THE LOUISIANA PURCHASE OF 1803 APPROXIMATELY doubled the size of the United States, adding 800,000 square miles of ignorance—land that had never been well explored or adequately mapped. Even the northern and southern boundaries, with British Canada and Spanish Mexico, had not been explored. To the west, Louisiana ended in ranges of mountains of unknown dimensions. That such mountains were there had been shown by Father Silvestre Vélez de Escalante, who in 1776 had crossed from Santa Fe to what is now northeastern Utah, seeking in vain for a convenient route to California, and by Alexander Mackenzie, who had crossed the Canadian Rockies to the Pacific in 1793. Fur trappers and traders—most of them French or Spanish and often illiterate—had also penetrated parts of the mountains, bringing back tales of white bears and wild Indians.

By 1803, even before the treaty with France had been formalized, Thomas Jefferson had persuaded Congress to appropriate $2,500 to outfit an expedition that he hoped would cross the mountains “even to the Western Ocean,” and Meriwether Lewis and William Clark were assembling supplies and equipment for their Corps of Discovery. Following their return, after two years and four months in the wilderness, Americans were finally to learn of the vastness of
their western lands and much about its geographic features, its soils, and its inhabitants.

The Lewis and Clark Expedition included a core of twenty-nine men, along with several others who helped move their boats up the Missouri to Fort Mandan, in present-day North Dakota. There they spent the first winter and engaged the services of Touissant Charbonneau and his wife, Sacagawea, who soon captured the imagination of the nation. From Fort Mandan, their route took them across what is now Montana and Idaho, and then down the Columbia to its mouth. There, building a post they called Fort Clatsop, they spent the second winter, and then returned over roughly the same route. The story of Lewis and Clark’s exploits has been told many times and needs no retelling here. The expedition opened the Northwest for American fur trappers and traders; already by 1807, Manuel Lisa had built a trading post at the junction of the Yellowstone and Bighorn Rivers, deep in what is now Montana.

Quite different was the expedition of Zebulon Pike, initiated in July 1806, even before the Corps of Discovery had returned. Pike’s instructions came not from Washington, but from General of the Army James Wilkinson, governor of Louisiana Territory, a man who had dreams of establishing a separate empire in the western plains and the Southwest. His orders to Pike were to pacify the Pawnees and the Comanches, and then to explore the sources of the Red River, the supposed boundary between American and Spanish lands. Having accomplished the first mission, after a fashion, Pike found himself on the upper Arkansas River at the threshold of the Rockies—and it was already mid-November. Despite the bitter weather, Pike and his small band of sixteen penetrated the mountains as far as South Park (near modern-day Fairplay, Colorado) and nearly to Leadville. He was close to the sources of both the Arkansas and South Platte Rivers. Another, north-flowing stream he believed to be the source of the Yellowstone, a major branch of the Missouri, and his map showed his trail meeting the source of that river: “I have
no hesitation [he wrote] in asserting that I can take a position in the mountains, whence I can visit the source of any of those rivers in one day." The rivers he cited were the Yellowstone, the Platte, the Colorado, the Arkansas, and the Rio Grande! (William Clark, too, had mapped the origin of the Yellowstone not far from that of the Rio Grande and the Colorado.)

After enduring many hardships, Pike and his men retreated to the eastern foothills of the Rockies, where they built a blockhouse for shelter. But there was little game to be found, and Pike left with a smaller group to cross the Sangre de Cristos. There he found another river, which might have been the river he had been commissioned to find: the Red. (It was, of course, the Rio Grande.) After building another stockade, he was captured by the Spanish and taken to Santa Fe and later to Chihuahua, where he was released several months later. It is probable that Wilkinson had planned for this to happen, as he wanted Pike to report on Spanish settlements and military forces. Pike’s report, published in 1810, has been described by one biographer as “poorly organized, unreliable . . . scientifically and geographically incorrect, and in many places dishonest.” By his own admission, Pike had no qualifications as a naturalist, and he lacked the “time and placidity of mind” required to study the plants and animals he encountered. Nevertheless Pike’s account of the rich villages of the Southwest helped to set the stage for the development of the Santa Fe Trail.

