

## DOCUMENTS

### MATTHEW FONTAINE MAURY'S LETTER OF INSTRUCTION TO WILLIAM LEWIS HERNDON

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Matthew Fontaine Maury's part in inspiring the exploration of the Amazon valley by Lieutenant William Lewis Herndon and Passed Midshipman Lardner Gibbon in 1851-1852 is now generally recognized.<sup>1</sup> But it has not heretofore been pointed out that Maury not only selected Lieutenant Herndon, his brother-in-law, to head the expedition but supplied him with detailed instructions, anticipating the official instructions from the secretary of the navy. Maury's instructions, dated April 20, 1850, and now published for the first time from the copy in the National Archives, reveal interesting personality facets of his many-sided character, help to illuminate the motives for the exploration of the Amazon, and throw considerable light upon the work and course of Herndon's expedition.<sup>2</sup> It does not appear that these instructions have been used by any of Maury's biographers or other specialists in this field.

Maury formally outlined his proposal of a scientific expedition to the Amazon in a letter to William Ballard Preston, secretary of the navy, on March 29, 1850.<sup>3</sup> When he wrote his detailed instructions

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<sup>1</sup> Lawrence F. Hill wrote in his *Diplomatic Relations Between the United States and Brazil* (Durham, 1932): "The interest of the American public and government officials in the opening of the 'King of Rivers' was largely the result of the untiring energy of Lieutenant Matthew Fontaine Maury, an officer of the United States Navy, superintendent of the hydrographical office, and astronomer of the naval observatory at Washington" (p. 218). Whitfield J. Bell, Jr., stated in his article "The Relation of Herndon and Gibbon's Exploration of the Amazon to North American Slavery, 1850-1855," published in *THE HISPANIC AMERICAN HISTORICAL REVIEW*, XIX (1939), 494-503: "The father of the project was the remarkable superintendent of the National Observatory at Washington, Lieutenant Matthew Fontaine Maury." On the other hand, Charles Lee Lewis does not credit Maury with the authorship of this project in his generally valuable *Matthew Fontaine Maury: The Pathfinder of the Seas* (Annapolis 1927); and a later biographer of Maury, John W. Wayland (*The Pathfinder of the Seas: The Life of Matthew Fontaine Maury* [Richmond, 1930]) gives the impression that Maury did not become interested in the Amazon until Herndon's report of his trip was presented to Congress in 1853 (p. 79).

<sup>2</sup> Records of the Naval Observatory: Letter Book, January 23, 1850, to September 14, 1850, pp. 240-254, in The National Archives.

<sup>3</sup> *Ibid.*, pp. 161-166.

to Herndon three weeks later he was reasonably confident that as a result of his recommendation Herndon would be selected to head the expedition. He expected that Herndon, who was then attached to the Pacific Squadron, would proceed from San Francisco to Panama on his way to the Amazon. As it developed, Herndon was detached from his vessel, the *Vandalia*, at Valparaíso, Chile, in August, 1850, and ordered to go to Lima, Peru. There on February 15, 1851, he received final instructions from Preston's successor, William A. Graham, to "proceed across the Cordillera, and explore the Amazon from its source to its mouth." As might have been expected, his earlier instructions from Maury were much more significant and revealing than his official instructions and showed little of the caution and circumspection which characterized the letter from Secretary Graham.<sup>4</sup>

Maury's interest in the Amazon had at least a three-fold motivation: scientific, commercial, and political. The importance which he ascribed to the "King of Rivers" in the future development of the United States was based upon his epoch-making wind and current charts. He conceived of Herndon's expedition partly as a fact-finding trip which would not only furnish additional data for his own hydrographic researches but would corroborate his theory that the ocean currents and trade winds blowing north from Pará made the United States the natural outlet for the trade of the Amazon and all its tributaries. His lively imagination conjured up a fleet of American steamboats plying the Amazon waters and developing a mutually profitable commerce between Brazil and the United States.

Political motives, however, may have been uppermost in Maury's mind, for already in 1850, as these instructions show, this son of Virginia was looking to Brazil for a solution of the problems created by the South's "peculiar institution." Maury's conception that the Amazon valley might serve as an area of settlement or "safety valve" both for the slaves of the South and for their white masters explains many of the tasks which he was "chalking out" for Herndon in these instructions. This required first a justification of the institution of slavery, which he gives, and second an extension of the current "manifest destiny" ideology to cover the Amazon valley. Unpleasant as his ideas seem to readers today, his conviction as to the superiority of the white nations and their destiny to occupy and rule areas claimed by other races merely reflected views which were held by many of his generation

