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Prologue to Discovery

CHAPTER ONE

As Captains Meriwether Lewis and William Clark began their historic march to the Western Ocean, they carried with them an extraordinary document, a copy of President Thomas Jefferson's instructions to them. This document had been long in the making, having its inception no later than 1793 when Jefferson, acting for the American Philosophical Society, had prepared directives for an earlier expedition that failed to materialize. Now that a new attempt would be made to probe the secrets of the West, with much better prospects of success, Jefferson fashioned a more elaborate, a more carefully worded set of instructions. Not wishing to be solely responsible for its content, he asked members of his cabinet and various scientific friends, including Meriwether Lewis, to read it and make suggestions. They found little to add or subtract, so that the document remained much as Jefferson had originally written it.

From this collective effort emerged a final paper, unique, distinguished. It was a blueprint for discovery, the product of a powerfully original and disciplined mind. No exploring party before or since has been provided with instructions so inclusive, so technically knowledgeable, so electric with ideas, so charged with foresight. From first to last, Lewis and Clark gave it the attention a cleric gives Holy Writ.

"Nature," Jefferson once said, "intended me for the tranquil pursuits of science, by rendering them my supreme delight." These pursuits of which he spoke embraced all natural objects and agencies from

the grandest to the most common: wind currents and temperature fluctuations, the advent of the first spring flowers, minerals and medicinal springs, mountains, lakes and interlocking streams, the aboriginal American and his customs, migrating birds, petrified bones of extinct animals.

Without this wide-ranging technical background, Jefferson would have been completely incapable of writing the set of instructions that went to Lewis and Clark. Indeed, without it, we may question whether there would ever have been a Lewis and Clark Expedition, a scientific venture from beginning to end.

For such reasons it is desirable, therefore, that we initially summarize Jefferson’s knowledge and command of the sciences, especially biology, geography, meteorology, and ethnology, and explore these fields in some depth. We will then be in a far better position to follow and appraise the day-by-day progression of the Expedition as it conquered rivers and mountain heights on its grand tour of discovery.

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In his instructions to Lewis and Clark, Jefferson wrote: observe “climate as characterized by the thermometer, by the proportion of rainy, cloudy & clear days, by lightening, hail, snow, ice, by the access & recess of frost, by the winds prevailing at different seasons, the dates at which particular plants put forth or lose their flowers, or leaf, times of appearance of particular birds, reptiles or insects” (VII, 249).*

In his time Thomas Jefferson was probably the best-informed meteorologist in the United States, an ardent, dedicated pioneer. He kept systematic weather records continuously for more than 50 years, jotting down data wherever he happened to be: in Williamsburg as governor of his state, in Paris as Minister Plenipotentiary to France, in Washington as President, even on the high seas as a relaxed itinerant.

Jefferson’s first published weather records appeared in Notes on the State of Virginia, a small volume he wrote in 1780–81. This work established him as a scientist, highly regarded by his fellows-in-learning both at home and abroad. The weather records reported herein, the product of observations made mainly at Williamsburg and Monticello from 1772 to 1777, emphasized rainfall, temperatures, and wind direction. We learn, for instance, that rainfall over these years averaged 47 inches.

We know, thanks to Jefferson’s habitual thermometer-watching, that the weather in Philadelphia on that most celebrated of days in American history, the Fourth of July, 1776, was most pleasant. With a Fahrenheit thermometer, he determined that the temperature at 6 A.M. was 68, at 9 A.M. 72½, at 1 P.M. 76, and at 9 P.M. 73½.⁴

Jefferson not only made observations on the weather himself, but he also urged others to do the same. Writing to his daughter, Maria, from Philadelphia on March 9, 1791, while Secretary of State to Washington, he said: “I hope you have, and will continue to note every appearance, animal and vegetable, which indicates the approach of spring, and will communicate them to me. By these means we shall be able to compare the climates of Philadelphia and Monticello.” In this request Jefferson reveals his addiction to phrenology, that science which attempts to correlate weather data with periodic biological occurrences such as the migration and nesting of birds and the flowering and fruiting of plants.

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“The object of your mission is to explore the Missouri river, & such principal streams of it, as, by it’s course & communication with the waters of the Pacific Ocean, may offer the most direct & practicable water communication across this continent, for the purposes of commerce. . . . Beginning at the mouth of the Missouri, you will take observations of latitude & longitude, at all remarkable points on the river” (VII, 248).

For a man who in his whole life had never travelled farther west than Harper’s Ferry, Jefferson possessed a surprising knowledge of the physical features of the nation. His Notes on Virginia, for instance, provide a vast amount of information on rivers, both east and west, their navigability, their bars and shoals, rapids and waterfalls, islands and wildlife. The “Tanissee” was “navigable for loaded boats of any

burden to the Muscle shoals," and the Mississippi yielded "turtle of a peculiar kind, perch, trout, gar, mullets, herrings, carp; spatula-fish of 50 lb. weight, cat-fish of 100 lb. weight, buffalo fish and sturgeon."

One has to be impressed with Jefferson's thoughts on further opening navigation between east and west, as an ever increasing number of hardy pioneers surmounted the Alleghenies and spilled down onto the rich bottom lands of the Ohio and its tributaries. In the near future, as he saw it, easy communication by short portages would be established between interlocking branches of such streams as the Great Kanawha and James, the Tennessee and Mobile, and the Potomac and one or another affluent of the Ohio.

It should come as no surprise that Jefferson possessed a substantial knowledge of surveying and navigation and an ability to use such instruments as the quadrant, sextant, and theodolite. At Monticello in 1778 he wrote: "Placing the Theodolite on the top of the house, the Eastern spur of the High mountain intersects the Horizon 19° Westward of Willis's mountain." According to Edwin M. Betts, editor of Jefferson's Garden Book, Jefferson used Willis Mountain, isolated and plainly visible from Monticello on clear days, as the "focal point in calculating the latitude and longitude of various surrounding places." It is probable that Jefferson gave Meriwether Lewis preliminary instruction in the use of navigational instruments. Writing to Robert Patterson, Philadelphia scientist, in March, 1803, he said: "He has been for some time qualifying himself for taking observations of longitude & latitude to fix the geographical points of the line he will pass over."*8

It is well known that Jefferson possessed an intense interest in maps and map-making and was familiar with such maps of the western world as then existed, those of d'Anville, Arrowsmith, Delisle, Cook, and Vancouver, for instance. He came by this interest legitimately, for his father, Peter Jefferson, and Joshua Fry, professor of mathematics at William and Mary College, had made (in 1751) the first map of Virginia, and it was a revision of this map that later appeared in Jefferson's Notes on Virginia.8

* Jefferson, Notes, 6.
* Betts, Jefferson's Garden Book, 80.
* Betts, Jefferson's Garden Book, 84-85.
* Jackson, Letters, 21.

Observe, wrote Jefferson, "the animals of the country generally, & especially those not known in the U.S. the remains and accounts of any which may [be] deemed rare or extinct" (VII, 249).

