be had for seventy-five dollars; they graze in the streets and outskirts of the town, and are fed with Indian corn.

There is a church (one of the towers has lately tumbled down) and two or three primary schools. The gentlemen all wear gold watches, and take an immoderate quantity of snuff. I failed to get statistics of the present trade of Santarem; but an examination of the following tables furnished by Mr. Gouzennes, the intelligent and gentlemanly vice-consul of France, will show the increase in the exports of the place in the three years between 1843 and 1846.

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These tables show the tonnage and cargoes of the vessels arriving in Santarem for three months in each year.

Mr. Gouzennes gave me the table for 1843, and to M. Castelnau the table for 1846. He also gave me a letter to M. Chaton, French consul at Pará, requesting that gentleman to give me his tables for the last year, (1851;) but they had been sent to France.

		Three months of 1843.	Three months of 1846.
Number of crews		300	362
Tonnage		647	1,287
Fish	arrobas	5,537	6,402
Peixe boi	"	75	—
Tow	"	430	478
Pitch	"	64	933
Tobacco	"	499	3,352
Cocoa	"	12,808	19,940
Sarsaparilla	"	665	4,836
Cloves	"	226	998
Guaraná	"	94	457
Coffee	"	369	512
Cotton	"	24	226
Cumarú (Tonka beans)	"	—	47
Carajurú	"	2	75
Castanhas	alquieres	1,206	3,709
Farinha	"	2,428	1,384
Oil of Copaiba	pots	427	3,056
Oil of turtle-eggs	"	420	1,628
Oil of andirobá	"	11	29
Mixira		170	316
Hides		—	664
Oxen		100	85
Piassaba rope	inches	—	1,970

I think, but have no means of forming an accurate judgment, that the importations of Santarem have not increased in the same proportion in the years between 1846 and 1852. A few of these articles—such as the cotton, the coffee, a part of the tobacco, and the farinha—were probably consumed in Santarem. The rest were reshipped to Pará for consumption there, or for foreign exportation.

The decrease in the consumption of farinha is significant, and shows an increased consumption of flour from the United States.

I had from Capt. Hislop, an old Scotchman, resident of Santarem, and who had traded much with Cuiabá, in the province of Matto Grosso, the following notices of the river Tapajos, and its connexion with the Atlantic, by means of the rivers Paraguay and La Plata.

Hence to the port of Itaituba, the river is navigable for large vessels, against a strong current, for fifteen days. The distance is about two hundred miles. From Itaituba the river is navigable for boats of six or eight tons, propelled by paddling, poling, or warping. There are some fifteen or twenty *caxoieras*, or rapids, to pass, where the boat has to be unloaded and the cargoes carried round on the backs of the crew. At one or two the boat itself has to be hauled over the land.

The voyage to the head of navigation on the Rio *Preto*, a confluent of the *Tapajos*, occupies about two months. At this place mules are found to carry the cargo fifteen miles, to the village of *Diamantino*, situated on the high lands that divide the headwaters of the streams flowing south from those of the streams flowing north, which approach each other at this point very closely.

These high lands are rich in diamonds and minerals. I saw some in possession of Capt. Hislop. The gold dust is apparently equal in quality to that I had seen from California.

From Diamantino to Cuiabá the distance is ninety miles, the road crossing the Paraguay river, which there, at some seasons, is nearly dry and muddy, and at others a rapid and deep stream, dangerous for the mules to pass.

Some years ago a shorter land-carriage was discovered between the headwaters of the northern and southern streams.

By ascending the *Arinos*, a river which empties into the *Tapajos*, below the mouth of the Preto, a point was reached within eighteen miles by land-carriage of a navigable point on the Cuiaba river above the city. The boat was hauled over these eighteen miles by oxen, (showing that the passage can be neither very high nor rugged,) and launched upon the Cuiaba, which is navigable thence to the city.

This was about three years ago; but the trade, for some reason, is still carried on by the old route of the *Preto*, and the land-carriage of one hundred and five miles to Cuiaba.

A person once attempted to descend by the *San Manoel*, a river that rises in the same high lands as the Preto and Arinos, and empties into the Tapajos, far below them; but he encountered so many obstructions to navigation that he lost all but life.

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The passage from Diamantino to Santarem occupies about twenty-six days.

Cuiaba is a flourishing town of about ten thousand inhabitants, situated on the river of the same name, which is thence navigable for large vessels to its junction with the Paraguay, which river is free from impediments to the ocean. It is the chief town of the rich province of Matto Grosso. It receives its supplies—the lighter articles of merchandise and luxury—by land, from Rio Janeiro; and its heavier articles—such as cannot be transported on mules for a great distance—by this route of the Tapajos. These are principally salt, iron, iron implements, wines, liquors, arms, crockeries, and guaraná, of which the people there are passionately fond.

St. Ubes or Portuguese salt is worth in Cuiaba thirteen and a half dollars the *panero*, of one hundred and eight pounds. Lately, however, salt has been discovered on the bottom and shores of a lake in Bolivia, near the Paraguay river. It undergoes some process to get rid of its impurities, and then is sold at four dollars the panero.

Cuiaba pays for these things in diamonds, gold dust, and hides. The diamond region is, as I have before said, in the neighborhood of the village of Diamantino, situated on the high lands that divide the headwaters of the tributaries of the Amazon and La Plata. M. Castelnau visited this country, and I give the following extracts from his account of it. He says:

"The mines of gold, and especially those of diamonds, to which the city of Diamantino owes its foundation and its importance, appear to have been known from the time the *Paulistas* made their first settlements in the province of Matto Grosso; but, under the Portuguese government, the working of the diamond mines was prohibited to individuals under the severest penalties.

"A military force occupied the diamond districts, and watched the Crown slaves who labored in the search of this precious mineral. Every person finding one of these stones was obliged to remit it to the superintendency of diamonds at Cuyaba, for which he received a moderate recompense, whilst he would have been severely punished if detected in appropriating it.

"At this period, throughout Brazil, the commerce in diamonds was prohibited, as strictly as their extraction, to all except the special agents named by the government for this purpose.

"Subsequently to the government of *João Carlos*, of whom we have already spoken, this commerce became more or less tolerated, then altogether free.

"If, as we are assured, the laws which heretofore governed this branch of industry are not legally repealed, they have at least completely fallen into disuse. The inhabitants of *Diamantino* only complain that the prohibition of the slave trade renders it impossible for them to profit by the wealth of the country.

In 1746 valuable diamonds were found, for the first time, in Matto Grosso, and were soon discovered in great quantities in the little river of *Ouro*. The governor, *Manuel Antunes Nogueiza*, designing to take possession of these lands for the benefit of the Crown, ejected the inhabitants therefrom. Famine made great ravages among the wretches thus deprived of their homes.

"From that time the country seems to have suffered every evil. A long drought was followed by a terrible earthquake on the 24th September, 1746. It was not until May 13, 1805, that the inhabitants were again permitted to take possession of their property, but upon condition of remitting to the Crown, under severe penalties, all the diamonds found.

"In 1809 a royal mandate established at Cuyabá a diamond *junta*.

"Gold and diamonds, which are always united in this region, as in many others, are found especially in the numerous water-courses which furrow it, and also throughout the whole country.

"After the rains, the children of *Diamantino* hunt for the gold contained in the earth even of the streets, and in the bed of the river Ouro, which, as has been said, passes through the city; and they often collect to the value of one or two patacas (from eight to fifteen grains) Brazil weight.

"It is related that a negro, pulling vegetables in his garden, found a diamond in the earth attached to the roots. It is also said that, shortly before our arrival at Diamantino, a muleteer, driving a stake in the ground to tie his mules to, found a diamond of the weight of a demi-oitavo, (about nine carats.) This last circumstance occurred in the *chapada* (table-land) of *San Pedro*.

"We have heard it stated that diamonds are sometimes found in the stomachs of the fowls.

"The rivers Diamantino, Ouro, and Paraguay appear already to be completely exhausted. The river *Burité* continues to furnish many stones; but the *Santa Anna*, so to speak, is still virgin, and, notwithstanding the incredible quantity of diamonds taken from it, it does not appear to have lost its primitive richness.

"It would appear, however, that diamond-hunting is not as productive as it is believed; for they quote in the country, as very remarkable,

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the result obtained by a Spaniard, Don Simon by name, who in four years, (only working, it is true, during the dry season, but with two hundred slaves) had collected four hundred oitavas of diamonds, (about seven thousand carats.) He was obliged to abandon the work because he lost many slaves in consequence of the pestilential fevers which reign in the diamond region, and particularly upon the borders of the river Santa Anna. Before his departure, he filled up the place from whence he extracted the stones.

"Later another individual found eighty oitavas of diamonds upon one point alone in the river.

"The largest diamond taken from the Santa Anna weighed, it is said, three oitavas, (about fifty-two carats.) It was many years since, and they know not the price it sold for.

"They assert that the stones taken from this river are more beautiful than those from other diamond localities, and that there are persons who, in commerce, can distinguish the difference.

"It was very difficult to obtain from the inhabitants of Diamantino, who seemed to think themselves still under the Portuguese laws in regard to diamonds and gold, exact information about the quantities of these two minerals exported each year from the district. However, by uniting the most positive data, we have formed the following table, which presents the approximate quantities of diamonds drawn from the country from 1817 to 1845, as well as the fluctuation of prices, and the number of slaves employed.

"We have added to this table the value of the slaves.

"At the time of our journey about two thousand persons, of whom eight hundred were slaves, were engaged in this kind of work.

Years.	Price of the oitava in assorted stones.	Number of oitavas found in the year.	Number of slaves employed.	Mean value of each slave.
1817 - - -	$20	600	1,500	$125
1820 - - -	30	5 *a* 600	1,500	125
1825 - - -	30	5 *a* 600	1,500	125
1830 - - -	30	300	1,500	125
1834 - - -	60	300	1,500	125
1838 - - -	75	300	1,200	150
1840 - - -	100	250	900	200
1844 - - -	125 to 150	200	800	300

"In 1817 a stone of an oitava was sold for two hundred dollars.

"Gold is worth the following prices the oitava:

"In 1817, sixty-seven and one-half cents.

1820, sixty-seven and one-half cents.

1830, seventy-five cents.

1840, one dollar and sixty cents.

1844, one dollar and eighty cents.

"We see that the prices of diamonds and gold have advanced since 1817. This is owing to three causes:

"1st. The diminution of the number of African slaves, in consequence of the laws against the slave trade.

"2d. The diminution of the quantity found.

"3d. The celebrity which this rich locality has progressively acquired, and which attracts there many persons.

"At present the *vintem* of diamonds in very small pieces is worth in commerce from four and a half to five dollars. A stone of a demi-oitava would be worth now from two to three hundred dollars, according to its beauty. A stone of an oitava would be worth seven hundred and fifty dollars.

"Two or three years ago a stone of three-quarters of an oitava was sold at four hundred dollars, and another of the same weight for five hundred.

"Now there is scarcely found more than two hundred oitavas of diamonds per annum, and only two or three stones of a demi-oitava and above.

"The richest man of Diamantino had in his possession, at the time of our journey, two hundred oitavas of diamonds.

"The slaves sell the diamonds they steal at two, and two and a half dollars the vintem; large and small, indifferently.

"To recapitulate. After the researches which I made at the places, it appears to me probable that the quantity of diamonds extracted from Diamantino and from Matto Grosso amounts, since the discovery by the Paulistas to the present time, (1849,) to about sixty-six thousand oitavas; it must be remembered that in this sum are included a great number of large stones.

"In estimating the mean value of the oitava at one hundred and twenty-five dollars, we arrive at a total of about eight million two hundred and fifty thousand dollars. It is proper to add to this sum that of the diamonds taken from the basin of the river *Claro*. Although this last yields inconsiderably at present, and may be far from what it was under the Portuguese government, I cannot estimate it at less than four-

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teen thousand oitavas, worth about one million seven hundred and fifty thousand dollars.

"Thus the amount of diamonds drawn to the present time from the province of Matto Grosso will amount to about eighty thousand oitavas, worth ten millions of dollars.

"I do not doubt that this region may one day furnish, if it is submitted to a well-conducted exploration, an infinitely larger quantity. Unfortunately, as we have already said, the search for these stones is accompanied with great danger; and I am convinced that these baubles of human vanity have already cost, to Brazil alone, the life of more than a hundred thousand human beings."

M. Castelnau has given the value of diamonds and gold in the Portuguese currency of *reis*, and occasionally in francs. In turning the reis into dollars, I have estimated the dollar at two thousand reis. When I left Brazil, the Spanish dollar was worth nineteen hundred and twenty reis, and the Mexican eighteen hundred: so that my values are under the mark; but there is probably less error in this than in any estimate that Castelnau could form from his data.

One will readily perceive, from these estimates, that diamond-hunting, as a business, is unprofitable. But this, like all mining operations, is a lottery. A man in the diamond region may stumble upon a fortune at an instant of time, and without a dollar of outlay; but the chances are fearfully against him. I would rather depend upon the supplying of the miners with the necessaries and luxuries of life, even by the long land-travel from Rio Janeiro, or by the tedious and difficult ascent of the Tapajos.

M. Castelnau, speaking of this trade, says that, taking one article of merchandise with another, the difference of their value at Pará and Diamantino is eight hundred and fifty per cent., the round trip between the two places occupying eight months; but that the profits to the trader are not to be estimated by the enormous difference of the value of the merchandise at the place of purchase and the place of sale. He estimates the expenses of a boat of nine tons (the largest that can ascend the river) at eight hundred and eighty dollars. Her cargo, bought at Pará, cost there but three hundred and fifty-five dollars: so that when it arrives at Diamantino it has cost twelve hundred and thirty-five dollars; thus diminishing the profits to the trader to about two hundred and forty-four per cent.

I do not find in Castelnau's estimate of the expenses of a canoe the labor and time employed in shifting the cargo at Santarem from the large vessel to the boats. This would probably take off the extra forty-four per cent., leaving a clear profit of two hundred. This is on the upward voyage. His return-cargo of hides, with what gold dust and diamonds he has been able to purchase, will also pay the trader one hundred per cent. on his original outlay, increased by his profits.

Let us suppose a man sends a cargo from Pará, which costs him there three hundred and fifty dollars. His two hundred per cent. of clear profit in Diamantino has increased this sum to one thousand and fifty. One hundred per cent. on this, the return-cargo, has made it two thousand one hundred dollars; so that he has pocketed a clear gain of seventeen hundred and fifty dollars, making a profit of five hundred per cent. in eight months.

Although there seems, from the accounts we have of the Tapajos, no chance of a steamer's reaching the diamond region by that river, yet I have very little doubt but that she may reach it by the rivers Plata, Paraná, and Paraguay. Should this be the case, and should Brazil have the magnanimity to throw open the diamond region to all comers, and encourage them to come by promises of protection and privileges, I imagine that this would be one of the richest places in the world, and that Brazil would reap enormous advantages from such a measure.

The place at present is too thinly settled, and the wants of the people too few, to make this trade (profitable as it appears to be on the small scale) of any great importance.

Captain Hislop monopolized at one time nearly all the trade of the Tapajos. He told me that some years ago he sent annually to Cuiabá goods to the value of fifteen or twenty thousand dollars, and supposes that all other *commerciantes* together did not send as much more. He complains, as all do, of the credit system, and says that the Cuiabanos now owe him twenty thousand dollars.

The trade now is almost nothing. The Cuiabanos themselves come down to get their supplies, which they pay for principally in hides.

I made several pleasant acquaintances in Santarem. One of the most agreeable was a young French engineer and architect, M. *Alphonse Maugin De Lincourt*, to whom I am indebted for some valuable presents, much interesting conversation, and the following notes of a voyage on the Tapajos, which, as describing the manners and customs of the Indian tribes occupying the borders of that river, I am persuaded will not be uninteresting.

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Fragments of travels from Itaituba to the cataracts of the Tapajos, and among the Mundrucus and Maués Indians.

"As soon as the Brazilian ——— (the principal authority of the little port of Itaituba) had procured me some Indians and a small canoe, called in the country *canoa de Caxoeiras*, I left this place for the purpose of visiting the great cataracts of the river Tapajos.

"I was the only white man among nine Indians, none of whom, with the exception of the Indian hunter, could understand me. I cannot express what I at first suffered in thus finding my life at their mercy. The boat, under the efforts of these nine pagans, had more the motion of an arrow than that of a boat ascending against the current of a river.

"Only seeking the principal falls of the Tapajos, we passed, without stopping, over those of Tapacura, Assu, and *Pracau*, and, continuing our route to the large ones, we arrived there the following day, without having met with anything remarkable to relate.

"There the scene changed. The river is no longer the calm Tapajos which slowly moves towards the Amazon; it is the foaming *Maranhão*, the advance cataract of the narrow and deep *Caxoeira das Furnas;* it is the roaring and terrible *coata*, whose currents cross and recross, and dash to atoms all they bear against its black rocks.

"We surmounted all in the same day. Seated motionless in the middle of the canoe, I often closed my eyes to avoid seeing the dangers I escaped, or the perils that remained to be encountered.

"The Indians—sometimes rowing with their little oars, sometimes using their long, iron-bound staffs, or towing the boat while swimming, or carrying it on their shoulders—landed me at last on the other side of the *Caxoeiras*.

"Arrived at the foot of the fifth cataract, the Indians hesitated a moment and then rowed for the shore. Whilst some were employed in making a fire, and others in fastening the hammocks to the forest trees, the hunter took his bow and two arrows, and such is the abundance which reigns in these countries, that a moment afterwards he returned with fish and turtles.

"The Indians, exhausted from the fatigues of the day, were not able to watch that night. I was sentinel, for these shores are infested by tigers and panthers. Walking along the beach to prevent sleep, I witnessed a singular spectacle, but (as I was informed by the inhabitants) one of frequent occurrence. An enormous tiger was extended full length upon a rock level with the water, about forty paces from me. From time to time he struck the water with his tail, and at the same moment

raised one of his fore-paws and seized fish, often of an enormous size. These last, deceived by the noise, and taking it for the fall of forest fruits, (of which they are very fond,) unsuspectingly approach, and soon fall into the claws of the traitor. I longed to fire, for I had with me a double-barrelled gun; but I was alone, and if I missed my aim at night I risked my life, for the American tiger, lightly or mortally wounded, collects his remaining strength and leaps with one bound upon his adversary.

"I did not interrupt him, and when he was satisfied he went off. The next day we passed the difficult and dangerous cataract of *Apuy*. The canoe was carried from rock to rock, and I followed on foot through the forest.

"The farther we advance in these solitudes, the more fruitful and prodigal nature becomes; but where life superabounds, evil does not less abound. From the rising to the setting of the sun clouds of stinging insects blind the traveller, and render him frantic by the torments they cause. Take a handful of the finest sand and throw it above your head, and you would then have but a faint idea of the number of these demons who tear the skin to pieces.

"It is true, these insects disappear at night, but only to give place to others yet more formidable. Large bats (true, thirsty vampires) literally throng the forests, cling to the hammocks, and, finding a part of the body exposed, rest lightly there and drain it of blood.

"At a station called by the Indians *Tucunaré-cuoire*, where we passed the night, one of them was bitten, whilst asleep, by one of these vampires, and awoke exceedingly enfeebled.

"In the same place the alligators were so numerous and so bold, and the noise they made so frightful, that it was impossible to sleep a moment.

"The next day I overtook a caravan of Cuyabanos, who had left Itaituba before me. They went there to exchange diamonds and gold dust for salt and other necessary commodities, and were returning with them to Cuyabá.

"They had passed a day at Tucunaré cuoire, and had slept there.

"Thinking that I was a physician, one of them begged me to examine the recent wounds of a companion. In vain I refused. He still continued his importunities, lavishing upon me titles of Seigneur and Signor Doctor, as if he had been in the presence of M. Orfila.

"I went with him. The wounded man was a young Indian, whom an alligator had seized by the leg the night the caravan slept at Tucu-

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naré-cuoire. Awakened by his cries, the Cuyabanos fell upon the monster, who, in spite of every thing, escaped.

"I relieved him as well as I could. I had with me but a scalpel, some camphor, and a phial of volatile salts. It would have been best to amputate the limb, which was horribly mutilated.

"I had myself an opportunity of observing the dangers and privations these men submit to, to carry to Cuyabá the commodities necessary there.

"A caravan called here *Monçāo* which is loaded at Itaituba, for ten contos of reis, (five thousand dollars,) with salt, guaraná, powder, and lead, arriving in safety at Cuyabá, can calculate upon fifteen or twenty contos of reis profit.

"At Pará the salt can be sold for three francs the alquiere; at Cuyabá, it is worth one hundred and fifty francs.

"They can descend the river in forty days; but it requires five months to ascend it.

"The forests that border the *Tapajos* are infested by savage Indians, who frequently attack the *Monçāos;* and dangerous fevers sometimes carry off those whom the Indian arrow has spared.

"I left the caravan at *Sta. Ana dos Caxoeiras;* it continued its route towards the source of the Tapajos, and I entered the country inhabited by the *Mundrucus.*

"The *Mundrucus*, the most warlike nation of the Amazon, do not number less than fifteen or twenty thousand warriors, and are the terror of all other tribes.

"They appear to have a deadly hatred to the negro, but a slight sympathy for the white man.

"During the rainy season they go to the plains to pull the sarsaparilla root, which they afterwards exchange for common hardware and rum; the other six months of the year are given to war.

"Each *Malocca* (village) has an arsenal, or fortress, where the warriors stay at night; in the day they live with their families.

"The children of both sexes are tattooed (when scarcely ten years old) with a pencil, or rather a kind of comb, made of the thorns of the palm-tree, called *Muru-muru.* The father (if the child is a boy) marks upon the body of the poor creature, who is not even permitted to complain, long bloody lines, from the forehead to the waist, which he afterwards sprinkles with the ashes or coal of some kind of resin.

"These marks are never effaced. But if this first tattooing, which is compulsory among the Mundrucus, sometimes suffices for woman's coquetry, that of the warriors is not satisfied. They must have at least a good layer of *geni papo*, (huitoc,) or of *roucou*, (annatto,) upon every

limb, and decorate themselves moreover in feathers. Without that, they would consider themselves as indecent as a European would be considered who would put on his coat without his shirt.

"The women may make themselves bracelets and collars of colored beads, of shells, and of tigers' teeth, but they cannot wear feathers.

"In time of war the chiefs have right of life and death over simple warriors. The Mundrucus never destroy their prisoners; on the contrary, they treat them with humanity, tattoo them, and afterwards regard them as their children.

"This warlike nation, far from being enfeebled as other tribes are, who, since the conquest of Brazil by the Europeans, are nearly annihilated, increases, notwithstanding the long wars they every year undertake against the most ferocious savages.

"Once friends of the whites, they yielded to them the lands they inhabited on the borders of the Amazon, between the rivers Tapajos and Madeira, and fled to live an independent life, which they have never renounced, in the deep solitudes of the Tapajos above the cataracts.

"I visited the old Mundrucu chief, *Joaquim*, who rendered himself so terrible to the rebels of Pará during the disorders of 1835. He is a decrepit old man, almost paralyzed. He received me very well, and appeared flattered that a traveller from a distant country sought to see him. He told me, in bad Portuguese, 'I am the *Tuchāo*, Joaquim. I love the whites, and have never betrayed them. I left my friends, my *cacoaes*, (cocoa plantations,) and my house on the borders of the Madeira to defend them. How many Cabanos (insurgents) have I not killed when I showed my war canoe that never fled?

"Now I am old and infirm; but if I remain in the midst of these women, and do not soon leave for the fields to chase away these brigands of Muras, who lay waste my cacoaes, I will be bewitched and die here like a dog.

"The Mundrucus do not believe that diseases afflict them. When a prey to them, they say it is a spell some unknown enemy has cast over them; and if the *Pugé*, or Magician of the Malocca, interrogated by the family of the dying man, names a guilty person, he whom he named may count upon his death.

"I have heard afterwards that when he was fighting so generously with his Mundrucus for the cause of the white man, a Brazilian colonel, who commanded the expedition, ordered him to pull manioc roots in a field supposed to be in the power of the rebels. The chief was furious, and, angrily eyeing the Brazilian, said, 'Dost thou believe my canoe

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is made to carry to the field women and children? It is a war canoe, and not a boat to bring thee farinha.'

"This same colonel revenged himself for this refusal by calumniating to the Emperor the conduct of the brave Mundrucu; and on that representation the court objected to recompense him. He remained poor as an Indian, when, according to the example of the Brazilian officers, he could have amassed wealth. He is old now, and has no heir, because he has only daughters.

"The next day he came to see me, and begged me to cure his nephew, a young Indian of eighteen or twenty years, whom he dearly loved, and whom he would have had inherit his courage and his titles; but the poor devil had nothing of the warrior, and every day, for several hours, had an epileptic attack. I again had recourse to the phial of salts; gave him some for the sick man to smell at the time of the attacks; and also directed that he should drink some drops weakened with water.

"The remedy had a good effect. The attacks became less frequent and long; and during the three days I remained in the neighborhood of the Malocca the old Tuchão came every day to thank me; pressed my hands with affection, and brought me each time different small presents—fruits, birds, or spoils taken heretofore from an enemy.

"From Santa Ana, where I crossed the river, I determined to enter the forests, and not to descend by the cataracts. Six Indians went back with the boat to Itaituba; the three others remained to accompany me to the Mahués Indians, whom no European traveller had visited, and whom I much desired to know.

"The Indian hunter, to whom I gave one of my guns, carried my hammock and walked in front. I followed him, loaded with a gun and a sack, (which contained ammunition,) my compass, paper, pencils, and some pieces of guaraná. The other two Indians walked behind carrying a little manioc flour, travelling necessaries, and a small press to, dry the rare plants that I might collect on my journey.

"We followed a narrow pathway, sometimes across forests, uneven, and muddy, broken by small pebbly rivulets, the water of which is occasionally very cold; sometimes climbing steep mountains, through running vines and thorny palm-trees. I was covered with a cold and heavy sweat, which forced me to throw off my garment, preferring to endure the stings of myriads of insects to the touch of a garment that perspiration and the humidity of the forest had chilled.

"Towards five o'clock we stopped near a rivulet; for in these forests it soon becomes night. The Indians made a fire and roasted the birds

and monkeys that the hunter had killed. I selected a parrot for supper.

"The following day we arrived, about nightfall, at the Indian village of *Mandu-assu*.

"The Mahués Indians do not tattoo the body as the Mundrucus, or, if they do, it is only with the juice of vegetables, which disappears after four or five days.

"Formerly, when they were enemies of the white man, they were conquered and subdued by the Mundrucus. At present they live in peace with their neighbors, and willingly negotiate with the whites.

"The men are well formed, robust, and active; the women are generally pretty. Less warlike than the Mundrucus, they yield willingly to civilization; they surround their neat cabins with plantations of banana trees, coffee, or guaraná.

The precious and medicinal guaraná plant, which the Brazilians of the central provinces of Goyaz and Matto Grosso purchase with its weight in gold, to use against the putrid fevers which rage at certain periods of the year, is owed to the Mahués Indians. They alone know how to prepare it, and entirely monopolize it.

"The Tuchão of the Malocca, called Mandu-assu, received me with cordiality, and offered me his cabin. Fatigued from the journey, and finding there some birds and rare plants, I remained several days.

"Mandu-assu marvelled to see me carefully preserve the birds the hunter killed, and the leaves of plants, or wood, that possessed medicinal virtues. He never left me; accompanied me through the forests, and gave me many plants of whose properties I was ignorant.

"Rendered still more communicative by the small presents I made him, he gave me not only all the particulars I wished upon the cultivation and preparation of the guaraná, but also answered fully all my questions.

"I left him for the Malocca of *Mossé*, whose chief was his relative. This chief was more distant and savage than Mandu-assu, and received me with suspicion. I was not discouraged, as I only went to induce him to exchange, for some articles, his *paricá*, or complete apparatus for taking a kind of snuff which the great people of the country frequently use.

"My cause, however, was not altogether lost; my hunter, who had been in a cabin of the village, took me to see a young Indian who had been bitten the evening previous by a *surucucurano* serpent. I opened the wound, bled him, and again used the volatile salts. Whilst I operated, a young Indian woman, singularly beautiful, sister of the

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wounded man, supported the leg. She watched me with astonishment, and, whilst I was binding up the wound with cotton soaked in alkali, (salts,) she disappeared, and I saw her no more.

"The Indian was relieved. The old Tuchão knew of it; and, to thank me for it, or rather, I believe, to test me, presented me with a calabash, in which he poured a whitish and disgusting drink, exhaling a strong odor of corruption. This detestable liquor was the *cachiri*, (masato,) a drink that would make hell vomit; but the Indians passionately love it. I knew by experience that by refusing to drink I would offend this proud Mahué, and that if I remained in this Malocca I should assuredly die from want, because even a calabash of water would be refused me. I shut my eyes and drank.

"The cachiri is the substance of the manioc root, softened in hot water, and afterwards chewed by the old women of the Malocca. They spit it into great earthen pans, when it is exposed to a brisk fire until it boils. It is then poured into pots and suffered to stand until a putrid fermentation takes place.

"The Indian afterwards took his paricá. He beat, in a mortar of sapucaia, a piece of hard paste, which is kept in a box made of a shell; poured this pulverized powder upon a dish presented by another Indian, and with a long pencil of hairs of the *tamandua bandeira*, he spread it evenly without touching it with the fingers; then taking pipes joined together, made of the quills of the *gavião real*, (royal eagle,) and placing it under his nose, he snuffed up with a strong inspiration all the powder contained in the plate. His eyes started from his head; his mouth contracted; his limbs trembled. It was fearful to see him; he was obliged to sit down, or he would have fallen; he was drunk, but this intoxication lasted but five minutes; he was then gayer.

"Afterwards, by many entreaties, I obtained from him his precious paricá, or rather one of them, for he possessed two.

"At the Malocca of *Taguariti*, where I was the next day, the Tuchão, observing two young children returning from the woods laden with sarsaparilla, covered with perspiration, and overcome, as much by the burden they carried as the distance they had travelled, called them to him, beat some paricá, and compelled them to snuff it.

"I then understood that a Tuchão Mahué had a paternal authority in his Malocca, and treated all as his own children. He forced these children to take the paricá, convinced that by it they avoided fevers and other diseases. And, in truth, I soon saw the children leave the cabin entirely refreshed, and run playing to the brook and throw themselves in.

"Several vegetable substances compose paricá: first, the ashes of a vine that I cannot class, not having been able to procure the flowers; second, seeds of the *acacia angico*, of the leguminous family; third, juice of the leaves of the *abuta*, (cocculus) of the menispermes family.

"I never saw a Mahué Indian sick, nor ever heard them complain of the slightest pain, notwithstanding that the forests they inhabit are the birthplaces of dangerous fevers, which rarely spare the Brazilian merchants who come to purchase sarsaparilla root.

"I had often heard of the great Tuchão, *Socano* chief, and king of the Mahué nation, who, (unlike the kings of France,) notwithstanding the urgent entreaties of his subjects, abdicated in favor of his brother, and retired apart in a profound solitude, to pass there tranquilly the remainder of his life. I wished to see this philosopher of the New World before going to Itaituba, from which I was eleven days' journey on foot.

"I went again to Massú to see the Indian bitten by the serpent, and perhaps a little, also, to see the Indian girl. He was still lame, but walked, however, better. The girl was incorruptible. Promises, bracelets, collars of pearl, (false)—all were useless.

"Without wishing to attack the virtue of the Mundrucus women, I was induced to believe she would be more charitable, because in the whole *Mundrucuanie* it is not proved that there exists a dragon of such virtue as to resist the temptation of a small glass of rum.

