Mapping the American West 1540-1857

A PRELIMINARY STUDY BY CARL I. WHEAT

Foreword

THIS study grew out of an earlier exmination of maps relating to the California Gold Region.[1] It is preliminary in nature, and the writer proposes to proceed with a more detailed examination of the mapping of the American Transmississippi West, to be accompanied by a critical bibliocartography of individual maps.

Advantage has of course been taken of the work of other investigators who have dealt with maps of specific or peripheral areas, with individual maps or groups of maps, or with maps of given periods.[2] Equally important has been the visual inspection by the writer of large numbers of individual maps in various

[1] See Carl I. Wheat, *Maps of the California Gold Region, 1848–1857* (San Francisco, 1942), cited as "Wheat."

[2] Particular reference has been made to Henry R. Wagner's *The Cartography of the North West Coast of America to the Year 1800* (Berkeley, 1937) cited as "Wagner," with page numbers; his bibliography on *The Spanish Southwest, 1542–1794* (2nd edition, Albuquerque, 1937) cited as "Wagner, *Spanish Southwest*," with page or item number; his work with Charles L. Camp on *The Plains and the Rockies 1801–1865* (3rd edition, Columbus, Ohio, 1953) cited as "Wagner-Camp," with item number; Lawrence C. Wroth's *Early Cartography of the Pacific* (New York, 1944) cited as "Wroth," with page number; Woodbury Lowery's *Descriptive List of Maps of the Spanish Possessions within the present Limits of the United States, 1502–1820* (Washington, 1912) cited as "Lowery," with item number; Aubrey Diller's *Maps of the Missouri River before Lewis and Clark* (New York, 1946) cited as "Diller," with page number; Louis C. Karpinski's remarkable collection of photostats of maps relating to America in the libraries of Europe (copies of which are in the Library of Congress, the Harvard Library and the Huntington Library, among others) cited as "Karpinski," with map number; Lawrence Martin's *Disturnell's Map* (Washington, 1937) cited as "Martin," usually with page number; Pedro Torres-Lanzas' *Mapas de Mexico y Florida in the Archives of the Indies at Seville*, cited as "Torres-Lanzas," and George Parker Winship's *The Coronado Expedition, 1540–1542* (Washington, 14th Ann'l. Rept. Bur. of Ethnology, 1896) cited as "Winship" with page number.

libraries and collections. Fundamentally, a map must be seen in order to be judged with intelligence—mere description is a poor alternative and no card index could ever reasonably suffice. Appreciation is therefore due to those in charge of great map collections who have turned this investigator loose among their cartographic treasures.[3]

One of the chief results of this actual scrutiny of many maps has been that a number not previously noted have been turned up—in particular the remarkable Fremont-Gibbs-Jedediah Smith map, now preserved by the American Geographical Society. This could not have happened had the investigator been relegated to a card catalogue. The memory of the welcome accorded the writer when—a total stranger—he appeared at several of these institutions, and the friendships he has made in the course of this effort, are ample recompense for the long hours of labor the enterprise has entailed.

In view of the large number of maps which, over the years, have evidenced in some fashion the rise of cartographic understanding in respect of the American West, the development of the relatively small group of maps discussed in this preliminary study has at all times been one of drastic selection. In such a process no two investigators could be expected to develop the same list, and doubtless many maps are not even mentioned which others might deem highly appropriate. However, there are certain maps which no investigator would probably choose to omit, and it is hoped that the present study at least covers most of these basic documents. Since the writer plans to go forward actively with the preparation of his more extended study of Western mapping, suggestions and criticism will be welcomed and appreciated. CARL I. WHEAT

[3] Among the libraries visited have been the Library of Congress, The National Archives, the New York Public Library, the New York Historical Society, the American Geographical Society, the Boston Athenaeum, the main and Houghton libraries of Harvard University, the American Antiquarian Society, the John Carter Brown Library, the Yale University Library, the Newberry Library, and the Bancroft and Huntington libraries in California. In every instance, those in charge of the maps at these institutions have afforded every assistance in their power. In addition, numerous individuals have been consulted, including particularly Henry R. Wagner, Thomas W. Streeter, Everett D. Graff, Charles L. Camp, George P. Hammond and Dale L. Morgan. To all who have generously offered advice and assistance, the writer records his appreciation.