Jefferson's writings abound with references to animals. As a farmer, he evidenced a natural concern about the damage to wheat by the recently introduced Hessian fly and was influential in, if not primarily responsible for, the American Philosophical Society's move to set up a committee to study its life history. Like any good amateur ornithologist, he kept track of the arrival of birds in the spring. In Philadelphia in 1791 he wrote his daughter of seeing blackbirds and robins for the first time on February 27.10 To James Madison in early April, 1794, he wrote: "The lilac is in bloom, and the first whip-poor-will heard last night."11

Jefferson was relatively unknown as a biologist until he tangled with George Louis Leclerc, Comte de Buffon, one of the leading naturalists of his day and author of Histoire Naturelle, a compendious work begun in 1749 and not completed until 1804. Buffon wielded great influence, even Jefferson deferring to him on most points.

In one of the earlier volumes of Buffon's chef d'oeuvre, Jefferson discovered statements which disturbed him. For example, the French savant had written that animals common both to the Old and New World are smaller in the latter, and that those peculiar to the New are generally small.12 Motivated by his distaste for allegations unsupported by facts, his inherent passion for truth, and his great love of country, Jefferson not only vigorously denied these statements, but also sent to Buffon a giant moose (this animal being much larger than any native to Europe) and soon followed this with information about the "great incognitum" (the mastodon), bones of which, recently unearthed, attested to a creature "of five or six times the cubit volume of the elephant."13 Though these two animals alone were more than enough to rescue the United States from the imputation that its fauna was inferior, Jefferson's subsequent discovery of the giant ground sloth, Megalonyx, further established the American position.

* Betts, Jefferson's Garden Book, 216.
* Jefferson, Notes, 45.
* Jefferson, Notes, 42.
It is well known, of course, that Jefferson was a pioneering paleontologist and assembled a large collection of fossils in the East Room of the White House. Among the most prized bones exhibited here were those of *Megalonyx*, originally brought to light in Greenbrier County, Virginia (now West Virginia). When Jefferson came to Philadelphia in 1797 to be sworn in as Vice President of the United States, he carried with him his treasured *Megalonyx* bones and a paper about them which, on March 10, he read to members of the American Philosophical Society. It was his belief, he said, that the bones belonged to an unusually large lion-like creature and that he had given it the name *Megalonyx* (literally "Great Claw") because of the extreme size of its talons. Subsequently, Dr. Caspar Wistar, Philadelphia physician and leading authority on fossils in the United States at the time, correctly identified and described the animal as a ground sloth (not a carnivore) and gave it the binomial it bears today, *Megalonyx jeffersoni*.

"... make yourself acquainted, as far as a diligent pursuit of your journey shall admit, with the names of the nations & and their numbers; their relations with other tribes or nations; their language, traditions, monuments; their ordinary occupations in agriculture, fishing, hunting, war, arts, & the implements for these; their food, clothing and domestic accommodations; the diseases prevalent among them & the remedies they use" (VII, 248).

Jefferson’s acquaintance with American Indians began when he was quite young. He was accustomed to seeing parties of them on their way to their burying grounds, and he retained vivid recollections of a Cherokee chief whom his father had entertained at Shadwell. Not generally known is the fact that the future president, while a young man, actually excavated an Indian mound, one of several dotting the Rivanna River valley, and later reported in full his findings. Thus, according to one modern archaeologist, he “not only has the distinction of being among the early writers on the mounds, but has established himself as one of the very earliest real explorers of them.”

Jefferson seems to have been far ahead of most of his contemporaries in his conviction that actual proof of Indian origin and tribal relationships would ultimately rest on language. "It is to be lamented, then, very much to be lamented," he wrote, "that we have suffered so many of the Indian tribes already to extinguish, without our having previously collected and deposited in the records of literature, the general rudiments at least of the languages they spoke. Were vocabularies formed of all the languages spoken in North and South America ... it would furnish opportunities to those skilled in the languages of the old world to compare them with these, now, or at any future time, and hence to construct the best evidence of the derivation of this part of the human race."

Jefferson did more than talk about Indian "vocabularies"; he collected them. Writing in 1809 to a friend with mutual ethnological interests, he said: "I have now been thirty years availing myself of every possible opportunity of procuring Indian vocabularies to the same set of words; my opportunities were probably better than will ever occur again to any person having the same desire." 15

"The savage," wrote Buffon about the American Indian, "is feeble, and has small organs of generation; he has neither hair nor beard, and no arduous whatever for his female ... he is also less sensitive, and yet more timid and cowardly; he has no vivacity of mind." 19

Jefferson’s reply to Buffon delighted his fellow countrymen. "An afflicting picture indeed, which, for the honor of human nature, I am glad to believe has no original." The American Indian "is neither more defective in ardor, nor more impotent with his female than the white reduced to the same diet and exercise ... he is brave, when an enterprise depends on bravery ... he will defend himself against a host of enemies, always chusing to be killed, rather than to surrender." 20 Thus Jefferson, the amateur scientist, gave Monsieur Buffon, the professional, a badly needed lesson in the scientific method.

Observe, wrote Jefferson, "the face of the country, it's growth & vegetable productions; especially those not of the U.S." (VII, 239).

20 Peden, *Notes on the State of Virginia*, 63-64.
Year in and year out, Jefferson devoted more hours and more industry to plants than to any of the other productions of nature. "There is not a sprig of grass that shoots uninteresting to me," he once declared. When only twenty-three, he began jotting down botanical and phenological observations in what he called his Garden Book. His initial entry, made in the spring of 1766, reads as follows:

"Mar. 30. Purple hyacinth begins to bloom.


13. Puckoon flowers fallen.

16. a bluish colored, funnel formed flower [possibly bluebell, Mertensia virginica] in lowlands in bloom.

30. purple flag [Iris sp.] blooms. Hyacinth & Narcissus gone."22

As the years went by, Jefferson's knowledge of local herbs, shrubs, and trees advanced rapidly. In Notes on Virginia he listed 130 plants common to his state (from an "infinitude" of others), dividing them into four groups: medicinal, esculent, ornamental, and "useful for fabrication." In each instance he included the scientific name with the vernacular, "as the latter might not convey precise information to a foreigner." Thus we have the best evidence possible that Jefferson as a young man often visited the woods and fields adjacent to his home collecting and identifying local plants, familiarizing himself with leaf and blossom and that, meantime, he had measured the worth of Linnaeus' method of classification and had fastened upon it with instant enthusiasm. Well versed in Latin, he took to binomials like a poet to iambic pentameter and was one of the first Americans to recognize the merits of this universal language devised by the great Swedish naturalist.

In no man of his time was the desire to promote the general good of mankind through an interchange of plants more highly developed than in the Master of Monticello. Noting the importance of certain European plants in the economy of that continent, he took firm steps to introduce them into the United States. He centered his efforts on dry (upland) rice and the olive, though not ignoring others, such as cork oak and a species of grass (Sulla). Though unsuccessful with rice and the olive, Jefferson's failures take nothing away from his standing as the first American to engage seriously in efforts to introduce beneficial plants into the United States.