"I assisted at an Indian festival so singular that it is only in use among the true Mahués. Following the example of the other nations of Brazil, (who tattoo themselves with thorns, or pierce the nose, the lips, and the ears,) and obeying an ancient law which commands these different tortures, this baptism of blood, to habituate the warriors to despise bodily sufferings, and even death, the Mahués have preserved from their ancestors the great festival of the *Tocandeira*.

"An Indian is not a renowned Mahué, and cannot take a wife, until he has passed his arms at least ten times through long stalks of the palm-tree, filled intentionally with large, venomous ants. He whom I saw receive this terrible baptism was not sixteen years old. They conducted him to the chiefs, where the instruments awaited him; and, when muffled in these terrible mittens, he was obliged to sing and dance before every cabin of the Malocca, accompanied by music still more horrible. Soon the torments he endured became so great that he staggered. (The father and relatives dread, as the greatest dishonor that can befall the family, a cry or a weakness on the part of the young

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martyr. They encourage and support him, often by dancing at his side.) At length he came to the last cabin; he was pallid; his teeth chattered; his arms were swollen; he went to lay the gloves before the old chief, where he still had to endure the congratulations of all the Indians of the Malocca. Even the young girls mercilessly embraced him, and dragged him through all their circles; but the Indian, insensible to their caresses, sought only one thing—to escape. At length he succeeded, and, throwing himself into the stream, remained there until night.

"The *Tocandeira* ants not only bite, but are also armed with a sting like the wasp; but the pain felt from it is more violent. I think it equal to that occasioned by the sting of the black scorpion.

"In one of my excursions in the environs of the Malocca of Mandu-assu, I had occasion to take several of them. I enclosed them in a small tin box. I afterwards let one bite me, that I might judge in a slight degree what it costs the young Mahués to render themselves acceptable. I was bitten at 10 a. m. I felt an acute pain from it until evening, and had several hours' fever.

"At Mandu-assu I was invited to a great festival of the Malocca. The chief kept me company; the people remained standing, and ate afterwards. As the Mahués are less filthy than the Mundrucus, I ate with a little less disgust than with the last, who never took the trouble to skin the monkeys or deer they killed, but were contented with cutting them to pieces, and throwing them pell-mell in large earthen pots, where meat, hair, feathers, and all were cooked together. The Mahués at least, though they did not pick the game, burnt the hair and roasted the meat.

"The next day I departed for the Socano country. The Indians who accompanied me, having no curiosity to see the old Indian king, already tired of the journey, and seeing it prolonged four or five days independent of the eleven it would require to reach Itaituba, concerted to deceive me by conducting me through a pathway which they thought led to a port of the river Tapajos, and where they hoped to find some Brazilians of Itaituba with their canoes loaded with sarsaparilla.

"In trying to lead me by a false route, they deceived themselves; for we walked two long days, and the pathway, which was but a hunter's track, finally entirely disappeared. I was ignorant of the position of the Malocca I was seeking. I only heard it would be found nearer the river Madeira than the Tapajos. I wished to cut across the woods and journey towards the west; the Indians were discouraged, and followed me unwillingly. We passed a part of the third day in the midst of rugged and inundated forests, where I twice sank in mud to the waist.

"The hunter could kill nothing; and when, towards the evening, I wished to take some food, I could only find a half-knawed leg of monkey. The Indians had not left me even a grain of farinha. Being near a stream, I grated some guaraná in a calabash and drank it without sugar, for they had left me none.

'Not daring to rest, for fear of being unable to rise, we immediately resumed our journey. Having again walked two hours across forests of vines, which caused me to stumble at every step; or crawling under large fallen trees, which constantly barred our way; or in the midst of large prickly plants, which lacerated my hands, I arrived, torn and bruised, at a small river, where we stopped.

"After drinking another portion of guaraná, I swung my hammock, but was soon obliged to rise, because a storm had gathered above us and now burst forth.

"If there is an imposing scene to describe, it is that of a storm which rages at night over an old forest of the New World. Huge trees fall with a great crash; a thousand terrific noises resound from every side; animals, (monkeys and tigers,) whom fear drives to shelter, pass and repass like spectres; frequent flashes of lightning; deluging torrents of rain—all combine to form a scene from which the old poets might have drawn inspiration to depict the most brilliant night of the empire of darkness.

"Towards midnight the storm ceased; all became tranquil, and I swung my hammock anew. The next day I awoke with a fever. I drank guaraná made more bitter than usual, and we started. The hunter met a band of large black monkeys. He killed five of them. The Indians recovered courage; for myself, I could proceed no further, so great were the pains I suffered from my feet to my knees. The fever weakened me so much that I carried my gun with difficulty; but I would not abandon it. I had only that to animate my guides and defend myself with.

"By frequently drinking guaraná the fever had left me; but towards the evening of the fifth day, finding we were still wandering, and the forests becoming deeper, I lost courage and could not proceed. The hunter swung my hammock and gave me guaraná. The two others, perfectly indifferent, were some paces from me, employed in broiling a monkey. I knew if I had not strength to continue the journey the next

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day, they would abandon me without pity. Already they answered me insolently.

"After a moment passed in the saddest reflection, I called to the hunter to bring me my travelling case. I took from it the entire preparation of paricá of the Mossé chief, and a flask of arsenical soap, which I would not use except as the last resource. I took the paricá and did as I had seen the old Indian do. I instantly fell drunk in my hammock, but with a peculiar intoxication, and which acted upon my limbs like electric shocks. On rising, I put my foot to the ground, and, to my great surprise, felt no pain. At first I thought I dreamed. I even walked without being convinced. At length, positively sure that I was awake, and there still remaining two hours of daylight, I detached my hammock, and forced the Indians, by striking them, to follow me.

"When further on we stopped to rest, they brought me the roast monkey, which they had not touched. I snatched a leg and ate it with voracity. The next day, constantly compelling myself to take the guaraná, I had but slight fever; and towards the evening, after a toilsome journey, we arrived at a miserable Malocca, composed of about four or five Indian cabins."

CHAPTER XVII.

Departure from Santarem—Monte Allegre—Prainha—Almeirim—Gurupá—River Xingu—Great estuary of the Amazon—India-rubber country—Method of collecting and preparing the India-rubber—Bay of Limoeiro—Arrival at Pará.

M. Alfonse was more generous than the Tuchão, for I could do nothing for him; yet he gave me his paricá, his Mundrucus gloves, and a very valuable collection of dried leaves and plants, that he had gathered during his tour.

I spent a very agreeable day with him at the country house of M. Gouzennes, situated on the Igarapé-assu, about three miles from Santarem. The house is a neat little cottage, built of *pisé*, which is nearly the same thing as the large sun-dried bricks, called by the Spaniards *adobe*, though more carefully prepared. I supposed that this house, situated in the midst of a cocoa plantation, on low land, near the junction of two great rivers, under a tropical sun, and with a tropical vegetation, would be an unhealthy residence; but I was assured there was no sickness here.

We put up in earth, for transportation to the United States, plants of arrow-root, ginger, manacá, and some flowers. I believe that some of these reached home alive, and are now in the public garden.

Other gentlemen were also kind and civil to me. Mr. Bates, a young English entomologist, gave me a box of very beautiful butterflies; and the Vicario Gêral, the fœtus of a peixe-boi, preserved in spirits. Senhor Pinto, the Delegado, furnished me with horses to ride; and I took most of my meals with Capt. Hislop.

An attempt was made to murder the old gentleman a few weeks before I arrived. Whilst sleeping in his hammock, two men rushed upon him, and one of them gave him a violent blow in the breast with a knife—the point of the knife, striking the breast-bone, broke or bent. The robbers then seized his trunk and made off, but were so hotly pursued by the captain's domestics, whom he had called up, that they dropped their booty and fled.

A young Englishman named Golden, who had married a Brazilian lady, and was engaged in traffic on the river, was also kind to me, giving me specimens of India-rubber and cotton.

The trade of Santarem with Pará is carried on in schooners of about

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one hundred tons burden, of which there were five or six lying in port whilst I was there. The average passage downwards is thirteen, and upwards twenty-five days.

There are several well-stocked shops in the town, but business was at that time very dull. Every body was complaining of it. A schooner had been lying there for several months, waiting for a cargo; but the smallness of the cocoa crop, and the great decrease in the fishing business, and making of manteiga for this year, rendered it very difficult to make up one.

We had a great deal of heavy rain during our stay at Santarem, (generally at night,) with sharp lightning and strong squalls of wind from the eastward. The river rose with great rapidity for the last three or four days of my stay. The beach on which I was accustomed to bathe, and which was one hundred yards wide when I arrived, was entirely covered when I left. There were no symptoms of tide at that season, though I am told it is very perceptible in the summer time. Water boiled at Santarem at 210.5, indicating a height of eight hundred and forty-six feet above the level of the sea.

I left Santarem at 7 p. m., March 28. The Delegado could only muster me three tapuios and a pilot, and I shipped a volunteer. I believe he could have given me as many as I desired, (eleven,) but that he had many employed in the building of his new house, and, moreover, he had no conception that I would sail on the day that I appointed; people in this country never do, I believe, by any chance. If they get off on a journey within a week of the time appointed, they think they are doing well; and I have known several instances where they were a month after the time.

When the Delegado found that I would go with what men I had, he begged me to wait till morning, saying that the military commandant, who had charge of the Trabalhadores, had sent into the country for two, and was expecting them every hour. But I too well knew that it was idle to rely on expectations of this sort, and I sailed at once, thanking him for his courtesy.

I had several applications to ship for the voyage from Indians at Santarem; but I was very careful not to take any who were engaged in the service of others; for I knew that custom, if not law, gave the patron the service of the tapuio, provided this latter were in debt to the former, which I believe the patron always takes good care shall be the case.

I paid these men—the pilot forty, and the crew thirty cents per day. The Ticunas, who formed my crew from Tabatinga to Barra, I paid

partly in money and partly in clothes, at the rate of four dollars per month. I paid the Muras, from Barra to Santarem, at the same rate. The Peruvian Indians were generally paid in cotton cloth, at the rate of about twelve and a half cents per day.

We gave passage to the French Jew who had given us lodgings in his house at Santarem. I had great difficulty in keeping the peace between him and Potter, who had as much antipathy towards each other as an uneducated Frenchman and Englishman might be supposed to have.

We drifted with the current all night, and stopped in the morning at a small cocoa plantation belonging to some one in Santarem. The water of the river was, at this time, nearly up to the door of the house; and the country seemed to be all marsh behind. I never saw a more desolate, sickly looking place; but a man who was living there with his wife and six children (all strong and healthy looking) told me they were never sick there. This man told me that he could readily support himself and his family but for the military service he was compelled to surrender at Santarem, which took him away from his work and his family for several months in every year.

Thirty miles from the mouth of the Tapajos we passed the mouth of a creek called Igarapé Mahica, which commences close to the Tapajos. We found the black waters of that river at the mouth of the creek, and therefore it should be properly called a furo, or small mouth of the Tapajos.

We stopped at 9 p. m. under some high land close to the mouth of a small river called Curuá, on account of a heavy squall of wind and rain.

March 30.—We passed this morning the high lands on the left bank of the river, among which is situated the little town of *Monte Alegre*. This is a village of fifteen hundred inhabitants, who are principally engaged in the cultivation of cocoa, the raising of cattle, and the manufacture of earthern-ware, and drinking cups made from gourds, which they varnish and ornament with goldleaf and colors, in a neat and pretty style.

In the afternoon we crossed the river, here about four miles wide, and stopped at the village of *Prainha*.

Prainha is a collection of mud huts on a slight green eminence on the left bank of the river, ninety miles below Santarem. The inhabitants, numbering five hundred, employ themselves in gathering India-rubber and making manteiga. The island opposite the town having a lake in the centre abounding with turtle.

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We saw several persons at this place who were suffering from sezoens, or tertianas, but all said they took them whilst up the neighboring rivers. If general accounts are to be relied on, there seems to be really no sickness on the main trunk of the Amazon, but only on the tributaries; though I saw none on the Huallaga and Ucayali.

I have no doubt of the fact that sickness is more often taken on the tributaries than on the main trunk; but I do not think it is because there is any peculiar malaria on the tributaries from which the main trunk is exempt. The reason, I think, is this; when persons leave their homes to ascend the tributaries, they break up their usual habits of life, live in canoes exposed to the weather, with bad and insufficient food, and are engaged in an occupation (the collection of India-rubber or sarsaparilla) which compels them to be nearly all the time wet. It is not to be wondered at that, after months of such a life, the voyager should contract chills and fever in its most malignant form.

The mere traveller passes these places without danger. It is the enthusiast in science, who spends weeks and months in collecting curious objects of natural history, or the trader, careless of consequences in the pursuit of dollars, who suffers from the sezoens.

Although there were a number of cattle grazing in the streets of Prainha, we could get no fresh meat; and indeed, but for the opportune arrival of a canoe with a single fish, our tuyuyus, or great cranes, would have gone supperless. These birds frequently passed several days without food—and this on a river abounding with fish, which shows the listless indifference of the people.

The banks of the river between Monte Alegre and Gurupá are bordered with hills that deserve the name of mountains. In this part of our descent we had a great deal of rain and bad weather; for wherever the land elevates itself in this country, clouds and rain settle upon the hills. But it was very pleasant, even with these accompaniments, to look upon a country broken into hill and valley, and so entirely distinct from the low flat country above, that had wearied us so long with its changeless monotony.

About fifty-five miles below Prainha we passed the mouth of the small river Parú, which enters the Amazon on the left bank. It is a quarter of a mile wide at its mouth, and has clear dark water.

It is very difficult to get any information from the Indian pilots on the river. When questioned regarding any stream, the common reply is, "It runs a long way up; it has rapids; savages live upon its banks; everything grows there;" *Vai longe, tem caxoieras, tem gentios, tem tudo.*) I was always reminded of the Peruvian Indian with his *hay platanos, hay yuccas, hay todo.*

Our pilot, however, told me that the river was navigable for large vessels twenty days to the first rapids; that the current was very strong; that there was much sezoens on it; and that much sarsaparilla and cloves could be collected there.

The immediate banks of the river at its mouth are low; but close to the left bank commences a short but quite high range of hills, that runs parallel to the Amazon.

Six miles below this we passed the village of *Almeirim*, on the left bank, but did not stop. A little above the town, and a quarter of a mile from shore, there was a strong ripple, which the pilot said was caused by a ledge of rocks that are bare when the river is low. There is plenty of water on each side of it.

Fifty miles below Almeirim we steered across the river for Gurupá, running under sail from island to island. The river here is about ten miles wide. Large islands divide it into the Macapá and Gurupá channels; the latter conducting to Pará, the former running out to sea by the shores of Guyana.

After crossing, and at half a mile from the right bank, we fell into the dark waters of the Xingu, whose mouth we could see some six or eight miles above. Fifteen miles further brought us to Gurupá, where we arrived at a quarter past 9 p. m.

Gurupá is a village of one street, situated on a high grassy point on the right bank, with large islands in front, diminishing the width of the river to about a mile and a half. It contains about three hundred inhabitants, though the sub-delegado said it had two or three thousand; and the official report states the number at over one thousand.

The principal trade of the place is in India-rubber, obtained on the Xingu and the neighboring smaller streams. We found at this place, as at every other place below Barra, a great demand for salt fish. Everybody asked us if we had any to sell; and we could readily have obtained three dollars the arroba, for which we had paid but seventy-five cents in Barra. The scarcity of the fish is attributable to the fact that the river has fallen very little this year; but I incline to believe that the fish are not so plentiful, and that the people are not so active in taking them as before. It was amusing at Santarem to see the gathering of the population around a canoe, recently arrived with fish, as if this were a thing of rare occurrence. The people seemed so lazy that they would prefer eating farinha alone, rather than take the trouble to go down to the Amazon and catch fish.

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I met, at the house of the Commandante-militar, with an old gentleman who was on his way to *Porto de Moz*, near the mouth of the Xingu, to take the office of municipal judge of the district. He seemed to be a man well informed with regard to all the river below Barra. He told me that the Xingu was obstructed by rapids for navigation in large vessels within four days' travel from its mouth, and that boats could not go far up on account of the savages. These rapids, however, cannot be a serious impediment for boats; for I was told at Santarem that the caravans from Cuiabá to Rio Janeiro passed the Xingu in boats, and found at that place porpoises of the Amazon; from which they inferred that there were no falls or serious obstacles in the river below them.

The judge asked me for accounts from Barra; and when he received the usual answer, that the town was not in a flourishing condition, and was short of the necessaries of life, he shrugged his shoulders, (as all in the lower province do when speaking of the new province,) as if to say, "I knew it."

He said that it might come to something in forty years; but that nothing could be expected of a place that furnished nothing to commerce but a few oils, and a little *piassaba*, and where the population was composed of Muras and Araras. He spoke bitterly of the Mura tribe of Indians, and said that they were lazy and deceitful.

According to his account, the white man furnishes the Mura with a boat, pays him, beforehand, a jacket, a shirt, a pair of trousers, and a hat; furnishes him with fish and farinha to eat, and tobacco to smoke, and sends him out to take Pirarucu; but when the Indian gets off, it is "Good-bye Mura;" or, if he does come back, he has spent so much time in his fishing that the fish are not worth the outlay and the time lost.

It was true, he said, there were cattle on the Rio Branco; but they could only be sent for and traded in when the river was full;, and he concluded by making a great cross in the air, and lifting up his eyes, to give vent to the expression, "Heaven deliver me from Barra!"

I conversed with the old gentleman on some projects of reform as regarded the Indian population. He thought that a military force should be employed to reduce them to a more perfect system of subjection, and that they should, by all means, be compelled to work. I told him that a Portuguese had said that the best reform that could be made would be to hang all the Indians. My friend seemed a little shocked at this, and said that there was no necessity for such root-and-branch work. He said he would grant that the old ones might be

killed to advantage; but he thought they might be shot and not hung. This, I believe, was said "*bona fide*." I was amused at the old gentleman's philanthropy, and thought that, as a judge, he might have preferred the hanging process.

I find that most of the gentlemen of the lower province are disposed to sneer at the action of the government in erecting the Comarca of the Rio Negro into a province; but I think the step was a wise one. It may cost the government, and particularly the province of Pará, (from which funds are drawn for the support of the new province,) some money to support it for a while; but if the country is to be improved at all, it is to be done in this way. By sending there government officials—people who know what living is, and have wants—and by building government houses, (thus employing and paying the Indians,) stimulants are given to labor, and the resources of the country are drawn out; for these people who have gone from Pará and Rio Janeiro will not be content to live on turtle, salt fish, and farinha.

The tide is very apparent at Gurupá. The river fell several feet during the morning whilst we were there. This point is about five hundred miles from the sea.

After we had sailed, the Commandante-militar, to whom I had applied for more men, and who had told me there were none to be had, sent a man in a canoe after us. I suspected so much courtesy, and found, accordingly, that the man (a negro) was a cripple, and utterly worthless. He had evidently been palmed off upon us to get rid of him. I made him feed the birds and cook for the men. These men made the best and hardest-working crew I had during my voyage.

About thirty-five miles below Gurupá commences the great estuary of the Amazon. The river suddenly flares out into an immense bay, which is probably one hundred and fifty miles across in its widest part. This might appropriately be called the "Bay of the Thousand Islands," for it is cut up into innumerable channels. The great island of *Marajo*, which contains about ten thousand square miles, occupies nearly the centre of it, and divides the river into two great channels: one, the main channel of the Amazon, which runs out by Cayenne; and the other, and smaller one, the river of Pará. I imagine that no chart we have gives anything like a correct idea of this bay. The French brig-of-war *Boulonnaise*, some years ago, passed up the main channel from Cayenne to Obidos, and down the Pará channel, making a survey. But she had only time to make a survey of the channels through which she passed, leaving innumerable others unexplored. This she was permitted to do through the liberality of Senhor Coelbo, the patriotic President of the

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province; but when she applied for permission to make further surveys, she was sternly refused by the government of Rio Janeiro.

I think it would cost a steamer a year of uninterrupted labor to make a tolerably correct chart of this estuary.

At this point we turned into a small creek that penetrated the right bank, and ran for days through channels varying from fifty to five hundred yards in width, between innumerable islands. This is the India-rubber country. The shores of the islands were all low; and, indeed, we seldom saw the land at all, the trees on the banks generally standing in the water.

We stopped (April 3) at one of the establishments on the river for making, or rather for buying, India-rubber. The house was built of light poles, and on piles to keep it out of the water, which, at this time, flowed under and around it. The owner had a shop containing all the necessaries of life, and such articles of luxury as were likely to attract the fancy of the Indian gatherers of the rubber. It was strange, and very agreeable, to see flour-barrels marked *Richmond*, and plain and striped cottons from *Lowell* and *Saco*, with English prints, pewter ear and finger rings, combs, small guitars, cheese, gin, and aguadiente, in this wild and secluded-looking spot.

This house was a palace to the rude shanty which the *seringero*, or gatherer of the rubber, erects for a temporary shelter near the scene of his labors.

The owner of the house told me that the season for gathering the rubber, or *seringa*, as it is here called, was from July to January. The tree gives equally well at all times; but the work cannot be prosecuted when the river is full, as the whole country is then under water. Some, however, is made at this time, for I saw a quantity of it in this man's house, which was evidently freshly made.

The process of making it is as follows: A longitudinal gash is made in the bark of the tree with a very narrow hatchet or tomahawk; a wedge of wood is inserted to keep the gash open, and a small clay cup is stuck to the tree beneath the gash. The cups may be stuck as close together as possible around the tree. In four or five hours the milk has ceased to run, and each wound has given from three to five tablespoonfuls. The gatherer then collects it from the cups, takes it to his rancho, pours it into an earthen vessel, and commences the operation of forming it into shapes and smoking it. This must be done at once, as the milk soon coagulates.

A fire is made on the ground of the seed of nuts of a palm-tree, of which there are two kinds: one called urucari, the size of a pigeon's egg, though longer; and the other inajá, which is smaller. An earthen pot, with the bottom knocked out, is placed, mouth down, over the fire, and a strong pungent smoke from the burning seeds comes up through the aperture in the bottom of the inverted pot.

The maker of the rubber now takes his last, if he is making shoes, or his mould, which is fastened to the end of a stick; pours the milk over it with a cup, and passes it slowly several times through the smoke until it is dry. He then pours on the other coats until he has the required thickness; smoking each coating until it is dry.

Moulds are made either of clay or wood; if of wood, it is smeared with clay, to prevent the adhesion of the milk. When the rubber has the required thickness, the moulds are either cut out or washed out.

Smoking changes the color of the rubber very little. After it is prepared, it is nearly as white as milk, and gets its color from age.

The most common form of the India-rubber of commerce is that of a thick bottle; though it is also frequently made in thick sheets, by pouring the milk over a wooden mould, shaped like a spade, and, when it has a coating sufficiently thick, passing a knife around three sides of it, and taking out the mould. I should think this the least troublesome form, and the most convenient for transportation.

From twenty to forty coats make a pair of shoes. The soles and heels are, of course, given more coats than the body of the shoe. The figures on the shoes are made by tracing them on the rubber whilst soft with a coarse needle or bit of wire. This is done in two days after the coating. In a week the shoes are taken from the last. The coating occupies about twenty-five minutes.

An industrious man is able to make sixteen pounds of rubber a day; but the collectors are not industrious. I heard a gentleman in Pará say that they rarely average more than three or four pounds.

The tree is tall, straight, and has a smooth bark. It sometimes reaches a diameter of eighteen inches or more. Each incision makes a rough wound on the tree, which, although it does not kill it, renders it useless, because a smooth place is required to which to attach the cups. The milk is white and tasteless, and may be taken into the stomach with impunity.

The rubber is frequently much adulterated by the addition of tapioca or sand, to increase its weight; and, unless care is taken in the manufacture, it will have many cells, containing air and water. Water is seen to exude from nearly all of it when cut, which is always done for the purpose of examination before purchase. I brought home some specimens that were more than half mud.

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The seringeros generally work on their own account, and take their collection to the nearest settlement, or to some such shop as this, to exchange it for such things as they stand in need of.

We navigated all day, after leaving this place, through a labyrinth of island channels, generally one or two hundred yards wide, and forty-eight feet deep. No land is seen in threading these channels, it being all covered; and the trees and bushes seem growing out of the water. Occasionally the bushes are cleared away, and one sees a shanty mounted on piles in the water, the temporary residence of a seringero. At a place in one of these channels, I was surprised to find one hundred and ninety-two feet of water, with a rocky bottom. The lead hung in the rocks, so that we had difficulty in getting it again.

April 4.—The channels and shores are as before; though we occasionally see a patch of ground with a house on it. This is generally surrounded with cocoa-nut trees and other palms, among which the *miriti* is conspicuous for its beauty. This is a very tall, straight, umbrella-like tree, that bears large clusters of a small nut, which is eaten.

We arrived at *Breves*, on the island of Marajo, at 11 a. m. This settlement is about two hundred miles below Gurupá. It is a depot of India-rubber, and sends annually about three thousand arrobas to Pará. It has a church, and several shops; and seems a busy, thriving place. Below this we find the flood-tide sufficiently strong to compel us to lie by, though it is but of three or four hours' duration. The ebb is of longer duration, and stronger.

Nearly opposite Breves, at a place called Portal, a village of sixty or eighty houses, two rivers, called the *Pucajash* and *Guanapu*, empty into the Amazon close together. A German, whom I met at Pará, told me of these rivers. I can find no mention of them in Baena's essay. My German friend said that the *Pucajash* was a large river which came down from the province of *Minas Geraes*, and that he had found gold in its sands. According to his account, the *Pucajash* may be ascended for eight days in a montaria (quite equal to twenty days in a river craft) before the first rapids are reached. Tapuios and boats may be had at Portal. The savages who inhabit the banks of the *Pucajash* are nearly white; go naked; but are civil, and may be employed as hunters.

We employed the 5th, 6th, and 7th of April in running through island passages, and occasionally touching on the main stream, anchoring during the flood-tide.

I could keep no account of the tide in these passages. We would encounter two or three different tides in three or four hours. I imagine the reason of this was that some of the passages were channels proper

of the Amazon; some of them small, independent rivers; and some, again, furos, or other outlets of these same rivers. On the morning of the 7th, we were running down on the main river, here about three miles wide, and with a powerful ebb-tide. Suddenly we turned to the right, or southward, into a creek about forty yards wide, and with twelve feet of water, and found a small tide against us. After pulling up this creek an hour, we found a powerful tide in our favor, without having observed that we had entered another stream; so that from 5 a. m. to 3 p. m., we had had but a small tide of one hour against us.

I could get no information from our pilot. He seems to me to say directly contrary things about it. The old man is very timid, and will never trust himself in the stormy waters of the main river if he can find a creek, though it go a long distance about.

The channels are so intricate that we find, at the bifurcations, bits of sail cloth hung on the bushes, to guide the navigators on the route to Pará. Those channels which lead to Cametá, on the Tocantins, and other places, are not marked.

We passed occasionally farm houses, with mills for grinding sugar-cane. The mills are as rude as those in Mainas, and I believe make nothing but rum.

At 8 p. m. on the 7th, we arrived at the mouth of the creek, which debouches upon the bay of *Limoeiro*, a deep indentation of the right bank of the Amazon, at the bottom of which is the mouth of the river Tocantins. We had a stormy night, with a fresh wind from the eastward, and much rain, thunder, and lightning.

April 8.—The pilot objected to attempt the passage of the bay; but another pilot, who was waiting to take a vessel across the next day, encouraged him, telling him that he would have *feliz viagem*.

We pulled a mile to windward, and made sail across, steering E. S. E. The wind from the northward and eastward, encountering the ebb-tide which runs from the southward, soon made a sharp sea, which gave us a rough passage. The canoe containing our animals and birds, which was towing astern, with our crippled negro from Gurupá steering, broke adrift, and I had the utmost difficulty in getting her again; indeed we took in so much water in our efforts to reach her that I thought for a moment that I should have to make sail again, and abandon the menagerie. The canoe, however, would probably not have perished. She was so light that she took in little water, and would have drifted with the ebb-tide to some point of safety.

We had a quick run to an island near the middle of the bay, and about five miles from the shore that we sailed from. The bay on this

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side of the island has several sand-flats, that are barely covered at low water. They seem entirely detached from the land and have deep water close around them.

Onr pilot must have steered by instinct, or the direction of the wind; for most of the time he could see no land, so thick and heavy was the rain. He grinned with delight when we ran under the lee of the island, and I nodded my head approvingly to him, and said, *bem feito piloto*, (well done pilot.)

We breakfasted on the island, and ran with the flood-tide to its southern extremity; where, turning to the north, we had the flood against us, and were compelled to stop.

The Bay of *Limoeiro* is about ten miles wide; runs north and south, and has the Tocantins pouring in at its southern extremity. Thirty-nine miles from the mouth of that river is situated the flourishing town of Cametá, containing, by the official statement for 1848, thirteen thousand seven hundred and forty-two free, and four thousand and thirty-eight slave inhabitants. I suppose in this case, as in others, the inhabitants of the country houses for miles around are included in the estimate.

Baena, in speaking of the condition of this town in 1833, says:

"The city and its 'termo' (a territorial division of a Comarca, which is again a territorial division of a province) has a population of eight thousand and sixty-eight whites, and one thousand three hundred and eighty-two slaves. The major part are to be found in the town on holy-week, or any of the great festivals; but for the most time, they live dispersed among the adjacent islands, on their cocoa plantations and farms.

"They cultivate mandioc, cocoa, cotton, rice, tobacco, urucú, and sugar-cane. They make much oil from the andiroba nut, which they collect on the islands, and also lime from fossil shells.

"The women paint gourds and make ewers and basins of white clay, which they paint very beautifully. They also make figures of turtle doves and crocodiles from the same clay.

"The inhabitants enjoy a fine climate, charming views, the clear and good water of the river, abundance of fish, and every kind of game, which is found on the margin of the river and on the islands—such is the fertility which nature spontaneously offers; and much more would they enjoy had they a better system of cultivation on those lands, all admirably fitted for every kind of labor.

"There are those who say that the water of the Tocantins has a certain subtle, petrifying quality, which causes attacks of gravel to those who use it."

According to M. Castelnau, who descended this river from near the city of *Goyaz*, by one of its tributaries, called the *Crixas*, the Tocantins forks, at about three hundred and forty miles from its mouth, into two great branches, called the Tocantins proper and the *Araguay*, which latter branch he considers the principal stream. "For," he says, "when we consider that the Tocantins presents an almost continued succession of cascades and rapids, whilst the Araguay (as we have before said) is free for the greater part of its course, it will be seen how this latter offers greater advantages for navigation; particularly when it is recollected that one may embark upon it at all seasons at fifty leagues from the capital, (Goyaz,) and in the rainy seasons at only a very few leagues from it. The Tocantins, on the other hand, cannot be considered navigable farther up than Porto Imperial, which is nearly three hundred leagues below Goyaz, by the windings of the route."

Again, he says: "The rivers of which we have been treating, although they are secondary on a continent watered by the Amazon and Mississippi, would elsewhere be considered as of the first order; for the Tocantins has nearly four hundred and forty leagues of course, and the Araguay, properly so called, has not less than four hundred and twenty. But this last, after uniting itself to the Tocantins, runs in the bed of the latter a new distance of one hundred and thirteen leagues; considering, then, the Araguay, on account of its being the larger branch, and the most direct in its course, as the main river, it has a total length of nearly five hundred and thirty-three leagues," (1,599 miles.)

It is necessary, however, in ascending these rivers, to unload the boats at many places, and drag them over the rocks with cords. The voyage from Porto Imperial to Pará occupies from twenty-five to thirty days; but upwards it takes from four to five months.

M. Castelnau descended the Araguay from Salinas (fifty leagues by land from Goyaz) to its junction with the Tocantins in thirty-four days. Just below Salinas he found the Araguay upwards of five hundred yards wide. At the junction of the rivers, the Tocantins has a width of two thousand yards, with a current of three-fourths of a mile per hour. The height of this point above the level of the sea is one hundred and ninety-seven feet, and its distance from Pará, in a straight line, is about one hundred and sixty-one miles; thus giving the river in this distance a fall of about eight-tenths of a foot per mile.