Table of Contents

Chapter		*Page*
I.	Scope, Nature and Setting	23
II.	The Northern Mystery (1540–1811)	29
III.	The Search for the Western Sea (1540–1814)	46
IV.	The Continent Conquered (1805–1830)	64
V.	Squaring the Circle (1831–1840)	80
VI.	The Decade of the Forties	98
VII.	Gold and the Cartographic Torrent (1849–1852)	117
VIII.	The Home Stretch (1853–1856)	136
IX.	The Maps of 1857	159
X.	The Cartographic Forest	166
	Indices	186

Chapter I

Scope, Nature and Setting

IN 1854, just one hundred years ago, a young officer of the Army's Corps of Topographical Engineers, Lieutenant Gouverneur Kemble Warren, was directed to prepare a map of the country west of the Mississippi River. The resulting document, completed three years later, is a cartographic monument of first importance. Its author drew upon such earlier maps as he could locate, and his map reflected the efforts of the large corps of explorers who had just completed the so-called Pacific Railroad Surveys. Only the fact that this "Map of the Territory of the United States from the Mississippi to the Pacific Ocean" was buried in the reports of those surveys seems to have prevented it from becoming more widely known and appreciated, for since its publication in 1857 the task of cartographers in respect of the American West has been confined to the filling in of detail.[1]

The exploration of the vast and complex area which this map covers was a long and toilsome effort, often faltering, as men of several nations probed over the years into the unknown land. It had begun less than half a century after the landfall of Columbus, when Alvar Nuñez Cabeza de Vaca wandered from a wrecked ship across what is now Texas and southern New Mexico, and finally reached the City of Mexico in 1536. Three years later Fray Marcos de Niza became the first to go by design into any part of this strange land, and in 1540 Francisco Vásques de Coronado led his celebrated expedition to what he called

[1] In connection with his map Lieutenant Warren prepared a significant *Memoir . . . . upon the material used and the methods employed in . . . . [its production]*. This was published in Vol. XI of the *Pacific Railroad Reports* (Quarto edition), and in 1859 was issued separately. It will here be cited as Warren's *Memoir* with page number.

Tiguex (in what is now New Mexico) and to Quivira (in present-day Kansas). His map—the first made on the spot of any portion of the American West—has disappeared, but it was not long after his return to Mexico that Niza's place-names, and shortly his own, began to appear on European maps of the New World.

Since they had no actual map to tie to, the cartographers let these names wander over their maps, wherever some empty space of white paper seemed to need filling. And so, for generations these names—the Civola (with its Seven Cities), Marata and Tontonteac of Niza, and the Quivira and Tiguex of Coronado, among others—became identified on many maps with lordly empires, great cities, and majestic rivers, all wholly apocryphal. Time and again, over the centuries, the mapmakers of Europe—and later of America—engaged in this game of imaginary geography—witness the Island of California, the Strait of Anian, the Sea of the West, and that long-lingering myth of the River Buenaventura.

Yet there was always a stream of advancing knowledge, at first a trickle, then a brook, and finally—as the mid-point of the nineteenth century approached—a mighty flood. The process was at all times reflected on contemporary maps, and here—as for many other areas—the maps offer a pictorial story that few books of history or description could hope to rival. Studies have been published with respect to a few individual maps, and to maps of a few individual areas, but no previous attempt seems to have been made to take an over-all look at this cartographic forest. The present study represents a serious, albeit preliminary, effort to do just that.

The maps which reflected the discoveries of Niza and Coronado afford the start, that of Lieutenant Warren seems an appropriate stopping point, and the 100th Meridian

represents the approximate eastern limit of the study.[2] Chronological listing, though useful in a bibliocartographic catalogue (such as is planned for the writer's proposed more detailed study), is not well adapted to narrative discussion. Moreover, despite every precaution, the trees may often seem to obscure the forest. In this instance, however, the trees must perforce be examined before the forest can even be seen, much less understood, and therefore the main currents of cartographic development will be first considered in some detail, leaving for the last the drawing in of loose ends and the consideration of the over-all story.

The setting of that story is a wide region in which inhospitable nature and at times even more inhospitable man rendered the process of exploration both tedious and hazardous. It took men of several nations and backgrounds more than three centuries to unravel even its major mysteries. The American Transmississippi West is a domain of widely varying climate, scenery and topography. It embraces much of the western plains country—the old buffalo range—where the land rises almost imperceptibly from the Mississippi River bottoms to the front wall of the Rockies. It includes the watersheds of four major continental river systems—the Columbia, the Missouri, the Rio Grande, and the Colorado—as well as many lesser watersheds, such as those of the Platte, the Arkansas, the Canadian, and the Cimarron, not to mention the Sacramento, the San Joaquin, the Snake, the Willamette, the Gila, and the Humboldt. In this region lies the Great Basin, with its salty lakes and its rivers having no access to the sea. Finally, there are the great mountain barriers of the Rockies, the

[2] This Meridian lies just east of Bismarck, North Dakota, Pierre, South Dakota, and North Platte, Nebraska, while Dodge City, Kansas, is almost upon it. In Texas, Wichita Falls lies somewhat east and San Angelo slightly west. In the eighteen-seventies the 100th Meridian formed the eastern limit of major governmental surveys then being undertaken in the West.

Cascades and the Sierra Nevada, with impressive forests and fertile valleys lying beyond, along the Pacific littoral.