Jefferson instructed Lewis and Clark to make observations, these "to be taken with great pains & accuracy, to be entered distinctly, & intelligibly for others as well as yourself. Several copies of these, as well as your other notes, should be made at leisure times & put into the care of the most trustworthy of your attendants." (VII, 248).

From youth to old age, Jefferson set a shining example in the commendable art of observation and note-taking, to which predilection his Garden Book and Farm Book attest most eloquently. To him, observation was the substantive key opening doors to the riches of discovery. Recordings insured permanence. It is "truly unfortunate," he once remarked, that so few public figures take notes, without which "history becomes fable instead of fact."24

The instructions Jefferson put into the hands of Lewis and Clark clearly reflected his appetites, his thinking, and his persistent preoccupation with scientific matters. They carried with them the prestige of the President of the United States. That Lewis and Clark regarded them as law and made observations on temperature and rainfall, mountains and interlocking streams, animals, plants, and stone-age Indians, which they then committed to writing, is now a matter of record.

In a letter to Lewis written by Clark just prior to the start of the Expedition, Clark referred to President Jefferson as "that great Character the Main Spring of the action." He stated a simple truth perhaps not fully recognized by many Americans even today. Jefferson was the fountainhead of the Expedition. He conceived it, nurtured it through an unsettled infancy, and followed its further development with accelerating enthusiasm and unremitting care. His planning and organizational genius, supported by his broad base of technical knowledge, which we have delineated briefly, augured almost certain success. Without taking anything away from the glory and fame attaching to the names of Lewis and Clark, the Expedition might with equal justice have been called the "Jefferson Expedition."

22 Betts, Jefferson's Garden Book, 155.
24 Jefferson, Notes, 55.
26 Jackson, Letters, 111.
In these days of advanced geography, it is difficult to realize that when Thomas Jefferson was a small boy, just becoming conscious of the world around him, the greater portion of what is now the United States—the territorial immensity lying between the Mississippi River and the Pacific Ocean—was then almost as much a terra incognita to Americans as the back side of the moon is today. The Spaniards had occupied and explored a thin selvedge of it to the southwest, but the balance remained unknown and uncharted.

As Jefferson grew toward manhood, he heard much talk about this vast terrain, some of it fact, most of it hearsay, conjecture, and wildest fancy. Of whatever nature, it was more than enough to sharpen his imagination and to excite an inherent, active curiosity. This inquisitive disposition, as might be expected from what we already know about Jefferson, extended at first primarily to plants, animals, and Indians. In time, as he learned that the British and other nations had designs on this land, he became thoughtful as well as curious.

Jefferson's first public manifestation of interest in the West occurred in 1783, at the age of forty, when he was elected to Congress and helped draft basic reports on the organization of our lands between the Ohio and Mississippi. By then he envisioned that country, whatever its capacious interior might hold in the way of grassland, desert, and forest, as playing an inevitable role in the future expansion of the United States. Had not the restless American frontiersman already overrun much of the country between the Alleghenies and the remote, hillywogg Mississippi? He felt strongly, too, that the United States should be in a position to divert some of the fur traffic away from the British, whose traders had already invaded distant Indian villages above the Great Bend of the Upper Missouri. From such thoughts and convictions evolved Jefferson's idea of sending an expedition to explore the West.

In December of 1783 Congressman Jefferson wrote General George Rogers Clark, hero of Vincennes and older brother of William Clark: “I find they have subscribed a very large sum of money in England for exploring the country from the Mississippi to California. They pretend it is only to promote knollege. I am afraid they have thoughts of colonizing into that quarter. Some of us have been talking in a feeble way of making the attempt to search that country. . . . How would you like to lead such a party?” (VII, 193). Nothing came of this, Clark replying that although such a tour appealed to him, he could not undertake it because of personal financial problems besetting him at the moment.

Three years later, while in France as Minister Plenipotentiary, Jefferson met John Ledyard, a fellow countryman from Groton, Connecticut. Ledyard's chief claim to fame thus far in life had been to serve as petty officer under Captain John Cook on the latter's third voyage around the world. When Cook put in at Nootka Sound in 1778 (on the west side of Vancouver Island, British Columbia), he and his crew made a discovery that quickly and dramatically altered the history of our Northwest. They learned that sea otter pelts, purchased from the Indians for trifles, brought fabulous prices on the Chinese markets.

Ledyard returned home confident that with proper backing he could make a fortune harvesting sea otter skins. Having failed in his attempts to obtain the assistance he sought, first in the United States and more recently in Europe, he was “now panting for some new enterprise” and alert to a proposal Jefferson made to him. Why not cross Siberia to Kamchatka, sign on with a Russian fur-trader bound for Nootka Sound or thereabout, and once there, break through the Rockies to the Missouri and St. Louis? Ledyard seized upon this suggestion with enthusiasm and actually succeeded in arriving within some 200 miles of Kamchatka before a Russian officer dispatched by Empress Catherine caught up with him and obliged him to return. So Jefferson’s second attempt to have the West explored, this one by the back door, came to naught.

Six years passed and by then Jefferson was in Philadelphia serving under George Washington as the latter's Secretary of State. At that time in our history, Philadelphia was not only the capital of the United States but also its largest city and its scientific center. It had achieved the latter pre-eminence after Franklin had founded the American Philosophical Society. Jefferson had been a member of this prestigious organization since 1780 and recently had been elected vice president. (From 1797 to 1814 he served as its president.) Soon after Jefferson had been elevated to the vice presidency, we find Dr. Caspar Wistar writing to Dr. Moses Marshall, a local botanist of some repute, Marshall had just returned from a 1,600-mile collecting trip to the Pacific Coast. (From 1797 to 1814 he served as its president.) Soon after Jefferson had been elevated to the vice presidency, we find Dr. Caspar Wistar writing to Dr. Moses Marshall, a local botanist of some repute, Marshall had just returned from a 1,600-mile collecting trip to the West.

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Altamaha River country of Georgia, where a few years earlier John Bartram had discovered *Franklinia*, one of our rarest plants. Wistar, apparently at Jefferson’s instigation, wrote Marshall as follows:

Respected Friend:—By a conversation with thy uncle [Humphrey Marshall, author of *Arbutus Americanum*, a celebrated early work on American trees], I find that thee is already acquainted with the wishes of some gentlemen here to have our continent explored in a western direction. My reason for writing at present is to inform thee of the present state of the business. Mr. Jefferson and several other gentlemen are much interested, and think they can procure a subscription sufficient to insure one thousand guineas as a compensation to any one who undertakes the journey and can bring satisfactory proof of having crossed to the South Sea. They wish the journey to be prosecuted up the Missouri, as the easiest and perhaps the most interesting track. . . . If thee has any inclination, I think it would be very proper to come to town immediately and converse with Mr. Jefferson, who seems principally interested. I am confident that no small matter will stop them if thee is disposed to engage in the business. At any rate, shall be glad to hear from thee as soon as possible.27

It may be concluded that Jefferson and the “several other gentlemen” referred to in this letter were all members of the American Philosophical Society, so that it was this organization, with Jefferson as its spokesman, which backed this little-known attempt to induce Moses Marshall to explore the West. But apparently not even the lure of a thousand guineas moved him to undertake the venture. At least, we find no further mention of his name in that connection.