<sup>4</sup> The instructions from Secretary Graham to Herndon were printed in Senate Executive Document No. 36, 32nd Congress, 2nd Session, *Exploration of the Valley of the Amazon, Made under Direction of the Navy Department, Wm. Lewis Herndon and Lardner Gibbon, Lieutenants United States Navy, Part I* (Washington 1853), pp. 24-26.

both in the United States and abroad. In this letter to Herndon, Maury supported these views with a long quotation from a contemporary French writer, Arnold Guyot, who in his racist and nationalist theories was a forerunner of Arthur de Gobineau in France and Houston Stewart Chamberlain in Germany. In the United States it would be difficult to find in the writings of the post-Mexican War period a more brazen exposition of this ideology than Maury's avowal in his letter to Herndon that his expedition to the Amazon was intended to serve as a first step "to settle and to revolutionize and republicanize and Anglo Saxonize that valley." It is small wonder that Maury cautioned Herndon not to "let the real object of your visit and the authority under which you act be known." Such a disclosure in 1850 would unquestionably have supported Brazil's suspicion of the purposes of the expedition and would have intensified her subsequent resistance to the opening of the Amazon—a result which was delayed until 1866 largely for these reasons.<sup>5</sup>

Maury also may possibly have had in mind in 1850 an idea of venturing into land speculation and colonization himself in Brazil if Herndon's expedition should demonstrate the practicability of such projects. His repeated injunction to Herndon in these instructions to investigate everything as if he himself "were going to embark in that very business" may indicate that he considered Herndon as his advance agent and intended later to associate his brother-in-law with him in the venture. Credibility is lent to this supposition by statements in Herndon's later reports to the secretary of the navy. Writing from Cerro de Pasco, Peru, on July 10, 1851, Herndon declared: "I sometimes feel that I shall be doing a great work in the cause of civilization and humanity, if, when my present duties are accomplished, I can lead some of the starving thousands of Europe to the plenty and abundance of this fertile country."<sup>6</sup> In a later letter, written from Nauta, Peru, on September 24 of the same year, he confided to Secretary Graham: "I hope, for the benefit of the human race, to lead a company of settlers to these lands . . . . I am satisfied that any one may come, may bring his slaves, and may cultivate as much land as he can without let or hindrance."<sup>7</sup> It is therefore not unreasonable to assume that one of the purposes of Herndon's exploration, as understood by both him and Maury, was to acquire actual lands in the Amazon for occupation and settlement. If such a scheme was contemplated by Maury and Her-

<sup>5</sup> Percy A. Martin, "The Influence of the United States on the Opening of the Amazon to the World's Commerce," *THE HISPANIC AMERICAN HISTORICAL REVIEW*, I (1918), 146-162.

<sup>6</sup> Navy Department, Officers Letters, July 1851, No. 93, in *The National Archives*.

<sup>7</sup> Navy Department, Officers Letters, January, 1852, No. 161, in *The National Archives*.

don, however, its consummation was prevented by Brazil's unwillingness to consent to the free navigation of the Amazon. When that consent was finally obtained Herndon was dead and Maury was discredited in a considerable part of the United States by his work for the Confederate government during the Civil War. After the war he apparently did not take a leading part in the exodus of ex-Confederates to Brazil, and when he finally embarked upon a colonizing venture he turned not to Brazil but to Mexico.<sup>8</sup>

In his instructions of April 20, 1850, it will be noted, Maury prescribed for Herndon a program of such broad scope as to be virtually impossible of fulfilment by a single expedition. A study of Herndon's final report of his trip, which was published by Congress in February, 1853, as Volume I of the two-volume record of the expedition and which is one of the classics in the history of American exploration, shows how scrupulously he sought to follow the letter of Maury's instructions. It is obvious that when he descended into the silver mines of Cerro de Pasco, or gathered data on the commerce and harbor facilities of the river ports at which he stopped, or engaged in "botanizing" and "geologizing" he had in mind specific instructions to that effect from Maury. Some of the instructions were not easy of fulfilment. On one such occasion, Herndon was unable to preserve the foetus which he found in a female monkey because, as he explained, "it was too large for any bottles I had; whereupon the Indians roasted and ate it without ceremony."<sup>9</sup> If Herndon's report did not support all of Maury's roseate expectations as to the development and potentialities of the Amazon valley, it nevertheless held out high hopes of American steamboat operations on the river and its tributaries and recommended the migration of Southern slave holders and their slaves to that area.<sup>10</sup> It was no idle coincidence that many of Herndon's observations were based upon Maury's hydrographic researches and that in the final paragraph of his report he paid warm tribute to "the guiding judgment and cheering heart of my friend and kinsman, M. F. Maury."<sup>11</sup>

The original of Maury's letter has not been found. The following is taken from the copyist's record in the Naval Observatory's Letter Book and is printed here verbatim even to obvious copyist's errors. It has been possible, however, to compare the paragraphs taken from Arnold Guyot's *The Earth and Man* with the edition of the book which Maury

<sup>8</sup> Diana Fontaine Maury Corbin, *A Life of Matthew Fontaine Maury* (London, 1888), pp. 224-256; Lewis, *op. cit.*, pp. 189-201; and Hill, *The Confederate Exodus to Latin America* (no place of publication, 1936), pp. 24-25.