While in South Park, Pike was impressed by the size of a recent encampment, and in Santa Fe he met a trader, James Purcell (or Pursley, as he called him), who explained that he had camped there in 1805 with a large group of Kiowa Indians. This was a year and a half before Pike reached the area, so it seems fair to credit Purcell with being the first American of European descent to discover the Front Ranges of Colorado. Purcell told Pike that he “had found gold in the head of La Platte, and had carried some of the virgin mineral in his shot-pouch for months; but that, being in doubt whether he
should ever again behold the civilized world . . . he threw the sample away.” Pike spoke of Purcell as “a man of strong natural sense and dauntless intrepidity.”

Purcell was a Kentuckian who had hunted and trapped in Louisiana Territory since 1799. In 1805 he had been hired by a trader to make contact with the Kiowa Indians. But the Kiowas were being driven south and west by the Sioux, and along with them went Purcell and several companions. The camp in South Park was said to have contained as many as 2,000 Indians and more than 10,000 horses. The Indians sent Purcell to Santa Fe to establish trade relations with the Spanish, but he remained there, later becoming a Mexican citizen and settling in Sonora.

The supposition of both Clark and Pike that the Yellowstone River arose in central Colorado demonstrates the contemporary lack of appreciation of the vast area between the watershed of the Missouri and that of the Arkansas. It was not until 1811 that a group of traders made the trek from the Missouri to the Arkansas (it took them “forty or fifty” days) and not until 1816 that their trip was made known, and under odd circumstances, in a letter to the editor of a newspaper, the Missouri Gazette. The letter was written by Ezekiel Williams and was in response to an article concerning the discovery of a grave in central Missouri believed to be that of Jean Baptiste Champlain, who, along with Williams and several others, had been sent by Manuel Lisa from his trading post on the Missouri toward Santa Fe, in the hope of establishing trade with the Spanish. Several in the party perished, but Williams and Champlain survived to procure a valuable load of furs. But, said the report, when nearly back to Boone’s Lick, Missouri, Williams “coolly and premeditatedly committed one of the most inhuman and outrageous acts of cruelty that the annals of history can produce, by putting to death the friend of his bosom for the sake of lucre!” The source of this story was not stated, except that it was “from a gentleman of respectability.”

All of this Williams emphatically denied, explaining that he had left Champlain with the Arapahos when he returned via the
Arkansas River, and on a later trip found that the Arapahos had killed him. This story was confirmed by Robert Stuart, leader of John Jacob Astor's American Fur Company, who learned from the Shoshones that Champlain had been killed by the Arapahos in 1812. Members of the Long Expedition were to hear of the discovery of the body as they crossed Missouri in 1819. If the body was that of Champlain (as seems doubtful), it remains to be explained how it got from Colorado to Missouri.

During the late 1820s, Williams served as a guide on the Santa Fe Trail. Later "Old Zeke" settled on a farm in Benton County, Missouri, where for a time he served as judge and postmaster. Although his name has nearly been forgotten, it was Williams who first pointed out that there was a vast, barely explored region between the Missouri and Arkansas Rivers. Whether his letter to the Missouri Gazette describing his experiences was known to the eastern establishment of the time is a moot point.

Once Manuel Lisa and others of his Missouri Fur Company had learned how to run the gauntlet of the Sioux and other tribes along the Missouri, that river became the scene of much activity. Between 1807 and 1820, Lisa and his companions went up and down the river several times. They traveled in keelboats poled or rowed through the turbulent waters or pulled upstream from the banks by ropes; only now and then could they use wind power to replace muscle power. Trappers and traders were dispatched from posts along the river, John Colter traveling even as far as the Wind River Ranges, Jackson Hole, and Yellowstone. Colter, like several others in Lisa's employment, was a veteran of the Lewis and Clark Expedition.