For upwards of three centuries after the coming of the first Europeans to the New World, this immense and geographically-complex region remained virtually unknown—a vast empty land, peopled in parts by roving aborigines, in parts peopled hardly at all. The Spaniards probed rather feebly into its fastnesses from the south. French voyageurs, and later British fur traders, pushed up the eastern rivers, across the lakes and out onto the prairies. Men of the infant United States came into the area not at all until after 1800, at which time its only permanent European settlements were a few struggling villages along the Rio Grande, in what is now New Mexico, and some scattered missions along the coast of Upper California, in the Texas country and near the Gila River, with a bare sprinkling of would-be settlers. The Anglo-Saxons, in particular, came late to this Western region, and in 1795, when Aaron Arrowsmith first drew his celebrated Map of North America, he was forced to leave on it great empty spaces, and could represent only the barest outlines of such important physiographic elements as the Rockies and the river systems of the Columbia, the Missouri, and the Colorado.

Half a century later the cartographers were still drawing on their maps large but wholly apocryphal rivers, flowing majestically to the Pacific from the region of the Great Salt Lake, directly across what hindsight tells us is the greatest single mountain barrier of the entire region. This myth died hard, as did that of the "height of land," that physiographic necessity of philosophic symmetrical geography. Even as late as 1810 Captain Zebulon Montgomery Pike voiced the theory of a common source area for the great continental rivers, declaring his belief that he could find a spot some-

where out there in the western mountains from which he could ride on horseback in a single day to the source of any of the half dozen greatest rivers—the Columbia, the Missouri, the Colorado, the Rio Grande, the Platte and the Arkansas. It took another generation finally to disprove this intriguing theory, and even partially to unravel the intricate geography of the mid-continent mountain and river complex.

In the present age of gasoline, airplanes and magnificent highways, it is almost impossible to put ourselves mentally into the places of men who enjoyed no such facilities. Even in an automobile—not to mention an airplane—we think nothing of traveling in a single day farther than the average ox-team could go in more than a month of hard pushing through sand and mud, and at times over mountains where even horse-trails did not exist. In not more than a fortnight—by easy stages—we can today negotiate the entire distance that took Fremont fourteen months of hard traveling in 1843–44. The emigrant trails, even after they were well understood, were long and arduous to travel, and five months was not a bad average for the trek from Council Bluffs or Westport Landing to the California diggings or the Oregon country. A few made it through in four months, but a good day's travel by ox-team could not have been much over fifteen miles, and on many days the distance covered would be considerably less.

During the fall of 1952, the present writer with a party of seven others, including two Navajo Indians, spent some time in the still largely unexplored and wholly unmapped upper complex of the Navajo Canyon country in northern Arizona, near Navajo Mountain and the Rainbow Bridge. Using excellent Navajo horses, the group did not average more than ten miles a day. It is only through such personal experience in areas as untouched today as was the entire

West when Europeans first looked upon it, that one can begin to comprehend some of the problems that confronted every explorer, down even to relatively late periods. And only after such personal experience does one come to recognize what difficulties had to be surmounted before even a relatively accurate cartographic representation of this immense and majestic area could be constructed.

The present study seems naturally divisible into the examination of certain major groups of maps—those involving: (1) Spanish exploration from the south; (2) French penetration from the east; (3) British efforts to the north and in the northwest; (4) the treks of Lewis and Clark, Pike and Long; (5) the fur trade era; (6) the work of the Army's Topographical Engineers; (7) the trails of gold-seekers and emigrants; and (8) the Pacific Railroad Surveys.[3] Except for the earliest periods, these categories are never wholly separate. They merge and remerge, many maps partaking of more than one influence. At all times the effort will be to follow the main stream of the advance of knowledge, but there are many eddies and meanderings that must be considered, and it will not be until the final chapter that an over-all look will become possible.

[3] While this preliminary study will close with Lieutenant Warren's map, the proposed more detailed bibliocartography will include a number of significant maps made subsequent to 1857.