<sup>9</sup> *Exploration of the Valley of the Amazon . . .*, p. 144.

<sup>10</sup> *Ibid.*, pp. 188-190 and 341.

<sup>11</sup> *Ibid.*, p. 372.

himself undoubtedly used. The copyist's errors have therefore been corrected in this portion of the letter.

LETTER OF MATTHEW FONTAINE MAURY TO WILLIAM  
LEWIS HERNDON, APRIL 20, 1850

National Observatory  
Washington April 20th/50.

Dear Lewis

I wrote you some time ago and addressed the letter to San Francisco.

I have written you several letters but the one of which I speak contained the copy of a long letter to the Secretary of the Navy upon the valley of the Amazon

He sent for me today to speak of the matter and has come into my views fully as to the importance of the subject and the desirability of having some one to come down the Amazon with eyes and ears open.

He spoke of giving you permission to come home at once that way with a Pass<sup>d</sup> Mid<sup>sh</sup> for a companion This is Saturday I am to see him again Monday when he is finally to decide upon the matter.

Without speculating what his decision will be or advising you as to any course of action upon a hypothetical case I shall talk over the subject with you to night so that you may understand what I have done what I am at and where you are.

In the first place Nannie<sup>1</sup> is afraid for you to descend the Amazon lest the alligators will eat you and Mit<sup>2</sup> is rather timid about your crossing that way on account of vague apprehensions that cannot be defined of danger and mishap in so long and lonely a journey

In the next place I have often paused in my work of building up beautiful castles for you to figure in, in setting forth your merits and in speaking of your qualifications for such an enterprise. I have I say, paused often in my zeal to bring you out, to ask myself the question as to whether you would really like such service and whether you would not feel the Spanish saying in your heart "Save me from my friends"

Since you sailed, Lewis, the turn which has been given to events in this country has forced me to cast about and to take a comprehensive view of all those things and circumstances which are calculated to shape control or bear upon our destinies as a people. I have seen a cluster of things in and around the Gulf of Mexico in which are wrapped the germs of powerful influences upon the future well being of Uncle Sam and in that cluster the valley of the Amazon looms up with great importance

<sup>1</sup> Maury's daughter.

<sup>2</sup> Herndon's wife.

Then too there are the investigations as to the winds and currents They have also called my attention to that river and its basin. Vessels travelling under canvass from the mouth of the Amazon to Europe to Rio to Africa or around either of the Capes must stand north and pass not far from the West Indies. This fact you observe makes that river basin nearer to us than to Brazil (if we call Rio, Brazil []) and puts practically the mouth of that river almost as much within the Florida pass and under our control as is the mouth of the Mississippi

Reflecting upon this subject and looking some distance into the future I have seen the African slave population of America clustered in and around the borders of this Mediterranean sea. I have seen this sea, by ship Canal and Isthmus highways, placed midway between Europe and Asia It is between two continents. It receives [*sic*] the drainage of the two greatest river basins in the world—it is the natural outlet for the produce of the hemisphere and I have therefore seen in it the Cornu Copia of the world and this “universal Yankee Nation” occupying upon its shores the very summit level of commerce

The question then comes up who shall people the great valley of this mighty Amazon. Shall it be peopled with an imbecile and an indolent people or by a go ahead race that has energy and enterprise equal to subdue the forest and to develop [*sic*] and bring forth the vast resources [*sic*] that lie hidden there? The latter by all means.

And the object of your mission there is to prepare the way for that chain of events which is to bring this result about.

I care not what may be the motive which prompts the Govt to send you there. Your going is to be the first link in that chain which is to end in the establishment of the Amazonian Republic for when the Govt has done what I have been urging it to do and what it intends to try to do viz secure by treaty the right to navigate that river, it can no more prevent American citizens from the free as well as from the Slave States from going there with their goods and chattels to settle and to revolutionize and republicanize and Anglo Saxonize that valley than it can prevent the magazine from exploding after the firebrand has been thrown into it.