In 1811, Astor's Pacific Fur Company dispatched Wilson Price Hunt and his party of "Astorians" up the Missouri in four keelboats. Later they would trek, with much difficulty, all the way to the Pacific, and the following year Robert Stuart would lead the return trip east. With Hunt as he ascended the river were two notable botanists, Thomas Nuttall and John Bradbury. Bradbury would write of his adventures in his book Travels in the Interior of America in the
Years 1809, 1810, and 1811 (1817). With Lisa, that same year, was geographer Henry Marie Brackenridge, who wrote of his travels in *Views of Louisiana: The Journal of a Voyage up the Missouri River*, in 1811 (1814). So the Missouri River, at least as far as the Dakotas, was reasonably well known compared with most parts of the West.

One would have thought that the next government-sponsored expedition might have had as its major goal the exploration of some of the vast areas to the south of the Missouri that were still little, if at all, visited, but that is not the case. Following the War of 1812, John C. Calhoun, Secretary of War under President James Monroe, was concerned with British influence in the northern part of Louisiana Territory and the danger from Indians who had allied themselves with the British. Calhoun was then thirty-seven, and had been in the cabinet for two years. This was long before he became an advocate of states’ rights; he was then an ardent nationalist and expansionist. "Distance and difficulties are less to us than any people on earth," he had remarked in a speech to Congress. There was genuine fear of a third war with England, working through the Indians to block expansion to the west.

Calhoun proposed sending troops up the Missouri to establish a fort at the mouth of the Yellowstone River (near the present boundary between North Dakota and Montana). There they would impress the Indians with the power of the Americans and at the same time serve notice to Canadian trappers and traders that some of their favorite beaver country was now part of the United States. President Monroe supported the plan fully, as he wrote to his Secretary of War.

The people... look upon it as a measure better calculated to preserve the peace of the frontier, to secure to us the fur trade and to break up the intercourse between the British traders and the Indians, than any other which has
been taken by the government. I take myself very great interest in the success of the expedition, and am willing
to take great responsibility to ensure it.

The press was no less enthusiastic about the Yellowstone Expedition, as it came to be called. The Missouri Gazette reported that “the plan has attracted the attention of the whole nation, and there is no measure which has been adopted by the present administration that has received such universal commendation.” That the expedition was to make use of the recently invented steam engine especially fired the imaginations of many. In a letter to a newspaper, one correspondent surmised that it would lead to “safe and easy communication to China [and] ten years shall not pass away before we shall have the rich productions of that country transported from Canton to the Columbia, up that river to the mountains, over the mountains and down the Missouri and Mississippi, all the way (mountains and all) by the potent power of steam.”

Both steamboats and steam railways were novel in the early nineteenth century, and the public was as much excited about them as we are about space probes. Although Colonel Henry Atkinson, who had been placed in charge of the military arm of the expedition, was well aware that human- and wind-powered keelboats had successfully plied the Missouri, they would not do for so grand an expedition. A contract was made with Colonel James Johnson to build five steamboats, to be named the Jefferson, the Calhoun, the Johnson, the Exchange, and the Expedition. The steamboats were hastily constructed and proved to be more expensive than had been calculated and much less effective than had been hoped in traversing the Ohio and the Missouri. The plan was to transport nearly 1,000 soldiers and their equipment to the mouth of the Yellowstone. It was assumed that the War Department would save money in the process, since the troops could live mainly on the abundant game. As we shall see, none of the ships came anywhere near reaching their
planned destination, and many of the troops succumbed to scurvy during the winter of 1819/1820.