Chapter II

"The Northern Mystery"
1540–1811

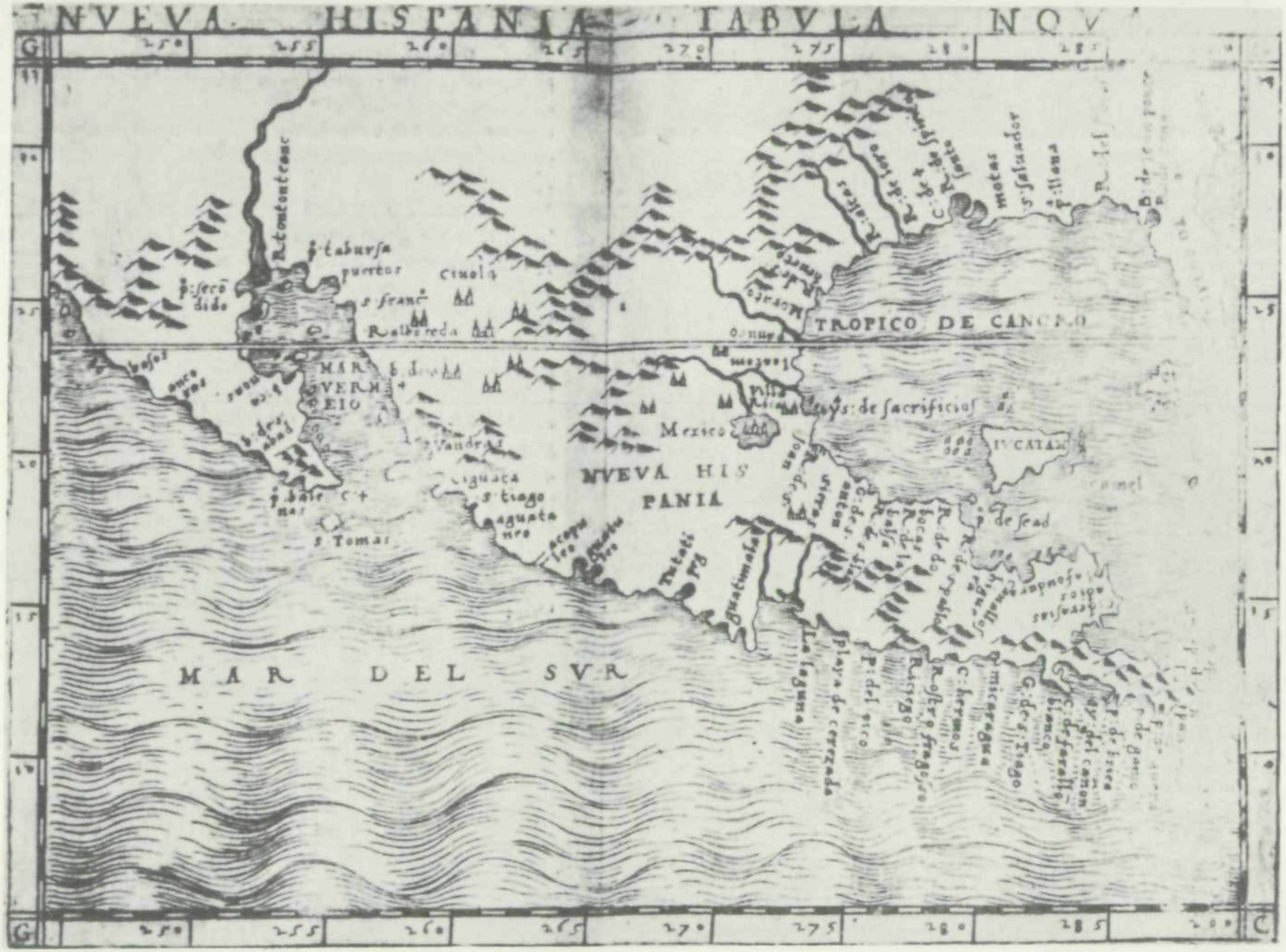
The first comers to what is now western United States were Spaniards from the south, not by chance but because of the hard facts of geography. Gold was of course the first impelling goal—Cortez and Pizarro were not forgotten—and for almost two centuries after Europeans first faintly pierced what has been aptly termed "The Northern Mystery," gold continued to furnish most of what impetus survived. This failing, the Cross became the symbol. As late as the onset of the nineteenth century, however, permanent European settlements in this vast area were few—a string of tiny towns along the upper Rio Grande, some hardy missionaries in California, Pimería Alta (now southern Arizona) and Texas, with a sprinkling of settlers in widely scattered villages. After Coronado's debacle, few Spaniards sought to look beyond such struggling establishments, and the "Northern Mystery" lived on—a continuing mystery over all the years of Spanish occupation.

Those who came first to this region made no maps, but their tales inspired the European cartographers to affix a few placenames on their own crude maps of North America. No placenames of the earliest comer, Cabeza de Vaca, seem to have found their way onto such maps, but the story told by the next visitor, Fray Marcos de Niza, was so enticing that some of his names lived on for centuries, while Francisco Vásques de Coronado gave names to his discoveries which also found early acceptance. (He actually drew a chart of his route to Tiguex in 1540, but it has never been located.) Some of these names so grew in stature that

to the European mapmakers the mighty Empire of Quivira rivaled the mythical Strait of Anian, while the Seven Cities of Cibola and the city and realm of Teguayo attained a strange, apocryphal magnificence. The vast white spaces on their maps were simply too much for the cartographers. They had to be filled in at all cost, and these strange new names of Niza and Coronado formed the basis for much imaginary geography.