That valley is to be the safety valve for our Southern States. When they become overpopulated with slaves the African slave trade will be stopped and they will send these slaves to the Amazon. Just as the Miss Valley has been the escape valve for the slaves of the Northern now free States so will the Amazon valley be to that of the Miss.

Thus you have one view of the subject here is another.

Cotton is making England almost dependant [*sic*] upon us as though she were a colony in leading strings She sees and feels that we have

it in our power to create a revolution there whenever we choose to withhold [*sic*] her annual supply of cotton. The industrial pursuits of so many of her people are based on this staple that she cannot do without it and it is of growing importance. How many people think you are in Great Britain and are entirely dependant [*sic*] upon the labor and occupations connected with this staple and whom the withdrawal of it would reduce to starvation?

A great and proud nation as she is will not rest quietly under this state of things and it is now thought in the best informed circles here that she is casting about with eager eye for some cotton growing country of which she may possess herself on this continent.

Some go so far as to say that if she can lay hold of such a country she will even proceed to establish slavery upon it. Such is the change of feeling wrought in that country by finding their dependence on our slave labor.

Now judging from the indications of the wind charts I am pretty clear that the only remaining cotton country on this continent is to be found on the Southern tributaries of the Amazon and in the regions thereabouts

If we be the first to secure the right to navigate the Amazon, your report will give our merchants the information necessary to guide them in shaping their ventures and enterprises up that river. American influences will give the ascendancy there and the valley in a few years will become [*sic*] to be regarded for all commercial purposes as a sort of an American Colony

The sort of climate essential to the proper development [*sic*] of the cotton plant is not a climate that is divided into rainy and dry seasons but it is a climate in which it may rain or be clear any day in the year and that climate is south of the Amazon river, inquire about it.

The sort of labor necessary to the extensive cultivation of the cotton plant is compulsory labor. If a country resting with its prosperity upon the cultivation of this staple were to attempt its cultivation by free labor the landlord would be at the mercy of the tenant or hireling, for at a particular stage of the crop if the laborers were to strike or hold off for a few days the whole crop would be destroyed. In India starvation follows a strike, and therefore labor there may be said to be compulsory; but in the two great American valleys it will be many generations yet to come before population will be so crowded that loss of place and starvation will be correlative terms to the laboring man.

The energy the science and the civilization of the world have always been in the Northern hemisphere—Do you suppose this the result of chance? By no means

The land as a general remark is all in the Northern hemisphere. Look at the condition of temperate Asia temperate Africa temperate Europe, and temperate America and compare it with the condition of tropical Africa America and Australia. The feeble races that have peopled these portions have never been possessed of the science the skill or the energy to subdue the vegetation there. Look at the Northern Continents with their fine reliefs and bold contrasts the indentations of their coastline, their finely articulated profiles, their inland seas, deep bays & gulfs favoring and inviting commerce and the interchange of communication, and compare them with the stiff outlines of the southern continents. Where in the South is your curtain of Peninsulas to relieve and diversify climates where your deep bays and extensive gulfs to multiply length of water lines? No where—

My friend Guyot of Neufchatel in speaking of the duties of the North and the destinies of the Southern Hemisphere makes some remarks in a charming course of lectures called "Earth and Man" with which I have [been] so struck that I quote them for you—pp 306-8<sup>3</sup>

"The three continents of the South, outcasts in appearance,—can they have been destined to an eternal isolation, doomed never to participate in that higher life of humanity, the sketch of which we have traced? and shall those gifts which nature bestows on them with lavish hand, remain unused? No, Gentlemen, such a doom cannot be in the plans of God. But the races inhabiting them are captives in the bonds of all powerful nature; they will never break down the fences that sunder them from us. It is for us, the favored races, to go to them. Tropical nature cannot be conquered and subdued, save by civilized man, armed with all the might of discipline, intelligence, and of skilful industry. It is, then, from the northern continents that those of the south await their deliverance; it is by the help of the civilized men of the temperate continents that it shall be vouchsafed to the man of the tropical lands to enter into the movement of universal progress and improvement, wherein mankind should share.

<sup>3</sup> This "charming course of lectures" by Arnold Henry Guyot was translated from the French by Cornelius C. Felton, who was Eliot Professor of Greek at Harvard University and later became president of that institution, and was published under the title *The Earth and Man: Lectures on Comparative Physical Geography, in Its Relation to the History of Mankind* at Boston in 1849. As indicated in the Introductory Note above, the copyist's errors have been corrected in the above quotation. Guyot's book with its idea of the superiority of the white race over other races antedated by several years Arthur de Gobineau's more famous *Essai sur l'inégalité des races humaines*, which was published in 1853-1855 and which elaborated in four volumes the thesis that the culture of the white race is superior to that of other races and that the former was destined always to maintain a higher level of civilization.