From the beginning, it was planned to add an exploratory arm to the expedition, to be commanded by Major Stephen H. Long. That the enterprise eventually came to be called the Long Expedition rather than the Yellowstone Expedition reflects the relative success of the two arms. Long had only just returned from expeditions on the upper Mississippi River and in Arkansas. He was given a more or less free hand to design his own steamboat and to select his personnel. His steamboat, the Western Engineer, had a shallower draft than any of the five ships of the military contingent, and may have been the first stern-wheeler ever built. It proved far better suited for river travel than did Colonel Johnson’s boats, but its operation was not without problems.

As a school principal in Germantown, Pennsylvania, before joining the military, Long had become acquainted with members of the American Philosophical Society in nearby Philadelphia, then the intellectual hub of the country. The idea of asking several members of the society to accompany him on this new venture was his, but Calhoun was easily persuaded. Several were eager to do so despite the fact that they were offered little salary and would have to supply some of their own equipment.

The expedition left Pittsburgh in May 1819. Calhoun’s orders to Long were (in part) as follows:

You will first explore the Missouri and its principal branches, and then, in succession, Red River, Arkansas [sic] and Mississippi, above the mouth of the Missouri.

The object of the Expedition, is to acquire as thorough and accurate knowledge as may be practicable, of a portion of our country, which is daily becoming more interesting, but which is as yet imperfectly known. With this view, you will permit nothing worthy of notice, to escape
your attention. You will ascertain the latitude and longitude of remarkable points with all possible precision. You will if practicable, ascertain some point in the 49th parallel of latitude, which separates our possessions from those of Great Britain. A knowledge of the extent of our limits will tend to prevent collision between our traders and theirs.

You will enter in your journal, everything interesting in relation to soil, face of the country, water courses and productions, whether animal, vegetable, or mineral.

You will conciliate the Indians by kindness and presents, and will ascertain, as far as practicable, the number and character of the various tribes, with the extent of country claimed by each.

Great confidence is reposed in the acquirements and zeal of the citizens who will accompany the Expedition for scientific purposes, and a confident hope is entertained, that their duties will be performed in such a manner, as to add both to their own reputation and that of our country.

To his orders, Calhoun appended a copy of Jefferson's instructions to Meriwether Lewis, hoping that they might provide "many valuable suggestions."

That Long was asked to explore the boundary with Canada and that with Mexico (the Red River) in one expedition—along with the Mississippi, the Missouri and its tributaries, and the Arkansas—reveals the prevailing ignorance of the vastness of the western lands.

Calhoun and Long placed much emphasis on the importance of the scientific personnel who would accompany the expedition. It is sometimes said that this was the first expedition to the West that included trained naturalists. This statement requires qualification. Lewis and Clark made very substantial observations on natural his-
tory along their route to the Pacific and back. Jefferson had seen to it that Lewis had a "crash course" in natural history under Benjamin Smith Barton and other Philadelphia intellectuals, and Clark proved to be a superb observer and geographer despite his limited education. Their journals contain a wealth of novel information. In his book *Lewis and Clark: Pioneer Naturalists*, Paul Russell Cutright includes a list of the biological discoveries of the expedition. It requires forty-seven pages!

Here we need to distinguish between the act of discovery and the documentation of a plant or an animal in the scientific literature. To be formally established, a plant or an animal must be given a Latinized double name (genus and species), following rules established by Swedish naturalist Carl Linnaeus in the mid-eighteenth century. The name must be followed by a detailed description and a statement of the locality in which the plant or animal was collected. The specimen should then be deposited in a reputable institution where it will be preserved and can be studied by others.