We crossed the other arm of the bay (about five miles wide) with the ebb-tide, and anchored at the mouth of a small river called *Anapui*, which empties into the bay near its opening into the main river of Pará.

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There are large mud flats near the mouth of this river, which are enclosed with small stakes driven in the mud close together, for the purpose of taking fish when the tide is out. A great many small fish—about the size of a herring—called *maparâ*, are taken and salted for the food of the slaves and tapuios. The fishermen, in ludicrously small canoes, gathered around us, admiring our birds and asking many strange questions.

This river is about two hundred and fifty yards wide, and has a general depth of thirty-six feet. Its banks are lined with plantations of cane, sugar-mills, and potteries. Nearly all the rum and the pots for putting up the turtle-oil that are used on the river, are made in this district. The owners of these establishments are nearly all away at this time celebrating holy-week in Sta. Ana, or other neighboring villages..

The establishments are left in charge of domestics; and we saw no signs of activity or prosperity among them. Most of them have neat little chapels belonging to them.

The river Sta. Ana empties into the *Anapui*. We anchored at its mouth to await for the flood-tide. Our pilot, who always sleeps on the arched covering over the stern of the boat, rolled overboard in the night. The tide was fortunately nearly done, and the old man swam well, or he would have been lost.

The village of Sta. Ana is eight miles from the mouth of the river, and two hundred and fifty miles below Breves. It is the centre of the rum and molasses trade of the district. It is a small, neat looking village of about five hundred inhabitants; but the country around is very thickly settled; and thus the official account states the population of the town of *Igarapé Mirim* (which I take to be this Sta. Ana) at three thousand one hundred free persons, with two hundred and eighty-one slaves.

The river opposite the town is one hundred yards wide, and has a depth of thirty feet. Just above the village we entered the mouth of a creek called *Igarapé Mirim*. This creek has an average width of thirty yards, and depth, at this season, of fifteen feet.

Six miles of navigation on this creek brought us to a canal which connects the Sta. Ana with the river *Mojú*.

The canal is about a mile long, and has six feet of depth at this season. It seems, at present, in good condition, and large enough to give passage to a vessel of fifty tons.

We found the Mojú a fine stream, of about four hundred yards in width, and forty-five feet deep opposite the entrance of the canal. The

water was brown and clear, and the banks everywhere three or four feet out of the water. I was surprised to see so few houses on its banks. It looked very nearly as desolate as the Marañon in Peru.

Forty-five miles of descent of the Mojú brought us to the junction of the Acará, which comes in from the southeast. The estuary formed by the junction of the two rivers is about two and a half miles wide, and is called the river *Guajará*.

Five miles of descent of the Guajará brought us to its entrance into the Pará river, five miles above the city, where we arrived at half-past 9 p. m. on the 11th of April.

I was so worn out when we arrived, that, although I had not heard from home, and knew that there must be letters here for me, I would not take the trouble to go to the consul's house to seek them; but sending Mr. Potter and the Frenchman ashore to their families, I anchored in the stream, and, wrapping myself in my blanket, went sullenly to sleep.

The charm of Mr. Norris's breakfast table next morning, however, with ladies and children seated around it, conversing in English, might have waked the dead. Under the care and kindness of himself and his family, I improved every hour; and was soon in condition to see what was to be seen, and learn what was to be learned, of the city of Pará.

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CHAPTER XVIII.

Pará.

The city of *Santa Maria de Belem do Graõ Pará*, founded by *Francisco Caldeira do Castello Branco*, in the year 1616, is situated on a low elbow of land at the junction of the river Guamá with the river Pará, and at a distance of about eighty miles from the sea.

A ship generally requires three tides, which run with a velocity of about four miles to the hour, to reach the sea from the city.

Pará is not fortified, either by land or water. There is a very small and inefficient fort situated on an island about five miles below the city; but it is only armed with a few ill-conditioned field-pieces, which do not command the channel. There is also a small battery in the city near the point of junction of the two rivers; but there are no guns mounted, and its garrison could be easily driven out by musketry from the towers of the cathedral.

The harbor is a very fine one; it is made by the long island of Onças in front, and at two miles distant, with some smaller ones further down the river. There is an abundance of water, and ships of any size may lie within one hundred and fifty yards of the shore. There is a good landing-place for boats and lighters at the custom-house wharf; and at half tide at the stone wharf, some five hundred yards above.

The corporation was engaged, during my stay, in building a strong stone sea-wall all along in front of the town. This will make a new wide street on the water-front, and prevent smuggling. Formerly, canoes, at high stages of the river, would land cargoes surreptitiously in the very cellars of the warehouses situated on the river.

The city is divided into the freguezias, or parishes, of Sé and Campina. Nine other freguezias are included in the *municipio* of the capital; but many of these are leagues distant, and should not geographically be considered as belonging to the city, or their population be numbered in connexion with it.

The population of the city proper numbered, in 1848, (the last statistical account I have, and which I think would differ very little from a census taken at this time,) nine thousand two hundred and eighty-four free persons, and four thousand seven hundred and twenty-six slaves.

The number of inhabited houses was two thousand four hundred and eighteen; of births, seven hundred and eighty-five; of marriages, ninety-eight; of deaths, three hundred and seventy-five; and of resident foreigners, seven hundred and eighty-four.

Pará was a remarkably healthy place, and entirely free from epidemics of any kind, until February, 1850, when the yellow fever was taken there by a vessel from Pernambuco. It was originally brought from the coast of Africa to Bahia, and spread thence along the coast. The greatest malignancy of the disease was during the month of April, when it carried off from twenty to twenty-five a day.

About the same time the next year, (the fever being much diminished,) the small pox broke out with great violence. About twenty-five per cent. of the population died from the two diseases. I imagine that the city will now never be entirely free from either; and the filthy condition in which the low tide leaves the slips, in which lie the small trading craft, must be a fruitful source of malaria, and an ever-exciting cause of epidemic.

The crews of these vessels, with their families, generally live in them. They are consequently crowded; and, when the tide is out, they lie on their sides, imbedded in a mass of refuse animal and vegetable matter, rotting and festering under a burning sun.

Pará, however, is an agreeable place of residence, and has a delightful climate. The sun is hot till about noon, when the sea breeze comes in, bringing clouds with rain, thunder, and lightning, which cool and purify the atmosphere, and wash the streets of the city. The afternoon and evening are then delicious. This was invariable during my stay of a month.

The rich vegetable productions of the country enhance much the beauty of the city. In nearly all the gardens grow the beautiful miriti palm, the cabbage palm, the cocoa nut, the cinnamon, the bread-fruit tree, and rich green vines of black pepper. The rapidity of vegetable growth here is wonderful. Streets opened six months ago in the suburbs of the city, are now filled up with bushes of the *stramonium*, or Jamestown weed, of full six feet in height. There are a number of almond trees in various parts of the town, which are very ornamental. These trees throw out horizontal branches, encircling the trunk at intervals of five or six feet, the lowest circle being the largest, so that they resemble in shape a Norfolk pine. Mr. Norris and I thought it remarkable that, in a row of these trees planted before a house or line of houses, those nearest the door were invariably the farthest advanced in growth. This we particularly remarked in the case of a row planted before the bar-

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racks, in two parts of the city. The tree under which the sentinel stood, in both cases, was the largest of the row.

We saw, in a walk in the suburbs of the town, what we thought to be a palm tree growing out of the crotch of a tree of a different species; but, upon examination, it appeared that the tree, out of which the palm seemed growing, was a creeper, which, embracing the palm near the ground, covered its trunk entirely for fifteen or twenty feet, and then threw off large branches on each side. It may seem strange to call that a creeper, which had branches of at least ten inches in diameter; but so it was. It is called in Cuba the parricide tree, because it invariably kills the tree that supports it. (*Har. Mag. January*, 1853.)

The most picturesque object, however, in Pará was the ruins of an old opera house near the palace. The luxuriant vegetation of the country has seized upon it, and it presents pillar, arch, and cornice of the most vivid and beautiful green.

The society of Pará is also agreeable. The men, I am sorry to say, seem to be above work. Most of them are *Hidalgos*, or gentlemen; and nearly all are in the employ of the government, with exceedingly small salaries. In the whole city of Pará, I am told, there are not a dozen Brazilians engaged in trade of any kind. The women are simple, frank, and engaging in their manners, and very fond of evening parties and dancing. I attended a ball, which is given monthly by a society of gentlemen, and was much pleased at the good taste exhibited in its management. Full dress was forbidden. No one was permitted to appear in diamonds; and the consequence was, that all the pretty girls of the merely respectable classes, as well as of the rich, were gathered together, and had a merry time of it.

But the principal charm of Pará, as of all other tropical places, is the *Dolce far niente*. Men, in these countries, are not ambitious. They are not annoyed, as the more masculine people of colder climates are, to see their neighbors going ahead of them. They are contented to live, and to enjoy, without labor, the fruits which the earth spontaneously offers; and, I imagine, in the majority of cases, if a Brazilian has enough food, of even the commonest quality, to support life, coffee or tea to drink, cigars to smoke, and a hammock to lie in, that he will be perfectly contented.

This, of course, is the effect of climate. There was a time when the Portuguese nation, in maritime and scientific discoveries—in daring explorations—in successful colonization—in arts and arms—was inferior to no other in proportion to its strength; and I have very little doubt but that the bold and ambitious Englishman, the spirited and cosmopolitan Frenchman, and the hardy, persevering, scheming American, who likes little that any one should go ahead of him, would alike, in the course of time, yield to the relaxing influence of a climate that forbids him to labor, and to the charm of a state of things where life may be supported without the necessity of labor.

To make, then, the rich and varied productions of this country available for commercial purposes, and to satisfy the artificial wants of man, it is necessary that labor should be compulsory. To Brazil and her political economists belongs the task of investigation, and of deciding how, and by what method, this shall be brought about.

The common sentiment of the civilized world is against the renewal of the African slave trade; therefore must Brazil turn elsewhere for the compulsory labor necessary to cultivate her lands. Her Indians will not work. Like the *llama* of Peru, they will die sooner than do more than is necessary for the support of their being. I am under the impression that, were Brazil to throw off a causeless jealousy, and a puerile fear of our people, and invite settlers to the Valley of the Amazon, there might be found, among our Southern planters, men, who, looking with apprehension (if not for themselves, at least for their children) to the state of affairs as regards slavery at home, would, under sufficient guarantees, remove their slaves to that country, cultivate its lands, draw out its resources, and prodigiously augment the power and wealth of Brazil.

The negro slave seems very happy in Brazil. This is remarked by all foreigners; and many times in Pará was a group of merry, chattering, happy-looking black women, bringing their baskets of washed clothes from the spring, pointed out to me, that I might notice the evils of slavery. The owners of male slaves in Pará generally require from each four or five testoons a day, (twenty testoons make a dollar,) and leave him free to get it as he can. The slaves organize themselves into bands or companies, elect their captain, who directs and superintends their work, and contract with a certain number of mercantile houses to do their porterage. The gang which does the porterage for Mr. Norris, and for nearly all the English and American houses, numbers forty. Each man is paid about three cents to fill a bag or box, and four cents to carry it to the wharf and put it aboard the lighter. It costs from one hundred and fifty to two hundred dollars to discharge and load a moderate sized ship.

I have frequently seen these gangs of negroes carrying cocoa to the wharf. They were always chattering and singing merrily, and would stop every few minutes to execute a kind of dance with the bags on

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their heads, thus doubling their work. When the load was deposited, the captain, who does no work himself unless his gang is pressed, arrays them in military fashion, and marches them back for another load.

For carrying barrels, or other bulky and heavy articles of merchandise, there are trucks, drawn by oxen.

Churches are large and abundant in Pará. The cathedral is one of the finest churches in Brazil. Its *personnel*, consisting of dignitaries, (*dignidades*,) canons, chorists, and other employés, numbers seventy-four.

A large convent of the Jesuits, near the cathedral, having a very ornate and pretty chapel attached, is now used as a bishop's palace, and a theological seminary. The officers of the seminary are a rector, a vice-rector, and six professors; its students number one hundred and fifteen; its rental is about five thousand dollars, of which one thousand is given from the provincial treasury; and it teaches Latin, the languages, philosophy, theology, history, geography, and vocal and instrumental music.

There are but two convents in Pará—one of the order of St. Anthony, and one of Shod Carmelites.

I attended the celebration of the festival of the Holy Cross, in the chapel of the convent of the Carmelites. There was a very large, well-dressed congregation, and the church was redolent of the fragrance of sweet-scented herbs, strewn upon the floor. There were no good pictures in the church, but the candlesticks and other ornaments of the altar were very massive and rich. In the insurrection of the Cabanos the church property was spared; but I am told that, though they have preserved their ornaments, the priests have managed their property injudiciously, and are not now so rich in slaves and real estate as formerly.

I imagine that the priesthood in Brazil, though quite as intelligent and able as their brethren of Peru, have not so great an influence in society here as there. This is seen in an anecdote told me of a rigid *Chefe de Policia*, who forbid the clergy from burying one of their dignitaries in the body of the church during the prevalence of the yellow fever; but compelled them, much against their will, to deposit the body in the public cemetery, and accompanied the funeral procession on horseback to see that his orders were obeyed. It is also seen in the fact that the provincial assembly holds its sessions in a wing of the Carmelite convent, and that a part of the church of the Merced is turned into a custom-house and a barracks.

There are forty-one public primary schools in the province, educating one thousand and eighty-seven pupils. This gives a proportion of one

for every one hundred and six free persons in the province. Each pupil costs the State about seven and a half dollars.

In the four schools of Latin, one person is educated in every five hundred and sixty-four, at a cost of twenty-six dollars.

In the College of Pará, called "*Lyceo da Capital*," the proportion educated is one to two hundred and eleven, at a cost of sixty-two dollars.

There are two capital institutions of instruction in Pará—one for the education of poor boys as mechanics, who are compelled to pay for their education in labor for the State; and the other for the instruction in the practical business in life of orphan and destitute girls. I think that this education is compulsory, and that the State seizes upon vagabond boys and destitute girls for these institutions. There is also another school of *educandos* for the army.

The province also maintains three young men for the purpose of complete education in some of the colleges of Europe.

There are several hospitals and charitable institutions in the city, among which is a very singular one. This is a place for the reception of foundlings maintained by the city. A cylinder, with a receptacle in it sufficiently large for the reception of a baby, turns upon an axis in a window; any one may come under cover of night, deposit a child in the cylinder, turn the mouth of the receptacle in, and walk away without being seen. Nurses are provided to take charge of the foundling.

Though I pumped all my acquaintances, I could get no statistics concerning this institution, or whether it was thought to be beneficial or not. I judge, however, that for this country it is. Public opinion here does not condemn, or at least treats very leniently, the sins of fornication and adultery. This institution, therefore, while it would tend to lessen the crime of infanticide, would not encourage the above mentioned sins by concealment; for where there is no shame there is no necessity for concealment. In speaking thus, I do not at all allude to the higher classes of Brazil.

The executive and legislative government of the province is in a president and four vice presidents, appointed by the Crown, and in a legislative assembly.

The provincial assembly meets once a year, in the month of May. The length of its sessions is determined by itself. It elects its own presiding officer. It is a very inefficient representative system. The people in the districts elect electors, who choose delegates and *suplentes*, or proxies. Most of these proxies belong to the city; they have little knowledge of the wants, and no sympathy with the feelings, of the people they represent. Each delegate (at least this is the case in the

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province of Amazonas) is allowed one dollar and sixty-six cents per diem; and the salary of the President of that province is one thousand six hundred and sixty-six dollars and sixty six cents; it is probable that the salary of the President of Pará is greater.

The police of the province is under the direction of a *chefe de policia*, with delegados for each comarca, and sub-delegados for the termos and municipios. These officers issue and visée passports, and the traveller should always call upon them first.

The judiciary consists of *Juizes de direito;* three for the comarca of the capital, and one for each of the other comarcas of the province, besides *Juizes municipaès*, and *de orfaôs*. The Juiz de direito holds a singular office, and exercises extraordinary powers; besides being the judge, he presides over the jury, and has a vote in it. An appeal lies from his court, both by himself and the defendant, to a higher court, called the Court of *Relacâo*, which sits in Maranham and has jurisdiction over the two provinces of Maranham and Pará. There are three or four such courts in the empire, and an appeal lies from them to the Supreme Court at Rio Janeiro.

Persons complain bitterly of the delay and vexations in the administration of justice. I have heard of cases of criminals confined in jail for years, both in Peru and Brazil, waiting for trial. It is said also, though I know nothing of this, that the judges are very open to bribery. I think, however, that this is likely to be the case, from the entire inadequacy of the salaries generally paid by the government.

I believe that the Brazilian code is mild and humane, and I am sure that it is humanely administered. The Brazilians have what I conceive to be a very proper horror of taking life judicially. They do not shrink in battle; and sudden anger and jealousy will readily induce them to kill; but I imagine the instances of capital punishment are very rare in Brazil.

The police of the city is excellent, but, except to take up a drunken foreign sailor occasionally, it has nothing to do. Crime—such as violence, wrong, stealing, drunkenness, &c.—is very rare in Pará. Probably the people are too lazy to be bad.

The province covers an area of about 360,000 square miles, and has a population of 129,828 free persons, with 33,552 slaves.

Much as it needs population, it has suffered, from time to time, considerable drainage. It is calculated that from ten to twelve thousand persons were killed by the insurrection of the Cabanos, in 1835. Since that time ten thousand have been drawn from it as soldiers for the

southern wars; and the yellow-fever and small-pox, in one year, carried off between four and five thousand more.

The war of the Cabanos was a servile insurrection, instigated and headed by a few turbulent and ambitious men. The ostensible cause was dissatisfaction with the provincial government. The real cause seems to have been hatred of the Portuguese.

Charles Jenks Smith, then consul at Pará, writes to the Hon. John Forsyth, under date of January 20, 1835:

"After the happy conclusion of the war on the Acará, this city has remained in a state of perfect tranquility, until the morning of the 7th instant, when a popular revolution broke out among the troops, which has resulted in an entire change of the government of this province.

The President and the *General-das-Armas* were both assassinated at the palace, by the soldiers there stationed, between the hours of 4 and 5 a. m. Inglis, Commandant of the *Defensora* corvette, and Captain of the port, was also killed in passing from his dwelling to his ship. The subaltern commissioned officers on duty were shot down by the soldiery, who, placing themselves under the command of a sergeant named Gomez, took possession of all the military posts in the city.

"About fifty prisoners were then set at liberty, who, in a body, proceeded to a part of the city called Porto de Sol, and commenced an indiscriminate massacre of all the Portuguese they could find in that neighborhood. In this manner about twenty respectable shop-keepers and others lost their lives.

"Guards were stationed along the whole line of the shore, to prevent any person from embarking; and several Portuguese were shot in making the attempt to escape."

A new President and General-das-Armas were proclaimed; but they quarrelled very soon. The President, named Melchor, was taken prisoner and murdered by his guards; and *Vinagre*, the General-das-Armas took upon himself the government. In the conflicts incident to this change about two hundred persons were killed. The persons and property of all foreigners, except Portuguese, were respected. Many of these were insulted, and some killed.

Vinagre held the city, in spite of several attempts of Brazilian men-of-war to drive him out, until the 21st June, when, upon the arrival of a newly-appointed President, he evacuated it. During these attempts the British corvettes *Racehorse* and *Despatch*, a Portuguese corvette, and two French brigs of-war, offered their services for protection to the American consul.

On the 4th of August, Vinagre again broke into the city. The

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English and Portuguese vessels landed their marines; but, disgusted with the conduct of the President, withdrew them almost immediately.

The fire of the Racehorse, however, defeated Vinagre's attempt to get hold of the artillery belonging to the city.

On the 23d of August, the President abandoned the city to the rebels whose leader exerted himself to save foreign life and property, permitting the foreigners to land from their vessels, and take from the custom-house and their own stores the principal part of their effects.

The rebels held the city until the 13th of May, 1836, when they were finally driven out by the legal authorities, backed by a large force from Rio Janeiro. They held, however, most of the towns on the river above Pará till late in the year 1837. They did immense mischief, putting many whites to death with unheard-of barbarity, and destroying their crops and cattle. The province was thus put back many years. I think that the causes which gave rise to that insurrection still exist; and I believe that a designing and able man could readily induce the tapuios to rise upon their patrons. The far-seeing and patriotic President Coelho always saw the danger, and labored earnestly for the passage of efficient laws for the government of the body of tapuios, and for the proper organization of the military force of the province. His efforts in the latter case have been successful, and, very lately, a good militia system has been established.

The city of Pará is supplied with its beef from the great island of Marajo, which is situated immediately in the mouth of the Amazon. This island has a superficial extent of about ten thousand square miles, and is a great grazing country. Cattle were first introduced into it from the Cape de Verde Islands, in 1644. They increased with great rapidity, and government soon drew a considerable revenue from its tax on cattle.

Before the year 1824, a good horse might have been bought in Marajo for a dollar; but about that time a great and infectious disease broke out among the horses, and swept away vast numbers; so that Marajo is now dependent upon Ceará and the provinces to the southward for its supply of horses. I heard that the appearance of this disease was caused by the fact that an individual having bought the right from the government to kill ten thousand mares on the island, actually killed a great many more; and the carcasses, being left to rot upon the plains, poisoned the grass and bred the pestilence which swept off nearly all.

Other accounts state that the disease came from about Santarem and Lago Grande, where it first attacked the dogs; then the *capiuaras*, or

river-hogs; then the alligators; and, finally, the horses. It attacks the back and loins; so that the animal loses the use of his hind-legs. Government sent a young man to France to study farriery, in hopes to arrest the disease; but the measure was productive of no good results. The disease still continues; and, ten years ago, appeared for the first time in the island of *Mexiana*, not far from Marajó. Within the last year, nearly all the horses on this island have died. I believe it has never attacked the horned cattle.

Beeves are brought from Marajó to Pará in small vessels, fitted for the purpose. They are frequently a week on the passage; and all this time they are on very short allowance of food and water; so that, when they arrive, they may almost be seen through.

The butchering and selling are all done under municipal direction; and the price of beef is regulated by law. This is about five and a half cents the pound. Gentlemen maintain horses and milch cows in Pará, or its neighborhood. These are fed generally on American hay. Some small quantity of grass is to be had from the *roçinhas*, or small farms, in the environs of the city; and a tolerably good food for cattle is had from a fine flour, found between the chaff and grain of rice. This is called *muinha*, (*quim, in Maranham,*) and is very extensively used, mixed with the chaff.

The island of Marajó is very much cut up with creeks, which, in the rainy season, overflow the low land, and form marshes, which are the graves of a great number of cattle. The cattle, at this season, are also crowded together on the knolls of land that are above the waters in the inundation, and many of them fall a prey to the ounces, which abound on the island. These creeks are also filled with alligators. Mr. Smith, former consul at Pará, told me that he had seen the carcass of one there which was thirty feet long.

I saw a number of curious and beautiful animals in Pará. Mr. Norris had some electric eels, and a pair of large and beautiful anacondas. I had never heard a serpent hiss before I heard these, and the sound filled me with disgust and dread. The noise was very like the letting off of steam at a distance. The extreme quickness and violence with which they darted from their coil (lacerating their mouths against the wire-work of the cage) was sufficiently trying to a nervous man; and few could help starting back when it occurred. These animals measured about eighteen feet in length, and the skin, which they shed nearly every month, measured eighteen inches in circumference. They seldom ate; a chicken or a rat was given to them when it was convenient. They killed their food by crushing it between their

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head and a fold of their body, and swallowed it with deliberation. I imagine that they would live entirely without food for six months.

Many gentlemen had tigers about their establishments. They were docile, and playful in their intercourse with acquaintances; but they were generally kept chained for fear of injury to strangers. Their play, too, was not very gentle, for their claws could scarcely touch without leaving a mark.

Mr. Pond, an American, had a pair of black tigers, that were the most beautiful animals I have ever seen. The ground color of the body was a very dark maroon; but it was so thickly covered with black spots that, to a casual glance, the animal appeared coal black. The brilliancy of the color—the savage glare of the eye—the formidable appearance of their tusks and claws—and their evidently enormous strength—gave them a very imposing appearance. They were not so large as the Bengal tiger; but much larger than the common ounce. They were bred in Pará from cubs.

Electric eels are found in great numbers in the creeks and ditches about Pará. The largest I have seen was about four inches in diameter, and five feet in length. Their shock, to me, was unpleasant, but not painful. Some persons, however, are much more susceptible than others. Captain Lee, of the *Dolphin*, could not feel at all the shock of an eel, which affected a lady so strongly as to cause her to reel, and nearly fall. Animals seem more powerfully affected than men. Mr. Norris told me that he had seen a horse drinking out of a tub, in which was one of these eels, jerked entirely off his feet. It may be that the electric shock was communicated directly to the stomach by means of the water he was swallowing; but Humboldt gives a very interesting account of the manner of taking these eels by means of horses, which shows that they are peculiarly susceptible to the shock. He says:

"Impatient of waiting, and having obtained very uncertain results from an electrical eel that had been brought to us alive, but much enfeebled, we repaired to the *caño de Bera* to make our experiments, in the open air, on the borders of the water itself. To catch the gymnoti with nets is very difficult, on account of the extreme agility of the fish, which bury themselves in the mud like serpents. We would not employ the barbasco. These means would have enfeebled the gymnoti. The Indians, therefore, told us that they would 'fish with horses,' '*embarbascar con cavallos.*' We found it difficult to form an idea of this extraordinary manner of fishing; but we soon saw our guides return from the *Savannah*, which they had been scouring for wild horses and mules. They brought about thirty with them, which they forced to enter the pool.

"The extraordinary noise caused by the horses' hoofs makes the fish issue from the mud, and excites them to combat. These yellowish and livid eels, resembling large aquatic serpents, swim on the surface of the water, and crowd under the bellies of the horses and mules. A contest between animals of so different an organization furnishes a very striking spectacle. The Indians, provided with harpoons and long, slender reeds, surround the pool closely, and some climb upon the trees, the branches of which extend horizontally over the surface of the water.

"By their wild cries, and the length of their reeds, they prevent the horses from running away and reaching the bank of the pool. The eels, stunned by the noise, defend themselves by the repeated discharge of their electric batteries. During a long time they seem to prove victorious. Several horses sink beneath the violence of the invisible strokes, which they receive from all sides, in organs the most essential to life; and, stunned by the force and frequency of the shocks, they disappear under the water. Others, panting, with mane erect, and haggard eyes, expressing anguish, raise themselves, and endeavor to flee from the storm by which they are overtaken. They are driven back by the Indians into the middle of the water; but a small number succeed in eluding the active vigilance of the fishermen. These regain the shore, stumbling at every step, and stretch themselves on the sand, exhausted with fatigue, and their limbs benumbed by the electric shocks of the gymnoti.

"In less than five minutes two horses were drowned. The eel, being five feet long, and pressing itself against the belly of the horse, makes a discharge along the whole extent of its electric organ. It attacks, at once, the breast, the intestines, and the *plexus cœliacus* of the abdominal nerves. It is natural that the effect felt by the horses should be more powerful than that produced upon man, by the touch of the same fish at only one of his extremities. The horses are probably not killed, but only stunned. They are drowned from the impossibility of rising, amid the prolonged struggle between the other horses and the eels.

"We had little doubt that the fishing would terminate by killing, successively, all the animals engaged; but, by degrees, the impetuosity of this unequal combat diminished, and the wearied gymnoti dispersed. They require a long rest and abundant nourishment, to repair what they have lost of galvanic force. The mules and horses appear less frightened. Their manes are no longer bristled, and their eyes express less dread. The gymnoti approach timidly the edge of the marsh, when they are taken, by means of small harpoons fastened to long cords. When the cords are very dry, the Indians feel no shock in raising the

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fish into the air. In a few minutes we had five large eels, the greater part of which were but slightly wounded."

The shops of Pará are well supplied with English, French, and American goods. The groceries generally come from Portugal. The warehouses are piled with heaps of India-rubber, nuts, hides, and baskets of annatto. This pigment is made from the seed of a bur, which grows on a bush called urucu in Brazil, and achote in Peru. In the latter country it grows wild, in great abundance; in the former, it is cultivated.

The seed is planted in January. It is necessary that the ground should be kept clean, the suckers pulled up, and the tree trimmed, to prevent too luxuriant a growth, and to give room, so that the branches shall not interlock. The tree grows to ten or fifteen feet in height, and gives its first crop in a year and a half. It afterwards gives two crops a year. Each tree will give three or four pounds of seed in the year, which are about the size of No. 3, shot, but irregular in shape. They are contained in a prickly bur, about the size and shape of that of the chincapin.

The burs are gathered just before they open, and laid in the sun to dry, when the seed are trodden or beaten out. The coloring matter is a red powder covering the seed, the principal of which is obtained by soaking the seed in water for twenty-four hours, then passing them between revolving cylinders, and grinding them to a pulp. The pulp is placed in a sieve, called *gurupema*, made of cotton cloth; water is poured on, and strains through. This operation is repeated twice more, and the pulp is thrown away. The liquor strained off is boiled till it takes the consistence of putty. A little salt is added, and it is packed in baskets of about forty pounds, lined and covered with leaves. It is frequently much adulterated with boiled rice, tapioca, or sand, to increase the weight. The price in Pará is from three to five dollars the arroba, of thirty-two pounds.

An examination of the following tables will give the best idea of the commerce of Pará. The first is an official report furnished to the provincial assembly by the President of the province.

Years.	Places.	Importation—Value.		Exportation—Value.	
		Relative to each place.	Relative to each year.	Relative to each place.	Relative to each year.
1846	Great Britain	$160,050	.....	$117,813	.....
	France	52,924	.....	107,791	.....
	Portugal	87,608	.....	123,156	.....
	Hanse Towns	19,993	.....	42,693	.....
	United States	235,105	.....	182,742	.....
	Trieste	.....	.....	3,818	.....
	Genoa	.....	.....	26,202	.....
	Spain	2,627	.....	.....	.....
	Baltic ports	.....	.....	12,188	.....
	Belgium	1,995	$560,302	5,649	$622,052
1847	Great Britain	211,442	.....	116,881	.....
	France	131,347	.....	162,546	.....
	Portugal	108,431	.....	128,548	.....
	Hanse Towns	20,519	.....	18,959	.....
	United States	230,531	.....	171,577	.....
	Trieste	.....	.....	17,182	.....
	Genoa	2,577	.....	22,705	.....
	Belgium	6,032	710,879	8,551	646,949
1848	Great Britain	149,774	.....	93,508	.....
	France	85,856	.....	114,701	.....
	Portugal	113,496	.....	146,933	.....
	Hanse Towns	9,576	.....	30,012	.....
	United States	219,777	.....	145,366	.....
	Austrian dominions	2,686	.....	.....	.....
	Genoa	.....	.....	11,609	.....
	Denmark	7,638	.....	10,205	.....
	Belgium	483	589,286	12,547	564,881

Here are tables furnished by Mr. Norris, United States consul at Pará:

American Commerce at Pará for 1850.

No. of vessels.	Tonnage.	Men.	Value of imports.	Value of exports.
33	5,452	275	$420,186	$522,293

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British commerce for 1850.

No. of vessels.	Tonnage.	Men.	Value of imports.	Value of exports.
16	3,375	276	$199,790	$291,950

Commerce of Pará for 1851.