The earliest map yet found which shows any placenames in that part of North America now embraced in western United States is a small oval manuscript map of the World, produced probably in 1541, but perhaps as early as 1540, by Battista Agnese, the celebrated maker of Portolan Charts. Here were Marata, Tabursa, Tontoneac (for Tontonteac), Civola, Avis (for Acus), Petatlan, Cuiguacan, Nova Galitia, Vacapa, El Nuevo Regno di S. Francesco, and others, all found in Niza's account of his northern travels (Wagner, 8, 16–17). The "Ulpius Globe" of 1542 also contained some of these names (Winship, opp. p. 348), and in 1546 Giacomo Gastaldi published in Venice his beautiful "Universale" (the World) on which are *le sete cita*, Cipola, Tabursa, and Tontonteanch. (Wagner 26, rep. opp.) On this map Asia and North America are still joined, and a mighty river, the Tontonteanch, rising in far northern Asia, flows first to the east, picking up branches from the north, then turns south, finally to debouche into the Gulf of California (Wagner, 27–28). Gastaldi seems to have fathered the Strait of Anian myth (Wagner, 53–55; Wroth, 154–158), and another map probably drawn by him—a beautiful little "Nueva España"—was published in Mattiolo's 1548 Venice edition of Münster's *Ptolemy*. On it appear Civola, Tabursa, S. franc, and the R. Tontonteac.

Apparently Coronado's placenames were first cartographically used on a map attributed to Gastaldi which appeared in the third volume of Giovanni Battista Ramusio's



Map of New Spain from 1548 Venice *Ptolemy*.

celebrated *Navigationi et Viaggi*, published in Venice in 1556. This map is entitled "Universale della parte del mundo nuovamente ritrovata," and on it appear Quivira, Cicuich, Axa and Tiguas (Wagner No. 35, p. 46). Similar names appear on a map of c. 1556 attributed to Agnese (Wagner No. 37, p. 50, rep. opp. p. 51; also rep. by Winship, Pl. XLII), which carries the legend, near the northwest coast, "Fin qui scoperse Franc. Vasquez de Coronado." There had been a rumor that Coronado somewhere reached the sea, and the cartographers thought this could only have been to the west, so from the very first Coronado's names wandered far from their true locations, usually dragging Niza's names with them. Sometimes they are found on the shore of the Western Ocean, or even close to the Strait of Anian—anywhere a name was needed to fill an otherwise blank space. Instead of a village of Wichita Indians in central Kansas, Quivira thus became a great, mysterious Kingdom, as did also Tiguex or Teguayo. Many rivers took on these and some of Niza's names. It was a magnificent chance for imagination to run wild, and the cartographers of Europe were not lacking in imagination.[1] The 1566 map of North America drawn by Bolignino Zaltieri, of Venice, was perhaps the most striking of this earliest period, with magnificent mountain ranges rising wherever there was nothing else to report, and with Niza and Coronado place-names freely used for rivers and cities (Wroth 154–158, Plate XI; Wagner 55).

It is unnecessary to trace the vagaries of these names as they wandered over the maps. The great western bulge of North America made popular by the Flemish cartographer, Abraham Ortelius, gave the mapmakers much new space

[1] See Henry R. Wagner, "Quivira, a Mythical California City," *Quarterly*, California Historical Society, October, 1924. It is supposed that the term Cibola actually referred to the Zuñi villages, that Marata was a group of pueblos southeast of Zuñi, that Acus was Acoma, and that Tontonteac referred to Tusayan (the Hopi Villages). Quivira was a Wichita village, and Tiguex a small pueblo on the Rio Grande, in what is now central New Mexico.

to fill, and they graciously complied. For many years the river that came to be known as the Rio Grande (or Rio Bravo) del Norte was made to flow into the Gulf of California, instead of into that of Mexico. Moreover, this river was often depicted originating in a large lake (usually unnamed), perhaps a reflection of a lake reported to have been found much farther west by Antonio de Espejo, who went into the New Mexico area in 1582.

Espejo was almost the only Spaniard to attempt such exploration between the time of Coronado (1540–42) and the close of the sixteenth century. And save for Coronado's map, which disappeared early, no original map actually drawn in the northern country, or resulting from any expedition to the north, had yet appeared. In 1598, however, Don Juan de Oñate's colonizing expedition reached Tiguex, and his dash to Quivira in 1601 became the subject of the first actual map that has come down to us depicting any area in what is now the American West. It is a small, crude sketch preserved in the Archives of the Indies in Spain, and except for considerable east-west foreshortening, it shows Oñate's route quite well. He went east from San Juan, on the Rio Grande, crossed the Pecos (called by him the Rio Salado) and proceeded to the Canadian (Riv. de la Madalena), thence down that river for 111 leagues and finally northeast to the Arkansas (Rio del Robrodal) and to a settlement of Wichita Indians on the Walnut River to which the name Quivira had somehow attached itself. This little map carefully depicts Oñate's route. It was drawn for the Viceroy by one Enrico (or en Rique) Martínez, who seems to have obtained his information from an ex-sailor of Oñate's party.[2]

[2] This map is Torres Lanzas' number 49. He dates it 1600, but since Oñate did not go to Quivira until 1601, and since Martínez' informant probably reached Mexico City early in 1602, the correct date of the map is apparently 1602. It is Lowery number 87, and it was reproduced in Herbert E. Bolton, *Spanish Explorations in the Southwest 1542–1706* (New York, 1916), opp. p. 212.