Lewis and Clark did collect both plants and animals and tried to see to it that they reached authorities in the East. Lewis's descriptions were often so precise that many of the species he discussed can now be identified. However, these explorers shied away from using Linnaean nomenclature and left that task to others. Thus Clark's nutcracker and Lewis's woodpecker were described and illustrated by pioneer ornithologist Alexander Wilson in 1811, and two of the more spectacular plants they discovered were named *Lewisia* and *Clarkia* by botanist Frederick Pursh in 1814. Philadelphia zoologist George Ord described the grizzly bear, the pronghorn, and several other mammals sent back by Lewis and Clark. The journals of these explorers were printed in 1814, after the untimely death of Lewis, but only after the editor, Philadelphia lawyer Nicholas Biddle, had improved their spelling and greatly condensed their narrative. A second volume, to have covered the scientific accomplishments of the expedition, was never published because of the illness of its editor, Benjamin Smith Barton. In 1893, Elliott Coues resurrected the
Biddle edition, edited it extensively, and added copious notes derived from a careful reading of the eighteen volumes of original manuscript. The first printing in full of the original journals of Lewis and Clark, with much additional material, was edited by Reuben Gold Thwaites and published in eight volumes in 1904 and 1905 (reprinted in 1969 by Arno Press, New York). Still more recently, from 1986 to 1990, the University of Nebraska Press published the journals in seven volumes, edited by Gary Moulton, making use of still additional material and the techniques of modern historical research. So it has taken nearly two centuries to appreciate fully the accomplishments of the Lewis and Clark Expedition.

The naturalists of the Long Expedition were better trained as systematists and did not hesitate to provide formal names and descriptions of many of the plants, animals, and geologic formations they encountered. Only in this sense were their observations more "scientific" than those of Lewis and Clark. Since the report of the Long Expedition was published in full in 1823, the discoveries of its naturalists became well known long before those of Lewis and Clark. The report was an important contribution to science of the day, particularly the account of the second year, when Long and his men left the Missouri to explore the western plains and the Front Range of the Rockies.

The first year of Long's expedition, spent on the Ohio and the Missouri, was by no means in territory virgin to naturalists. Botanists Bradbury and Nuttall had preceded the expedition up the Missouri, and Nuttall had explored the lower Arkansas basin in 1819; both published accounts of their trips. A bowdlerized edition of Lewis and Clark's journals had been published in 1814. In 1808, Alexander Wilson published the first part of his *American Ornithology*, in which he formally described some of the birds collected by Lewis and Clark, illustrating them with colored plates. In 1814, Frederick Pursh published his *Flora Americae Septentrionalis*, in which he named and described many of the plants collected by Lewis and Clark, and (without authority) some of those collected by Bradbury and by Nut-
tall. Pursh, once called “one of the most active and apparently unscrupulous early Philadelphia botanists,” had never been west, but his Flora proved valuable as a preliminary guide to some of the western plants. In 1818, Nuttall published The Genera of North American Plants and Catalogue of the Species to the Year 1817, based in part on his experiences on the Missouri in 1811.

It is not clear how much of the available literature was carried by the Long Expedition. It is known that the explorers carried the maps made by Clark and by Pike, as well as the Lewis and Clark Journals and Alexander von Humboldt’s Personal Narrative of Travels to the Equinoctial Regions of America. Whether they carried Ord’s descriptions of some of the mammals collected by Lewis and Clark, Wilson’s American Ornithology, Pursh’s Flora, or Nuttall’s Genera is uncertain, but in any case these were available to the naturalists as they prepared the report of the expedition for publication.

To understand the contributions of the expedition’s naturalists, it is necessary to appreciate the rather primitive state of natural history in their time. Linnaeus had been dead for only forty years, and Darwin’s On the Origin of Species was forty years in the future. Knowledge of the natural history of the eastern states was still sketchy, and the western lands were a vast unknown. That the expedition’s naturalists made mistakes and provided descriptions of natural objects that are inadequate by modern standards is understandable, particularly when we consider the difficulties under which they were working.

The naturalists used the Linnaean system of nomenclature, but in their time some procedures were less well established than they are today. Nowadays generic names are capitalized and species names uncapitalized, and both are placed in italics to set them off from the text; but in the 1820s these rules were not always followed. The name of the person who described the species is often placed after the name, sometimes abbreviated. The naturalists did this irregularly (“N” following a plant name, for example, refers to Nuttall). When a genus name is repeated, it may be abbreviated by using only the
first initial (for example, C. latrans, when the genus Canis has been spelled out just previously). The naturalists sometimes described as new species ones that had actually been described earlier by someone else. In this case the "law of priority" prevails: the earlier name is accepted. For example, Thomas Say described the mule deer, naming it Cervus macrootis. He was unaware that Constantine Rafinesque had described it just a few years earlier, calling it C. hemionus, the species name that is now accepted.