"The privileged races have duties to perform, proportioned to the gifts they possess. To impart to other nations the advantages which constitute their own glory, is the only way of legitimating the possession of them. We owe to the inferior races the blessings and comforts of civilization; we owe them the intellectual development of which they are capable; above all, we owe them the gospel, which is our glory, and will be their salvation; and if we neglect to help them partake in all these blessings, God will sometime call us to a strict account.

"In this way, alone, will the inferior races be able to come forth from the state of torpor and debasement into which they are plunged, and live the active life of the higher races. Then shall commence, or rather shall rise to its just proportions, the elaboration of the material wealth of the tropical regions, for the benefit of the whole world. The nations of the lower races, associated like brothers with the civilized man of the ancient Christian societies, and directed by his intelligent activity, will be the chief instruments. The whole world, so turned to use by man, will fulfil its destiny.

"The three northern continents, however, seem made to be the leaders; the three southern, the aids. The people of the temperate continents will always be the men of intelligence, of activity, the brain of humanity, if I may venture to say so; the people of the tropical continents will always be the hands, the workmen, the sons of toil.

"History seems to be advancing towards the realization of these hopes, towards the solution of this great contrast. Each northern continent has its southern continent near by which seems more especially commended to its guardianship and placed under its influence. Africa is already European at both extremities; North America leans on South America, which is indebted to the example of the North for its own emancipation and its own institutions. Asia is gradually receiving into her bosom the Christian nations of Europe, who are transforming her character, and beginning thence to settle the destinies of Australia. Lastly, the Christian missions are organizing upon a larger and larger scale in the two leading maritime countries of the globe, England and America, to whom the dominion of the sea seems granted for this end; and by engrafting upon all the nations the vital principle of civilized societies, without which no real community can exist between them, are preparing and hastening the true brotherhood, the spiritual brotherhood of the whole human race."

You will thus see Lewis what a great work I have been chalking out for you. You are to be a pioneer, the humble workman if you please in helping to get out from the quarry and to lay the cornerstone upon which such a magnificent, grand and dazzling superstructure is to be

raised. I know your modesty and your merit. As great as is the latter I know moreover that in your composition the feeling of the former is so much in excess that your first impulse will be to decline the mission with an unfeigned emotion of the heart that you are not equal to it.

I know too the dangers the risks and hardships of the voyage. But they will not be regarded by you. It will be the fear to touch so great a work lest by failing you should do it harm.

But I have been called on to name the most competent officer in the Squadron for the undertaking and I have named you without hesitation. I do not mean to persuade you to undertake the journey—I take it for granted that though you never would have sought the mission yet as it is offered on account of the estimation and the high appreciation of your abilities and talents, I feel assured that you will not decline it without good and sufficient reasons.

In case you decide to go and to enter on the journey with spirit I take the liberty of offering a few suggestions as to some of the subjects which no doubt will occupy your particular attention. I know Lewis you will pardon me the liberty and appreciate the motives which prompt me. I am induced to offer these suggestions because I have been thinking so much more of the subject than you have and because my notions will perhaps assist you in making your plans, modes and subjects of observation.

I shall speak of instruments and books after I have the interview with the Secretary.

In the first place the object of your journey should not be talked of.

You should inform yourself as minutely concerning all the details of every branch of industry that you meet with in the way as tho' you yourself intended to embark your fortune in it.

The mines of Peru and of Bolivia also if you go through Bolivia the average annual yield of gold and of silver—the profits—the companies the machinery—the expense of transporting bullion to the sea coast and the probable expense of sending it down the Amazon by steamboat when we get there.

The feeling of the Peruvians and Bolivians touching the free navigation of the Amazon. Would they like to see an American line of steamers plying between Para and the falls of the Ucayali & St Anthony on the Madera [*sic*] and then above the system of falls to have more boats on the Mamoré and Guapuré rivers.

What facilities will the Govt offer to American settlers and what inducements can citizens hold out to such an enterprize—What have they now to send down the river—how long and at what expense does it require to complete a voyage—What is the population

Where do you find the cinchona tree—What are the laws if any touching it—How is the bark collected—What are the forests worth—What is the bark worth when collected—How much can one hand gather in a day What is the season of the year for it How much is gathered annually How is it sent to market and at what cost to the sea board—Gutta Perch—Is it or can it be produced in the valley of the Amazon Where and all about it as though you intended to work at it for the rest of your life

Tobacco—is any grown How much—Where sold. What [is] its quality & the season for planting or do you cut and cure it all the year round How long does the same stock produce? You know with us the plant is killed by the frost & being not so killed it will produce suckers which in their turn will mature and make good tobacco—What can it be produced for by the pound—or is it produced at all and why not—

You know that good rice lands must be where they may be overflowed at pleasure The tide they say runs 700 miles up the Amazon What then is the capacity of the Valley for rice How many crops in the year What is the rice harvest period and what the average yield per acre and per hand Is its cultivation considered unhealthy

Note the implements of agriculture the hours of work the health of the valley and its diseases the price of labor I have a notion gathered from the wind charts that you will find no cases of consumption there Inquire about it!