There is mention soon, however, of André Michaux, who had been actively engaged for a number of years collecting plants in Canada and the United States. He had visited Philadelphia where he favorably impressed Jefferson and other members of the American Philosophical Society. Finding that he was agreeable to exploring in a westerly direction, the Society solicited funds to finance the enterprise. Jefferson and Alexander Hamilton each contributed $12.50, Robert Morris $20, and George Washington $25 (VII, 205).

Michaux’s exploration ended in Kentucky. Here, as Jefferson later diplomatically explained, “he was overtaken by an order from the Minister of France, then at Philadelphia, to relinquish the expedition, and to pursue elsewhere the botanical inquiries on which he was employed. . . .”28 But such diplomatic language did not long obscure the truth, namely, that the French Minister, the notorious Citizen Genêt, had been attempting to organize a military expedition against the Spaniards and that Michaux was suspected of being a spy in his employ. When Jefferson learned of this development, he may have regretted a decision not to engage the services of a young man of nineteen who had earnestly sought through him the appointment given Michaux. His name was Meriwether Lewis. Thus ended, on a scratchy note, Jefferson’s fourth attempt to have the West explored.

The vast tract of real estate beyond the Mississippi, named Louisiana by La Salle, belonged to France until 1762. In that year France ceded it to Spain. Forty years later Napoleon forced its return to France. By then Thomas Jefferson was President of the United States, with eyes more sharply focused on the West than ever—and with good reason. The British, ignoring treaties, continued to hold trading posts on American soil and had expanded colonizing ambitions into the Upper Missouri country. Spain refused to allow shipments of American goods to pass freely through the port of New Orleans. And now France threatened to establish a new colonial empire in the Western Hemisphere. It was high time, Jefferson reasoned, that the United States be heard from in this gigantic game of international enterprise. What action could possibly be more effective in strengthening the American position in the world and establishing a just claim to at least a portion of Louisiana (Jefferson undoubtedly had that in mind) than the successful crossing of the continent between Spanish and British holdings by American explorers, especially in light of the fact that Captain Robert Gray had recently (1797) discovered the Columbia when he successfully drove his American merchantman into the estuary of that river? Now that he was President, Jefferson could exercise the power of that office to advance his project with chances of success greatly enhanced.

Jefferson made his next move on February 23, 1801. This took the form of a letter to Meriwether Lewis, then paymaster with the rank of captain in General James Wilkinson’s Army of the West. He needed a private secretary, he wrote Lewis, one who would “contribute to the mass of information which it is interesting for the administration to acquire. Your knowledge of the Western country, of the army and of all its interests & relations has rendered it desirable for public as well as

28 Coues, I, xx.
private purposes that you should be engaged in that office." Strange prerequisites for a secretary, strange indeed! But the inference to be drawn seems clear. Jefferson had settled on Lewis as the man to head the next party attempting to explore the West, and desired his presence in the capital where in subsequent months he could pursue with him each preparatory step.

Lewis received Jefferson’s letter in Pittsburgh, having just arrived in that frontier town from “D’Etroit.” His reply, dated March 10, reads in part as follows: “...I most cordially acquiesce and with pleasure accept the office, nor were further motives necessary to induce my complacency, than that you Sir should conceive that in the discharge of the duties of that office, I could be serviceable to my country, or useful to yourself; permit me here Sir to do further justice to my feelings, by expressing the lively sensibility with which I received this mark of your confidence and esteem.”

I think we can understand Lewis’s elation and can appreciate his stilted elegance of language. He could hardly have anticipated such a stroke of good fortune. If he thought that Jefferson had him in mind to explore the West, he gave no hint of it. However, he could not have been completely blind to the two words “Western country.”

Lewis set out for Washington almost at once. A lame mount and heavy spring rains delayed him, so that he did not reach his destination until April 1. Since the federal government had moved from Philadelphia to its new location on the Potomac just the preceding autumn, the President’s House (so called by Abigail Adams, the first First Lady to occupy it) and the Capitol were in an unfinished state and the future Pennsylvania Avenue little more than a muddy trail bordered by bushes, briars, and stumps. When Lewis dismounted at the President’s mansion (it would not be called the White House until after the British burned it in 1814 and it was painted white to cover the scars) where he would live for the next two years, he had no way of knowing that he had now embarked on a venture of such high consequence that when successfully completed, his name would forever illumine pages of American history.

Meriwether Lewis (1774–1809) now approached his twenty-seventh birthday. He had been born on August 18, 1774, seven miles to the west of Charlottesville, Albemarle County, Virginia. Not too much is known about his boyhood years, except that he early demonstrated a fondness for adventure in the woods and fields surrounding his home and acquired, as Jefferson subsequently wrote, “a talent for observation which had led him to an accurate knowledge of the plants and animals of his own country.” That this knowledge was substantial is borne out by the frequency and accuracy of Lewis’s later comparisons of western with eastern animals and plants. For example, on discovering the cutthroat trout (Salmo clarkii), he said: “These trout... precisely resemble our mountain or speckled trout (Salvelinus fontinalis) in form and the position of their fins, but the specks on these are of a deep black instead of the red or goald” (II, 150–151). And, when describing another western discovery, the dusky grouse (Dendragapus obscurus), he reported that it had 18 tail feathers, the same number as the eastern ruffed grouse (Bonasa umbellus umbellus) (II, 295). Surely, not many of Lewis’s contemporaries knew that the eastern ruffed grouse had exactly 18 feathers in its tail.

It should not be overlooked that Lewis’s mother, Lucy Meriwether Lewis (Lucy Marks, after a second marriage), was an herb doctor. For many years she tended the sick of Albemarle County, prescribing and administering vegetable drugs (simples). Thus, because of maternal ties, Lewis learned local plants of medicinal value and their purported therapeutic properties. As we shall see, information of this kind often colored his treatment of wounds and disorders suffered by himself and other members of the Corps of Discovery.

When President Washington in 1794 issued a call for volunteers to put down an insurrection in Pittsburgh (the Whiskey Rebellion), Lewis, now twenty, joined the militia hastily formed for that purpose. At the close of the rebellion, he enlisted in the regular army and served under General “Mad Anthony” Wayne in the latter’s Northwest campaign against the Indians and British. At some point in this campaign, Lewis (by then an ensign) found himself attached to the 4th Sub-Legion of Wayne’s army commanded by Lieutenant William Clark. In days immediately ahead, Ensign Lewis and Lieutenant Clark, sharing the experiences of border warfare, fashioned the bonds of an enduring friendship.

Lewis was shortly advanced to the rank of captain (in 1800, at the age of twenty-six) and after Wayne’s death, served under General

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29 Jackson, Letters, 2.
30 Jackson, Letters, 3.

81 Coues, I, xvi.
82 The genus Dendragapus normally, at least, has 16 tail feathers. See Raymond Darin Burrough’s The Natural History of the Lewis and Clark Expedition (East Lansing, Mich., 1961), 216.
James Wilkinson, whose name would soon be linked conspiratorially with that of Aaron Burr. Given the job of regimental paymaster, he continued in that role until Jefferson's letter caught up with him at Pittsburgh.