	No. of vessels.	Tonnage.	Men.	Value of imports.	Value of exports.
American	30	4,574	226	$425,484	$476,210
English	14	2,732	139	275,000	335,000
French	10	536	99	122,830	188,699
Portuguese	19	3,666	312	231,457	215,142
Hamburg	2	510	18	27,500	131,000
Belgian	2	320	20	5,250	16,250
Dane	2	480	22	4,750	34,000
Swede	2	420	22	.....	28,500
	81	14,238	858	1,092,271	1,424,801

I am indebted to Mr. Chaton, French consul at Pará, for the following table, showing the mean yearly value of the articles of export from the city of Pará.

Products.	Quantities.	Value.
India-rubber	92,000 arrobas.	$552,000
Cocoa	230,000 "	270,900
Cotton	6,126 "	10,583
Cinnamon (rough)	600 "	1,633
Vegetable wax	457 "	69
Tonka beans	80 "	600
Isinglass	998 "	15,968
Piassaba rope	42,192 "	42,192
Gum-copal	634 "	634
Bones	2,000 "	640
Brazilian nutmeg	1,020 "	3,060
Rice (shelled)	108,543 "	65,126
Annatto	7,210 "	36,050
Sugar	21,350 "	16,012
Sarsaparilla	3,897 "	35,073
Nuts	28,208 alquiers.	18,952
Tapioca	2,000 "	3,000

TABLE—Continued.

Products.	Quantities.	Value.
Rice (in the husk)	12,800 alquiers.	$6,400
Carajurú	400 pounds.	388
Green hides	406,900 pounds.	20,345
Guaraná	3,450 pounds.	1,500
Cattle	300	4,500
Wood—Bardages	349	614
De fer	113	1,084
Madriers	1,535	1,534
Planches	52,217 feet.	1,468
Dry hides	15,000	19,445
Tiger skins	228	456
India-rubber shoes	192,000 pairs.	38,400
Molasses	2,888 pots.	2,888
		$1,171,514

To this sum is to be added the value of 7,338 canadas of balsam copaiba, worth when I was there three dollars, now worth seven and a half dollars; besides that of pots of oil made from the turtle, the alligator, and the andiroba-nut, which M. Chaton has not included in his list. These last, however, are inconsiderable.

Extracts of letters from Henry L. Norris, esq., United States consul at Pará, to the Department of State:

"Merchandise, the produce of this country, is usually bought for cash, or in exchange for the products of foreign countries by way of barter. There are no allowances made by way of discount, nor is brokerage paid for purchasing. Cash usually has the advantage over barter on the price of produce to the amount of from five to ten per cent. The American business is done chiefly for cash, while English, French, and Portuguese, is chiefly for barter; dry goods, &c., are sold on long credit, and produce taken in payment. With the latter the profits of trade are on the outward cargo; while with the former, the profit, if any, is with the homeward.

"There are no bounties or debentures of any kind allowed here.

"The usual commission for the purchase and shipment of goods is two and a half per centum, and is the same on all descriptions of produce.

"The American trade, with few exceptions, is conducted either by partners or agents of houses at home; consequently brokers are never employed to buy produce, and no brokerage is paid. When foreign

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goods are sold at auction, the commission paid is one per cent. on dry goods, and one and a half on groceries.

"Merchandise is brought to market altogether by water, and is usually delivered into the storehouses of the purchaser or on board the shipping.

"Export duties are as follows:

"Meio dezimo, (for the church) - - - - - 5 per cent.
"Exportacão, (for the government) - - - - - 7 per cent.
"Vero pezo, (weighing) - - - - - - - ½ per cent.

"Capitazia (paid for labor) quarter of a cent the arroba, on all kinds of merchandise.

"These duties are levied on the custom-house valuation, which is made at the beginning of each week, and not on the cost of the produce; as in that cost is included a duty of five per cent. which is paid on some articles when they are landed at the port of exportation. This last is a provincial tax, which is levied on India-rubber, tapioca, and farinha.

"Produce coming from an interior province—such as dry hides—does not pay the *meio dezimo* of five per cent., as it is paid at the time of embarking at the place of production; and this duty, together with freight, labor, &c., enters into the cost price of the merchandise at this port, which is the only shipping port for the provinces of Pará and Amazonas.

"There are no dock, trade, nor city dues to be paid at this port.

"Lighters are hired at two dollars per day; they carry from forty to fifty tons.

"Porterage is done by blacks, who place the cargo in the lighters at prices varying, according to the distance carried, from three to four cents per bag of cocoa, India-rubber, &c., and from six to eight cents each for barrels and boxes.

"Nuts and rice in husk are delivered alongside the vessel at the expense of the seller.

"Packages—such as boxes, barrels, and bags—are imported from the United States, and with the exception of barrels, which come filled with flour, pay a duty of thirty per cent.

"The cost of cooperage is eight cents per barrel. All local imports or taxes are paid by the producer, and are included in the selling price of the article. The purchaser receives with the merchandise a receipt that the provincial duty has been paid, which receipt is demanded at the time of exportation to a foreign country or to another province.

"There is so little intercourse with the States bordering on this province, that there are no laws in force regulating the transit of merchandise from Peru, Bolivia, Ecuador, &c., but all merchandise coming down the Amazon is considered as the produce or manufacture of Brazil.

"By a law of Brazil, the estate of any foreigner who may die in this country is subject to the jurisdiction of the *Juiz dos Ausentes e difuntos*. A will is no protection to the property, but it must be 'recovered, availed, and deposited in the public depository by a juiz competente.' The getting hold of the property by the heirs to an estate is a tedious and expensive process; and when the inheritance consists of real estate, about twenty per cent. is consumed by taxes of various kinds, and in some cases, by the collusion of the officers entrusted with settlement, it has disappeared entirely. The French by treaty are exempted from this.

"Not long since, at Maranham, a guard of soldiers was placed around the dwelling of a foreigner about to die, and who was supposed to be possessed of a large amount of personal property. A similar case also occurred here, which has created alarm amongst those of our countrymen who have property invested in this country; for should it be made to appear that, upon the death of one or more of the partners of any of our large mercantile houses, the affairs of the concern must pass into the hands of a 'juiz competente,' it would have a serious effect upon the credit and standing of all the citizens or subjects of those nations which have no treaty with Brazil on this subject."

It remains for me but to express my grateful acknowledgments for personal kindness and information afforded by many gentlemen of Pará, particularly by Mr. Norris, the consul, and by Henry Bond Dewey, esq., now acting consul. These gentlemen were unwearied in their courtesy, and to them I owe the information I am enabled to give concerning the history and present condition of the province and the city.

On May 12th, by kind invitation of Captain Lee, I embarked in the United States surveying brig Dolphin, having previously shipped my collections on board of Norris's clipper barque the *Peerless*.

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CHAPTER XIX.

RESUMÉ.

My report would be incomplete were I to fail to bring to the notice of the department circumstances concerning the free navigation of the river that have occurred since my return from the valley of the Amazon.

These circumstances are clearly the result of my mission, which appears to have opened the eyes of the nations who dwell upon the banks of the Amazon, and to have stirred into vigorous action interests which have hitherto laid dormant. They have an important and direct bearing upon the question, whether the United States may or may not enter into commercial relations, by the way of the Amazon, with the Spanish American republics, who own the headwaters of that noble stream.

The government of the United States had scarcely begun to entertain the idea of sending a commission to explore the valley of the Amazon, with a view to ascertain what benefits might accrue to its citizens by the establishment of commercial relations with the people who dwell upon its banks, when the fact became known to Brazil. That government, thus awakened to its own (more apparent, however, than real) interests, immediately cast about for means to secure for itself any advantages that might arise from a monopoly of the trade of the river.

She accordingly despatched to Lima an able envoy, Duarte da Ponte Ribeiro, with instructions to make a treaty with Peru concerning the navigation of the Amazon; and, this done, to proceed to Bolivia for the same purpose, while the Brazilian Resident Minister in Bolivia, Miguel Maria Lisboa, was sent to the republics of Ecuador, Venezuela, and New Granada, so as to secure for Brazil the navigation of all the confluents of the Amazon belonging to Spanish South America.

Da Ponte succeeded in making with Peru a treaty highly advantageous to his own government. It is styled "A treaty of fluvial commerce and navigation, and of boundary," and has the following articles relating to steamboat navigation:

"*Article* 1.

"The republic of Peru, and his Majesty, the Emperor of Brazil, desiring to encourage, respectively, the navigation of the river Amazon and its confluents by steamboat, which by ensuring the exportation of the immense products of those vast regions, may contribute to increase the number of the inhabitants and civilize the savage tribes, agree, that the merchandise, produce, and craft, passing from Peru to Brazil, or from Brazil to Peru, across the frontier of both States, shall be exempt from all duty, imposts, or sale duty, (alcabala,) whatsoever, to which the same products are not subject in the territory where produced, to which they shall be wholly assimilated.

"*Article* 2.

"The high contracting parties, being aware of the great expense attending the establishment of steam navigation, and that it will not yield a profit during the first years to the shareholders of the company destined to navigate the Amazon from its source to its banks ("litoral") in Peru, which should belong exclusively to the respective States, agree to give to the first company which shall be formed a sum of money, during five years, which shall not be less than $20,000 annually for each of the high contracting parties, either of whom may increase the said amount, if it suits its particular interests, without the other party being thereby obliged to contribute in the same ratio.

"The conditions to which the shareholders are to be subject, in consideration of the advantages to be conceded to them, shall be declared in separate articles.

"The other conterminous States which, adopting the same principles, may desire to take part in the enterprise upon the same conditions, shall likewise contribute a certain pecuniary quota to it."

The 5th clause of the 1st of the separate articles alluded to above declares that the company to be formed shall arrange with *both* governments touching the respective points on the river Amazon or Marañon, to which the steamboats shall navigate, &c., &c.

Article 3d, of the separate articles, declares that the agents of the Imperial government, *with those of the government of Peru*, duly authorized, shall establish the enterprise ("contratarán la empresa") upon the terms indicated in these articles.

The persons undertaking the enterprise shall agree with the said agents touching the mode and place in which they shall receive the stipulated sums.

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the running of the steamers on the corresponding waters of Peru, and assign them points where they may touch, until the establishment of an arrangement to which this navigation is to be definitely subjected, by means of a contract which this government is bound to make for five years according to stipulation, and which it hopes your Excellency will deign to cause to be offered for its free acceptance by the associates of the company created under the authority of his Majesty, the Emperor.

"With sentiments, &c, &c.

JOSÉ MANUEL TIRADO.

"To his Excellency, the MINISTER OF FOREIGN AFFAIRS OF BRAZIL."

But whilst Tirado is penning this courtly caveat in Lima, Gomez Sanchez, in Rio Janeiro, is giving his assent to the De Souza contract, extending it in all its force to Peru, and entering into an agreement with De Souza by which he gives him the right of exploring the Ucayali, and other rivers of the west, from Rio, besides other privileges, which, if acceded to by the Peruvian government, would give Brazil all power over the navigation of those rivers, as well as over that of the main stream.

Fortunately for the interests of commerce in general, and for the more speedy development of the great resources that lie hid in the valley of the Amazon, Tirado practically disavows the action of Gomez Sanchez, and obtains from the Council of State of Peru its assent (subject, of course, to the approval of the legislative power) to the appropriation of $200,000 towards the exploration by steamboat of the Peruvian tributaries of the Amazon, and the colonization and settlement of their fertile lands. He has already appropriated $75,000 of this sum for the purchase of two small steamers, which are now in the course of construction in the United States, and which will be delivered at Loreto (the frontier port of Peru on the Amazon) by the 1st of January, 1854.

The enlightened and patriotic President of Peru, Don José Rufino Echenique, approving and adopting the policy of Tirado, goes further, and issues a decree relative to the opening and settlement of the Amazon. It is dated April 5, 1853. I give a translation of some of its more important articles:

Article 1.

In accordance with the treaty concluded with the empire of Brazil, on the 23d of October, 1851, navigation, trade, and commerce, on the part of Brazilian vessels and subjects, is allowed upon the waters of the

Amazon, in all that part of its banks belonging to Peru as far as Nauta, at the mouth of the Ucayali.

Article 2.

The subjects and citizens of other nations which have treaties with Peru, by virtue of which they may enjoy the rights of those of the most favored nation, or to whom those same rights, as regards commerce and navigation, in conformity with said treaties, may be communicable, shall, in case of obtaining entrance into the waters of the Amazon, enjoy, upon the Peruvian shores, the rights conceded to the vessels and subjects of Brazil by the foregoing article.

Article 3.

To carry into effect the two preceding articles, and in agreement with them, the ports of Nauta and Loreto are declared open to foreign commerce.

Article 4.

In conformity to the law of November 20, 1852, no import or export duties shall be paid in said free ports on merchandise or produce which may be introduced or taken thence. This, however, does not extend to dues merely municipal, which the people themselves may impose for objects of local utility.

Article 10.

The Governor-General (resident in Loreto) is empowered to concede gratuitously to all, whether Peruvians or foreigners, who wish to establish themselves in those countries under the national rule and in subordination to the laws and authorities, titles of possession to land (in conformity with the law of November 21, 1852,) from two to forty *fanegadas*, in proportion to the means and ability of cultivation, and number of individuals who may constitute the family of those who shall establish themselves. He will give an account of these concessions, so that the government may confirm them, and expedite titles of proprietorship.

Article 11.

The governors of the districts may make concessions of lands from two to four fanegadas, informing the Governor-General, who shall also inform the government.

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Article 12.

Larger grants of lands for founding colonies, towns, and estates, will be made by the government gratuitously, but by means of agreements with contractors, in which the conditions of this colonization shall be established.

Article 13.

All concessions of lands made to individuals or families, in conformity with articles 10 and 11, shall be void, if, at the end of eighteen months, no attempt has been made to cultivate or to build upon them.

Article 15.

Over and above the reward which the law of the 17th of November, 1849, concedes to vessels or contractors who may introduce colonists, the government binds itself to give to those who may come with destination to the lands or valleys of the Amazon and its tributaries in Peru, a passage to the place, implements of husbandry, and seeds, all gratuitous; for which purpose sufficient deposits shall be placed in the hands of the Governor General at Loreto.

Article 16.

A national vessel shall be detailed for the service of carrying those who, whether citizens-born or emigrant foreigners, may desire to establish themselves in those countries; and, after being landed at Huanchaco, the Prefect of Libertad shall make provision for the transportation of the immigrants to said places, by the route of the Huallaga.

Article 17.

In conformity with the law of November 21, 1832, the lands cultivated and houses built shall be exempt from all contributions, and shall enjoy the other privileges which the laws concede to the owners of uncleared lands.

Article 18.

The new population shall pay no contribution for the space of twenty years; nor shall the Catholics pay obventional or parochial dues, the cures that shall be there established being at the expense of the State.

The new population shall also be exempt from the impost on stamped paper, being permitted to use common paper for their petitions and contracts.

Article 21.

It shall be permitted in the new settlements that the individuals who form them may unite themselves in municipal corporations, under the presidency of the governors of the respective districts or territories, for the purpose of making laws relative to the local administration, without giving the governors created by this decree any power to interfere with rights, of whatever nature, in respect to individual liberty; they only taking care for the preservation of public order, and of the national authority, in conformity with the laws.

Article 22.

Because this territory is a new establishment, and has no judicial authorities, it shall be permitted, for the administration of justice, that the new settlers shall name their own judges, electing them in the form most convenient, until Congress shall legislate in relation to the administration of justice and in municipal affairs.

The other articles divide the territory proposed to be settled into districts: four on the Amazon, from Loreto upwards to Nauta; two on the Ucayali, from the mouth to Sarayacu; and four on the Huallaga, from the mouth of Tingo Maria—all under the direction of a governor general established at Loreto. The *Intendente general* of the missions of Pozuzu, which are near the sources of the Pachitea, a confluent of the Ucayali, is directed to observe the conditions of the decree; while the governors of the Upper Mission, which is all the country on both sides of the Amazon above the mouth of the Huallaga, are directed to exercise their authority as before, in dependence on the prefecture of Amazonas, until special decrees shall be issued for their guidance and government.

Article 25 appropriates the funds necessary to open roads from Cerro Pasco to Pozuzu, and from Pozuzu to Mayro, at the head of navigation on the Pachitea, under the direction of the intendente of Pozuzu. So that my old chatty acquaintance of Huanuco, whom Col. Lucar designated as the best animal magnetizer in the world, has at last carried his point and accomplished his long-cherished purpose. If the country between Cerro Pasco and Mayro be such as he described it,

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this certainly will be the best route of communication between Lima and the Atlantic; but earnest and enthusiastic men see no obstacles to their favorite schemes; and I much doubt if this road would, according to his account, run for the greater part of its distance over a pampa or plain.

The portions of land granted by this decree are not sufficiently large, a fanegada being only about two acres; but I have no doubt that a proper representation to the Peruvian government would set this matter right, and very much increase the size of the grants. No man would be willing to undergo the exposure, privations, and hardships of a dwelling in the wilderness whilst he was clearing his lands, unless with the prospect of having a large and valuable estate, if not available for himself, at least for his children. The government should make legal titles to each adult male settler of a tract of land at least a mile square.

The decree says nothing in relation to toleration of creeds in religion. The President could not grant toleration, for it would be contrary to the constitution of Peru; but he knows as well as I do that there will be very little trouble in that country from that cause. The country will afford room for every shade of opinion and every form of worship; and men will be too busy there for years to come to find leisure for quarrelling on such trifling yet mischievous subjects. The decree refers in several places particularly to Catholics, as if in contradistinction to, and tacit acknowledgment of, a Protestant interest.

In his letter to the council of state, asking its concurrence in the appropriation by the executive of the $200,000 towards the establishment of steam navigation and exploration on the Ucayali and Huallaga rivers, and the colonization and settlement of the lands upon their banks, Señor Tirado thus expresses himself:

"Amongst the most urgent national obligations is that of procuring the civilization of the savage tribes who dwell on the borders of the Ucayali and in other parts of Eastern Peru; and also that which binds the republic to lay the foundations of the prosperity which may be expected from commerce and communication with the rest of the world, by means of the navigation of the Amazon and its confluents.

"The Spanish government, and subsequently the independent, on account of divers circumstances, has applied but feeble means to the accomplishment of the first of these objects. The wants and spirit of the age now call for the full and immediate application of the care and resources of the nation towards these places, subject to the territorial sovereignty of Peru, which will soon see an influx of foreign merchandise, and in which, probably, an abundant emigration, and an extensive traffic, will create towns of important commerce and a field for the efforts of civilization and industry."

These are patriotic and statesmanlike views, which give ample testimony to the truth of Ijurra's estimate of the character of this wise minister, contained in a recent letter to me. He says:

"The minister Tirado is the man for the age in Peru. In nothing does he resemble his predecessors or his cotemporaries. His travels in the United States, and in some parts of Europe, have not been barren of results. Endowed with an intellect that comprehends all at a glance, and full of knowledge, he is entirely worthy of the appellation of a true statesman. At the same time, possessed of a heart which is full of enthusiasm and patriotism, he desires to introduce into my unhappy country the institutions, laws, and manners, which have rendered happy other countries that I have known, and which, doubtless, will be adaptable to the necessities of our people, and conducive to the rapid progress of the republic.

"He will commence by calling over industrious men of all professions and creeds, of all ages, nations, and conditions, with the sole condition that they shall be moral and laborious; he will endow them with those fertile lands, with which you are familiar, to the eastward of the Andes; he will supply them with tools, seeds, and domestic animals, and will give them the necessary guarantees that they may live together like brothers, with absolute liberty of action and of conscience."

All this, and more, has Tirado accomplished in the recent decree of the Peruvian government. I think that I can also trace Ijurra's hand in this action of the government, and fancy that it is the result of many conversations we had on this subject during our long voyage. He is now in high favor with the government, and has been sent to Loreto in quality of sub prefect and military commandant, (second in authority in the new province.) He writes me that he shall establish himself at Caballo cocha, where he will labor with zeal and vigor in the great cause, till death overtakes him. Long and late may it be in coming to my faithful companion.

Fortunately for her own interests, the advancement of commerce, and the progress of civilization, Bolivia refused to listen to the Brazilian envoy; she knew that, even with the assistance of Brazil, she was not able to undertake, with any prospect of success, the navigation of the rivers, and the development of the resources of her great territory. She preferred to entrust this enterprise to the energy and competition of the great commercial nations of the world, rather than take it on her own

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shoulders by a useless exclusiveness; and she therefore issued a decree on the 27th of January, 1853, declaring several ports on each and all of her rivers which communicate with the Atlantic, whether by the La Plata or the Amazon, free and open to the commerce of the world.

This was a very important document; it put the Northern republics on their guard, and excited a spirit of emulation in their governments. I have heard nothing of the result of Lisboa's mission; but I know that some of the most distinguished citizens of those republics have declared themselves favorable to the project of opening their rivers and ports to foreign trade, and are disposed to urge their respective governments, if necessary, to demand of Brazil the right of way to the ocean.

Independently of the action of the Spanish American republics concerning the free navigation of their tributaries of the Amazon, we have a special treaty with Peru, negotiated by J. Randolph Clay, our present minister, in July, 1851, which entitles us, under the present circumstances, to the navigation of the Peruvian Amazon. The second article of that treaty declares that, "The two high-contracting parties hereby bind and engage themselves not to grant any favor, privilege, or immunity whatever, in matters of commerce and navigation, to other nations, which shall not be also immediately extended to the citizens of the other contracting party, who shall enjoy the same gratuitously, or on giving a compensation as nearly as possible of proportionate value and effect, to be adjusted by mutual agreement, if the concession shall have been conditional."

The concession to Brazil is conditional, but we shall find no difficulty in "giving a compensation as nearly as possible of proportionate value and effect;" that is a matter for Peru to decide, and there is little doubt but that she will consider the presence of our people and our vessels in her country, and upon her streams, as being of proportionate value.

It will be thus seen that our citizens have a legal right, by express grant and decree, to trade upon the interior waters of Peru and Bolivia, and it is presumed that Brazil will not attempt to dispute the now well-settled doctrine, that no nation holding the mouth of a river has a right to bar the way to market of a nation holding higher up, or to prevent that nation's trade and intercourse with whom she will, by a great highway common to both.

But Brazil has effectually closed the Amazon by her De Souza contract; she gives him the exclusive privilege for thirty years, with a bonus of $80,000 per annum, besides guaranteeing to him the $20,000 of Peru. This of course defies competition, though I very much doubt if the contract will endure; the Brazilians are so little acquainted with

river steam navigation that De Souza will run his boats at great cost; the conditions of the contract are also stringent and oppressive; and under such circumstances, even *with* the bonus of $100,000, I doubt if the trade of the river for several years to come will support the six steamers that he contracts to keep on the line.

Brazil, too, will soon see that in this matter she is standing in her own light. The efforts of this company, though partly supported by the government, will make little beneficial impression upon so vast a country, in comparison with that which would be made by the active competition of the commercial nations of the world.

Were she to adopt a liberal instead of an exclusive policy, throw open the Amazon to foreign commerce and competition, invite settlement upon its banks, and encourage emigration by liberal grants of lands, and efficient protection to person and property, backed as she is by such natural advantages, imagination could scarcely follow her giant strides towards wealth and greatness.

She, together with the five Spanish American republics above named, owns in the valley of the Amazon more than two millions of square miles of land, intersected in every direction by many thousand miles of what might be called canal navigation. As a general rule, large ships may sail thousands of miles to the foot of the falls of the gigantic rivers of this country; and in Brazil particularly, a few hundred miles of artificial canal would open to the steamboat, and render available, thousands of miles more.

This land is of unrivalled fertility; on account of its geographical situation and topographical and geological formation, it produces nearly everything essential to the comfort and well-being of man. On the top and eastern slope of the Andes lie hid unimaginable quantities of silver, iron, coal, copper, and quicksilver, waiting but the application of sience and the hand of industry for their development. The successful working of the quicksilver mines of Huancavelica would add several millions of silver to the annual product of Cerro Pasco alone. Many of the streams that dash from the summits of the Cordilleras wash gold from the mountain-side, and deposit it in the hollows and gulches as they pass. Barley, quinua, and potatoes, best grown in a cold, with wheat, rye, maize, clover, and tobacco, products of a temperate region, deck the mountain-side, and beautify the valley; while immense herds of sheep, llamas, alpacas, and vicunas feed upon those elevated plains, and yield wool of the finest and longest staple.

Descending towards the plain, and only for a few miles, the eye of the traveller from the temperate zone is held with wonder and delight

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by the beautiful and strange productions of the torrid. He sees for the first time the symmetrical coffee-bush, rich with its dark-green leaves, its pure white blossoms, and its gay, red fruit. The prolific plantain, with its great waving fan-like leaf, and immense pendant branches of golden-looking fruit, enchains his attention. The sugar-cane waves in rank luxuriance before him, and if he be familiar with Southern plantations, his heart swells with emotion as the gay yellow blossoms and white boll of the cotton sets before his mind's eye the familiar scenes of home.

Fruits, too, of the finest quality and most luscious flavor, grow here; oranges, lemons, bananas, pine-apples, melons, chirimoyas, granadillas, and many others, which, unpleasant to the taste at first, become with use exceedingly grateful to the accustomed palate. The Indian gets here his indispensable coca, and the forests at certain seasons are redolent with the perfume of the vanilla.

It is sad to recollect that in this beautiful country (I have before me the valley of the Chanchamayo) men should have offered me title deeds in gratuity to as much of this rich land as I wanted. Many of the inhabitants of Tarma hold grants of land in the Chanchamayo country from the government, but are so distrustful of its ability to protect them in their labors from the encroachments of the savages, that they do not cultivate them.

About half a dozen persons only have cleared and are cultivating haciendas. One of these, the brave old Catalan Zapatero, was building himself a fire-proof house, mounting swivels at his gate, and swearing in the jargon of his province that, protection or no protection, he would bide the brunt of the savages, and not give up what had cost him so much time and labor without a fight for it. It is a pity that there are not more like him. The Peruvian government, however, should assure the settlers of efficient protection. It should not only keep up the stockade of San Ramon, but should open a road down the valley of the Chanchamayo to some navigable point on that stream, or to the Ucayali itself, establishing other stockades along the route for the protection from the Indians of those whom liberal offers may attract to the settlement and cultivation of that delightful country. I feel confident that she will pierce the continent and open a communication with the Atlantic with more facility and advantage by this route than by any other.

The climate of this country is pleasant and healthy; it is entirely free from the annoyance of sand flies and musquitoes, which infest the lower part of the tributaries, and nearly the whole course of the Amazon. There is too much rain for agreeability from August to March; but

nothing could be more pleasant than the weather when I was there in June.

The country everywhere in Peru, at the eastern foot of the Andes, is such as I have described above. Further down we find the soil, the peculiar condition, the productions of a country which is occasionally overflowed, and then subjected, with still occasional showers, to the influence of a tropical sun. From these causes we see a fecundity of soil and a rapidity of vegetation that is marvellous, and to which even Egypt, the ancient granary of Europe, affords no parallel, because, similar in some other respects, this country has the advantage of Egypt in that there is here no drought. Here trees, evidently young, shoot up to such a height that no fowling piece will reach the game seated on their topmost branches, and with such rapidity that the roots have not strength or sufficient hold upon the soil to support their weight, and they are continually falling, borne down by the slightest breeze, or by the mass of parasites and creepers that envelop them from root to top.

This is the country of rice, of sarsaparilla, of India-rubber, balsam copaiba, gum copal, animal and vegetable wax, cocoa, Brazilian nutmeg, Tonka beans, ginger, black pepper, arrow-root, tapioca, annatto, indigo, sapucaia, and Brazil nuts; dyes of the gayest colors, drugs of rare virtue, variegated cabinet woods of the finest grain, and susceptible of the highest polish. The forests are filled with game, and the rivers stocked with turtle and fish. Here dwell the anta or wild cow, the peixi-boi or fish-ox, the sloth, the ant-eater, the beautiful black tiger, the mysterious electric eel, the boa constrictor, the anaconda, the deadly coral snake, the voracious alligator, monkeys in endless variety, birds of the most brilliant plumage, and insects of the strangest forms and gayest colors.

The climate of this country is salubrious and the temperature agreeable. The direct rays of the sun are tempered by an almost constant east wind, laden with moisture from the ocean, so that one never suffers either from heat or cold. The man accustomed to this climate is ever unwilling to give it up for a more bracing one, and will generally refuse to exchange the *abandon* and freedom from restraint that characterises his life there, for the labor and struggle necessary even to maintain existence in a more rigorous climate or barren soil. The active, the industrious, and the enterprising, will be here, as elsewhere, in advance of his fellows; but this is the very paradise of the lazy and the careless. Here, and here only, such an one may maintain life almost without labor.

I met with no epidemics on my route; except at Pará, the country

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seemed a stranger to yellow fever, small-pox, or cholera. There seemed to be a narrow belt of country on each side of the Amazon where bilious fevers, called *sezoens* or *maleitas*, were particularly prevalent. These fevers are of malignant type, and often terminate in fatal jaundice. I was told that six or eight days' navigation on each tributary, from the mouth upwards, would bring me to this country, and three or four more would pass me through it; and that I ran little risk of taking the fever if I passed directly through. It appeared, also, to be confined to a particular region of country with regard to longitude. I heard nothing of it on the Huallaga, the Ucayali, or the Tapajos, while it was spoken of with dread on the Trombetas, the Madeira, the Negro, and the Purus. Filth and carelessness in this climate produce ugly cutaneous affections, with which the Indians are much afflicted, and I heard of cases of elephantiasis and leprosy.

I have been describing the country bordering on the Amazon. Up the tributaries, midway between their mouth and source, on each side are wide savannahs, where feed herds of cattle, furnishing a trade in hides; and at the sources of the southern tributaries are ranges of mountains, which yield immense treasures of diamonds and other precious stones.

It is again (as in the case of the country at the foot of the Andes) sad to think that, excluding the savage tribes, who for any present purposes of good may be ranked with the beasts that perish, this country has not more than one inhabitant for every ten square miles of land; that it is almost a wilderness; that being capable, as it is, of yielding support, comfort, and luxury to many millions of civilized people who have superfluous wants, it should be but the dwelling place of the savage and the wild beast.

Such is the country whose destiny and the development of whose resources is in the hands of Brazil. It seems a pity that she should undertake the work alone; she is not strong enough; she should do what we are not too proud to do, stretch out her hands to the world at large, and say, "Come and help us to subdue the wilderness; here are homes, and broad lands, and protection for all who choose to come." She should break up her steamboat monopoly, and say to the sea-faring and commercial people of the world, "We are not a maritime people; we have no skill or practice in steam navigation; come and do our carrying, while we work the lands; bring your steamers laden with your manufactures, and take from the banks of our rivers the rich productions of our vast regions." With such a policy, and taking means to preserve her nationality, for which she is now abundantly strong, I

have no hesitation in saying, that I believe in fifty years Rio Janeiro, without losing a tittle of her wealth and greatness, will be but a village to Pará, and Pará will be what New Orleans would long ago have been but for the activity of New York and her own fatal climate, the greatest city of the New World; Santarem will be St. Louis, and Barra, Cincinnati.

The citizens of the United States are, of all foreign people, most interested in the free navigation of the Amazon. We, as in comparison with other foreigners, would reap the lion's share of the advantages to be derived from it. We would fear no competition. Our geographical position, the winds of Heaven, and the currents of the ocean, are our potential auxilaries. Thanks to Maury's investigations of the winds and currents, we know that a chip flung into the sea at the mouth of the Amazon will float close by Cape Hatteras. We know that ships sailing from the mouth of the Amazon, for whatever port of the world, are forced to our very doors by the SE. and NE. trade winds; that New York is the half-way house between Pará and Europe.