Cotton—How often is it planted When is the best picking time How much will one man pick a day How much will one acre and one man produce on the average. Bring home samples of it and some seed.

What are able bodied slaves sold at there Is there any importation from Africa—to what extent and how do the untried slaves just from Africa compare in price with those who have been raised and trained in the country.

Sugar. How many crops in the year—What is the process for making—What proportion of the lands suited to Sugar what to Cotton Rice Hemp (will Hemp and Flax grow there) tobacco Indigo Coffee Cocoa India rubber Gutta Perch ornamental and dye woods cloves urucú Sarsaparilla—Drugs—Balsams Hides Cattle and Indian Corn Nuts fruits, and “Castanhas de Maranham”

As I said before learn the value of each article the extent of its production, the capacity of the region to increase it the money that is to be made at it, the cost and means of getting it to market and every thing concerning it even to the minutest detail as though you yourself were going to embark in that very business

Do crops ever fail—How often & what crops and from what cause  
 When does the rainy when does the dry season commence What  
 is the fluctuation one year with another in the time of commencement.  
 How much rain falls in the wet season How much in the dry Are  
 not the dews heavy Note the rains the thunder and the lightning  
 as you come along Does it ever hail in the valley after you leave the  
 vicinity of the Andes—Note the size of the drops of the rain The rain  
 of the Andes I take to be rather fine rain and the flakes of snow small  
 flakes and according to the wind charts the drops of rain ought to be  
 larger and larger till you get to the mouth of the river

Get letters of introduction from the Bp of Lima to the Missionaries  
 and Priests by the way Cultivate them they will give you information  
 relative to soil climate quantity of rain force of wind botany, popu-  
 lation weather feelings of the people as to steam navigation on the  
 Amazon thier disposition towards the Americans, thier feelings with  
 regard to slavery and the slave trade and information touching all other  
 matters and measures of polity which it may not be inexpedient to  
 broach and do not take any one man's opinions as sufficient upon any  
 one of these subjects—Ask the same questions of different people over  
 and over again

Of course you will not unnecessarily in such a country of ignorance  
 and prejudice let the real object of your visit and the authority under  
 which you act be known nor would I speak of it at all to shipmates or  
 others it might embarrass you and cannot facilitate you in getting along  
 with officials

Find out all about the mines of Peru and their yield Get good  
 letters to the leading men in all the river towns and letters from the  
 Govt in Lima to Intendentes. You can ask the *Spanish* gentlemen I  
 think freely but of course upon your own hook as to what they think  
 of giving us such rights as they themselves have to the navigation of  
 the Amazon and the degree of encouragement they & thier towns &  
 Intendencies would be disposed to give to an American Steamboat  
 Company

Bring your questions home to them when you can prudently do so  
 and get them to say that in case your country gets the right to navigate  
 and that you or your agents appear there in the course of 3 years with  
 one or more steamboats will they if you stop at their place furnish it  
 with a given quantity of fuel gratis or at a nominal price or what amount  
 of stock will they pledge to take in the company Take down names  
 pledges and promises

Note the prices of everything in plaza & tienda [shop] by the way  
 Be particular to get statistics as to the quality quantity and kind of

goods English French and American that are consumed in the different provinces Get their retail prices with samples & bring samples home and learn as to the channels thro' which they come.

Is there any coal fit for steam boats and how accessible is it? What are the rights of the State with regard to coal, iron and other mines. Salt—where does it come from. Choco [*sic*]: Extensive beds of it are there you know. Would it not be cheaper for them on this side the mountains to have salt sent from this country New York is but 25 days from the Amazon and Charleston not more than 15 under canvass and canvass is almost as certain as steam to & from the mouth of the Amazon because of the regularity and certainty of the Trade winds that are "Soldiers Winds" They carry us there and fetch us back with equal celerity and certainty

Then as to the tributaries that you will pass Get the navigable length of each one and of its tributaries its extreme rise and fall and the periods of high and low water in each Make a map of the valley The Intendentes & missionaries will enable you to do this with the help of a common map

Get a fishing line or two from on board ship about 50 fathoms long Have a lead to it of not over 1 pound weight and run a line of soundings with it from the base of the Andes to the mouth of the Amazon and map the river as you come along. You will have a compass and a pocket chronometer You can tell the distance made daily Write it down on your chart, then sketch in every day the mouths of the rivers passed the bends of the river and the soundings and the temperature of air and water at 9 Am & 3 Pm. Take the temperature also in the mouth of each tributary and if you keep watch take temperature again at 9 P.M. and 3 A.m.