Jefferson had watched the youthful Meriwether Lewis grow to manhood. He had followed his rapid rise in the army from private to captain and had noted approvingly his experiences with Indians and his acquisition of knowledge about the country lying west of the Alleghenies. His choice of Lewis to serve as his personal secretary would indicate that he had not forgotten the latter's ardent plea, at the age of nineteen, that he be allowed to undertake the western exploration subsequently entrusted to Michaux.

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In the fall of 1802, continuing to look west, Jefferson asked the Spanish Minister in Washington if his country would "take it badly" if the United States elected to send a small party to "explore the course of the Missouri River." This, he indicated, would be purely a literary expedition and "would have no other view than the advancement of the geography." The Spanish Minister replied that a mission of that kind "could not fail to give umbrage" to his government.39 Undaunted by the Minister's reply, Jefferson, on January 18, 1803, transmitted a secret message to Congress. He used as a pretext the circumstance that Congress would presently be considering a continuance of the act for establishing trading houses among the Indians. "An intelligent officer," he said, "with ten or twelve chosen men fit for the enterprise and willing to undertake it... might explore the whole line, even to the Western ocean" (VII, 208–209). This exploration, the President told Congress (as he had told the Spanish Minister), would be geographical; but it would serve additionally to pave the way for American traders to enter the Missouri valley and thus be in a position to tap the fur riches of that region presently controlled by the British. An appropriation of $2,500, he thought, would be adequate to cover the expense of such an undertaking.

"The intelligent officer" to whom Jefferson alluded in his message was, of course, Meriwether Lewis. If at the time he hired Lewis as his personal secretary, he held any doubts as to his qualifications for leading the Expedition, he no longer entertained them.

I had now had opportunities [he later wrote] of knowing him intimately. Of courage undaunted; possessing a firmness and perseverance of purpose which nothing but impossibilities could divert from its direction; careful as a father of those committed to his charge, yet steady in the maintenance of order and discipline; intimate with the Indian character, customs, and principles; habituated to the hunting life; guarded, by exact observation of the vegetables and animals of his country, against losing time in the description of objects already possessed; honest, disinterested, liberal, of sound understanding, and a fidelity to truth so scrupulous that whatever he should report would be as certain as if seen by ourselves—w—with all these qualifications, as if selected and implanted by nature in one body for this express purpose, I would have no hesitation in confiding the enterprise to him.42

Secrecy continued to cloak each step of the planning. It was imperative that Jefferson's actual intentions should remain unknown and unsuspected until the Expedition had "got beyond the reach of any obstacles which might be prepared... by those who would not like the enterprise."43 All conferences about the impending exploration took place behind closed doors. The wording of each letter received special scrutiny. Robert Patterson perfected a cipher to be used by Lewis when sending coded messages back to Washington. When in time rumors of an upcoming western exploration leaked to the public, Jefferson quieted talk by announcing that the government planned to send a party to explore the Upper Mississippi and Lake of the Woods country (VII, 218–219).

The Expedition received additional leadership when William Clark accepted Lewis's invitation to share the exacting duties of command with him. Clark (1770–1838) was born in Caroline County, Virginia, on August 1, 1770, and was thus four years Lewis's senior. In 1785 he and the others of his family moved to Kentucky and took up residence near the Falls of the Ohio, now Louisville. Clark, then fifteen, had missed all but a minimum of schooling. His handwriting showed a lack of practice, and his spelling was picturesque. However, like many other young men of his day, he was wise in wilderness ways.

Clark gained his first military experience fighting Indians when at the age of nineteen, he joined an outfit of 200 mounted volunteers commanded by Colonel John Hardin. Later, as we know, he served under Wayne who, after a prolonged campaign, succeeded in defeating the Indians in the battle of Fallen Timbers and bringing peace once

39 Jackson, Letters, 4.
42 Coutes, I, xxi–xxii.
43 Jackson, Letters, 21.
more to what was then called “the Ohio Country.” At the close of this military operation, Clark resigned from the army, one reason being that Wayne irritated him like a bee on a hound’s nose. It is true that Wayne was something of a martinet. In attempting to avoid mistakes made by other leaders who had been badly defeated by Indians, he insisted on regular drill, frequent inspection of arms and accoutrement, periodic target practice, daily reconnaissance, and severe punishment for neglect of duty. Nevertheless, both Lewis and Clark profited immeasurably from their service under him. The day was not far away when they would be as demanding as Wayne had been.

On resigning from the service, Clark returned to his home where he resided quietly until July 16, 1803. On that date, he received a letter from Lewis that brought fire to his spirit unknown since his days of scraping with Miamis, Shawnees, and Potawatomis. Would he, wrote Lewis, be interested in joining him in the fatigues, dangers, and honors of a trip to explore the trans-Mississippi West? “Believe me,” he then went on, “there is no man on earth with whom I should feel equal pleasure in sharing them as with your self; I make this communication to you with the privity of the President, who expresses an anxious wish that you would consent to join me in this enterprise; he has authorized me to say that in the event of your accepting this proposition he will grant you a Captain’s commission . . . your situation if joined with me in this mission will in all respects be precisely such as my own” (VII, 230).

In his letter of acceptance Clark said: “This is an immense undertaking fraught with numerous difficulties, but my friend I can assure you that no man lives with whom I would prefer to undertake and share the difficulties of such a trip than yourself” (VII, 259).

Jefferson was pleased at this turn of events. “By having Mr. Clarke with you,” he wrote Lewis, “we consider the expedition double manned, & therefore the less liable to failure” (VII, 282).

Possibly Jefferson did not think of the command as joint, but that is what it became. Lewis insisted on it. Most persons today, notably army officers, shudder at the idea of joint leadership. They insist that it runs counter to all sound principles of command, is like putting two scorpions into the same bottle. As things turned out, there was no cause for concern about Lewis and Clark. In 28 months together, under conditions of almost daily hardship and tensions, they met each and every problem, seemingly without even a whisper of dissent between them. Since the two men were so unlike temperamentally and in other ways, one wonders how this could have been so. Lewis was a dreamer, intent, fine-drawn, reserved, unwavering, generally humorless. Clark was warm, companionable, a good judge of men, an easy conversationist—but inclined to keep a portion of his counsel to himself—and highly successful in meeting the demands of actual living.

Those planning the Expedition had no cause for continued secrecy after April 30, 1803. On that date Napoleon sold Louisiana to the United States. For approximately $15,000,000 Jefferson had acquired practically all of that land mass between the Mississippi and the Rockies north of the Arkansas River. Looking at it another way, this acquisition—with others soon to follow—gave us the corn country of Iowa, Missouri, Kansas, and Nebraska, the wheat fields of the Dakotas, the gold and silver of Montana, Idaho, and California, the oil of Oklahoma and Texas, the great evergreen forests of Washington and Oregon, and the unexcelled splendors of Colorado, Utah, Wyoming, Nevada, Arizona, New Mexico, and contiguous states.