Pioneer naturalists tended to use broad, all-embracing genera. As science advanced, more species became known and their relationships better understood. This has led biologists to divide the old, inclusive genera into several genera of more precise definition. It is no discredit to the expedition's naturalists that their species have now often been placed in different genera than those in which they placed them. Science progresses by improving the superstructure as knowledge is added.

The species of plants and animals newly described from specimens collected by the expedition I have listed in the appendixes. The lists, although not complete, include slightly over 300 species, a considerable accomplishment for a small, ill-equipped group that moved rapidly through rough and mostly unexplored country. It was not always easy for the naturalists to collect and prepare specimens and write up accompanying notes when they were traveling by foot and horseback twenty or more miles a day, often through heat, storms, and biting insects. Of course, the discovery of new species was not the be-all and end-all of the expedition. The naturalists learned much about the distribution of plants and animals and about their living conditions. They also recorded data about the rocks and landforms and made an effort to learn as much as possible about the Native Americans they met—though much of that information is omitted from this book. Long and his lieutenants regularly determined their longitude and latitude, and from these data they prepared maps that were a great improvement over any then available. The expedition also served notice to the Native Americans and to
the Spanish and British that this land was now part of the United States, something that was clearly on the minds of President Monroe and Secretary of War Calhoun when the trip was authorized.

The final report of the expedition, published in both Philadelphia and London in 1823, had a wide readership, but it is safe to say that most readers were more interested in the descriptions of landscapes and Indians than in those of newly discovered plants and animals. Within a few years, the findings of Long and his men had become incorporated into Easterners' perceptions of the West, provoking thoughts of escape to virgin lands and the background for many a novel about the mythic West.

Unlike the journals of Pike and of Lewis and Clark, the Account of the Long Expedition was illustrated. The American edition contained eight engravings made from paintings done by the expedition's artists, while the English edition included four additional plates, two of them hand-colored landscapes. For the first time, views of the western plains and of the slopes of the Rockies, along with their native inhabitants, were available to the public. Long's was the first of several expeditions to the West that documented its travels by the work of artists. Not until the 1860s was photography available and widely used by travelers through the West.

The two artists of the expedition actually made many more sketches than appeared in the Account. According to Kenneth Haltman, who has made a special study of the expedition's artistic heritage, Samuel Seymour produced about 150 sketches or paintings; Titian Peale, as many as 235. Many of Peale's have survived, and some have appeared in subsequent publications by diverse authors. Sketches made in the field often were later used to make more finished paintings after the men had returned to Philadelphia. Thus an extensive visual record of the expedition became available to scholars.
CAST OF CHARACTERS

In the spring of 1819, twenty-four men gathered in Pittsburgh with their personal effects, ready to depart on Major Stephen H. Long's steamboat, the Western Engineer. The military contingent had preceded them in five steamboats. Long's party included a small group of army personnel as well as five "scientific gentlemen" and a crew of six:

Military
Major Stephen H. Long
Major Thomas Biddle, Jr.
Lieutenant James D. Graham
Cadet William H. Swift
Sergeant Samuel Roan
Eight privates

Scientific
Dr. William Baldwin
Thomas Say
Titian R. Peale
Augustus Jessup
Samuel Seymour

Crew
Benjamin Edwards
Thomas Boggs
Isaac Kimball
L. R. Kinney
Two "boys"

Commander
Journalist
Assistant topographer
Second assistant topographer
Botanist and surgeon
Zoologist
Assistant naturalist
Geologist
Artist
Steamboat engineer
Pilot
Carpenter
Clerk