In this way you can do much to perfect the geography of that region

Note the color of the water of each tributary whether it be clear milky or muddy and note all the way down the differences between high and low water marks, what tributaries North and South and which are liable to the greatest floods & the most rapid rises & falls and which of them bring down most drift wood

In short Lewis write down and take note of everything that you see, hear, feel or think while on the way down Preserve specimens of all plants, bring home peices [*sic*] of all rocks and remark on geographical formation Hunt the rivers for fresh water shells and the trees for land shells Bring along the seeds of fruits and plants and when you embark at Para dont forget flowers and my little green house if by that time you be not worn out

As you come down on this side of the Andes, look at the steppes

and consider them for sheep-husbandry also the culture of the grape and the manufacture of wine Near the base of the Andes the everlasting wind charts intimate the possibility of a wine country.

Be particular to ascertain how high up the tide ebbs and flows, the rate of the current above and below tide water—Your lead line will serve you for a log

Bores—Single tidal waves 15 feet high are said to roll into the mouth of the Amazon on full & change days sometimes three rollers come in and sometimes four it sounds fabulous to me Look to it The rise and fall of the tide at the mouth of the Madera [*sic*] will give you the descent of the stream See if there be marshes back from the banks as in the Lower Mississippi

Note too if the Amazon cuts away its banks as does the Miss

As high up as the tide goes the rice country ought to reach and that ought to be the greatest rice region in the world.

Pardon me Lewis for having been so tedious, but I am so anxious that nothing should escape you Wherever you can get information by the way tarry there until you have satisfied yourself

The rainy season on the main trunk of the Amazon *according to the charts* commences not until October or November so you will have the dry season all the way and as you come down you will find the Northern tributaries most flooded. Would it not be well to make a trip of a few days up each tributary particularly those from the South

You observe then that an important object of your mission will be to collect political, commercial and statistical information relating to that immense region of country which has hereafter to play such an important part in the affairs of mankind & the world Be full and minute and particular therefore Lewis in your inquiries and information as to the resources [*sic*] of that valley, its soil, its climate, its productions and its capacities for productions. The labor to subdue the forests the time required to open a plantation the degree and amount of tillage to crops the localities of marl beds & the facilities of manuring the sites for mills and water power on main trunk & tributaries for as a general rule wherever there be falls and river there be water power Acquaint yourself also with present obstructions to trade, political and natural—with tariffs and regulations with the land policy. How much is owned by individuals and how much by the State. What is Govt price of lands, the regulations under which they are disposed of to foreigners—the extent and fertility of the valley of each tributary the relative proportions of arable, barren lands & swamps & lands subject to overflow in the valleys of the various rivers

Pay attention also to the implements of husbandry farming utensils and the like

May 2<sup>nd</sup>

I have written the above foregoing at odd ends of time a little now, then interrupted by an attack of ague and fever, the business of the office &c so that I am afraid you will find it a jumble out of which you will be able to make but little I have had an interview with the Secretary to day; the matter was considered in Cabinet and negotiation is to be tried. It certainly will be a brilliant achievement for any administration to secure the right to our people of trading and trafficking up & down the 40 or 50,000 miles of navigable tributaries to that river—

The Sec'y State is to address a letter to the Sec'y Navy asking that an officer be directed to come down that river. I am to go in the morning to learn the result, but I consider the matter now as settled—

While I think of it, let me say—Inquire for letters at the Consul at Panama as you go along, for I may have something of importance to send you by that time—

Now for scientific matters: I wish I had a portable set of magnetic instruments to send you—By the way I see Airy the astronomer royal has come round to my opinion expressed you know five years ago to Sabine—You recollect the letter—that those magnetic observations have been “*run into the ground.*” That it is useless to follow British associations farther—

I shall, if permitted send you a pocket chronometer, a sextant, an art[ificial] horizon, a few thermometers, a pocket compass & one of my steel Barometers for elevations and meteorological observations—The Barometer has gone to the makers on account of a leak; I shall not have time to describe it you, if I wait for it—So if you receive it, you will be able to use it from this description—

Suspend it—unscrew the Steel rod in the glass cistern & screw it up to the shoulder in the arm which projects over the top of the cistern—