We are now Brazil's best customer and most natural ally. President Aranha knew this. At a dinner-party given by him at Barra, his first toast was, "To the nation of America most closely allied with Brazil—the United States." And he frequently expressed to me his strong desire to have a thousand of my active countrymen to help him to subdue the wilderness, and show the natives how to work. I would that all Brazilians were influenced by similar sentiments. Then would the mighty river, now endeared to me by association, no longer roll its sullen waters through miles of unbroken solitude; no longer would the deep forests that line its banks afford but a shelter for the serpent, the tiger, and the Indian; but, furrowed by a thousand keels, and bearing upon its waters the mighty wealth that civilization and science would call from the depths of those dark forests, the Amazon would "rejoice as a strong man to run a race;" and in a few years we might, without great hyperbole, or doing much violence to fancy, apply to this river Byron's beautiful lines:

"The casteled crag of Drachenfels
  Frowns o'er the wide and winding Rhine,
Whose breast of waters broadly swells
  Between the banks that bear the vine;
And hills all rich with blossomed trees,
  And fields that promise corn and wine,
With scattered cities crowning these,
  Whose far white walls along them shine."

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Then might Brazil, pointing to the blossoming wilderness, the well-cultivated farm, the busy city, the glancing steamboat, and listening to the hum of the voices of thousands of active and prosperous men, say, with pride and truth: "Thus much have we done for the advancement of civilization and the happiness of the human race."

In making out this report, I have been guided by the letter and spirit of my instructions, and have striven to present a clear and faithful picture of the subjects indicated by them. These were, in brief terms, the present condition of the country—its productions and resources—the navigability of its streams—its capacities for trade and commerce—and its future prospects. This must be my excuse for my meagre contributions to general science. More, I fear, has been expected in this way than has been done; yet the expedition has collected some valuable specimens in each of the kingdoms of natural history, and I hope to obtain means and authority to have them properly described and illustrated.

I have mentioned in various parts of my report the names of persons who have assisted me by counsel or information. I shall close it with the name of the last, the ablest, and the best. Whatever of interest and value may be found in the report, is mainly attributable to the guiding judgment and cheering heart of my friend and kinsman, M. F. Maury.

APPENDIX.

NOTES.

The elevations due to the atmospheric pressure, as indicated by the barometer, are extracted from tables calculated, after the complete formula of La Place, by M. F. Delcros, contained in a volume of meteorological tables prepared by Arnold Guyot, and published by the Smithsonian Institution.

Those due the indications of the boiling-point apparatus are taken from a table in the same volume, calculated by Regnault, from his "Tables of forces of vapor," published in the *Annales de Physique et de Chimie*, t. xiv, p. 206.

The height of the barometer at the level of the sea is assumed at 30.00, and the temperature of the air at 65° Fah.

I have added a column of heights, measured with the barometer by Don Mariano Rivero, at places where they compare with mine.

At the pass of Antarangra we took our observations on the summit of a hill about two hundred feet above the road at its highest point.

Morococha is situated near the line of perpetual snow, on the eastern slope of the western chain of the Andes.

Tingo Maria is the place of embarcation on the Huallaga. The distance from Callao to this point, by our route, is 337 miles. The distance hence to the Atlantic is 3,662. If we add to these sums the 90 miles of travel from Tarma to Fort San Ramon and back, with the 626 from the mouth of the Ucayali to Sarayacu and back, we shall have the whole distance travelled over—4,715 miles.

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TABLE OF APPROXIMATE HEIGHTS AND DISTANCES FROM CALLAO TO THE ATLANTIC.

Names of places.	Distance.	Barometer.	Boiling point.	Thermometer.	Height, in feet.	Height by Rivero—barometer.
Callao	.....	30.000	212	65	.....	.....
Lima	6	29.528	.....	75	476	.505
Pacayar	12	28.580	.....	61	1,346	.....
Yanacoto	10	27.568	.....	57	2,337	.....
Coca Chacra	16	25.574	.....	58	4,452	.....
Moyoc	15	23.027	.....	50	7,306	.....
Do	15	23.027	198.25	50	7,380	.....
San Mateo	13	20.843	.....	59	10,200	10.232
Do	.....	20.843	193.25	59	10,128	.....
Acchahuarcu	9	.....	188.3	33	12,898	.....
Lower edge of snow on western slope	3	17.836	.....	49	14,300	.....
Pass of Antarangra	3	16.730	.....	43	16,044	15.758
Do	.....	16.730	182.5	43	16,199	.....
Morococha	4	17.700	.....	46	14,409	.....
Pachachaca	9	.....	188.5	40	12,786	.....
Oroya	12	19.542	.....	36	11,654	12.270
Do	.....	19.542	190.2	36	11,825	.....
Tarma	18	21.144	.....	55	9,738	10.092
Do	.....	21.144	193.9	55	9,770	.....
Palca	11	21.972	.....	43	8,512	.....
Matichacra	12	23.292	.....	61	7,091	.....
Huacapishtana	4	24.482	.....	60	5,687	.....
Challuapuquio	12	26.804	.....	68	3,192	.....
Fort San Ramon	6	27.406	.....	76	2,605	.....
Do	.....	27.406	206.5	.....	2,953	.....
From Tarma to Palcamayo	15	.....	192.5	37	10,539	.....
Junin	18	.....	188.2	32	12,947	13.330
Ninacacca	18	.....	187.8	40	13,171	.....
Cerro Pasco	17	.....	186.7	46	13,802	14.279
Chiquirin	12	.....	190.7	54	11,542	.....
San Rafael	18	.....	196.1	62	8,551	8.791
Huanuco	35	.....	200.9	65	5,946	6.284
Chullqui	8	.....	201.5	67	5,626	.....
Acomayo	6	.....	198	74	7,518	.....
Cashi	12	.....	199.8	58	6,540	.....
Atajo	10	.....	204.7	71	3,910	.....
Chihuangala	8	.....	205.6	74	3,421	.....
La Cueva	20	.....	206.5	76	2,944	.....
Tingo Maria	10	.....	207.8	75	2,260	.....
Tocache	174	.....	209.1	77	1,579	.....
Sion	58	.....	209.7	80	1,269	.....
Lupuna	58	.....	210	84	1,109	.....
Chasuta	87	.....	210.5	82	846	.....
Sta. Cruz	220	.....	211.2	85	490	.....
Nauta	353	.....	211.3	74	434	.....
Pebas	197	.....	211.1	.....	537	.....
Egas	707	.....	208.2	88	2,052	.....
River Bank	131	.....	208.4	84	1,947	.....
Do	60	.....	208.5	82	1,890	.....
Do	168	.....	208.6	76	1,834	.....
Do	50	.....	208.8	78	1,740	.....
Barra	14	.....	209.3	81	1,475	.....
Mouth of Madeira	104	.....	209.8	80	1,212	.....
Villa Nova	209	.....	210.3	76	959	.....
Santarem	220	.....	210.5	78	846	.....
Para	759	.....	211.5	80	331	.....
Do	.....	29.708	.....	81	320	.....
Sea	93	.....	.....	.....	.....	.....
From mouth of Ucayali to Sarayacu	313	.....	210.3	82	868	.....

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Place.	Approx. height.	Date.	Time.	Thermometer. A.	Thermometer. W.	W. B.	Remarks.
	Feet.	1851.		°	°	°	
Palcamayo	10,500	July 1	6 p. m.	56	.....	.....	Calm; sky white and beautifully clear.
Do	10,500	2	6 a. m.	37	.....	34	Remarkably clear.
Road	11,000	2	8½ a. m.	45	53*	.....	*Temperature of a spring issuing from the rock.
Junin	13,000	2	6½ p. m.	45	.....	.....	Light westerly breeze; light cirrus clouds.
Do	13,000	3	7 a. m.	32	.....	28	Clear and calm; stratus clouds covering the Andes.
Road	13,000	3	12½	46	.....	.....	Snow squall, small round flakes; wind variable from northward and westward to northward and eastward; western Cordillera in the sunshine, the eastern covered with storm.
						36	Beautiful night; light air from the westward.
				40	.....	.....	Calm; ground covered with hoar frost.
				39	.....	.....	Hail and snow; wind from northward and eastward.
Ninaccaca	13,200	3	6 p. m.	40	.....	.....	
Do	13,200	4	6 a. m.	39	.....	40	Clear and calm.
Cerro de Pasco	13,800	9	Noon	45	.....	38	
Do	13,800	10	10 a. m.	46	.....	34	Light airs from northward and westward; cloudy.
Do	13,800	10	5 p. m.	42	.....	36	Cloudy.
Do	13,800	10	10 p. m.	37	.....	36	Light cirrus clouds.
Do	13,800	11	8 a. m.	40	.....	37	
Do	13,800	11	10 p. m.	39	.....	35	Wind northward and eastward; heavy stratus clouds; light snow.
Do	13,800	12	8 a. m.	39	.....	.....	
Do	13,800	12	Noon	44	.....	34	Calm; light cirrus clouds.
Do	13,800	12	6 p. m.	40	.....	36	
						.....	Clear; strong breeze from north, which always sets in, at this season, about noon, and ceases about dark.
Do	13,800	12	10 p. m.	37	.....	57½	
Chiquirin	11,500	13	8 a. m.	39	.....	.....	
San Rafael	8,400	14	6 p. m.	62	.....	56	Clear; calm.
Do	8,400	15	7 a. m.	56	.....	.....	
Huanuco	6,000	17	4 p. m.	71	.....	.....	
						55	
Do	6,000	18	9 a. m.	65	.....	58½	Cloudy, with appearance of rain; light breeze from the northward.
Do	6,000	18	9 p. m.	69	.....	.....	
Do	6,000	19	9 a. m.	64	.....	.....	Light breeze from northward and eastward; half cloudy.
Do	6,000	19	9 p. m.	68½	.....	.....	
Do	6,000	20	9 a. m.	63	.....	.....	
Do	6,000	21	9 a. m.	65	.....	.....	
Chullqui	5,600	22	7 p. m.	67	.....	.....	

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Place.	Approx. height.	Date.	Time.	Thermometer.			Remarks.
				A.	W.	W. B.	
	Feet.	1851.		°	°	°	
Road	5,500	July 23	10 a. m.	72	62*	.....	*Mountain stream; cirrus clouds.
Acomayo	7,500	23	11 a. m.	74			
Near top of Cerro de Carpis	8,000	23	2½ p. m.	67	51*	.....	*A spring in the woods.
Casha	6,500	23	7 p. m.	58	.....	.....	Calm; cloudy to the south; night quite cool.
Do	6,500	24	6 a. m.	52	.....	.....	Clear and calm.
Atajo	4,000	24	5 p. m.	71	.....	67	Cirro-cumulus clouds; calm.
Do	.....	25	7 a. m.	61			
Chihuangala	3,500	25	5 p. m.	74.5			
Do	3,500	26	.....	.....	.....	.....	Heavy rain.
Do	3,500	27	2 p. m.	78	.....	72	Cumulus clouds; calm.
Do	3,500	28	8 a. m.	64	.....	.....	Calm; cirro-cumulus; rained all the latter part of the night.
Do	3,500	29	8 a. m.	67	.....	67	Calm; cloudy.
Do	3,500	29	1 p. m.	78	.....	.....	Breeze northerly; heavy clouds and thunder to the northward.
Do	3,500	29	8 p. m.	69	.....	.....	Calm; cloudy.
Do	3,500	30	9 a. m.	69	.....	.....	Calm; clear.
Do	3,500	30	3 p. m.	.....	.....	.....	Heavy shower of rain, with thunder; most of the rain clouds came from the north.
Chinchayvitoc	.....	31	8 a. m.	70	.....	.....	Half cloudy.
Do	.....	31	11 a. m.	71	67*	.....	*Mountain stream.
La Cueva	3,000	31	5 p. m.	76	68*	.....	*Huallaga river.
On the road	.....	Aug. 1	7 a. m.	74	.....	.....	Cloudy; close and hot in the woods.
Tingo Maria	2,200	2	9 a. m.	75	.....	.....	River at Tingo Maria 100 yards broad, 2¾ fathoms deep; smooth and unbroken.
Do	2,200	2	7 p. m.	72	.....	71	Cloudy; light breeze from the northward.
Do	2,200	3	8 a. m.	72	.....	.....	Calm; cloudy; had been showery during the night.
Do	2,200	3	4 p. m.	82	.....	76	

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Place.	Date.	Time.	Thermometer.			Wind.	Remarks.
			A.	W.	W. B.		
	1851.		°	°	°		
Huallaga River	Aug. 4	3 p. m.	84	72	.....	.....	Many obstructions from pebbly shoals, small rocky islets, and drift-wood.
Do	4	8 p. m.	78	.....	.....	Southward.	Lt. breeze; cloudy; river not navigable for anything but a canoe.
Do	5	7 a. m.	75	.....	70	Calm	Cloudy; river 60 yards broad; smooth; current 3 miles; depth 1⅛ fathom; pebbly bottom.
Do	5	5 p. m.	.....	.....	.....	.....	Heavy clouds, with thunder and lightning in the northwest; during the night a fresh puff of wind from that direction; passed several rapids to-day; also through a hilly country, which accounts for the stormy weather.
Do	6	6 a. m.	70	71.5	70	Westward	Light breeze and light rain; river to-day free from rapids, with some obstructions from drift-wood between the islands; average depth 2½ fathoms; average current 1½ mile; passed a range of hills on the right; mountains in sight, bearing from northwest to west; heavy cumulus clouds in the north-east, with thunder; thick stratus clouds in northwest.
Do	6	5 p. m.	78	76			
Do	7	7 a. m.	71.5	.....	71.5	Calm	Cloudy; upper stratum, light cirrus clouds; lower, cirro-cumulus, moving to southwest; river 50 yards broad; current 3¼ miles; depth 2¾ fathoms.
Do	7	Noon	.....	.....	.....	N. and W	Breeze light; heavy clouds in the north, with thunder; passed one or two salt streams and several rapids; rain all night.
Tocache	8	7 p. m.	73	.....	.....	Calm	Cirrus clouds.
Do	9	Noon	77	75.5	73	Calm	Cumulus clouds.
Do	9	3 p. m.	79	.....	.....	.....	Squall from the northward, with rain.
Do	10	7 a. m.	68	73	66.5	.....	Cloudy; mist rising from the river and hanging on the hills.
Do	10	1 p. m.	82				
Do	10	5 p. m.	82	.....	.....	Northward	Squall of wind from the northward, with a short shower of rain.
Do	11	8 a. m.	70	74	68	Calm	Misty.
Do	11	1 p. m.	82	.....	.....	.....	Heavy clouds, with thunder, to the northward and eastward.
Do	11	6 p. m.	83				
Do	11	9 p. m.	79				
Do	12	8 a. m.	69	74	68.5	Calm	Cloudy; river here 50 yards broad, 3 fathoms deep; smart shower, from the southward and eastward, between 1 and 2 p. m.; passed several rapids, which make the river innavigable; rain all night.

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Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Huallaga River	Aug. 13	8 a. m.	76	.....	.....	Calm	River 70 yards broad, with 4 miles of current; many rapids.
Sion	13	5 p. m.	80				
Do.	14	8 a. m.	71	.....	70	Calm	Clear.
Do.	14	1 p. m.	84	.....	.....	.....	Cumulus clouds to the eastward.
Do.	14	8 p. m.	74	.....	70	Calm	Clear.
Huallaga	15	9 a. m.	70	.....	.....	.....	Passed to-day several dangerous rapids, effectual bars to navigation.
Do.	16	8 a. m.	76	.....	.....	Northward	Light breeze; at noon entered the mouth of the Huayabamba; 100 yards broad; shallow; clear water; pebbly bottom; rapid current.
Lupuna	16	6 p. m.	84	.....	76	.....	Clear; river to-day broad and shallow; current 3¾ miles; left Lupuna at 10½ a. m.
Huallaga River	17	7 a. m.	74.5	.....	70.5	N. and E	Light air; light clouds; soon dissipated by the sun; at 11¼ passed abreast the town of Juan Juy; at 1 passed the mouth of river Sapo; 50 yards broad; muddy; hilly country; heavy clouds and rain. This is always the case where a range of hills rises above the plain. The Indians speak of "Cerros mui bravos," to indicate the fierceness of the weather about them.
Juan Comas	18	7 a. m.	70	74	.....	Northward	Arrived at Juan Comas at 5 p. m.
Huallaga River	18	11 a. m.	82	76	.....	Northward	Light breeze; thick mist; left Juan Comas at 7.30 a. m.
Shapaja	18	6 p. m.	74	.....	72	N. and E.	Sun 108°; cumulus clouds; at 2¼ passed the mouth of river Mayo, coming in on the left between moderately high hills, about 30 yards broad. Just above the Mayo the Huallaga contracts to 40 yards, with 5 and 6 fathoms of depth, and a current of 4¼ miles per hour. At 2.20 arrived at Shapaja, the port of Tarrapoto.
Do.	19	.....	.....	.....	.....	.....	
Tarrapoto	20	Noon	78				Rained in showers all the morning.
Shapaja	22	7 a. m.	75	77	.....	.....	Left Shapaja at 8¼ a. m.; passed the malos pasos of the Pongo or Strait of Chasuta. These are called Estero, Canoayacu, Matijuelo, and Chumia, and are the most difficult of the river. At 2.20 p. m. arrived at Chasuta.
Chasuta	23	4 p. m.	82	.....	77		
Do.	24	8 a. m.	74	.....	69.5	Northward	Light air; misty. It seems very generally misty in the morning,

Do.	24	Noon	79				but the clouds yield to the sun about 10 a. m. Cumulus clouds in the horizon.
Do.	24	7 p. m.	76	.....	.....	Eastward.	
Huallaga River	25	Noon	86	76	.....	.....	Left Shapaja at 11 a. m.; river below Shapaja flows through the pongo; narrow, tranquil, and deep; country generally flat, with a few hills here and there. At 3¼ p. m. entered a more hilly country; river narrow, shallow, and rapid, about 40 yards wide, with 2½ fathoms of depth, and about 5 miles of current.
Do.	25	6 p. m.	75	.....	.....	Calm.	
Do.	26	6 a. m.	76	76	.....	.....	Started at 5½ a. m.; misty morning; rain from 4 to 5; shores of the river hilly and bold; 9½ fathoms water; hard bottom. At 6½ passed the end of the Pongo de Chasuta, and entered a flat country where the river spreads out very wide, and has many small islands. In passing the channels between these islands we had but from 3 to 5 feet water, pebbly bottom, current very rapid; passed these sandy flats in an hour, and found the river 150 yards broad, without obstruction, with 3½ fathoms depth, and a velocity of only 2 miles the hour. Here I take to be the head of navigation on this river. Passed the mouth of the Chipurana; the first musquitoes; much dew.
Do.	26	6 p. m.	78				
Do.	27	6 a. m.	74	76	.....	Eastward	Light breeze; foggy; saw light-colored porpoises; a small seal; got turtle-eggs; cumulus clouds; sun 102.
Do.	27	Noon	.....	.....	.....	N. and E.	
Do.	27	7 p. m.	75	.....	.....	Calm	Clear; heavy dew; no rocks or stones since passing the pongo.
Do.	28	6 a. m.	70	78	.....	Calm	Clear; started at 6; arrived at Yurimaguas at 8¾; left at 11½.
Do.	28	4 p. m.	87	.....	.....	.....	Current 2½ miles the hour; large sand islands in the river.
Do.	28	7 p. m.	82	.....	.....	Calm	Clear; much dew.
Do.	29	6 a. m.	70	79	.....	Calm	Clear.
Do.	29	8 a. m.	76	.....	.....	Eastward	Light breeze; cirrus clouds. } Stopped at 5 p. m. on a sand beach
Do.	29	Noon	84	.....	.....	Northward	Cumulus clouds; sun 110. } on the right bank. This beach
Do.	29	6 p. m.	82	.....	.....	N. and E.	stretches out into the river and occupies nearly its whole bed, leaving a narrow channel between it and the left shore, where I found but 5 feet water, though there is probably more depth very close in shore. The beach belongs to what is an island when the river is full, but the right-hand channel is now dry. At 6 p. m. fresh squall of wind and rain from the northward and eastward.
Huallaga	30	6 a. m.	72	.....	.....	N. and W.	Light breeze; stratus clouds.
Sta. Cruz	30	Noon	85				
Do.	30	8 p. m.	80	.....	.....	.....	Heavy dew.
Huallaga	31	6 a. m.	76	.....	.....	Calm	Cloudy and misty.
Do.	Sept. 1	6 a. m.	74	80	.....	Calm	Misty.
Do.	1	Noon	87	.....	.....	N. and E.	Heavy clouds and rain both in the northeast and southwest, with an occasional spit at us.
Do.	1	2 p. m.	85	.....	.....	N. and E.	
Laguna	2	8 a. m.	74	.....	.....	.....	Rain all the morning in showers.
Do.	2	4 p. m.	83	.....	.....	.....	At night clear; much dew.

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Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Laguna	Sept. 3	6 a. m.	75	.....	.....	Calm	Cloudy; left Laguna at 9¼ a. m.; arrived at mouth of Huallaga at 4 p. m.; it flows into the Marañon in a southeast direction. There are several islands at the mouth. The channel runs near the left bank and has 7¼ fathoms.
Do	3	10 a. m.	.....	81			
Do	3	4 p. m.	80	82			
Amazon	4	6 a. m.	74	80	.....	N. and E.	Light breeze; cloudy; shores of Amazon low; water very muddy; many shovel-nosed porpoises in the river. At noon heavy clouds; squally appearances, with rain.
Do	4	Noon	75	.....	.....	Northward.	
Do	5	6 a. m.	74	80	.....	Eastward	Light breeze; cloudy and misty; current 2 miles per hour.
Do	5	3 p. m.	84	.....	.....	Calm	Cumulus clouds; saw several small seals.
Do	5	6 p. m.	80	.....	.....	Eastward	Light breeze; clear.
Do	6	6 a. m.	74	80	.....	N. and E.	Clouded up at 2 a. m.; squall of wind and rain from the northward and eastward, with thunder and lightning; cleared up at 4; at 2½ p. m. sharp squall of wind and rain.
Do	6	2½ p. m.	76	.....	.....	N. and E.	
Do	7	6 a. m.	72	80	.....	S. and E.	Foggy; sun shone out at 7 a. m.
Do	7	Noon	84	.....	.....	N. and E.	Light breeze; cumulus clouds; at 3 p. m. squall of wind and rain from the northward and eastward.
Do	8	6 a. m.	74	80	.....	Calm	At 4½ a. m. squall of wind, rain, thunder and lightning, from the eastward.
Do	8	Noon	82	.....	.....	S. and E.	Heavy cumulus clouds in the north.
Do	8	4 p. m.	74	.....	.....	N. and E.	Squall of wind and heavy rain, with thunder and lightning.
Do	9	6 a. m.	72	80			
Nauta	9	1 p. m.	82	.....	.....	N. and E.	Light breeze; cumulus clouds.
Do	9	.....	.....	.....	.....	.....	In afternoon heavy clouds, with thunder in the west; clear night.
Do	10	6½ a. m.	71	.....	71	Northward.	Light breeze; thin clouds.
Do	11	6½ a. m.	74	.....	.....	.....	Thin cirrus clouds.
Do	11	Noon	84	.....	81	.....	Heavy cumulus clouds; hot sun.
Do	12	6 a. m.	76	.....	73	.....	Thin cirrus clouds; misty about the horizon.
Do	12	Noon	84	.....	81	Eastward	Heavy cumulus clouds; powerful sun; shower of rain at 2 p. m.
Do	13	7 a. m.	74	.....	73	.....	Light clouds and mist; soon dissipated by the sun; showers of rain at 2 p. m. and at 7.
Do	14	6½ a. m.	73	.....	72	Calm	Cloudy.
Do	14	Noon	84	.....	83	.....	Cumulus clouds; two squalls, with showers, in the afternoon—one from southward and westward; the other, and strongest, from northward and eastward.

Do	15	7 a. m.	76	.....	.....	Westward	The first perfectly clear morning we have seen since entering the Amazon; at 1 p. m. cumulus clouds; shower at 2½.
Do	15	1 p. m.	86	.....	82		
Do	16	9 a. m.	82	.....	.....	.....	Rain; river rose 2 inches since 6 p. m. yesterday.
Do	17	9 a. m.	78	.....	.....	.....	Clear; river rose 10 inches in the last 24 hours.
Do	17	1 p. m.	87	.....	80½	.....	Cumulus clouds, with thunder.
Do	17	9½ p. m.	75	.....	.....	.....	Rain.
Do	18	9 a. m.	75	.....	.....	Eastward	Light breeze; cirrus clouds; river rose 10 inches.
Do	19	11 a. m.	82	.....	76	Calm	Clear all night; river rose 5 inches from 6 p. m. yesterday to 8 a. m.; light cirro-cumulus clouds.
Do	20	9½ a. m.	81	.....	77	S. and E.	Clear.
Do	20	3 p. m.	89	.....	79	Southward	Cumulus clouds round the horizon.
Do	20	9 p. m.	78	.....	.....	Calm	Light clouds.
Do	21	9 a. m.	81	.....	.....	Calm	Cloudy.
Do	21	8 p. m.	76	.....	.....	.....	Lightning; heavy squall of wind and rain from southward and eastward; much rain during the night; river rose 2½ inches in the 24 hours.
Do	22	9 a. m.	77	.....	.....	Calm	Cloudy; river rose 5 inches.
Do	23	9 a. m.	78	.....	75	S. and E.	Light breeze; clear last night; river rising.
Do	23	3 p. m.	88	.....	79	.....	At 4 p. m. strong squall of wind from southward and eastward.
Do	23	9 p. m.	74	.....	.....	Calm	Cloudy.
Do	24	10 a. m.	81	.....	74	Eastward	Light breeze; cloudy; river rose 3½ inches.
Do	25	.....	.....	.....	.....	.....	Left Nauta at 12½; shores of the river low and thickly covered with trees; heavy cumulus clouds; showers of rain. At 1¼ entered the Ucayali; ¼ mile wide; low green banks; 2 fathoms' depth close to the left bank; current 2 miles per hour.
Ucayali	26	6 a. m.	76	83	.....	Calm	Light cirrus clouds.
Do	26	Noon	82	.....	.....	S. and E.	Cumulus clouds; hot sun.
Do	26	5½ p. m.	78	.....	.....	N. and E.	Squall of wind and rain.
Do	27	6 a. m.	78	.....	.....	Calm	Misty; rained all night.
Do	27	Noon	82	83	.....	.....	At 1 rain squall from northward and eastward.
Do	27	3 p. m.	80	.....	.....	N. and E.	Moderate breeze; cumulus clouds; current 2 miles.
Do	28	8 a. m.	78	82	.....	Calm	Cloudy, with rain.
Do	28	Noon	76	.....	.....	Northward	Moderate breeze.
Do	28	6 p. m.	79	.....	.....	N. and E.	Current 1½ mile.
Do	29	6½ a. m.	74	81	.....	Calm	Cloudy; had moderate breeze from northward nearly all night.
Do	29	3 p. m.	81	.....	.....	N. and E.	Moderate breeze; rain shower.
Do	29	4 p. m.	.....	.....	.....	S. and W.	Fitful breeze; heavy nimbus clouds in all directions.
Do	30	6 a. m.	76	.....	.....	N. and W.	Light breeze; cloudy.
Do	30	3 p. m.	.....	.....	.....	N. and E.	Squall of wind and heavy shower.
Do	30	6 p. m.	77	82	.....	N. and E.	Moderate breeze; stratus clouds; cumuloni in southwest.
Do	Oct. 1	6½ a. m.	76	.....	.....	.....	Misty morning.
Do	1	1 p. m.	88	.....	.....	S. by E.	Fresh breeze; wind changed to northward and eastward; in a squall of heavy rain; thunder and lightning.
Do	2	10 a. m.	77	82½	76	Calm	Cloudy.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Ucayali	Oct. 2	Noon	.....	.....	.....	N. and E	Heavy shower.
Do	3	8 a. m	75	81	.....	Calm	Thin clouds; light cirro-cumulus clouds; hot all day.
Do	3	5 p. m	86				
Do	4	6 a. m	78	81	.....	.....	Clear all night; much dew.
Do	4	3 p. m	87	.....	.....	Eastward	Light breeze; small cumulus clouds round the horizon; sun 10 3¼.
Do	5	7 a. m	70	.....	.....	Calm	Clear; river rose 6 inches from 8½ p. m. to 5 this morning; clear all night.
Do	5	2 p. m	88	84	.....	Calm	Cumulus clouds; sun 108; current 2¼ miles.
Do	6	7 a. m	78	83	.....	Southward	Light breeze; light cirro stratus clouds.
Do	6	12½	85	.....	.....	Eastward	Cumulus clouds; at 2 p. m. squall of wind and rain; at 3 wind changed to southwest; steady rain; current 2½ miles.
Do	6	5 p. m	76	.....	.....	Southward	Cloudy.
Do	7	6 a. m	78	.....	.....	S. and E	Light breeze; sun 106; river ½ mile broad; rising fast; trunks of trees beginning to come down the stream.
Do	7	2 p. m	84	.....	.....	N. and E	At 2¼ p. m. squall of wind, shifting suddenly to all points and settling at southwest; heavy nimbus clouds.
Do	8	6 a. m	77	82	.....	.....	Cirro-cumulus clouds; river rose 2 inches last night.
Do	8	2 p. m	85				Thick mist; river fell last night.
Do	9	4½ p. m	84	.....	.....	Calm	Cumulus clouds; sun oppressive.
Do	10	6 a. m	76	80	.....	Calm	Clear; current 3¼ miles; much dew.
Do	10	9 a. m	78	.....	.....	Calm	Light breeze; partial stratus clouds.
Do	10	4 p. m	87	.....	.....	Calm	Rain showers; at 2½ fresh wind from the northward, with rain; sharp lightning in the northeast; at night clouds round the horizon; distant lightning and thunder in the north and northwest.
Do	11	5 a. m	.....	.....	.....	N. and W	Light breeze; cloudy.
Do	11	1 p. m	85	.....	.....	N. and E	Squall of wind and rain; at 2 calm; heavy rolling thunder in the northwest; at 3 fresh breeze from northward and westward; more rain.
Do	12	7 a. m	79	83	.....	Westward	Cloudy.
Do	12	1 p. m	83	.....	.....	Northward	Moderate breeze, with showers; thunder.
Do	13	6 a. m	76	.....	.....	Calm	Moderate breeze; thunder.
Do	13	Noon	80	.....	.....	S. and E	Light breeze; thick clouds.
Do	13	3 p. m	79	.....	.....	N. and W	Light breeze; cirrus clouds.
Do	13	6 p. m	78	.....	.....	N. and E	
Do	14	7 a. m	74	80	.....	Southward	

Do	14	2½ p. m	84	.....	.....	Calm	Cloudy.
Do	14	6 p. m	82	.....	.....	Westward	Light breeze; heavy clouds in the west; saw the hills about Sarayacu.
Do	15	7 a. m	78	.....	.....	Southward	Light breeze; thin clouds; river commenced its regular rise; stopped to breakfast at Tierra Blanca; night cool and cloudy; southerly wind.
Do	16	6 a. m	69	.....	.....	Southward	Cloudy; smart cool breeze.
Do	16	Noon	75	.....	72	S. and E	Cumulus stratus clouds.
Do	16	5½ p. m	80	.....	.....	Southward	Light breeze; stratus clouds; opposite mouth of river Catalina.
Do	17	7 a. m	78	80	.....	Southward	Light breeze; cirrus clouds; warm and close night.
Do	17	Noon	80	.....	78	Southward	Light breeze; cirrus clouds overhead; cumuli around the horizon.
Do	17	6 p. m	83	.....	.....	N. and W	Light air; stratus clouds. The sky of the Ucayali is frequently very soft, rich, and beautiful, after sunset.
Do	18	6 a. m	78				
Do	18	11 a. m	82	.....	.....	N. and E	Moderate breeze; cumulus clouds; rain shower in southwest. Entered the caño of Sarayacu. It is about 15 or 20 feet wide and quite deep. About a mile from the entrance, the caño, or arm of the river, receives a small stream, which runs about a mile per hour. The water is clear; its temperature 78, with the air at 84. It is obstructed with the roots and branches of trees, and we had to drag our canoes 2 or 3 miles up the stream to Sarayacu.
Sarayacu	19	8½ a. m	76	.....	74	Calm	Large, watery, but light clouds.
Do	19	Noon	82	.....	79½	S. and E	Light breeze.
Do	19	5 p. m	82	.....	.....	N. and W	Moderate breeze; shower of rain—large drops.
Do	20	9 a. m	76½	.....	76	Calm	Cloudy; at noon light rain.
Do	20	3 p. m	80	.....	78	Calm	Clear overhead; cirro-cumulus clouds around the horizon.
Do	20	9 p. m	76	.....	.....	Calm	Cirro-cumulus clouds; rain during the night.
Do	21	9 a m	78	.....	76½	S. and W	Light air; cumulus clouds.
Do	21	Noon	80½	.....	78	Southward	Cumulus clouds, with light rain showers.
Do	21	3 p. m	84	.....	80	Southward	Cumulus clouds.
Do	21	6 p. m	82	.....	81	Calm	Clear.
Do	22	Noon	84½	.....	81½	N. and E	Heavy cumulus clouds; thunder in the west.
Do	22	3 p. m	79½	.....	.....	N. and E	Gusts of wind, with heavy rain clouds.
Do	22	6 p. m	78	.....	.....	Calm	Clear overhead; cirro stratus clouds in the horizon.
Do	23	9 a. m	74½	.....	.....	Calm	Rain.
Do	23	Noon	78	.....	77½	Calm	Clouds, with occasional showers.
Do	24	9 a. m	77	.....	77	Calm	Rain all the morning.
Do	24	Noon	78	.....	.....	Calm	Cumulus clouds in the horizon.
Do	24	3 p. m	79	.....	.....	S. and W	Fresh breeze, with thunder; shower coming up.
Do	25	9 a. m	74	.....	73½	Eastward	Light breeze; stratus clouds; heavy thunder storm, with rain, lasting about an hour in the afternoon.
Do	26	10 a. m	76	.....	74½	S. and W.	
Do	27	9 a. m	77	.....	.....	Calm	Cirro-cumulus clouds. River of Sarayacu has risen 7 feet since our arrival; rose, last night, 10 inches.
Do	27	Noon	78½	.....	77	S. and W.	