In a lengthy note, Martínez hints that he drew this sketch merely as a hasty preliminary to a much better map, which, if it ever existed, has not been found. At any rate, the Viceroy used the sketch in his deliberations on Oñate's report, and sent it to the King on May 14, 1602. It is a map of fundamental import in the story of the mapping of the West, and two notes on its face are of special interest. They read: "From the point marked A to the town of the new discovery [i.e., from the spot where the expedition reached the Arkansas River] all the land is flat with many cattle called those of Civola," and "From the River marked B the Indians say it is densely populated and that there is a great chief and that there is gold but none of our men saw it or found any trace of it."[3] The "B" referred to marks a stream coming from the north labeled "rio del oro."

This crude little map is a precious memento. Almost a century was to elapse before another map of actual experience in the region covered by this study would be produced. In fact, the seventeenth century was practically barren so far as the mapping of the American West is concerned. That century was the heyday of European cartography, but the mapmakers simply had nothing to report. They had Quivira and Tiguex and Cibola and Tontonteac, and they moved them, like chessmen, all over their maps. In fact, these few placenames proved invaluable to the cartographers. They could be used wherever a white space would otherwise evidence geographic ignorance, and since their customers would certainly never go to Quivira to ascertain the truth, they were quite safe. Of Tiguex and Teguayo and the seven lordly cities of Cibola they were equally sure, and only a few names of actual towns or pueblos along the Rio Grande

[3] The translations are by Dr. George P. Hammond, Director of the Bancroft Library at Berkeley and editor of Oñate's journals. The "cattle of Cibola" were the buffalo, which were commonly called "vacas (cows) of Cibola" or "reses (animals) of Cibola" by the Spaniards.

found their way onto any seventeenth century map.[4] Toward the close of the period Vincenzo Maria Coronelli delineated New Mexico better than had anyone previously, acknowledging receipt of data from the Comte de Peñalosa and Father Estevan de Perea. In the Naval Library in Paris is a small manuscript map attributed to these two worthies. It is Lowery's number 225, and he dates it "1700?", but Coronelli had access to it (or its parent map) more than a decade earlier, for in 1688 he practically copied its delineation of New Mexico.

All through the seventeenth century it was cartographically fashionable to represent California as an island, and the origin and course of this curious aberration has been discussed at length by Wagner.[5] In 1701, however, almost exactly a century after Martínez had drawn his little sketch-map, Father Eusebio Kino, Jesuit missionary to the Indians of Pimería Alta (now northern Sonora and Southern Arizona), explored the head of the Gulf and drew a celebrated map of his "passage by land to California." The original drawing, Kino's "Paso por Tierra a la California," dated 1702, is preserved in the Archives of the Indies. Three years later the map was published in the Jesuit Missionary Letters,[6] and before long most of the better European makers of maps commenced to follow it. The fact that the myth of California as an island lived on for so many years in some quarters (notably in England) seems only to

[4] The seventeenth century was the period of great European cartographers. Ortelius and Mercator were in their graves, but to fill their places came men like Hondius, Jansson, the Blaeuws, Sanson, Jaillot, de Fer, the Visschers, Abraham and Pieter Goos, Speed, Coronelli, Nolin, and Guillaume de l'Isle. They were able and unusually learned men, but of the American West they could know little. No European had yet penetrated far into that mysterious area, and the mapmakers were perforce left to their fertile imaginations.

[5] *Northwest Coast*, 144–147; "Some Imaginary California Geography," *Proceedings* of the American Antiquarian Society N.S. XXXVI, April, 1926, pp. 83–129.

[6] See Wagner, item 483, and discussion in Wagner "Some Imaginary California Geography."

confirm the essential conservatism of many professional cartographers.

Frenchmen east and northeast of New Mexico, though never numerous nor very close, gave rise to rumors that sent cold chills down the backs of the inhabitants of the Rio Grande villages. For that matter, the French did seek to discover a way to reach the Spanish settlements, and they became equally excited when news of some New Mexican exploration reached them. Doubtless some men from both nations broke through the intervening barriers of mountains, plains and hostile Indians, but the records are meagre and apparently no maps eventuated except one (of the 1714 expedition of St. Denis) which will be considered in the next chapter.