When Congress approved Jefferson’s request to send an intelligent officer with ten or twelve chosen men to explore the trans-Mississippi West, he directed Lewis to leave for Philadelphia at once. His mission to that city was two-fold: to assemble necessary supplies and equipment for the Expedition and to call upon important scientists who would provide him with “a greater familiarity with the technical language of the natural sciences, and a readiness in the astronomical observations necessary for the geography of his route.”

Preceding Lewis’s departure, Jefferson wrote nearly identical letters to Andrew Ellicott, Lancaster, Pennsylvania, and Robert Patterson, Dr. Benjamin Rush, Dr. Benjamin Smith Barton, and Dr. Caspar Wistar, all of Philadelphia and members, with Jefferson, of the American Philosophical Society. Since the recent deaths of Benjamin Franklin and David Rittenhouse, these men provided the leadership of that organization and constituted the acknowledged aristocracy of science in the United States. Jefferson’s letter to Dr. Rush read as follows:

I wish to mention to you in confidence that I have obtained authority from Congress to undertake the long desired object of exploring the Missouri & whatever river, heading with that, leads to the western ocean. About 10 chosen woodsmen headed by Capt. Lewis my secretary will set out on it

**Coues, I, xxii.**
immediately & probably accomplish it in two seasons. Capt. Lewis is brave, prudent, habituated to the woods, & familiar with the Indian manners and character. He is not regularly educated, but he possesses a great mass of accurate information on all the subjects of nature which present themselves here, & will therefore readily select those only in his new route which shall be new. He has qualified himself for those observations of longitude and latitude necessary to fix the points of line he will go over. It would be very useful to state for him those objects on which it is most desirable he should bring us information. For this purpose I ask the favor of you to prepare some notes of such particulars as may occur in his journey & which you think should draw his attention & enquiry. He will be in Philadelphia about 2 or 3 weeks hence & will wait on you” (VII, 211).

Lewis left Washington for Philadelphia on March 14, travelling by way of Harper’s Ferry and Lancaster. It was important that he visit the United States arsenal at Harper’s Ferry to place orders for equipment and to superintend the construction of an iron boat frame which the skilled craftsmen of the arsenal would make for him. Lewis carried a letter to the superintendent of the arsenal from Henry Dearborn, Secretary of War, which ordered the former to provide Lewis with such arms and iron work as he might request. This letter points up the fact, not always understood, that the Lewis and Clark Expedition was a military one, a unit of the United States Army, as well as a scientific expedition.

The iron boat frame seems to have been a product of Lewis’s inventive mind and to oversee each step of its construction, he stayed on in Harper’s Ferry a full month instead of the week originally intended. Because of this delay, Lewis did not arrive in Lancaster until April 19. He went at once to the home of Andrew Ellicott (1754–1820), astronomer and mathematician, who is best remembered as the man engaged to make the original survey, under Jefferson’s and Washington’s supervision, of that significant moiety of real estate ceded by Maryland and Virginia which became the District of Columbia.

As Jefferson’s letter to Dr. Rush attests, Lewis had already received preliminary instruction in how to use those instruments necessary for establishing latitude and longitude. Ellicott now extended this instruction. He had earlier written Jefferson: “Mr. Lewis’s first object must be to acquire a facility, and dexterity, in making the observations; which can only be obtained by practise.” On April 20 Lewis wrote Jefferson: “I arrived at this place yesterday, called on Mr. Ellicott, and have this day commenced, under his direction, my observations &c., to perfect myself in the use and application of the instruments. Mr. Ellicott is extremely friendly and attentive, and I am confident is disposed to render me every aid in his power: he thinks it will be necessary I should remain here ten or twelve days.”

Lewis’s schooling under Ellicott ran on for almost three weeks. It was May 7 when the latter addressed a letter to Robert Patterson which said that it would be handed to him by Lewis on his arrival in Philadelphia. Presumably Lewis departed on that day or the one following.

Once in Philadelphia, Lewis apparently went directly to Patterson, who, at Jefferson’s request, was to continue still further Lewis’s education in the use of the sextant and chronometer. A few days later he wrote Jefferson that both Patterson and Ellicott disapproved of the delicate theodolite because it would be difficult to transport and to keep in working order. They recommended instead as indispensably necessary “two Sextants . . . an artificial horizon or two; a good Arnold’s watch or chronometer, a Surveyor’s compass with a ball and socket and two pole chain, and a set of plotting instruments” (VII, 221).

In Lewis’s next letter to Jefferson, he said that Irish-born Robert Patterson (1743–1823), a gifted mathematician who had come to Philadelphia in 1776, had been “extremely obliging” to him since his arrival and had recommended that he stay with him a few days longer to receive further instruction. It would seem that Patterson had discovered lacunae in Lewis’s training that needed filling.

Lewis never did completely master the necessary aptitudes for determining latitude and longitude, in particular the latter. This failure cannot be attributed to any lack of reference books. As he left for the West, he carried with him such standard contemporary works as Patrick Kelley’s A Practical Introduction to Spheres and Nautical Astronomy (London, 1796); The Nautical Almanac and Astronomical Ephemeris (London, 1781–1804); and Nevil Maskelyne’s Tables Required to be Used with the Nautical Ephemeris for Finding the Latitude and Longitude at Sea (London, 1781).28

Presumably these volumes had been recommended by Ellicott and Patterson, although one should never overlook the hand of Jefferson in any phase of the planning of the Expedition, particularly any that had to do with books. Acknowledged to be the most eminent bibliophile of

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28 Jackson, Letters, 40.
his day, he actually built three personal libraries during his lifetime. His first was destroyed by fire in 1770. His second, given to Congress in 1815 when he was seventy-one, formed the nucleus of our Library of Congress, today the largest in the world. He built the third, some 1,000 volumes, during the remaining eleven years of his life.40

Before leaving Philadelphia, Lewis bought those navigational instruments recommended by Ellicott and Patterson. He obtained a chronometer from Thomas Parker, a clock and watchmaker, paying him $250 for it, by far the largest sum expended for any single item carried by the Expedition. After purchasing it, he sent it to Ellicott to be regulated. "She is wound up," he wrote, "and the works are stoped by inserting a hog's bristle which you will discover by examination. She has been cleaned by Mr. Vot, and her rate of going ascertained by observation to be 14" too slow in 24 h."

Jefferson at no time seems to have considered engaging the services of a physician to accompany the explorers, being content to let Lewis and Clark handle whatever ills and miseries might befall the party. People of that day did not inquire too closely into the qualifications of doctors, many of whom had no regular training. Even John Bartram, we are told, "had an inclination to the study of physic and surgery and did much toward relieving the ailments of his poor neighbors."41

Jefferson's decision not to send a doctor was no doubt prompted by his familiarity with Lewis's knowledge of herb therapy and by his own lack of confidence in the physicians of his day. He had strong personal reasons for this distrust. Before he had attained the age of forty-two, he had lost his father and mother, his closest friend (Dabney Carr), his favorite sister (Jane), three children, and his wife (Martha). He lived in the days of the depleting remedies—purges, vomits, sweats, blisters—and of the blood-letting lancet, by far the most used instrument in the armamentarium of the physician. Patients recovered, if at all, in spite of medical attention received. The low state of medicine then could hardly have been otherwise. Pathogens, such as bacteria and viruses, had yet to be recognized for what they are. Almost three-quarters of a century would elapse before the world would accept Pasteur's exposition of the germ theory of disease, and an even longer period of time before benefiting from use of the clinical thermometer and routines of urinalysis and blood examinations.