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Sarayacu	Oct. 27	3 p. m.	79	.....	77	Calm	Cumulus clouds in the horizon.
Do	28	9 a. m.	78	.....	76½	Calm	First clear night since our arrival in Sarayacu. Left Sarayacu at 10½ a. m. The river of Sarayacu is quite full, but we met with some obstructions from the thick grass and water growth, and from the branches of small trees overhanging the stream.
Do	28	6 p. m.	82	78	77½	N. and E.	Found the Ucayali much swollen, and nearly covered with drift-wood. Depth here in mid-stream 8 fathoms.
Ucayali	29	9 a. m.	82	79	81	N. and E.	Moderate breeze; thin cirrus clouds.
Do	29	Noon	82	.....	.....	N. N. W	Moderate breeze; cumulus clouds about the horizon.
Do	29	6 p. m	79	.....	.....	N. and E	Heavy clouds; rain coming up.
Do	30	7 a. m.	76	.....	.....	N. and E	Light breeze; cirro-stratus clouds.
Do	30	Noon	82	78½	79½	N. and E	Cumulus clouds; thunder.
Do	30	3 p. m.	84	.....	.....	E. S. E.	Moderate breeze. At 3½ wind changed to northeast, and brought up rain.
Do	30	5 p. m.	77	.....	.....	N. and E	Fresh cool wind, with rain.
Do	31	7 a. m.	78	.....	.....	S. and E.	Light air; cirro-stratus clouds.
Do	31	Noon	81	79	80	Northward	Moderate breeze; cirro-cumulus clouds.
Do	31	3 p. m.	82	.....	.....	Calm	Heavy rain clouds, with thunder, in the northwest.
Do	31	6 p. m.	.....	.....	.....	Northwest	Light rain; sharp lightning in the northwest.
Do	Nov. 1	3 p. m.	76	.....	.....	S. and E.	Rain all day; examined a pole planted at the village of Guanache as we went up on October 7th; found that the river had risen 9 feet 7 inches in the interim, though it fell a little between October 7th and 15th.
Do	2	7 a. m.	72	.....	.....	Eastward	Light breeze; light, moist, misty clouds low down; cirro-stratus clouds above; 72° is the least we have yet had the mercury in the Montaña.
Do	2	9 a. m.	73	.....	73	Eastward.	Cirro-stratus clouds; current 3 miles the hour.
Do	3	7 a. m.	76	.....	75	N. and W	Fresh breeze and rain squall.
Do	3	3 p. m.	83	.....	.....	N. and W	Fine breeze; clear sky; entered the Marañon.
Do	4	9 a. m.	79	.....	.....	Northward	Had 3 hours from mouth of Ucayali to Nauta.
Do	4	10 a. m.	83	79	80½	.....	Clear; sailed from Nauta; sounded in mid-stream off mouth of Ucayali; 6 and 7 fathoms; hard sand; river 1½ mile wide below island of Omaguas.
Amazon	5	5½ p. m.	.....	.....	.....	Calm	Moderate breeze; cumulus clouds; river ¾ of a mile broad; anchored near mid-stream in 14 fathoms water, and found 2¼ miles current; shores of the river thickly wooded with apparently small trees.
Omaguas	6	9 a. m.	81	.....	.....	Calm	Light breeze; heavy cumulo-stratus clouds in the northwest.
Amazon	6	11 a. m.	.....	.....	.....	N. and E.	Cumulus clouds about the horizon; cirrus overhead.
Do	6	Noon	86	81	83	N. and E.	Moderate breeze; cumulus clouds.
Do	6	3 p. m.	87	.....	82		River at Tinicuro contracts (within its true banks) to ½ a mile; I had no bottom with 25 fathoms; stopped at Pucallpa.
Do	6	6 p. m.	84½	.....	.....	Westward	Moderate breeze; cumulus clouds; mouth of Napo 150 yards broad; gentle current; soundings across the mouth 6 and 7 fathoms; current in the Amazon, just below mouth of Napo, 1¾ mile.
Iquitos	7	9 a. m.	82	.....	.....	.....	Moderate breeze; cumulus clouds; arrived at Pebas.
Amazon	7	Noon	86	82	80½	N. and E.	Light breeze; cumulo-stratus clouds; threatening rain; squall of rain, thunder, and lightning, from the westward, last night.
Do	7	3 p. m.	87	.....	.....	N. and E.	Light breeze; clouds breaking up into cumuli; heavy shower in the afternoon.
Do	8	3 p. m.	85	82	.....	N. and E.	Thunder clouds in the north, but settling down.
Do	8	6 p. m.	84				Moderate breeze; cumulus clouds; clearing up; wind and rain from northward last night.
Do	9	9 a. m.	80	.....	77½	N. and E.	Cloudy.
Pebas, or Echenique	10	9 a. m.	76	.....	75¼	Eastward	A few cirrus clouds.
Echenique	10	Noon	79¼	.....	.....	Southward	Moderate breeze; much rain during the night.
Do	10	9 p. m.	77	.....	.....	.....	Lowering cumulo-stratus clouds.
Do	11	9 a. m.	77	.....	76	S. and E.	Thin clouds.
Do	11	6 p. m.	76	.....	.....	Calm	Moderate breeze.
Do	11	10 p. m.	74				Cloudy.
Do	12	8 a. m.	76	.....	.....	Calm	Moderate breeze; cumulo-stratus clouds.
Do	12	Noon	82	.....	80	Eastward	Cumulus clouds. The atmosphere here seems drier than on the banks of the river. We had few musquitoes, though the padre says there are plenty here generally. This little village is about 12 miles ENE. of Echenique. The atmosphere seemed particularly clear at night.
Do	13	9 a. m.	75	.....	75	Calm	Moderate breeze.
Do	13	Noon	80	.....	.....	Calm	Light air; cloudy.
Do	13	6 p. m.	77½	.....	.....	Westward	Cirro-stratus clouds.
Do	13	9 p m.	76	.....	.....	Calm	Cirrus clouds; the Amazon has fallen considerably during the last two or three days.
Do	14	Noon	81	.....	78	N. and E.	Light breeze; heavy rain during the night.
San José de los Yaguas	16	3 p. m.	83	.....	79	Northward	Light breeze; clear overhead; cumulus clouds about the horizon.
Do	17	10 a. m.	78	.....	76		Clear; lightning in the west.
Echenique	19	9 a. m.	73	.. ..	72	Westward	Light breeze; clear.
Do	19	Noon	76	.....	.....	Westward	Fresh breeze.
Do	19	7 p. m.	76	.....	.....	Calm	
Do	20	7 a. m.	73	.....	.....	Calm	
Do	20	9 a. m.	76	.....	76	S. and E.	
Do	20	6 p. m.	82	.....	.....	Westward	
Do	21	3 p. m.	80	.....	.....	Eastward	
Do	21	10 p. m.	75	.....	.....	Calm	
Do	22	9 a. m.	75	.....	.....	N. and W	
Do	22	Noon	83	.....	77	N. and E.	

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Echenique	Nov. 22	6 p. m.	82½	.....	.....	Northward	Light breeze; at 9 p. m. thermometer 78°; calm.
Do	23	9 a. m.	77	.....	74½	Calm	Clear.
Do	23	3 p. m.	86½	.....	80½	N. and E.	Fresh breeze; cumulus clouds.
Do	23	6 p. m.	82½	.....	.....	Calm	Clear.
Do	23	10 p. m.	79	.....	.....	Calm	Clear.
Do	24	10 a. m.	79	.....	77½	Eastward	Light breeze; clear.
Do	24	3 p. m.	85	.....	.....	Westward	Moderate breeze, after a shower of rain.
Do	24	6 p. m.	77	.....	.....	Calm	Cloudy, after squall of wind and heavy rain from northeast.
Do	24	10 p. m.	76	.....	.....	Calm	Rain.
Do	25	10 a. m.	75	.....	.....	Northward	Light breeze; stratus clouds; much heavy rain during the night.
Do	25	4 p. m.	80½	.....	77	N. and E.	Light breeze; clear.
Amazon	26	9 a. m.	76	.....	.....	Calm	Light rain. Very heavy rain during the night. At 1½ p. m. sailed from Echenique. This little town is situated on a small stream called Ambiyacu, about ¼ of a mile from its mouth, and 2 miles up the main stream of the Amazon from Pebas. There is an abandance of water (5, 6, and 7 fathoms) from the mouth of the river to the town. The Amazon, below Pebas and above Sancudos islands, is a mile wide, has 11 fathoms of depth, and a current of 2¾ miles per hour.
Do	26	3 p. m.	77	.....	.....	S. and E.	
Do	26	6 p. m.	76	.....	.....	S. and E.	
Old Cochiquinas	27	Noon	80½	.....	79	Calm	Cloudy. The banks of the river here are abrupt, and 25 feet above the water, formed principally of a black, hard clay that looks like coal.
Amazon	27	3 p. m.	85	.....	.....	Calm	Clear overhead; cumulus clouds about the horizon.
Do	28	4½ a. m.	73	.....	.....		
Do	28	9 a. m	81	.....	79	S. and W.	Moderate breeze; cumulo-stratus clouds.
Do	28	Noon	86½	.....	.....	S. and E.	Light breeze; clear overhead; cumulus clouds about the horizon.
Do	28	3 p. m.	90	.....	.....	Calm	Thunder clouds coming up from northeast; most of the rain passed to the northward; had some wind. At 6¼ arrived at Moromoroté.
Do	28	6 p. m.	82	.....	78½	Eastward	Light breeze; cumulus clouds round the horizon; clear overhead.
Do	29	9 a. m	80	.....	78½	N. and E.	
Do	29	4 p. m.	84				
Caballo-cocha	30	9 a. m.	79	.....	77½	Calm	Cirro-cumulus clouds.
Do	30	Noon	80	.....	.....	.....	Sun shining through thin clouds.
Do	30	3 p. m.	83	.....	.....	Westward	Light breeze; cumulo-stratus clouds; heavy rain all night.
Do	Dec. 1	Noon	76	.....	.....	.....	Light rain.
Do	1	3 p. m.	79	.....	76	Westward	Light breeze; cloudy.
Do	1	6 p. m.	75	.....	.....	Calm	Stratus clouds; partly clear; much rain during the night.
Do	2	9 a. m.	76	.....	.....	Calm	Cloudy. Sailed from Caballo cocha at 2¼ p. m.; arrived at Loreto at 7½. River much divided by islands, which appear to be of recent formation, and which change their size and shape with every great rise of the river.
Amazon	4	6½ a. m	76	.....	.....	N. and E.	Cold wind; rain. Sailed from Loreto.
Do	4	9 a. m.	81	81	80	Calm	Clear; cumulus clouds about the horizon.
Do	4	Noon	84	.....	.....	N. and E.	Light air; sun very hot.
Do	4	3 p. m.	86	.....	.....	N. and E.	Light air; cumulus clouds. Arrived at Tabatinga.
Tabatinga	5	Noon	84	.....	.....	N. and E.	Moderate breeze; showery. River here straight and narrow, (¼ a mile;) no islands.
Do	6	9 a. m.	79	.....	79	Calm	Cloudy; rain all the morning. Left Tabatinga at 1¼ p. m.
Amazon	7	6 a. m.	75	.....	.....	Calm	Cloudy. River 1¼ mile wide; 11 fathoms deep in the middle, and with a current of 2¾ miles per hour.
Do	7	9 a. m.	78	82	76	Calm	
Do	7	Noon	80	.....	.....	Calm	Between 9 and noon there has been a breeze from northward and eastward, with light rain.
Do	7	3 p. m.	76½	.....	.....	Northward	Fresh breeze; blowing in squalls; quite a sea in the river.
Do	7	6 p. m.	75	.....	.....	Northward	Light air; squally appearances; severe squall during the night from the eastward.
Do	8	9 a. m.	75	79	74	S. and E.	Light breeze; stratus clouds; rainy morning; rain at intervals all day.
Do	9	6 a. m.	74½	.....	.....	Eastward	Moderate breeze; light rain.
Do	9	1 p. m.	80	81	78	Calm	Cloudy; banks of the river generally low, though there are reaches where the banks are 30 or 40 feet high, and of white or red clay.
Do	9	3 p. m.	82	.....	.....	Calm.	
Do	9	9 p. m.	.....	.....	.....	.....	Heavy rain from southward and eastward, with much thunder and lightning. At 4½ entered the mouth of the Içа, a fine looking river of ¼ a mile width at the mouth, though opening into a sort of estuary of a mile. Found 23 fathoms of depth in the middle, and a current of 3 miles the hour. The Amazon has islands in this estuary curtaining the mouth of the Içа to the southward.
Do	10	6 a. m.	75	.....	.....	Northward	Light breeze; light cirrus clouds. } Went ½ a mile up the Tunan-
Do	10	9 a. m.	80	.....	78	N. and E	Light air; cirro-cumulus clouds. } tins river to the village; river 75 yards broad, and has 5, 4, and 3 fathoms up to the town, except at the mouth, where there is a bar of but 1, running well out into the Amazon.
Do	10	3 p. m.	81	.....	.....	Eastward	Light breeze; heavy threatening clouds in the northwest.
Do	11	6 a. m.	77	.....	.....	Westward	Light breeze; cumulo-stratus clouds.
Do	11	Noon	82	82	80	Calm	Cirro-cumulus clouds; at 2 squall of wind from northward and eastward, with shower.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1851.		°	°	°		
Amazon	Dec. 11	3 p. m.	80	.....	.....	Calm	Clear overhead; cumulus clouds about the horizon.
Do	12	6 a. m	77	.....	.....	Northward	Light breeze; cirro-stratus clouds. The heads of the islands are generally bluff, and they tail down to low sandy points. There are many evidently new islands in the river. At 2 p. m. air 85, sun 111; heavy squall brewing in the east; came on, with rain in large drops from the northeast; fresh breeze.
Do	12	3 p. m.	82	.....	.....	Calm.	
Do	12	6 p. m.	81	.....	.....	N. and E.	
Do	13	6 a. m.	76	.....	.....	N. and E	Moderate breeze; cirro-stratus clouds; quite cool.
Do	13	9 a. m.	76½	80	77	S. and E.	Light air; cirro-stratus clouds; went into Fonteboa.
Do	13	3 p. m.	85	.....	.....	N. and E	Light breeze; cumulo-stratus clouds.
Do	14	6 a. m.	75	.....	.....	S. and E.	Light air; sun shining white through the mist.
Do	14	9 a. m.	79	81	78	S. and E.	Moderate breeze; cumulus clouds; at 10 entered mouth of Juruá; ½ a mile wide at the mouth; 11 fathoms deep; current 1½ mile the hour; bottom fine white and black sand; temperature of water 82.
Do	14	3 p. m.	77	.....	.....	Eastward	Light breeze, with light rain.
Do	15	9 a. m.	76	.....	.....	S. and W	Moderate breeze, with cold rain.
Do	15	3 p. m.	83	.....	.....	Calm	Heavy rain, with thunder passing from south of us to the westward.
Do	16	6 a. m.	75	.....	.....	S. and W	Light breeze; cirro-stratus clouds.
Do	16	9 a. m.	77	81	76	Calm	Cloudy; entered mouth of the Japurá at 3 p. m.; temperature of its water 85; ½ a mile up found 9½ fathoms, at the mouth 7; current ⅔ of a mile; clear night.
Do	16	Noon	80	.....	.....	Calm.	
Do	17	6 a. m.	74	.....	.....	S. and E.	Fresh breeze; cloudy; cold.
Do	17	9 a. m.	.....	.....	.....	Calm	Light rain; entered the river Teffé; 150 yards broad; water clear, dark-green color; very little current.
Egas	18	3 p m.	80	.....	78½	N. and E	Light breeze; light cirrus clouds; cumuli about the horizon.
Do	19	9 a. m.	81	.....	78½	N. and E	Light breeze; a little hazy.
Do	19	3 p. m.	84	.....	.....	Eastward	Moderate breeze; cumulus clouds; sun very hot.
Do	20	9 a. m.	80½	.....	77	Eastward	Moderate breeze; clear.
Do	20	3 p. m.	84	.....	.....	Eastward	Moderate breeze; cumulus clouds.
Do	21	9 a. m.	82	.....	78½	Eastward	Light breeze; clear.
Do	21	3 p. m.	87	.....	.....	Eastward	Moderate breezes.
Do	22	Noon	86	.....	82	N. and E	Moderate breeze; cumulus clouds.
Do	22	3 p. m.	86½	.....	.....	Calm	Cumulus clouds.

Do	23	9 a. m.	83	.....	80½	Eastward	Moderate breeze; clear; most of the afternoons and evenings here are calm and warm.
Do	23	3 p. m.	87	.....	.....	Eastward	Light air; heavy cumulus clouds in the horizon; thunder.
Do	24	9 a. m.	83½	.....	80	Eastward	Light breeze; cumulo-stratus clouds.
Do	24	3 p. m.	83½	.....	.....	Eastward	Heavy shower, with one sharp flash of lightning; thermometer at 2½, 88.
Do	25	9 a. m.	79½	.....	.....	Eastward	Moderate breeze; continuous rain. Clearing up. } In the long route from Tabatinga to Egas, I had got ahead of the rains. They are now catching up.
Do	25	3 p. m.	80	.....	.....	Calm	Light breeze, with rain squalls.
Do	26	9 a. m.	79	.....	.....	Eastward	Moderate breeze; cirro-cumulus clouds.
Do	26	3 p. m.	80	.....	78	Eastward	Cloudy.
Do	27	10 a. m.	79	.....	78	Calm	Thunder storm brewing in the northeast.
Do	27	3 p. m.	82	.....	.....	Calm	Moderate breeze; cloudy; left Egas at 2½ p. m., in the rain.
Do	28	10 a. m.	78	.....	78	Eastward	Light breeze; cloudy.
Amazon	29	6 a. m.	75	.. ..	.....	Eastward	Moderate breeze; cirrus clouds; cumuli in the horizon.
Do	29	Noon	83	82	79	Eastward	Light breeze; clear; fresh breeze from the eastward all night; clear, except a bank of light white clouds in the eastern horizon, breaking off and rising in fleecy flocculi, with cumulus clouds in the northwest.
Do	29	3 p. m.	83	.....	.....	Eastward	Light cirro-cumulus clouds moving from east and northeast.
Do	30	6 a. m.	78	.....	.....	.....	Breeze light; clear overhead.
Do	30	9 a. m.	78	82	78	Eastward	Light breeze; cumulus clouds; at 6 sharp squall of wind and heavy rain from the northward; at 8 arrived at mouth of Lake Coari; light breeze from the northward; heavy clouds, with sharp lightning and thunder in that direction.
Do	30	3 p. m.	86	.....	79	Eastward	Light breeze. The water of Lake Coari is clear, and of a brown color. A quarter of a mile inside of the canal that connects the lake with the river we found 9 fathoms of depth, with ⅔ of a mile current; muddy bottom. The bottom near the shore, in 2 fathoms water, is of sand, mixed with red clay. Thunder and lightning in the north in the early part of the night.
Lake Coari	31	6 a. m.	78	.....	.....	Calm	
Amazon	31	3 p. m.	84	82½	80½	Eastward.	
	1852.						
Do	Jan. 1	6 a. m.	76	.....	.....	Eastward	Moderate; light cirrus clouds overhead; cirro-cumuli about the horizon.
Do	1	9 a. m.	79	82	77	Eastward	Fresh breeze; quite a sea in the river.
Do	1	3 p. m.	82	.....	.....	Eastward	Fresh. Passed the mouth of the Codajash. At 8 p. m. calm; nearly clear.
Do	2	6 a. m.	76	.....	.....	Eastward	Light breeze; stratus clouds.
Do	2	9 a. m.	77	80½	76	Eastward	Fresh breeze. This breeze sets in strong about 9 o'clock; generally continues until 4 or 5, when it goes down until 9 p. m., when it freshens up again, and blows till 2 or 3 in the morning.
Do	2	3 p. m.	82	.....	.....	Westward.	
Do	3	6 a. m.	76	.....	.....	Eastward	Moderate breeze; stratus clouds.
Do	3	9 a. m.	78	81	78	Eastward	Light breeze; cirro-stratus clouds.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1852.		°	°	°		
Amazon	Jan. 3	3 p. m.	84	.....	82	N. and E	Fresh breeze; clear overhead; cumuli about the horizon. This breeze sets in now between 10 and 11, (higher up the river it commenced at 9,) and lasts till 5 p. m.; it gets up again about midnight and lasts till daybreak. Passed the mouth of river Purus; about ¾ of a mile wide; depth 13 fathoms; current about ¾ of a mile per hour; temperature of the water 84½.
Do	4	6 a. m.	77	.....	.....	Eastward	Light breeze; clear.
Do	4	9 a. m.	82	82	78½	Eastward	Light breeze; clear overhead; cumuli about the horizon. Breeze freshened at 10, and hauled more to the northward.
Do	4	3 p. m.	83	.....	.....	N. and E	Fresh breeze; cumulus clouds, thickening and blackening into nimbi. At 3½ sharp squall of wind and rain from the eastward; after the squall the wind fell. At 5 heavy thunder clouds in the south and east; cirrus clouds overhead.
Do	5	6 a. m.	77	.....	.....	Eastward	Light breeze, with occasional spits of rain; fresh breeze from the eastward, set in at 9 and continued till 4. Entered the mouth of the Rio Negro at 5 p. m.; 2 miles wide; 17½ fathoms deep in mid stream.
Do	6	.....	.....	.....	.....	Eastward	Moderate breeze; blowing in squalls, with rain. At 5½ a. m. arrived at Barra.
Barra	7	9 a. m.	78	.....	77	Calm	Rain during last night.
Do	7	3 p. m.	80½	.....	.....	Eastward	Moderate breeze; cloudy.
Do	8	9 a. m.	80	.....	78	Calm	Cloudy and showery.
Do	8	3 p. m.	82	.....	.....	Eastward	Light breeze, (has been fresh;) light cirrus clouds; sun out hot.
Do	9	9 a. m.	79	.....	78	Eastward	Light air, with occasional showers.
Do	10	9 a. m.	78	.....	.....	Eastward	Moderate breeze: rain all the morning.
Do	10	3 p. m.	80	.....	.....	Eastward	Light breeze; clouds rolled up into cumuli.
Do	12	9 a. m.	79	.....	78	Calm	Showery.
Do	12	3 p. m.	80	.....	.....	Eastward	Light air; heavy rain cloud in the north; rain all the evening.
Do	13	9 a. m.	79	.....	77	S. and E.	Light air; misty morning, with showers of rain.
Do	13	3 p. m.	80	.....	.....	.....	Heavy cumuli in the northward and eastward.
Do	14	9 a. m.	80	.....	79	Calm	Cloudy.
Do	14	3 p. m.	80	.....	.....	.....	Showery.
Do	15	9 a. m.	79	.....	77	Eastward	Light air.
Do	15	3 p. m.	81	.....	.....	Eastward	Moderate breeze; cumulus clouds.
Do	16	9 a. m.	78	.....	77	N. and E	Moderate breeze; cloudy; thick rain clouds gathering in northeast.
Do	16	3 p. m.	80	.....	.....	N. and E	Moderate breeze; no rain; cloudy at night.
Do	17	9 a. m.	79	.....	77	.....	Heavy and continued rain all the early part of the morning; showery all day.
Do	17	3 p. m.	79	.....	.....	N. and E	Light breeze; clouds breaking up into cumuli.
Do	18	9 a. m.	79	.....	.....	N. and E	Moderate breeze; cloudy in the morning; smart shower in the afternoon.
Do	19	9 a. m.	78	.....	76½	.....	Cloudy morning; clear in the afternoon and early part of the night.
Do	20	9 a. m.	78	.....	.....	Calm	Stratus clouds.
Do	20	3 p. m.	85	.....	77½	N. and E	Light breeze; cumulus clouds. Substituted a light gauze covering to the bulb of the thermometer for the thick cotton one it before had, and, instead of dipping it in the water, merely dampened it with a brush.
Do	21	9 a. m.	79	.....	75½	Calm.	
Do	22	3 p. m.	82	.....	78	N. and E	Moderate breeze; cumulus clouds; rainy morning; showery in the afternoon.
Do	23	9 a. m.	79	.....	76	Calm	Cloudy; occasional light showers.
Do	23	3 p. m.	82	.....	.....	N. and E	Moderate breeze; cirro-cumulus clouds.
Do	24	9 a. m.	76	.....	73	Calm	Showery.
Do	24	3 p. m.	82	.....	.....	Calm	Cumulus clouds; rain during the latter part of the night.
Do	25	9 a. m.	78	.....	.....	.....	Cloudy and sultry all the morning.
Do	25	3 p. m.	82	.....	78	Eastward	Light breeze; cumulus clouds; clear at night.
Do	26	9 a. m.	79	.....	76	Calm	Sultry; thin stratus clouds.
Do	26	3 p. m.	80	.....	.....	.....	Clouds rolled up into cumuli.
Do	27	9 a. m.	77	.....	.....	.....	Heavy rain from 4 a. m. to noon.
Do	27	3 p. m.	.....	.....	.....	.....	Sun out between the clouds; hot. At 5 squall of wind and rain from northward and eastward, with thunder and lightning; rain nearly all night.
Do	28	9 a. m.	77	.....	76	Calm	Rainy morning.
Do	28	3 p. m.	79	.....	.....	.....	Light stratus clouds; pleasant afternoon.
Do	29	9 a. m.	77	.....	.....	.....	Thin cirro-stratus clouds; damp morning.
Do	29	3 p. m.	82½	.....	78½	Eastward	Moderate breeze; cirro-cumulus clouds; at 6 smart rain squall from northeast.
Do	30	9 a. m.	79	.....	.....	Calm	Cloudy; cirro stratus.
Do	30	3 p. m.	84½	.....	79	Westward	Light breeze; stratus clouds in the west; cumuli in the east and northeast.
Do	31	9 a. m.	79	.....	.....	Calm	Thin stratus clouds; light rain occasionally.
Do	31	3 p. m.	78	.....	75½	Calm	Cloudy; showery all the forenoon, with cool damp wind from southward and westward.
Do	Feb. 1	9 a. m.	76	.....	.....	Calm	Cloudy; thin stratus clouds.
Do	1	3 p. m.	80	.....	.....	Eastward	Light breeze; cirrus clouds.
Do	2	9 a. m.	79½	.....	.....	Eastward	Light breeze; cirrus clouds; generally clear.
Do	2	3 p. m.	83	.....	79	Calm	Cumulus clouds gathering thick in northward and eastward; much heavy rain during the night, with thunder and lightning.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1852.		°	°	°		
Barra	Feb. 3	9 a. m.	77	.....	.....	Calm	Cloudy.
Do.	3	3 p. m.	78½	.....	76	N. and E	Light breeze; clouds breaking up into light cumuli.
Do.	4	9 a. m.	77	.....	.....	Calm	Clear; fresh pleasant breeze from the eastward, with hot sun, nearly all day; calm, with cirro-cumulus clouds gathering in the evening.
Do.	5	9 a. m.	78	.....	.....	Calm	Clear.
Do.	6	9 a. m.	77½	.....	.....	Eastward	Light breeze; clear.
Do.	6	3 p. m.	82	.....	79	S. and E.	Light breeze; rain clouds gathering in the southeast; at 4 squall of wind and heavy rain.
Do.	7	3 p. m.	81½	.....	78½	S. and E.	Light breeze; cumulus clouds.
Do.	8	9 a. m.	78	.....	.....	Eastward	Light breeze; stratus clouds.
Do.	8	3 p. m.	79½	.....	79	.....	Shower of rain from southward and eastward, wind afterwards changing to the northward.
Do.	9	9 a. m.	76	.....	.....	Calm	Clear; light cumuli around the horizon, breaking off into cirri.
Do.	9	3 p. m.	81	.....	78	.....	Cumulo-stratus clouds; has been rain between 9 and 3.
Do.	10	9 a. m.	79½	.....	.....	Calm	Cumulus clouds; sun hot.
Do.	10	3 p. m.	83½	.....	.....	Northward	Light air; rain up the river, in the west; at 4 squall of wind and rain from the eastward.
Do.	11	9 a. m.	80	.....	.....	N. and E	Moderate breeze; cirro-cumulus clouds; showers during the forenoon.
Do.	11	3 p. m.	83	.....	79	N. and E	Cumulus clouds, with cirrus haze overhead.
Do.	12	9 a. m.	79	.....	.....	Calm	Cirro-cumulus clouds; rain squall from the northward all the forenoon after 10.
Do.	12	3 p. m.	78	.....	.....	Calm	Rain all day.
Do.	13	9 a. m.	78	.....	.....	Calm	Cloudy; very pleasant day; rain during the night.
Do.	14	9 a. m.	78	.....	.....	Southwardly	Light breeze; cumulo-stratus clouds.
Do.	14	3 p. m.	78	.....	.....	Calm	Rainy; heavy rain during the night.
Do.	15	9 a. m.	77	.....	.....	Northward	Light air; pleasant morning; at 3 p. m. calm; light drizzle; thermometer 79.
Rio Negro	18	8 a. m.	80	.....	.....	Calm	Cloudy; sailed from Barra at ¼ to 9 a. m.; very little current in the river.
Do.	18	Noon	86	.....	.....	Eastward	Fresh breeze; current not sufficiently strong to carry us, with the aid of our 5 paddles, against the breeze; so we had to stop till the breeze went down; dropping rain; thunder.
Do.	18	3 p. m.	77	83½	.....	S. and E.	Light air; current of the Amazon 1½ mile the hour.
Amazon	19	9 a. m.	82½	.....	.....	Eastward	Light breeze; saw the mark of high water about 8 feet above the present level.
Do.	19	3 p. m.	81½	.....	80	N. and E.	Light breeze; stratus overhead and to the westward; cumuli in the east.
Do.	20	6 a. m.	76½	.....	75	Calm	Stratus clouds; rain nearly all night, with distant lightning to the eastward.
Do.	20	9 a. m.	77½	82	.....	S. and E.	Moderate breeze, with light rain squalls; at 12½ squalls ceased; wind came out from northward and westward light.
Do.	20	3 p. m.	77	.....	77	N. and W.	Fresh breeze; stopped at mouth of the Madeira.
Do.	21	6 a. m.	75	81	.....	Eastward	Moderate breeze; cirro-stratus clouds; mouth of the Madeira about 2 miles broad; depth 11 fathoms; current 3½ miles the hour.
Do.	21	11 a. m.	80	.....	.....	Eastward	Stopped a few hours at Serpa; high-water mark 12 feet above the present level.
Do.	21	3 p. m.	83½	.....	79	Eastward	Cumulus clouds.
Do.	21	6 p. m.	80	.....	.....	Eastward	Squally, and rainy appearances.
Do.	21	9 p. m.	78½	.....	.....	Calm	Light rain.
Do.	22	6 a. m.	78	.....	76	N. and E	Moderate breeze; patches of blue sky, with all sorts of clouds.
Do.	22	9 a. m.	76	82	.....	N. and E.	Fresh breeze; stratus clouds; quite a high sea; had to stop several hours on account of it.
Do.	22	6 p. m.	80	.....	.....	Eastward	Light breeze; cirro-cumulus clouds.
Do.	22	Mid.	77	.....	.....	Eastward	Cool damp breeze.
Do.	23	6 a. m.	76	.....	75	Eastward	Light breeze; stratus clouds.
Do.	23	9 a. m.	76	.....	.....	N. and E.	Squally, with light rain; stopped at 1 p. m. on account of heavy squall of wind from the northward and eastward, with high sea; current of the Amazon 3½ miles; it has increased very much since the entrance of the Madeira.
Do.	23	9 p. m.	80	.....	.....	Calm.	
Villa Nova	24	9 a. m.	76				
Amazon	25	6 a. m.	77	.....	76	Northward	Light air; stratus clouds; rain till 8½.
Do.	25	9 a. m.	78	.....	.....	Northward	Light air; cirro-cumulus clouds.
Do.	25	3 p. m.	85	.....	80	Calm	Cirro stratus clouds; rain nearly all night; wind from northward and eastward, with thunder.
Obidos	26	10 a. m.	81	.....	.....	.....	Rain all the afternoon and nearly all night.
Do.	27	.....	.....	.....	.....	N. and E.	Moderate breeze; very pleasant day; rain most of the night.
Do.	28	.....	.....	.....	.....	.....	Rain nearly all the morning and all night.
Do.	29	6 p. m.	79	.....	.....	Southward	Rainy morning; sailed from Obidos; smart rain during the night.
Amazon	Mar. 1	6 a. m.	77	.....	.....	S. and E.	Light air; rainy. Entered the Tapajos by a creek 100 yards wide, 5 fathoms deep, and 3 miles long. Tapajos 1¼ mile wide at Santarem; dark water; deep. Heavy rain from 10 p. m. to 1 a. m.
Santarem	2	9 a. m.	79	.....	.....	S. and E.	Moderate breeze; stratus clouds; pleasant day.
Do.	2	3 p. m.	82	.....	.....	.....	Heavy rain during the night.
Do.	3	9 a. m.	78	.....	.....	S. and E.	Squalls of wind; rain all the early morning.
Do.	3	3 p. m.	81	.....	.....	Eastward	Moderate breeze; clouds and rain down the river.
Do.	4	9 a. m.	78	.....	.....	S. and E.	Rainy morning.