Between 1725 and 1729, however, a trained engineer visited the northern Spanish frontier provinces, drew individual maps of five (including New Mexico), and prepared a general map of the frontier on which he added the Texas settlements. This cartographer was Francisco Alvarez y Barreiro, who accompanied Brigadier Don Pedro de Rivera on the latter's tour of inspection of these *Provincias Internas* during the years 1724–1728.[7] Barreiro's general map and his maps of New Mexico and of Sonora are of special interest in the present connection, the former being preserved in a

[7] Rivera wrote a *Projecto* (still in manuscript at the *Archivo General* in Mexico City) for which he prepared a large, broadside "Mapa" affording data respecting each of the *Presidios* visited. This is a chart or list rather than a "geographical" map, but from it a fairly good representation of the country could be prepared. Rivera was an experienced officer who thought the King's money could well be saved in these faraway provinces through a reduction of certain garrisons. He was both realistic and objective, discounting supposed dangers from the French of Louisiana and declaring that most of the Indians would be harmless if they were not persecuted by the Spaniards. A copy of Rivera's "Mapa" is preserved in the John Carter Brown Library at Providence, and Lawrence C. Wroth, Director of that institution, has written an account of Rivera's expedition, entitled "The Frontier Presidios of New Spain" (*Papers* of the Bibliographical Society of America, XL, No. 3, 1951, pp. 191–218). See also Wagner, *The Spanish Southwest*, item 80, respecting a *Relacion de Servicios*, in which Rivera outlined his many services to the King; item 82 for Barreiro's *Relacion de Servicios*, and item 98 for Rivera's *Diario y Derrotero*.

1770 manuscript copy (by Don Louis de Surville) at the British Museum (Additional Manuscript 17,650), while the others, also in manuscript, are at Seville (see Lowery 318 and 538, and Karpinski S 3-3-1).

Barreiro's map of the *Provincia de el Nuevo Mexico* was by far the most accurate and complete characterization of the Rio Grande settlements and their neighboring Indian pueblos produced up to its date. Extending from Taos on the north to El Paso on the south, it is a highly creditable performance, the Indian Tribes of the outlying areas being also carefully named, including "Jutas Gentiles"—the Utes—their first mention on a map. (The Apaches, Navajos, and Hopis had been represented earlier.) Acoma, Laguna, and Zuñi pueblos, as well as "Pueblos Reveldes de Moqui" (the Hopis), appear west of the Rio Grande.

Barreiro's representation of the Pimería Alta region (on his map of the Province of Sonora) is less satisfying. Earlier maps had used many of Father Kino's placenames along the Gila, but Barreiro was apparently ignorant of them, as well as of Kino's maps and reports. His general map is a much better production, and on it he introduces an item of considerable interest in a legend on a lake at the head of the Rio-Azul (a Gila tributary) to the effect that here was the spot from which the Mexican Indians came with their chief to populate Mexico. Farther south, at three distinct points, he notes a "Mancion" where, he avers, the Mexican Indians rested. This seems to be the first cartographic recognition of the folktale that the Aztecs came—by stages—from the far north. Almost a century later, Baron von Humboldt would include similar data on his great map of New Spain, after which many other mapmakers would spread this myth upon their maps.

Barreiro also noted the "reses de Sibula" northeast of New Mexico, which—says he—ate the grass of the great plains

and served to maintain the Gentile Indians who lived in that neighborhood. Here once more were the buffalo herds! Barreiro's maps were by far the best of any portion of the American West that had yet appeared. It was many years before others equally good were produced, and it seems regrettable that these excellent maps were neither published nor made available to other cartographers.

About 1750 Father Juan Miguel Menchero, then Visitador General, prepared a manuscript map of New Mexico with tiny drawings of churches and houses at each town—even to characteristic pueblo dwellings on the summits of their mesas (Lowery, note to item 388. Photograph at the Library of Congress). This pictorial map was ornamented with cartouches, a coat of arms, and three very sad buffalo. Menchero showed sixty-four towns, missions, and Indian tribes, and north of Taos is the interesting legend "Ro. desado Aqui Mataron los France[ses] los Soldados de la Villa d Sta. Fee." Far to the northwest, much farther north than where other cartographers usually placed an Azul (blue) mountain range, rises a high "Sa. Azul," with a cross on its summit, exactly where Navajo Mountain in fact rises in its lonely glory. Whether this Sierra was meant for that noble mountain is problematical, though it seems possible that was the peak Menchero intended to depict. If so, this was its first cartographic representation.

Don Francisco Antonio Marin del Valle, Governor of New Mexico, was ordered in 1756 to send a map to the King, along with a description of the Province. He complied, and the manuscript, still in existence in Mexico City,[8] is a delightful document. In addition to a large coat of arms and a drawing of three Indians, each town and pueblo is carefully shown. Whoever actually drew this del Valle map

[8] Herbert E. Bolton, *Guide to Materials for the History of the United States in the Principal Archives of Mexico* (Washington, 1913), p. 153.

followed Father Menchero's lead by picturing a tiny church and a house or two at each village, while far to the northeast is a tiny prancing buffalo, this time very well drawn. The Gila region is also well depicted, and the area labeled "Vecinos Españoles y gente de razon" is ringed with named tribes of Indians, while lengthy statistical notes complete the Governor's data. No previous map, not even that of Barreiro, more carefully or correctly delineated the Province.