Though Jefferson inveighed against the doctors of his day, he did not hesitate to ask Dr. Benjamin Rush (1745–1813), the most eminent of American physicians, to advise Lewis on medical matters pertinent to the Expedition. That Dr. Rush oblied is proved by a letter Lewis wrote Jefferson soon after his arrival in Philadelphia. "Dr. Rush has favored me with some abstract queries under the several heads of Physical History, medicine, morals and religion of the Indians, which I have no doubt will be serviceable in directing my inquiries among that people" (VII, 224).

A sampling of Dr. Rush's "abstract queries," to some of which Lewis and Clark later obtained answers, follows: "What is the state of the pulse in both Sexes, Children, grown persons and in old age, by feeling the Pulse Morning, Noon & Night &? What are their acute diseases? Is Rheumatism, Pluricy or bilious fevers known among them? & does the latter ever terminate in a vomiting of black matter? What are their chronic diseases—palsy, apoplexy, Epilepsy, Madness, the goitre (or swelled Neck) and the Venereal disease known among them? What is the mode of treating the Small Pox particularly? What are their remedies for their different diseases?" (VII, 283).

After Lewis left Philadelphia for Washington, Dr. Rush had an afterthought. On June 11, he wrote Jefferson that he was sending a few short directions for the preservation of Lewis's health, "as well as the health of the persons under his command."42 The directions, a few of which follow, present an interesting lesson in personal hygiene as it obtained at the beginning of the last century:

When you feel the least indisposition, do not attempt to overcome it by labor or marching. Rest in a horizontal position.

Unusual costiveness [constipation] is often a sign of approaching disease. When you feel it take one or more of the purging pills.

In difficult & laborious enterprises & marches, eating sparingly will enable you to bear them with less fatigue & less danger to your health.

Molasses or sugar & water with a few drops of the acid of vitriol [sulphuric acid] will make a pleasant & wholesome drink with your meals.

After having had your feet much chilled, it will be useful to wash them with a little spirit.

40 Arthur E. Bestor, David G. Mearns, and Jonathan Daniels, Three Presidents and Their Books (Urbana, Ill., 1965), 3.
41 Jackson, Letters, 51.
42 W. J. Youmans, Pioneers of Science in America (New York, 1896), 25.
Washing the feet every morning in cold water, will conduce very much to fortify them against the action of cold.

After long marches, or much fatigue from any cause, you will be more refreshed by lying down in a horizontal position for two hours, than by resting a much longer time in any other position of the body.44

Dr. Rush would have been pained to learn how many of these health rules Lewis and Clark disregarded. They ignored his injunctions to rest for two whole hours in a horizontal position with each indisposition and to wash their feet in cold water every morning. The idea of fasting to make walking less fatiguing held no appeal for them whatsoever, nor did using good liquor for washing cold feet. Also, we find no mention in any of the journals about that “pleasant and wholesome” drink compounded of sweetened water and sulphuric acid.45

During his stay in Philadelphia, Lewis spent $90.69 for drugs, lancets, forceps, syringes, and other medical supplies. He had prepared a list in advance and the length of it and inclusion of certain items, notably 50 dozen “Bilious Pills to Order of B. Rush,” lead us to believe that Dr. Rush helped him to prepare it. He obtained some 30 different kinds of drugs all together. Those used most often on the journey were Peruvian bark, jalap, Glauber’s salt, niter (potassium nitrate or saltpeter), tartar emetic, laudanum, calomel, mercurial ointment, and Rush’s pills.

Thus equipped, the medical team of Lewis and Clark seemed prepared for almost any clinical contingency. Though Clark did not possess Lewis’s knowledge of herb therapy, he did carry in his head (as did Lewis) the usual frontiersman’s storehouse of medical information: how to set a broken limb or remove an imbedded bullet, how to cope with dysentery, croup, and a wide range of other ailments. Being often closer to disease and disaster than to doctors, he found it imperative to know about such things.

Jefferson took particular pleasure in sending Lewis to Dr. Benjamin Smith Barton (1766–1815), professor of botany at the University of Pennsylvania. Some ten years earlier at a meeting of the American Philosophical Society, Barton had read a paper in which he initially mentioned a plant until then known as Podophyllum diphylleum. “As I have not found it described by any authors, except Linnaeus and John Clayton, neither of whom had seen the flowers,” Barton said, “and as it is, certainly, a new family genus, I take the liberty of making it known to the botanist by the name JEFFERSONIA, in honor of Thomas Jefferson, Esq., Secretary of State to the United States.”46 After retiring from public office, Jefferson took pains to see that Jeffersonia diphyllea (twinleaf, in the vernacular) grew in his flower beds at Monticello.

Dr. Barton is today best known among biologists as the author of Elements of Botany: or Outlines of the Natural History of Vegetables (Philadelphia, 1803), the first textbook of botany written in the United States. This was one of the reference works Lewis took west with him, but it was not a gift from the author. In a memorandum still extant, we find that while in Philadelphia he purchased “1 Copy Bartons Bottony” and paid $6 for it.” But Lewis did leave Dr. Barton’s home with a book under his arm, The History of Louisiana by Antoine Le Page du Pratz. Lewis carried this book with him to the Pacific and, back in Philadelphia again, returned it to its owner. That Barton had loaned it to Lewis is attested by an eye-catching inscription on the flyleaf written by Lewis. It reads: “Dr. Benjamin Smith Barton was so obliging as to lend me this copy of Mons’ Du Pratz’s history of Louisiana in June 1803. it has been since conveyed by me to the Pacific Ocean through the interior of North America on my late tour therither and is now returned to it’s proprietor by his Friend and Ob! Serv! Meriwether Lewis. Philadelphia, May 9, 1807.” This book is still in existence, as I recently reported.47

Lewis and Clark carried other natural history reference works: Richard Kirwan’s Elements of Mineralogy (London, 1784); John Miller’s An Illustration of the Sexual System of Linnaeus, Volume I (London, 1779), and An Illustration of the Terminology of Linnaeus, Volume II (London, 1789); and a four volume dictionary which was probably A New and Complete Dictionary of Arts and Science commonly called, after the publisher, Owen’s Dictionary.