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Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1852.		°	°	°		
Santarem	Mar. 4	3 p. m.	82	.....	79	.....	Cirrus clouds floating about.
Do.	5	9 a. m.	78	.....	.....	S. and E.	Light breeze; cloudy; heavy rain and strong wind from the eastward all last night; from 10 to 3 fresh wind from the northward and eastward, veering to the eastward, with heavy rain.
Do.	5	3 p. m.	81	.....	.....	.....	Rain again during the night.
Do.	6	.....	.....	.....	.....	.....	Cloudy; showery morning; moderate breeze from the eastward, subsiding into calm, with heavy showers; clear and pleasant afternoon and evening, with light breeze from the westward.
Do.	7	9 a. m.	79	.....	.....	N. and E.	The afternoons are mostly clear.
Do.	8	.....	.....	.....	.....	.....	Light breeze; drizzly morning, with showers.
Do.	9	9 a. m.	79½	.....	.....	Calm	Pleasant day; heavy rain all the afternoon.
Do.	9	3 p. m.	82½	.....	79	N. and E.	Cumulo-stratus clouds.
Do.	10	9 a. m.	78½	.....	.....	.....	Light air; a few cirrus clouds.
Do.	10	3 p. m.	80	.....	78	Calm	Raining till noon.
Do.	11	9 a. m.	79	.....	.....	Calm	Cumulo-stratus clouds; rain during the night.
Do.	11	3 p. m.	79	.....	77½	.....	Cloudy; drizzly.
Do.	12	9 a. m.	79	.....	.....	Eastward	Cloudy; pleasant night.
Do.	12	3 p. m.	80½	.....	79	N. and E.	Cumulo-stratus clouds; occasional showers; moderate and pleasant breeze.
Do.	13	9 a. m.	79	.....	.....	S. and E.	Light breeze; cirro-stratus clouds; rain during the night.
Do.	13	3 p. m.	84½	.....	81	Eastward	Moderate breeze; cumulus clouds; nearly clear all day.
Do.	14	9 a. m.	.....	.....	.....	N. and E.	Light breeze; cumulus clouds.
	14	3 p. m.	82½	.....	79½	Eastward	Light breeze; rainy morning; pleasant day.
Do.	15	9 a. m.	77½	.....	.....	.....	Light breeze; cirro-cumulus clouds; at 8 p. m. squall of wind, rain, thunder, and lightning, from northeast; much heavy rain during the night.
Do.	15	Noon	78	.....	.....	.....	Rain all the morning.
Do.	16	3 p. m.	82	.....	79	N. and E.	Raining.
Do.	17	9 a. m.	80	.....	.....	Southward	Moderate breeze; light cirro-cumulus clouds.
Do.	18	9 a. m.	78½	.....	.....	Eastward	Cool, pleasant breeze; cumulo-stratus clouds; hot and close afternoon; heavy squalls of wind, rain, thunder, and lightning, from the northward and eastward.
Do.	18	3 p. m.	82	.....	.....	Calm	Light breeze; rainy morning; breeze freshened up, and blew all the forenoon from northward and eastward.
Do.	19	9 a. m.	79	.....	.....	N. and E.	Close and hot all the afternoon; squall of wind and rain, with thunder and lightning, during the night.
Do.	19	3 p. m.	82	.....	80½	N. and E.	Rainy morning; clearing gradually.
Do.	20	9 a. m.	79	.....	.....	Calm	Light air; light cirro-stratus clouds; from 10 p. m. to 6 a. m. heavy rain squalls, with very sharp lightning and thunder.
Do.	20	3 p. m.	81½	.....	80	Eastward	Cloudy, but breaking away.
Do.	21	9 a. m.	79	.....	.....	Calm	Light breeze; cirro-cumulus clouds.
Do.	22	9 a. m.	79	.....	.....	Northward	Cloudy, stratus; close and calm all day; at sunset misty, smoky atmosphere.
Do.	22	3 p. m.	76½	.....	75	N. and E.	Light breeze; squally, with occasional showers, during the day.
Do.	23	9 a. m.	78	.....	.....	N. and E.	Fresh breeze; cumulo-stratus clouds; raining.
Do.	23	3 p. m.	80½	.....	78½	N. and E.	Light breeze; cirro-stratus; pleasant day.
Do.	24	9 a. m.	79	.....	.....	Eastward	Light breeze; cirro-stratus.
Do.	24	3 p. m.	82	.....	79½	Eastward	Moderate breeze; cirro-stratus clouds above; light watery cumuli flying, with the wind beneath.
Do.	25	.....	.....	.....	.....	.....	Light breeze; sun hot; pleasant day.
Do.	26	9 a. m.	79	.....	.....	N. and E.	Showery all day; breeze from northward, northward and eastward, and eastward; sun hot.
Do.	26	3 p. m.	82	.....	78½	Eastward	Light breeze; pleasant, though warm day.
Do.	27	3 p. m	83	.....	80½	Northward	Moderate breeze; cirrus clouds.
Do.	28	3 p. m	85	.....	80	.....	Light breeze; cumulus clouds; sun hot.
Amazon	28	Mid	.....	.....	.....	.....	Moderate breeze from eastward all day; cirro-cumulus clouds; sun hot. Left Santarem at 7 p. m.
Do.	29	6 a. m.	79	.....	.....	Calm	Squall of wind and rain from northward and eastward, with thunder and lightning; frequent showers during the night.
Do.	29	9½ a. m.	82	.....	.....	N. and E.	Cloudy.
Do.	29	3 p. m	83	.....	79½	N. and E.	Moderate breeze; cumulus clouds.
Do.	29	6 p. m	80	.....	.....	Northward	Light air; cirro-cumulus clouds.
Do.	30	6 a. m.	.....	.....	.....	.....	Light air; at 6½ a fine breeze sprung up from the northward and westward, and arrested the clouds that were flying over the moon from the eastward, banking them up. Lightning in the northeast. The easterly bad weather was too strong; the westerly breeze fell, and we had heavy rain from the eastward. Took shelter in a patch of grass on the right bank at 7 p. m. Started at 8; weather looking dirty, we stopped again at 9; had furious squall of wind, with thunder and lightning, from northeast.
Do.	30	9 a. m.	78	.....	.....	.....	Heavy rain.
Do.	30	3 p. m	81	.....	78	Calm	Rain all the morning. High land of Monte Alegre opposite, accounting for the bad weather.
Do.	31	6 a. m.	77	.....	.....	N. and E.	Cirro-stratus clouds.
Do.	31	9 a. m.	80	.....	.....	N. and E.	Light breeze; cirro-stratus clouds; cumuli, threatening rain, in east and southeast.
Do.	31	3 p. m.	83	.....	80	Calm	Moderate breeze; cirro-cumulus clouds.
							Cumuli about the horizon; cirrus clouds overhead.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1852.		°	°	°		
Amazon	Mar. 31	6 p. m.	80			N. and E.	Fresh breeze; cumulo-stratus clouds, threatening rain. We have found cumulus clouds and rain over all the chains of hills we have passed to-day; and this is generally the case.
Do.	April 1	6 a. m.	78			N. and E.	Light air; sun rising clear.
Do.	1	9 a. m.	81			N. and E.	Moderate breeze; cumulus clouds.
Do.	1	3 p. m.	80			Eastward	Light breeze, and rainy.
Do.	1	6 p. m.	80			Eastward	Light breeze; stratus clouds; rain during the night.
Garupá	2	9 a. m.	79			Calm	Cirro-cumulus clouds; noticed the tide first at Gurupá; it fell about 2 feet during the 3 hours we were there.
Amazon	2	3 p. m.	83		79	Calm	Cumulo-stratus about the horizon, threatening bad weather.
Do.	3	6 a. m.	76			Calm	Cirro-stratus clouds. We are now navigating in narrow channels between islands, near the right bank of the Amazon.
Do.	3	9 a. m.	82			Eastward	Light breeze; stratus clouds, breaking up into cumuli; heavy squall of wind and rain from the eastward between 12 and 1 p. m.; rain, in very large drops.
Do.	3	3 p. m.	77			Calm	Rainy.
Do.	4	6 a. m.	77			Calm	Stratus clouds; find the flood tide so strong now as to compel us to stop whilst it is running.
Do.	4	9 a. m.	82			N. and E.	Light air; stratus, breaking into cumuli; at 11 passed Breves.
Do.	4	3 p. m.	85½		82	Eastward	Light air; heavy cumulus clouds round the horizon; distant thunder.
Do.	5	6 a. m.	78			Calm	Light cirro-stratus clouds.
Do.	5	9 a. m.	80			Eastward	Light air; cumulo-stratus clouds.
Do.	5	3 p. m.	81			N. and W	Light breeze; cumulus clouds; dirty, disagreeable night; wind from southward and eastward; cold rain.
Do.	6	6 a. m.	76			N. and W	Light breeze; cloudy, stratus.
Do.	6	9 a. m.	77½			N. and E.	Moderate breeze; cumulo-stratus clouds.
Do.	6	3 p. m.	83		80	Eastward	Fresh breeze; cumulus clouds.
Do.	7	6 a. m.	78			Calm	Clear; a few watery-looking cumuli about the horizon.
Do.	7	9 a. m.	84			Calm	Heavy cumuli about the horizon; sun very hot.
Do.	7	3 p. m.	86½			S. and E.	Light breeze; cumulus clouds.
Do.	7	6 p. m.	82			Calm	Clear, except in the west; rainy night, with thunder and lightning; wind from the eastward.

Do.	8	6 a. m.				Northward	Light breeze; raining hard. At 8 started to cross Limociro
Do.	8	9 a. m.	78			Northward	Moderate breeze; still raining. bay, wind blowing fresh; thick mist and rain; smart sea running; lying at an island in Limociro bay.
Do.	8	3 p. m.	81			N. and E.	Moderate breeze, with squalls of wind and rain.
Do.	8	6 p. m.	79			N. and E.	Moderate breeze; light, fleecy, and windy-looking clouds; crossed from the island to the western shore of Limociro bay, 5 miles.
Do.	9	6 a. m.	78			Calm	Stratus clouds; entered again into the creeks and channels on the right bank of the Amazon.
Do.	9	3 p. m.	80			Calm	Light stratus clouds.
Do.	10	6 a. m.	76			Calm	Light stratus clouds, with an occasional sprinkle of rain; at town of Sta. Ana.
Do.	10	9 a. m.	79	78		Calm	Cloudy.
Do.	10	3 p. m.	78			N. and E.	Light breeze; cumulo-stratus clouds; entered the river Moju.
Rio Moju	11	6 a. m.	76			Calm	Stratus clouds.
Do.	11	9 a. m.	78			Eastward	Light breeze; drizzly.
Do.	11	3 p. m.	78			S. and E.	Fresh breeze; misty, with occasional light rain; arrived at Pará at 9½.
Pará	12	6 a. m.	76			Calm	Thin stratus clouds, sun shining through them.
Do.	12	11 a. m.				N. and E.	Fresh breeze set in, bringing rain shower.
Do.	12	3 p. m.	80				Pleasant, clear evening; barometer 29.730.
Do.	13	9 a. m.	81			Calm	Misty morning; usual breeze from NNE., with rain set in at noon.
Do.	13	3 p. m.	82				Clear evening; barometer 29.690.
Do.	14	8 a. m.	80			Calm	Light cirro-cumulus clouds; breeze from NNE. during the day, with rain.
Do.	14	3 p. m.	83¼				Barometer 29.665.
Do.	15					S. and W.	Light breeze; misty morning; wind set in from NNE. at 12, with clouds and rain; continued cloudy, with occasional light rain, till after 3.
Do.	15	3 p. m.	80½		75	Eastward	Barometer 29.685.
Do.	16	9 a. m.	81			Eastward	Moderate breeze; barometer 29.735; at 12 breeze from ENE., with rain squalls.
Do.	16	3 p. m.	81½		76½	ENE.	Cumulo-stratus clounds; thunder; barometer 29.675.
Do.	17	9 a. m.	82½		77½	NE	Light air; cirro-cumulus clouds; barometer 29.732.
Do.	17	3 p. m.	84½		78½	NE	Fresh breeze; cumulo-stratus clouds; barometer 29.640.
Do.	18	9 a. m	81½		77½	NE	Light breeze just set in; light flying cumuli.
Do.	18	3 p. m.	81½		77	NNE	Moderate breeze; cumulo-stratus clouds; occasional showers of rain.
Do.	19	9 a. m.	83		78	Eastward	Light air; watery-looking cumuli moving southwest.
Do.	20	9 a. m.	78			Eastward	Light breeze, and cloudy; cirro-stratus; heavy rain squalls all the forenoon; pleasant afternoon and evening.
Do.	21	9 a. m.	79		76½	Eastward	Light air; cirro-cumulus clouds.
Do.	21	3 p. m.	81½		77½	N. and E	Moderate breeze; heavy cumulus clouds.
Do.	22	3 p. m.	85½		79	NNE	Moderate breeze; cumulo-stratus clouds.

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METEOROLOGICAL JOURNAL—Continued.

Place.	Date.	Time.	Thermometer. A.	Thermometer. W.	Thermometer. W. B.	Wind.	Remarks.
	1852.		°	°	°		
Pará	April 23	3 p. m.	79½	.....	77	Variable	Light winds; showery; calm in the morning; at 11 the breeze set in from the northward and eastward, with showers.
Do	24	9 a. m.	79	.....	.....	Calm	Cloudy all the morning.
Do	24	3 p. m.	80	.....	75	Westward	Light air; cloudy, stratus.
Do	25	9 a. m.	79½	.....	.....	Calm	Light cirrus clouds overhead; cumuli about the horizon; during the forenoon moderate breeze from the northwest, changing about 2 p. m. to northward.
Do	25	3 p. m.	80	.....	76		
Do	26	9 a. m.	79	.....	.....	Calm	Cloudy, cirro-stratus; pleasant morning.
Do	27	9 a. m.	75½	.....	.....	WNW	Cool breeze, with light rain; breeze gradually hauled to the northward and eastward, and the weather changed to pleasant.
Do	28	9 a. m.	79½	.....	75	Calm	Cirrus clouds overhead; cumuli about the horizon; pleasant weather.
Do	28	3 p. m.	84	.....	75½	N. and E	Moderate breeze; light cirri overhead.
Do	29	9 a. m.	80½	.....	.....	NE	Light breeze; cumulus clouds round the horizon, breaking off and rising up as cirro-cumuli.
Do	29	3 p. m.	82	.....	77	NW	Moderate breeze; heavy clouds in the northwest; light spits of rain from passing clouds.
Do	30	9 a. m.	80	.....	76	Northward	Cirro-stratus clouds; sun oppressive.
Do	30	3 p. m.	80½	.....	76½	NW	Moderate breeze; blowing in squalls from NNE. at 2, to NW. at 3; cumulo-stratus clouds, with spits of rain.
Do	May 1	9 a. m.	77	.....	.....	Northward	Moderate breeze, with light clouds and rain.
Do	1	3 p. m.	82	.....	76	NNW	Moderate breeze; cumulus clouds.
Do	2	9 a. m.	79	.....	75	NE	During the morning moderate breeze from WSW., (with thin stratus clouds,) hauling round, by west and north, to northeast; at 1 clouds breaking up into thin cumuli.
Do	2	3 p. m.	85½	.....	77½	WNW	Clear overhead; cumuli about the horizon.
Do	3	9 a. m.	80½	.....	.....	Eastward	Light breeze; stratus clouds.
Do	3	3 p. m.	80	.....	.....	Calm	Showery, with thunder and lightning.
Do	4	9 a. m.	80	.....	77	N. and E	Light breeze; cirro-cumulus clouds.
Do	4	3 p. m.	80	.....	77	NNE	Moderate breeze, (has been fresh, with rain;) cloudy, cumulo-stratus.
Do	5	6 a. m.	78	.....	.....	Calm	Misty.
Do	5	9 a. m.	80½	.....	76½	N. and E	Light breeze; cirro-cumulus clouds.
Do	5	3 p. m.	84	.....	78½	Northward	Moderate, but unsteady and uncertain breeze; heavy rain clouds in northeast and east.
Do	6	9 a. m.	80	.....	77	Southward	Light air; cirro-cumulus clouds; very heavy rain between 5 and 8 p. m., with sharp lightning and thunder.
Do	7	9 a. m.	80	.....	77	S. and E	Light breeze; light cirro-cumulus clouds.

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ADDENDUM.

Since I had the honor of submitting the foregoing report, events concerning the political and social condition of the countries drained by the Amazon and its tributaries have occurred, which make it highly expedient and proper, for the better information of the government and people of this country, that I should make this addendum.

My report, which sets forth the extreme fertility of the Amazonian regions, their varied and rich natural productions, and the salubrity of the climate, joined to the report of discoveries of gold in the sands of the Santiago and Napo, and in the vallies of Carabaya, has excited great attention; and a crowd of emigrants is already flocking into those parts. My friend and companion Ijurra, in company with a German named Shütz, has carried out, under the auspices, and at the expense, of the Peruvian government, a colony of about two hundred Germans and Peruvians. Another company nearly as large, consisting of Peruvians and North Americans, has followed, under the guidance of a Peruvian named Montesa; and lately a ship has arrived from Australia, bringing out a hundred emigants, bound to the gold regions. This ship, the "Lancaster," reports that great excitement exists in Australia regarding the Peruvian mines; that her passenger list was filled in less than twenty-four hours after being advertised; and that there will be an immense emigration to Peru from Australia within the next three or four months. A slip from the Lima "Foreign News" of March 25, 1854, says:

"The stories of 25-pound lumps found on the Amazon have had a similar effect in Australia to the first news received in the United States of the discovery of gold in California. It is difficult to judge correctly, from so many different reports, the probable number that will soon arrive here. Some say 5,000; others 30,000; but we imagine the former to be nearer the mark. Many of them no doubt will be greatly disappointed. They will arrive here expecting at least to find a good road opened to the reported mines; but in place of that they will learn—so little interest is here taken in the matter—that not a single river has been bridged, nor a single mountain trail been improved. Since writing the above, we have learned that a party of natives have, for some time past, been working on the trail beyond Moyobamba. As we understand there is a good mule-road from the coast to that place, parties will

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probably experience no difficulties in going clear through to the head-waters."

Dr. Whitmore, an American, has carried up two small steamers for the Peruvian government, to be used in the exploration and survey of the Peruvian tributaries of the Amazon. American engineers, firemen, and mechanics, with one or two adventurers, went out in them.

Here, then, we have, and that, too, upon no contemptible scale, the commencement of the settlement of that great country. Whether the settlers find gold or not, of which I have no doubt, though I cannot endorse the reports of its being found in 25-pound lumps, and I think that its collection will be attended with great exposure, privation, and hardship, I am satisfied that they will never come away. The few things there necessary for the maintenance of a comfortable life, the little labor required to obtain those necessaries, the delicious and rather enervating climate, and the absence of all the restraints that are found tedious and irksome to the natural man amid the refinements of civilization, all operate with a powerful force to keep them there; and I think that, from this time forth, population, civilization, and prosperity will march with an ever forward step over those wild domains.

I have been always cautious in my report in speaking of the salubrity of that country; and I feared that, even only in so far as I had gone in this respect, my account should be disbelieved by many; but hear what Wallace, an English naturalist, who was in the country at the same time that I was, and has since published a narrative of his sojourn there, says (p. 16) upon this point:

"The climate, so far as we have yet experienced, was delightful. The thermometer did not rise above 87 in the afternoon, nor sink below 74° during the night. The mornings and evenings were most agreeably cool; and we had generally a shower and a fine breeze in the afternoon, which was very refreshing, and purified the air. On moonlight evenings, till 8 o'clock, ladies walk about the streets and suburbs without any head-dress, and in ball-room attire; and the Brazilians in their *roçinhas* sit outside their houses, bare-headed, and in their shirt sleeves, till 9 or 10 o'clock, quite unmindful of the night airs and heavy dews of the tropics, which we have been accustomed to consider so deadly."

He is speaking of the climate at Pará. Again he says, (p. 429:) "Had I only judged of the climate of Pará from my first residence of a year, I might be thought to have been impressed by the novelty of the tropical climate; but on my return from a three years sojourn on the upper Amazon and Rio Negro, I was equally struck with the wonderful freshness and brilliancy of the atmosphere, and the balmy mildness of the evenings, which are certainly not equalled in any other part I have visited."

At Santarem, (p. 157) he says: "The constant exercise, pure air, and good living, notwithstanding the intense heat, kept us in the most perfect health, and I have never, altogether, enjoyed myself so much."

Page 80. "In the districts we passed through, sugar, cotton, coffee, and rice might be grown in any quantity, and of the finest quality. The navigation is always safe and uninterrupted, and the whole county is so intersected by *Igarapés* and rivers, that every estate has water carriage for its productions. But the indolent disposition of the people, and the scarcity of labor, will prevent the capabilities of this fine country from being developed till European or North American colonies are formed. There is no country in the world where people can produce for themselves so many of the necessaries and luxuries of life; Indian corn, rice, mandioca, sugar, coffee, cotton, beef, poultry, and pork, with oranges, bananas, and abundance of other fruits and vegetables, thrive with little care. With these articles in abundance, a house of wood, calabashes, cups and pottery of the country, they may live in plenty, without a single exotic production. And then what advantages there are in a country where there is no stoppage of agricultural productions during winter, but where crops may be had, and poultry may be reared, all the year round; where the least possible amount of clothing is the most comfortable, and where a hundred little necessaries of a cold region are altogether superfluous. With regard to the climate, I have said enough already; and I repeat, that a man can work as well here as in the hot summer months in England, and that if he will only work three hours in the morning and three in the evening, he will produce more of the necessaries and comforts of life, than by 12 hours daily labor at home."

(P. 334.) "It is a vulgar error, copied and reported from one book to another, that, in the tropics, the luxuriance of the vegetation overpowers the efforts of man. Just the reverse is the case; nature and the climate are nowhere so favorable to the laborer, and I fearlessly assert, that here the 'primeval' forest can be converted into rich pasture and meadow lands, into cultivated fields, gardens, and orchards, containing every variety of produce, with half the labor, and what is of more importance, in less than half the time that would be required at home, even though there we had clear instead of forest ground to commence upon."

This is the testimony of a man who suffered great hardships in the pursuit of science, amid the rapids and falls of the rivers Negro and Uapes—who was beset with the chills and fever, incident to the great labor and exposure necessary in passing those rapids in an open boat—

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who lost his brother of yellow fever at Pará, and who finally had the ship in which he had taken passage to England, with all his collections, burned under him on the broad Atlantic.

He cannot be supposed to have seen things "couleur de rose," or to be a witness with a favorable bias; and I quote him in order to support my own opinion that the climate is good, the country generally healthy, and that few who undertake to settle there will be willing to come away.

With the fact before us that many persons have gone even by the tedious, difficult, and dangerous passes of the Cordillera, to settle in the Amazonian basin, and that, to my personal knowledge, many more are desirous to go, the action of the Brazilian government in closing the lower waters of that river, and forbidding access, at least for any purposes of trade or exploration, to the countries drained by the tributaries of the Amazon belonging to the Spanish American republics, becomes a matter of grave importance to the world at large, and induces a disposition to scrutinize with severity her right to do so.

I have too little acquaintance with the "jus gentium" to attempt to argue the question; nor is it my province to do so; but I believe it to be clearly my duty to place all the facts and circumstances of the case before this government and people, that they may take the matter into consideration, and judge for themselves.

My own opinion is, that Brazil herself doubted this right, or else why should she have sent ambassadors to the Spanish American republics for the purpose of making exclusive treaties of navigation with them? She did not need these treaties, for I know that her vessels passed freely, enjoying, without let or hinderance, all the privileges that treaty could give, and traded upon any tributaries of the Amazon where they pleased, and that Peru and Bolivia were glad to have them do this, though she denied the same privileges to them on the Brazilian Amazon. Indeed, a writer in the government paper at Rio de Janeiro, and one apparently who "spoke by the card," declared that the principal object in these treaties was the keeping of the "*pirate Yankees*" out of the Amazon. Let us see how they succeeded. The Chevalier Da Ponte Ribeiro was sent by the Emperor to Lima for the purpose of making the treaty with Peru. He was an able and astute negotiator, but, unfortunately for his object, he had the hawk-eye of the best-trained, most experienced, and probably in an official sense, ablest diplomat of the United States upon him. Clay threw no obstacles in his way; he permitted him to make his treaty, (by which Peru gave to Brazil the right to navigate her interior waters,) and then immediately demanded of

the Peruvian government the fulfilment of the obligations of a treaty which that government had just concluded with him, by which it was bound to give to the citizens of the United States all the rights and privileges which it should hereafter grant to those of the most favored nation, and by which also it guaranteed to American citizens the right to "frequent with vessels all the coasts, ports, and *places*, at which foreign commerce is or may be permitted."

The case was too strong to admit of question. Tirado, the Peruvian minister, immediately admitted the justice of the claim, and his government issued a decree throwing open to us the same ports that she had thrown open to Brazil.

Cavalcanti, the Brazilian minister in Peru, protested earnestly against this decree, but was told that Peru must perform her treaty stipulations as well with the United States and with England as with Brazil.

I supposed that Clay had completely and finally triumphed; but a remarkable change, for which I am entirely unable to account, (however much I may suspect,) suddenly and unexpectedly took place in the aspect of the affair. The wise, liberal, and enlightened Tirado retires from the Bureau of Foreign Affairs, and is succeeded in that office by Don José Gregorio Paz Soldan, who adopts an entirely different policy; declares that the treaty of navigation concluded with Brazil on the 23d of October, 1851, was a special one regarding the interior waters of the republic, and induces the President to issue a decree explanatory of that of April 15th, 1852, which virtually repeals the 2nd article of that decree, which 2nd article gives to our citizens and vessels the same rights in the Peruvian waters of the Amazon that are given to the subjects and vessels of Brazil by the treaty of 23d of October, 1851.

Clay makes a masterly reply to the reasonings of Paz Soldan upon the subject—protests against the action of the Peruvian government—and declares that "his government will not be disposed to regard such a course as a proof of the desire that Peru has manifested to preserve friendly relations between this republic and that of the United States."

Thus has Peru, at the instance of the Brazilian government, taken a step backward, and sought to again throw over herself the dark mantle of exclusiveness, thereby shutting out the improvement and advantages that would accrue to her from intercourse with the great commercial nations of the earth.

But this exclusive policy does not at all affect the question of the right of Brazil to close the Amazon.

Miguel Maria Lisboa was instructed by Brazil to make a treaty with Bolivia, similar to the one made by Da Ponte with Peru, but he entirely

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failed in his object. The Bolivian government issued the following decree, dated "La Paz, 27th January, 1853:"

"Whereas, 1st, the eastern and western parts of the republic, enclosing vast territories of extraordinary fertility, intersected by navigable rivers flowing to the Amazon and to the La Plata, offers the most natural channels for the commerce, population, and civilization of these districts;

"Whereas, 2d, the navigation of these rivers is the most efficacious and certain means of developing the riches of this territory, by placing it in communication with the exterior, and applying to its waters the fruitful principle of free navigation, as useful to the interests of the republic as to those of the world;

"Whereas, 3d, by the law of nature and of nations, confirmed by the conventions of modern Europe, and applied in the New World to the navigation of the Mississippi, Bolivia, as owner of the Pilcomayo, of the tributaries and the greater part of the Madeira, of the left shore of the Itenes from its junction with the Saravé to its emptying into the Mamoré, of the western bank of the Paraguay to the Marco del I——, as far as 26° 54′ of south latitude, and of the greater part and the left shore of the Bermejo, has the right to navigate these rivers from the point in her territory in which they may be susceptible of it to the sea, without any power being able to arrogate to itself the exclusive sovereignty over the Amazon and La Plata;

"Whereas, 4th, this navigation cannot be effected without the necessary ports are afforded for trade;

"Therefore, be it decreed:

"ART. 1. The Bolivian government declares free to the commerce and mercantile navigation of all the nations of the globe the waters of the navigable rivers which, flowing through the territory of this nation, empty into the Amazon and Paraguay.