To observe—Bring by means of the tangent screw, the point of the steel rod & its image into contact, and then read—entering temperature—N.B. Always before proceeding to make an observation, incline the Barometer a little & then let it go free, so that the observation may be always made after the mercury has been rising in the cistern. To adjust the Barometer for transportation. Incline the Barometer gently until all the mercury, except enough just not to uncover the hole in the tube, has escaped from the glass cistern—then unscrew the steel rod from the arm & screw it down *firmly* with the [one word missing], don't force it into the place in which you will find it—It is now ready to be used as a walking cane—

It may be well before mounting the Barometer always to assure yourself that no air has got into it—To do this, turn the Barometer on taking it out for mounting, upper end down & then right it slowly & in such a manner that if there be a globule of air, it will be found on suspending the instrument to have crossed over from the steel part and to be resting in the short neck under the steel rod or index—Now when you uncover this rod, the air will rise and escape—if air there be—

Endeavor to take dew points every day at least, at 3 (am) & 3 (pm)—If you cannot conveniently provide yourself with the requisite refrigerating mixtures, give us *wet bulb* all the way and all the time—Endeavor to get copies of meteorological journals in any & every part of the valley, also the record of rain-gauges—

Observe for Latitude at night by North & South stars—e.g suppose yourself on the Equator, that Star A is in 60S & Star B is in 60N and that A crosses the meridian 10<sup>m</sup> before B—Now the Alt of A will be 30° & that of B will be 30° and the result would show you to be midway between them—

I have selected in pairs all the stars of 1<sup>st</sup> & 2<sup>nd</sup> magnitude that you will be able to observe on the Art[ificial] Horizon—They are in the annexed table—<sup>4</sup>

When engaged in these observations and when you have got the first star of the pair—do not unscrew the telescope or remove the index—but lay your instrument, after you have read it aside having set it for the next star—

The advantage of doing this, is, you do not disturb collimation—and the advantages of the method are, you eliminate index errors—errors of eccentricity—division, refraction &c—

As for longitude and the other observations you are *au fait*—

Provide yourself with a few gallons alcohol, a number of vials of various sizes and a couple of reams of stout paper for botanizing and a hammer for geologizing—

You will know how to preserve your plants—labelling each sheet with a full description of the locality &c of the specimen on it and when you get a pile large enough, tie it between boards—

Everything that you kill with a young in its belly, open & put the young away in your vial of alcohol—your companion the mean while taking drawings of the old one. Break open eggs of birds, turtles & reptiles, for their young in like manner—In the embryological field you will perhaps gain more scientific reputation than in any other field of science down [which] you will fetch a swarth [*sic*, for swath]—

The specimens of rock that you want to bring are [one word missing];

<sup>4</sup> Not printed here.



Bring those which are generally the characteristic rocks of the locality. Bring sand from the river side and at the mouths—earth from the banks & occasionally mud from the bottom and label everything with care & minuteness—

In selecting a companion have an eye among other things, to his skill with the pencil—

And before you decide to take a servant with you, think whether you would not prefer to take the allowance for him to ship in Lima some person accustomed to make collections in natural history & bring him down with you—You certainly will not want a servant before you get to Lima. Get your surgeon to put you up a medicine chest—I have estimated that \$3000 would cover the expenses of yourself, companion & servant, *exclusive of pay*, from California to Para, allowing you to purchase from it chemicals, arsenic, alcohol, &c and shall ask that a letter of credit be given you for at least that amount—This estimate allows you a boat's crew of six Indians for four months @ \$1.25 ea. per day. Estimates in such case are only guesses & I have guessed double—Let me here [*sic*] from you when you get to Panama & again when you leave Lima and tell me how you get on—In keeping your Journal dont fail to jot down at once & just as things present themselves—You can fill up the picture afterwards—You *know first* impressions soon wear away or become stale familiars—always therefore seize first impressions and down with them while they are first impressions. Get specimens of all ornamental & dye-woods from the top of the Andes down—Bring home "*chunks*" of them—I believe gold mines equal to those of California have recently been discovered on the head waters perhaps of the Ucayali—Find out about them—Of course I have not pretended [*sic*] to remind you of the one-tenth part of the subjects which will occupy your attention—I have been merely trying to help you to open the way—You will see many flowers & many side paths that you will have to look after—Upon an expedition of this sort you must necessarily rely in a great measure upon parole information—Therefore pump every traveler, trader, & gentleman you meet with on the Amazon until he is dry—A pleasant & profitable trip to you, Lewis—God bless you—

M. F. M

Lt. Wm H. [*sic*] Herndon  
Pacific Squadron.