Excepting the contribution of Du Pratz’s History and a promise to supply “abstract queries” (VII, 224), it can only be conjectured as to other help Dr. Barton gave Lewis. As a teacher of natural history and


47 Jackson, Letters, 96.

ardent collector of "botanicals," he was probably as well informed as anyone of his day on how best to preserve plant and animal specimens and may very well have instructed Lewis in current methods. It is possible that he attempted to provide him with "a greater familiarity with the technical language of the natural sciences," but the time for that, as we shall see, was short. Also, he could have shown Lewis how to prepare a bird-skin, but once again, so could Jefferson, who left a description of his method: "Make a small incision between the legs of the bird: take out the entrails & eyes, wipe the inside & with a quill force a passage through the throat into the body that the ingredients may find a way into the stomach & so pass off through the mouth. Fill the bird with a composition of ½ common salt & ½ nitre pounded in a mortar with two tablespoonfuls of black or Indian pepper to a pound, hang it up by its legs 8 or 10 weeks, & if the bird be small it will be sufficiently preserved in that time. If it be large, the process is the same, but greater attention will be necessary."**

A man of many talents, Barton spread them thinly, delving into a great many projects and completing few. Illness and premature death prevented his attaining certain important goals, a most regrettable case in point being his inability to edit and publish the scientific portions of the Lewis and Clark journals, a task which, as we shall see, he agreed late in life to undertake.

[ 14 ]

During his two years at the White House, with Jefferson as his mentor, Lewis served an important paleontological apprenticeship. When he called on Dr. Caspar Wistar (1761–1818) at the latter's home in Philadelphia, it is natural to suppose that the conversation quickly turned to fossils. Since Lewis was shortly to explore hitherto unknown parts of the continent, Wistar surely urged him to scan the Missouri River bluffs for exposed fossiliferous strata and, agreeing with Jefferson that live Megalonyx and mastodon might still inhabit western landscapes, to be constantly alert for any sign of these or related beasts. Reports reached Philadelphia about this time of the discovery by a Dr. William Goforth of a huge deposit of petrified bones and teeth of the mammoth at Big Bone Lick, near Cincinnati. It was probably at the prompting of Wistar that Lewis stopped at this site later in the year.

About the busiest man in Philadelphia during Lewis's stay there was Israel Whelan, whom John Adams had recently appointed Purveyor of Public Supplies. Even before Lewis arrived, Whelan had received a directive from the War Department to assist him in every possible way and with it, an accompanying draft for $1,000 with which to buy supplies for the Expedition. From early May well into June, Whelan worked overtime visiting retail and wholesale establishments where he purchased, from a list supplied by Lewis, a total of more than 200 different articles. Among them were 193 pounds of portable soup, three corn mills, 130 rolls of pigtail tobacco, 30 gallons of "Strong Spt. Wine," a wide assortment of Indian presents, 52 lead canisters for powder, medical and surgical supplies, mosquito netting, and oil-skin bags.

When finally assembled, Lewis's supplies and equipment resembled a small mountain. He estimated the weight at 2,500 pounds. It would be a formidable job getting them to Pittsburgh by wagon where they would be loaded on a boat for the descent of the Ohio. A civilian army official, William Linnard, provided a driver for a team of five horses. When he arrived in Harper's Ferry to pick up Lewis's supplies there, he found more than he could carry so that another wagon had to be obtained.* From this point the conveyances made the long haul to Pittsburgh, travelling by way of Charlestown, Frankfort (now Ft. Ashby, West Virginia, just south of Cumberland, Maryland), Uniontown, and "Redstone old fort" (now Brownsville, Pennsylvania) (VII, 256).

I have been unable to determine the exact length of Lewis's stay in Philadelphia. He arrived there about May 8 and, three weeks later, wrote Jefferson that he expected to leave for Washington about June 6 or 7, so that he was there at least a full month, possibly a few days longer. We know that he was in Washington on June 19, the date on which he had written Clark inviting him to share command of the Expedition with him.

I have also been unable to find proof that Lewis while in Phila-
delphia visited the Philadelphia Museum, most often referred to as Peale's Museum, after its genial founder and proprietor (and celebrated artist), though there can be little doubt that he did. In 1802, the year before Lewis came to Philadelphia, Peale had moved his museum from Philosophical Hall (home of the American Philosophical Society) to the more spacious Independence Hall. Here it occupied the assembly room on the first floor, all of the second floor, and the tower rooms

* Betts, Jefferson's Garden Book, 95.
* Jackson, Letters, 106.
above. By that time Peale and his son Rembrandt were able to exhibit some “200 stuffed animals, a thousand specimens of birds, 4000 specimens of insects, a collection of minerals, cabinets of serpents, fishes, etc. . . . The greatest curiosities were the famous Ulster County, N.Y. mastodon skeletons, dug from a marl-pit by Mr. Peale and joined together with infinite labor.”

Peale would figure prominently in the significant sequel to the Expedition, as would William Hamilton and Bernard McMahon. Hamilton was a well-known gardener of the time and owner of the estate, “Woodlands,” and McMahon a prominent seed merchant. There is nothing to indicate that Lewis met either Hamilton or McMahon on his initial visit to Philadelphia.

[ 15 ]

Subsequent events suggest strongly that Lewis while in Philadelphia accomplished most of his primary objectives. In so far as his needs could then be foreseen, he outfitted the Expedition. Later, when the complement of men burgeoned from Jefferson’s early estimate of 10 or 12 to 45, he added other supplies at Fort Massac and Kaskaskia and at St. Louis. It was no small task to anticipate all that he would need in the way of arms, food, clothing, camping paraphernalia, scientific instruments, and Indian presents for a party of still undetermined size that for an indefinite period of time would be out of touch with normal supply sources. This was true, even though he was experienced in military matters, had begun making lists months in advance, and had benefitted from “the most ample and hearty support that the government can give in every possible shape.”

Lewis’s purchase of certain articles, such as portable soup, lead powder canisters, mosquito netting, oil-skin bags, and sheets of oiled linen, reflect remarkable foresight. The soup dispelled hunger when game failed. The lead canisters kept powder dry. Mosquito netting created effective barriers between men and hordes of blood-sucking, sleep-dispelling insects. Oil-skin bags excluded damaging moisture from valuable books and instruments. Large multipurpose sheets of oiled linen served as tents by night and boat covers or sails by day.

Lewis chafed under the problem of how much to purchase. For example, was he obtaining sufficient powder? Would six papers of inkpowder be sufficient, or 500 rifle flints? He made mistakes. The three Fahrenheit thermometers he bought were all broken before he had crossed the Rockies and tobacco (except for a small cache at Shoshoni Cove) was exhausted before the party left Fort Clatsop. Lewis’s most serious error, one that later gave him grave concern, was his failure to procure an adequate number of blue beads, in spite of the fact that he knew that they answered “all the purposes of money” and that the Indians coveted beads of this color above all others (VII, 237).

Additionally, in Philadelphia Lewis increased his facility in the use of navigational instruments and received advice calculated to draw his attention to “those objects only on which information is most deficient & desirable.” He received counsel on what instruments, reference books, and medical supplies would best serve his needs. He probably obtained instruction on current methods of preserving specimens. Above and beyond this, he lived daily in the company of the most distinguished scientists of the day: Patterson, Rush, Barton, and Wistar. As a result, Lewis must have left Philadelphia with quickened pulse, bounding enthusiasm, and heightened determination. Within a fortnight he would set out for uncharted parts of the continent where he would need a full measure of such attributes.

84 Jackson, Letters, 18.