"ART. 2. The following are declared free ports, open to the traffic and navigation of all vessels of commerce, whatever may be their flag, destination, or tonnage:

"In the river Mamoré—Exaltacion, Trinidad, and Loreto.

"In the Beni—Renenavaque, Muchanis, and Magdalena.

"In the Piray—Cuatro, Ojos.

"In the Chaparé—Coni and Chimoré, tributaries of the Mamoré, the points of Asunta, Coni, and Chimoré.

"In the rivers Mapiri and Coroico, tributaries of the Beni, the points of Guanay and Coroico.

"In the Pilcomayo—the port of Magriños, on the east coast of the Paraguay, La Bahia Negra, and the point of Borbon.

"In the Bermejo—the point situated in 21° 30′ south latitude, at which embarked, in 1846, the national engineers Ondarza and Mujia.

"ART. 3. The vessels of war of friendly nations will also be permitted to visit these ports.

"ART. 4. The government of Bolivia, availing itself of the unquestionable rights which the nation has to navigate these rivers as far as the Atlantic, invites all the nations of the earth to navigate them, and promises—

"1st. To donate in the Bolivian territory, for the purposes which the law allows, tracts of land from one league to twelve leagues square, to the individuals or companies who, sailing from the Atlantic, shall arrive at any one of the points declared to be ports of entry, and may wish to found near them agricultural or industrial establishments.

"2d. To guaranty the reward of ten thousand dollars ($10,000) to the first steamer which, through the La Plata or Amazon, may arrive at either of the above mentioned points.

"3d. To declare free the river exportation of the products of the earth, and of the national industry.

"4th. In due time there will be established and regulated at the above-mentioned points, where it may be necessary, custom-houses for the loading and unloading of merchandise, the government seeing that the charges for the use of these custom-houses may be as moderate as possible.

"5th. This decree will be submitted for the examination and approval of Congress on their next meeting.

"6th. The Minister of State, in the office of foreign relations, is charged with its fulfilment, by circulating it and communicating it to all whom it may concern.

"Given in the Palace of the Supreme Government, in the place of Ayacucho, 27th of January, 1853, 44th of independence, and 4th of liberty.

"MANUEL ISIDORO BELZU.
"RAFAEL BUSTILLO.
"*Minister of Foreign Relations.*

A certified copy:
"AMARO ALVAREZ,
"*El Official Mayor.*"

Lisboa also failed in Ecuador. Here is a copy of a law passed by the Congress of Ecuador, on the 26th of November 1853:

"*To the Senate and House of Representatives of Ecuador, in Congress assembled.*

"Whereas it is a necessary measure to open to foreign trade the Amazon and all the Ecuadorian rivers which flow into it; and whereas,

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in order to attract navigation and commerce, we should hold out some privileges and stimulants to immigrants intending to trade on the said rivers: Therefore we decree—

"1. That the rivers Chinchipes, Santiago, Morona, Pastasa, Tigre, Curaray, Naucuna, Napo, Putumayo, and other streams flowing into the Amazon, are declared of free navigation, including that part of the last named river which belongs to Ecuador.

"2. Vessels navigating the said rivers, to whatever nation they belong, will be free during twenty years from paying any kind of tax, and goods imported during the same time will also be admitted duty free.

"3. The public authorities of Napo, or of any other canton established now, or which may be established hereafter, are authorized to concede thirty *cuadras* of land to foreign or Ecuadorian families, on condition that this land be cultivated for the term of five years from the date thereof, under the penalty of forfeiting the same if this condition is not accomplished. A larger extent of land may be obtained, on the recipient giving a bond for payment twelve and a half years after, if a foreigner, and twenty-five years after if an Ecuadorian, &c.

"4. The present inhabitants of Napo, and along the other Ecuadorian rivers which flow into the Amazon, will have the same privileges as hereinbefore mentioned, the preference in the selection of the land being given to them, as well as a perfect and inalienable title to the possession of the land which they now occupy.

"Given in Quito, capital of the republic, the 26th of November, 1853.

"MANUEL BUSTAMENTE,
President of the Senate.
"NICHOLAS ESPINOSA,
President of the House of Representatives.
"JOSE M. MESTANZA,
Secretary of the Senate.
"FRANCIS J. MONTALVO,
Secretary of the House of Representatives.

"Government House in Quito, capital of the republic, 26th of November, 1853.

"JOSE MARIA URBINA,
"MARCOS ESPINEL,
Minister of the Interior and Foreign Relations.

"Certified:
CAMILO PONCE."

He succeeded in making an exclusive treaty with the executive authorities of New Granada, but it is believed that the Congress of that Republic will not ratify that treaty. I have the copy of a letter from

an eminent statesman of New Granada, to an American diplomatic functionary, of date the 5th of January 1854, of which the following is a translation:

"I said to Don Andres Bello by letter of the 3d of December:

"——— is of opinion, and his government also, that the great American rivers, whose navigation is of interest to various nations, ought to be considered as prolongations of the sea, open to all the world, by natural right, and without the necessity of special treaty stipulations, the Amazon being in this category.

"How far will this doctrine, which modifies substantially the principles set forth by the Congress of Vienna, be acceptable?

"He replied to me on the 14th. In the question of the freedom of the Amazon and its tributary rivers, I coincide with the opinion of ——— to which you refer. The high station and importance, tending to the general benefit, which commerce has taken in international affairs, and which cannot fail to be higher and greater every day, ought to lead to modifications in the doctrines of international law, which you know is not a stationary or stereotyped science. It has always lent itself to the variable exigencies of civilization; and being progressive, it will accept new principles, or, rather, new applications of old principles to present circumstances; faithful to its primitive intention of moderating the antagonism of nationalities; of overthrowing the barriers of a too exclusive spirit; of embodying the Christian sentiment in international relations; and of fraternizing the people.

"'I would undertake with pleasure a new exposition of the laws of nations in this relation, but I have not time. *Mors atris circumvolat alis.* Others with greater knowledge and strength, will take charge of this beautiful subject.'

"I have a real pleasure in transcribing for you the opinion of the patriarch of South American literature—the publicist, venerated amongst us for his knowledge and his virtues—an opinion so much in accordance with ours, and which, I have no doubt, will have its weight in the decision of the Granadian Congress, against the Brazilian treaty of navigation lately concluded at Bogota, and disapproved by the general sentiment of my countrymen."

We have now the facts of the case before us. Of the five Spanish American republics who own tributaries of the Amazon, two have made exclusive treaties with Brazil regarding their navigation, and I have shown that there is a prospect that the legislative power of one of them (New Granada) will not ratify the treaty; of the action of one, (Venezuela,) I know nothing, though I believe that, by general law, the navi-

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gation of all of her rivers is free. Two (Bolivia and Ecuador) have refused to make an exclusive treaty with Brazil; have issued decrees declaring their tributaries of the Amazon open to the navigation and commerce of the world, and are stretching out their hands asking foreign aid for the development of the great resources of their respective countries. The question comes up, has Brazil the right, under the circumstances, to close the highway to the navigable waters of these countries, and thus deny them what they conceive to be their rights?

It has been argued that this is no business of ours; that it belongs to those Spanish American republics to obtain from Brazil the right of way to and from their ports as we did from France and Spain in the case of the Mississippi; but the argument is not a good one; it leads to no practical results; the cases are not parallel. We were, from the first, a maritime and commercial people. We had ships and seamen; and an outlet for the productions of the Mississippi valley was of so vital importance to us as to make us ready, if necessary, to go to war with France on that question. With the Spanish American republics, on the contrary, "Le jeu n'en vaut pas la chandelle." They have no ships or seamen, and no means of making either, and a war between them and the powerful empire of Brazil would be hopeless. The navigation of the Amazon, restricted to themselves alone, would be valueless to them. We have a greater interest in the matter; for, although the benefit derived from trade and an exchange of commodities is reciprocal, yet we should have (on account of our geographical position with regard to the mouth of the Amazon, and our skill in the construction and management of the river steamboat) nearly all the carrying trade. They have done all they could. Desirous to develop the resources of their country, and to improve their social condition, and knowing that they can do nothing of themselves in the way of trade and commerce, they hold out their hands to us; they throw open their ports to the commerce of the world; and they invite all people to come, offering as inducements, privileges, lands, and money. I think, then, it belongs peculiarly to us to consider whether they have the right to give the invitation, and we the right to accept it.

Let us suppose a case in illustration of this. Suppose that the St. Lawrence were navigable from the sea to the lakes; and that we were to invite the nations of Europe to a free trade with our ports of Buffalo, Cleveland, and Detroit, offering them money, grants of lands, and great advantages if they should come. It seems to me that it would be unwise and improper in us to enter into controversy with England on this point; and that it would be clearly the business of the invited

nation, if they desired to come, to demand of that country the right of way to and from these ports.

Although the opening of the navigation of the Amazon would redound greatly to our advantage, I am very far from desiring that we should enter into controversy, far less into hostile controversy, with Brazil. She is an American nation; she is a friendly nation; she is next to ourselves in power and wealth on this continent. There are great reciprocal advantages in the trade between the two countries, though far the greatest on her side; and there is a sort of bond between us, in the fact that we are both slaveholding nations. Yet, I do think that in her broadly and openly expressed fear of us, she is doing us a wrong, standing in the way of our just rights, and I think that this sentiment should be strongly expressed by our people and our government.

It is true that she does a greater wrong to herself; that she bars the way to her advancement and her glory; but that is her own business, and she has a right to judge for herself.

I have heard it said, and Paz Soldan uses the argument in his correspondence with Clay, that we are exclusive and jealous in this respect, and that we keep the navigation of our rivers to ourselves. This is not so. A Brazilian vessel, or the vessel of any foreign nation, passing through the formalities of the custom-house at New Orleans, may carry her cargo under her own flag to St. Louis, to Memphis, to Cincinnati, ports of delivery, discharge it there, and take in a return cargo for her own country. This is the case on the Hudson, the Potomac, the James, the Rappahannock, and I have no doubt that, whenever a town on navigable waters may desire to be made a port of delivery, the boon will be instantly granted by Congress, unless there be special reasons against it, and foreign vessels will be permitted to load and unload there.

This, too, is on waters belonging exclusively to us. Little, then, would we be disposed to follow the lead of Brazil, and undertake, contrary to right and the laws of nations, to interpose obstacles to foreign nations trading with each other, because the way of this trade was along rivers passing through our territories. Did Great Britain own a navigable tributary of the Mississippi, and were she to declare a port situated on this tributary free and open to the commerce of the world, we would not think of closing the Mississippi, and shutting out that trade. This matter has been discussed, and our ablest statesmen have allowed that we would have no right to do so. It is a bad rule that won't work both ways; what we demand we should always be ready to give, and what we are ready to give, we ought, if just and necessary, to demand.

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It is a perfectly well-known and universally admitted fact that no nation holding the strait that connects two seas, has the right to block up that strait, and prevent the free passage of commerce. Turkey has no right to block up the Dardanelles. Did England own both sides of the straits of Gibraltar, she would have no right to shut up that strait. Denmark has no right to close the Belts; nor Denmark and Sweden together the Sound.

I have read with great interest, a memorial addressed to this Congress by the Commercial Convention that met at Memphis, in June 1853, through Lieut. Maury. Its arguments appear sound and just. I think it important that they should be read and considered as widely as possible, and I therefore quote its concluding pages. It is speaking of the Spanish American Republics of the Amazon.

"They have established the freedom of the seas upon their navigable tributaries of the Amazon. They have invited the world to come and use these waters—to settle upon their banks—to subdue the wilderness there, and replenish the solitary places—to make those lovely countries their homes, and to enjoy perfect freedom of trade for all time.

"Here is a boon to the world; therefore, neither Brazil nor any other nation has the right to oppose that world in the enjoyment of a common good, nor to throw herself in the way of civilization nor of human progress, nor to adopt any policy adverse to the rights of man.

"By these decrees, and the enlightened course of policy which dictated them, the riparian republics have removed the navigation of the Amazon from the condition of a diplomatic question with Brazil, and placed it in the category of a great international question, to be decided and settled, regulated and adjusted, not according to the selfish policy of any government, but according to the enlightened principles which sanctify, give strength to, and make binding the law of nations.

"These decrees have, to all intents and purposes, converted the navigable tributaries of the Amazonian republics into arms of the high seas. Bolivia not only gives all friendly nations the right to navigate these waters for the purposes of commerce, but she gives them the right to send there their men-of-war also. And all the republics offer homes to the immigrant. He is invited to come, and is promised a homestead in fee simple if he will come. The homestead bill has been enacted there upon a grand scale, for whoever will come is to be supplied gratis with land, seeds, and farming utensils. The Congress of Peru has voted half a million of dollars, to encourage settlement and cultivation upon the Amazon.

"This masterly, humane, and wise action, on the part of these republics, has changed, in the international eye of the law, the character of the Amazon, as it flows through the territory of Brazil, and has converted it from a river into a strait, connecting arms—free navigable arms—of the sea with the main ocean. And no nation, even though she own both shores of such a strait, can have the right to shut it up against the world as a common highway. Such is the doctrine of the international code.

"'Straits,' says Wheaton, 'are passages communicating from one sea to another. If the navigation of the two seas thus connected is free, the navigation of the channel by which they are connected ought also to be free. Even if such strait be bounded, on both sides, by the territory of the same sovereign, and is at the same time so narrow as to be commanded by cannon-shot from both shores, the exclusive territorial jurisdiction of that sovereign is controlled by the right of other nations to communicate with the seas thus connected. Such right may, however, be modified by special compact, adopting those regulations which are indispensably necessary to the security of the State whose interior waters thus form the channel of communication between different seas, the navigation of which is free to other nations. Thus the passage of the strait may remain free to the private merchant vessels of those nations having a right to navigate the seas it connects, whilst it is shut to all foreign armed ships in time of peace.

"'So long as the shores of the Black sea were exclusively possessed by Turkey, that sea might, with propriety, be considered a *mare clausum;* and there seems no reason to question the right of the Ottoman Porte to exclude other nations from navigating the passage which connects it with the Mediterranean—both shores of this passage being at the same time portions of the Turkish territory; but since the territorial acquisitions made by Russia, and the commercial establishments formed by her on the shores of the Euxine, both that empire and other maritime powers have become entitled to participate in the commerce of the Black sea, and consequently to the free navigation of the Dardanelles and the Bosphorus. This right was expressly recognised by the seventh article of the treaty of Adrianople, concluded, in 1829, between Russia and the Porte, both as to Russian vessels and those of other European States in amity with Turkey.'—*Wheaton's Elements of International Law, page* 229.

"The international code, though it affords cases which rest upon the principles involved in this question of the Amazon, yet it affords no case precisely similar and parallel to it.

"In the first place, there is no other river in the world like the Ama-

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zon. The treaties of Vienna respecting the great European rivers, and by which the navigation of the Rhine, &c., was declared to be entirely free throughout its whole course, included no case so broad, so comprehensive, so strongly urgent, as is this of the Amazon.

"In the next place, the European rivers simply involved questions purely of commercial convenience; whereas the Amazon not only involves these, but actually includes questions of civilization, of settlement, and of the use of vacant lands, which their proprietors have offered in fee-simple to the laboring men of whatever tongue.

"The valley of the Rhine was already peopled and subdued to cultivation; and, in case the people on its upper waters were barred out through it from the sea, the features of the country were not such as to cut them off from all commercial intercourse with the rest of the world.

"Now, all commercial intercourse between the rest of the world and the Atlantic slopes of those three republics is cut off from the Pacific by the Andes, and there is no other channel to the high seas left except that by way of the Amazon.

"In the case of the great European rivers, the question, as already stated, was chiefly one of commercial convenience and facility of communication; but with the republics of the Amazon it is not only a question of commercial convenience, but a question also of national well-being—of commercial *necessity*—a question of cultivation and settlement, of immigration, of civilization, and it is even a question of humanity; for, unless the Amazon be opened to those republics, their territories bordering upon it must forever remain a wilderness, and the people who dwell there must ever be stinted in their enjoyment of the blessings of civilization and refined culture.

"If the Mediterranean were shut up—if the nations bordering upon it were denied access, through the straits of Gibraltar, to and from the great common highway of all nations—then, and in that contingency, we should have, in a commercial sense, a case precisely similar to that of the Amazon.

"The Mediterranean powers (that sea being closed) would, we will suppose, do as the three riparian republics of the Amazon have done, viz: proclaim, each for its own ports and waters, the freedom of the seas, and invite all nations to come and trade with them. Would the nation commanding the straits of Gibraltar have the right to do what Brazil has done, less than one month ago, touching this great South American strait, viz: proclaim to the world that no foreign flag should enter there?

"Wheaton is very clear upon this point. Let him answer:

"'As to straits and sounds,' says he, 'bounded on both sides by the territory of the same State, so narrow as to be commanded by cannon-shot from both shores, and communicating from one sea to another, we have already seen that the territorial sovereignty may be limited by the right of other nations to navigate the seas thus connected. The *physical power* which the State bordering on both sides the sound or strait has, of appropriating its waters, and of excluding other nations from their use, is here encountered by the moral obstacle arising from the right of other nations to communicate with each other. If the straits of Gibraltar, for example, were bordered on both sides by the possessions of the same nation, and if they were sufficiently narrow to be commanded by cannon-shot from both shores, this passage would not be the less freely open to all nations, since the navigation both of the Atlantic ocean and of the Mediterranean sea is free to all. Thus, it has already been stated that the navigation of the Dardanelles and the Bosphorus, by which the Mediterranean and Black seas are connected together, is free to all nations, subject to those regulations which are indispensably necessary for the security of the Ottoman empire.'—*Wheaton's Elements of International Law, p.* 240.

"Now, Bolivia and Ecuador have both established the *freedom of the seas*—that is the term used by President Belzu—upon their Amazonian waters, as Russia did upon the Black sea, by her acquisitions along its shores, and as the Baltic powers did before her. These republics have made a free gift of their waters to commerce, as the nations of the Baltic and Black seas did; and they have brought the Amazon, in Brazil, exactly within the case so well put by this distinguished jurist.

"The international code, like all others of human origin, requires occasional revision; for the principles which have been laid down in Europe with regard to seas, rivers, and other questions, have not always been either sanctioned or acquiesced in on this side of the water.

"We have filed in the great international court our bill of exceptions to the European doctrine concerning blockades, the right of search, closed seas, and other points, as to which the grand inquest of the world at large—the people, not kings—have pronounced judgment; and their verdict is, WE ARE RIGHT.

"Hence the stronger necessity and greater propriety in laying down now the international doctrine which ought to obtain with regard to the Amazon.

"In 1821, Russia claimed the exclusive right of navigating the North Pacific ocean, upon the ground that she owned portions both of the

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Asiatic and American shores, which brought that ocean within the category of a closed sea.

"This claim was contested *in limine*, and successfully resisted by the statesmen of America.

"In like manner, the American doctrine with regard to navigable water-courses owned by two or more nations is well understood, for it has been often proclaimed touching our own Mississippi, as well as the St. Lawrence.

"In each of these cases there were but two riparian States; but with regard to the Amazon there are no less than six. This complicates the question, and makes any special arrangement among them with regard to the navigation of that river very difficult, if not impossible. Two of the riparian republics are already at war, and, owing to this circumstance, one of them is excluded from the proposed Amazonian Congress. Inaction, the *statu quo*, the sealed river and closed strait, and unsubdued wilderness—these are what Brazil wants. And, therefore, after having exhausted argument, there is no way left for the adjustment of this question by the United States—and the United States ought to adjust it, for it is an American question—but that which the laws of nations suggest.

"In such a case—in cases where the riparian States, desiring to confine the navigation of their own waters to their own citizens and subjects, cannot agree among themselves as to the terms and conditions, then, according to Puffendorf, the sovereign rights 'are distributed according to the rules applicable to neighboring proprietors on a lake or river, supposing no compact has been made.'

"It would, therefore, appear that this government would have the right on its side, were it, without further ado, to yield to the entreaties of its citizens, and give safe conduct up and down the Amazon to those who desire to penetrate through it up into Peru, Bolivia, and Ecuador, with the river steamer, and to push their enterprise into these remote regions in search of that commerce and those important privileges which the liberality and laws of these governments guaranty to them.

"Brazil has no treaty of commerce and navigation, or of amity and friendship, with this government; the quarter of a century has elapsed since the last one was made, and she has steadily, for the last fifteen or twenty years, refused to renew it. Therefore, if she be dealt with now strictly according to the law of nations in this matter of the Amazon, she could not rightfully complain.

"But your memorialists love peace, and value exceedingly the relations of amity and friendship that have ever existed between this country

and Brazil. They believe that there is virtue in forbearance, and therefore pray for such action only, on the part of your honorable bodies, as may secure the free navigation of the Amazon peaceably, and with the consent of Brazil: peaceably if we can—forcibly if we must.

"To accomplish the former, it is only necessary, in the judgment of your memorialists, to lay down the doctrine which this nation holds upon this subject, and then to remind Brazil of the rights which American citizens have upon the headwaters of the Amazon; of the doctrine which we on this side of the equator have always held as to the navigation rights of riparian States; and to pass in review, for her edification, the relations of commerce, business, and friendship between the two countries, which it is not the wish of this country, and certainly not the interest of that, to disturb.

"There are few countries, having friendly dealings with each other, between which commerce is more one-sided in its operations than is our commerce with Brazil. On one side it is all free trade, but on the other it is restrictive in the highest degree. Owing to the illiberal policy of Brazil, our commerce with her is carried on upon very unequal and disadvantageous terms.

"Coffee, drugs, hides, and India rubber, are the chief articles that are exported from Brazil and brought to this country, and this country is Brazil's best customer. We take about two thirds of her whole coffee crop; we admit her coffee duty free; and also the other staples enumerated above are either on the free list, or are admitted at rates merely nominal.

"On the other hand, the coffee which Brazil sells to us is first taxed with heavy excise duties, and the flour which she receives from us is saddled at her custom-house with enormous charges, thus greatly restricting the consumption of the one and keeping down the demand for the other.

"We send to Brazil the manufactured article; she gives us in return the raw; yet so unequal is the trade, that the balance is largely against us. We have to send heavy remittances in bullion to pay for our purchases in her markets, and yet we have never threatened her with retaliatory duties.

"The annals of commerce among friendly Christian nations may be challenged almost in vain for another case like this—a case where the nation supplying the elaborated article, and receiving in exchange raw produce, finds herself at such odds as to leave the balance, year after year, heavily against her.

"Nevertheless, we are the friends of Brazil and her best customer, and

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it may be well for her to bear in mind the liberal policy and the marked degree of friendly consideration which this government has ever observed towards her people. A duty in this country of a few cents a pound on Brazilian coffee would touch a popular nerve in that, which would vibrate through every department of the empire, and convey its impressions to the throne itself. To provoke such retaliation would be a crime scarcely short of deliberate regicide on this continent.

"As for the rights of riparian States to rivers that are owned in common, the doctrines held by the United States with regard to the navigation of the Mississippi, when both banks at its mouth were owned by France or Spain, are too well known to require repetition here. Suffice it to say that the American people were not only prepared to maintain that right by force, but they also insisted for a place of free deposite at its mouth—a place where they might load and unload, tranship and deposite, without any fees or charges whatever, save those of wharfage and storage.

"With regard to the St. Lawrence, the doctrine held by the United States was, that the right of American citizens to use the waters of that river for floating their vessels to and from the sea rested on the same ground and obvious necessity which had been urged to the Mississippi; that the treaties concluded at the Congress of Vienna, which stipulated that the navigation of the Rhine, the Moselle, the Meuse, and other great rivers of Europe, should be free to all nations, covered this ground; and, finally, that this claim, while its enjoyment was necessary to the development and prosperity of many States of this Union, was not injurious to Great Britain, nor could its exercise violate any of her just rights.*

"This claim was resisted by the British government chiefly on the ground that the St. Lawrence was not navigable from the sea all the way up to the lakes; that there were connected with it portages, or artificial canals, leading through British territory; and that the right, if vested in a foreign nation, to use these in war, might prove inconvenient, if not injurious, &c. And, furthermore, it was held that the American government could not insist upon its claim unless we were prepared to concede to British subjects the rights of free navigation upon the Mississippi river.†

"In reply to this, it was held that, so far as geographical knowledge then extended, the Mississippi and all of its tributaries laid wholly within the territory of the United States; that Great Britain had no

*Pub. Doc No. 43, 1827–'8. †Cong. Doc. No. 43, 1827–'8.

more right than any other foreign nation to the navigation of this river. But if further research and discovery should establish the fact that the waters of the Mississippi connect themselves with Upper Canada, as those of the St. Lawrence do with the United States, then, and in that case, the American government would be both willing to recognise and ready to concede the right of British subjects freely to navigate the Mississippi through such connexion from the lakes, or the land, to the sea.*

"With regard to the St. Lawrence, the American Executive advanced, among other arguments, the very doctrine that, in its comprehensive sense, now applies to the Amazon.

"In the case of the St. Lawrence, two powers, and only two, were concerned in its navigation. Though each owned a portion of the great lakes, yet neither of them did as the upper riparian States of the Amazon have done, viz: convert those upper waters into inland seas, by declaring their navigation free, and inviting all the world to come, and each nation under its own flag, for traffic and trade.

"Had the United States been the sole proprietor of the great lakes, and had it been thought proper to proclaim the freedom of the seas for these waters, and to make the navigation of them as free to all nations as is the navigation of the blue waters of the deep sea, then the navigation of the St. Lawrence would have been a question in which the whole commercial world would have been equally interested with this government. It would have represented the case of the Dardanelles after Russia became part owner of the Black sea, and the navigation of it was thrown open to the world. It would have been an exact type of the case presented with regard to the Amazon since the decrees of Bolivia, Peru, and Ecuador, which have made the running waters of it and its navigable tributaries as free to man's use as is the air we breathe, or the blue waters ploughed by American keels in the middle of the ocean.

"But as it is, principles broad enough to cover this case of the Amazon were laid down by American statesmen with regard to the St. Lawrence, when they maintained that if that river had been 'regarded as a *strait* connecting navigable seas, as it ought properly to be, there would be less controversy. The principle on which the right to navigate straits depends is, that they are accessorial to those seas which they unite, and the right of navigating, which is not exclusive, but common to all

*Mr. Clay to Mr. Gallatin, June, 1836.

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nations—*the right to navigate the seas drawing after it that of passing the straits.*'

"And this is the doctrine upon which the people represented in the Memphis convention, and who are again, in the persons of their representatives, about to assemble in the city of Charleston for the further consideration of this and other great questions, found their hopes. They believe it just, and desire to see it endorsed and to hear it proclaimed from the chambers of the Capitol.

"If it be urged, in the case put by the United States, the waters contemplated were in the shape of great lakes, whereas, in the case of the Amazon, they are in the shape of rivers only, and that, therefore, the comparison cannot be fairly drawn: if it be urged that neither can comparison be drawn with regard to the Dardanelles and Black sea, because, in that case, it is a real strait and salt water that are concerned,—whereas, in this, it is really a river, and fresh water only: if it be urged that this government, not having dominion over any of these South American waters and their littorals, has, therefore, no right to interfere with Brazil in any policy she may choose to adopt with regard to the Amazon, its navigation, and riparian States,—the reply is both ready and plain.

"Neither shape of water-way, nor the sweetness of its fountains, has anything to do with its free use by man. Lake Titicaca is salt. Lake Titicaca, its waters, and its shores, lay within the dominions of both Peru and Bolivia. Now, suppose it were connected with the headwaters of the Amazon through navigable channels, and that Peru and Bolivia were to proclaim the freedom of the seas for Lake Titicaca, as they have done for the water-courses of the Amazon, should we not have the case of the Black sea and the Baltic, with the sound and the Dardanelles, and their bitter waters, all repeated here upon the Amazon over again; and would not the great powers of the earth have the same right to interfere, with regard to the passage of their citizens and vessels through the Amazon, in Brazil, to Titicaca, in Peru, that they have had in the case of the sound and the Dardanelles; or that they would have in case Turkey or Denmark should attempt, arbitrarily, to close either the one or the other?

"The Amazon presents a case in which the commercial nations have as much right to interfere as the riparian States themselves. It is a question of navigation which is as broad as the sea; it is a question of commerce, of civilization, of human progress, advancement, and improvement, and never before did the free navigation of any river or strait present questions of such momentous concern to the whole human family.

"Apply the principles of international law to this case, is the prayer of the memorialists. If, in obedience to these principles, the Amazon be opened to free navigation, then the capacity of the earth to sustain population becomes two-fold greater than it now is, or than, with that river closed, it can ever well be. It is a question and a prayer, therefore, which teaches the well-being of the whole human family.

"Having thus endeavored to set forth the state of this important question, and to explain the views of your memorialists, and the grounds of their prayer with regard to it, the opinion is ventured that these enlightened decrees of the Amazonian republics have, to all intents and purposes, converted the Amazon itself, as it flows through Brazil, into a mere strait, and its upper waters also, to all intents and purposes, into arms of the sea. Those States have given to American citizens the same right to sail and steam up and down that river, from the sea to the riparian shores of Peru, Bolivia, and Ecuador, that they have to pass the sound in their commerce with the Baltic powers of Europe.

"As to the mode of exercising this right upon the "king of rivers," the conditions upon which it is to be enjoyed, your memorialists desire that Brazil should be consulted, and that deference should be paid to her wishes, in so far that reasonable restrictions may, by mutual agreement, be placed upon it, as, without necessarily trammeling the exercise of it, may, nevertheless, secure her from any inconvenience or injury with regard to it.

"But if Brazil should prove contumacious; if she should deny our rights, refuse to treat, and persist in her attempts to keep the waters of the Amazon shut up against man's free use, then, in the language of one of the most distinguished of America's jurisconsults, your memorialists would have her reminded that 'mutual intercourse and a reciprocal interchange of benefits between the different nations which compose the great family of mankind, are ordained by Providence as essential to the moral well-being of the whole human race. Who, then, shall dare to oppose his will to the accomplishment of this divine law?'

"And, as in duty bound, your memorialists will ever pray, &c.

"M. F. MAURY,

"*Lieut. U. S. N., in behalf of the Memphis Convention.*

"FEBRUARY, 1854."

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ERRATA.

Page 175, line 17, for "persons" read *peons;* line 23, for "Chambora" read *Chambira.*

Page 233, line 3, for "Fronteboa" read *Fonteboa.*

In M. Chaton's table, pages 352 and 353, the quantity of shelled rice is 108,543 *arrobas.* The quantity of sarsaparilla should be expressed in *arrobas,* and that of tapioca in *alquiers;* green hides in *pounds;* India-rubber shoes in *pairs,* and molasses in *pots.* "Dressed hides" should be *dry hides.*

Page 400, line 11, for "Codajust" read *Codajash.*

9 Barb. 487. Atkinson vs P. G. Pitts

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Amazon navigable by the Ucayali 3,360 miles

" " " " Huallaga 2815 "

Source of the Amazon

Depth of river { At the mouth of the Ucayali, – 2320 miles from the mouth the Amazon is 42 feet, 84 ft deep – p. 214, 209 & 1½ miles wide. 42 feet p 216; p. 234, 239. 60 ft p 258 = 1200 or 1300 miles from mouth has 138 feet

Tributaries { Madeira & Purus penetrate Bolivia; Ucayali, Huallaga & Maranon to Peru; Napo in Ecuador – Rio Negro in Venezuela –

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Velocity { 2 3/4 miles per hour p. 239
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Towns { Egas 1450 miles from mouth & the most important town above
Barra has 800 people. p. 250
Barra p 269. In 1848 had 3614 free – 24 foreigners – 470 houses.
Santarem 600 miles from mouth of Amazon – & the largest town above
Pará had in 1849 4,977 free, 1,591 slave } p 297
but only 2000 according to Herndon
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