Here was no "imaginary geography." Perhaps the commercial cartographers of Europe would have done better had they read and heeded the words of Father Andrés Marcos Burriel, who actually wrote most of the *Noticia de la California*, published at Madrid in 1757 under the nominal authorship of Miguèl Venegas. Only one of the several maps in this learned work, that of the frontier, is pertinent here (it shows the Gila River region); but Father Burriel was forthright, and his words deserve quotation. When asked what existed north of the Gila and New Mexico, he wrote: "I answer easily in a word, which if it has much shame for others costs me nothing, and I believe that it ought to cost nothing to any other well-meaning person. *Ignoro. Nescio. Yo no lo sè.*"

A few years later (1768) José Antonio de Alzate y Ramírez, one of the most learned residents of New Spain, published an engraved map of North America on which he copied Barreiro's legend anent the buffalo, and on which the Comanche Indians seem to have received their first cartographic mention. Alzate's California coast is distorted, but his New Mexico is well mapped and Father Kino's material is fully utilized (see Lowery 515 and Wagner, item 612). His map was followed three years later by the remarkable manuscript map of the *Frontera* of New Spain drawn by Nicolas Lafora, a young Spanish engineer who had recently come to

America.[9] Several copies of this work are known,[10] and on it New Mexico appears in greater detail than on any previous map, though Pimería Alta is distinctly slighted. Unfortunately, Lafora's map, like that of Barreiro, was never published.

The maps of Father Pedro Font became better known, and the one that depicts his journey with Juan Bautista de Anza from Sonora to the California coast and north to the site of San Francisco is of distinct interest in this study. It was drawn at Ures, Sonora, in 1776, and is unquestionably the best early representation of the region lying along California's shoreline. The next year Font drew another map, adding some new material in California and Sonora and displaying the route followed by Father Francisco Garcés to the mouth of the Colorado and to the Hopi villages.[11] Garcés was frequently quoted by later cartographers as having been told by the Nochi Indians of the southern San Joaquin Valley of a great river farther north, and on Font's map there appears a "Rio del qual le dieron noticia al P. Garcés los Yndios Noches" flowing from what is in fact the Great Basin across a low point in the California mountains. This feature was to be copied and enlarged upon by many mapmakers over the years.[12]

[9] See Vito Alessio Robles, *Nicolas de Lafora* (Mexico City, 1939); also Manuel Orosco y Berra, *Materiales para una Cartografía Mexicana* (Mexico City, 1871), p. 97.

[10] The most striking of these seems to be the large copy at the National Archives in Washington, with its mountain ranges like long rows of little painted peaks. Somewhat similar is the copy at the Ministry of War in Madrid (Karpinski S 17–2–1 (1) and (2).). There is also a copy at the Huntington Library, and there is a copy in photostat, Bancroft Library, on which Joseph Urrútia is named as co-author. Urrútia was another young Spanish engineer who drew a number of local maps in the northern provinces, and on a copy of the larger map at the Library of Congress he is even named as author, with Lafora as co-author (see Lowery 549, 721, and 735).

[11] See Lowery 583, 587, and 588 respecting Font's maps; also Irving B. Richman, *San Francisco Bay and California in 1776* (Providence, 1911), in which the copy of Font's map of de Anza's 1775–76 expedition now at the John Carter Brown Library is reproduced.

[12] Two other manuscript maps showing Garcés' routes are in the Archives of the Indies (Karpinski S 10–2–2.1, and S 7–1–1). One of these (S 10–2–2.1) is remarkable in that it could almost be used to formulate a modern map of the area covered. On it the Puerto de Bucareli appears on the Colorado River, along with the "Casa de Montezuma" (the Casa Grande) in what is now southern Arizona.

The next Spanish map of importance was that of Bernardo de Miera y Pacheco, who accompanied Fathers Escalante and Dominguez on their expedition from New Mexico to Utah Lake, near Great Salt Lake (which they did not see.)[13] The party set out to find a route to Monterey but failed in this goal. The Escalante expedition was, however, the most extensive piercing of the "Northern Mystery" yet attempted, and de Miera's map of the route traversed made cartographic history in the American West. There are several manuscript copies of this magnificent map,[14] and although it was not printed until the mid-twentieth century, its information became widely known, and the Escalante discoveries and route were spread upon many European maps. This de Miera map was a prime cartographic landmark.

Probably the first other mapmaker to include de Miera's material was Miguel Costansó, who utilized data supplied by Manuel Mascarò. Both were able engineers and cartographers,[15] and the manuscript map in question is preserved in the Archives of the Indies (Karpinski S 6–3–2; Lowery 592). The river of Garcés' rumor is here, and the Colorado and Gila basins resemble those on Font's map of Garcés' tours. The Escalante discoveries appear almost as a pasted insert, and the region involved in de Anza's Comanche expedition of 1779 is also shown.[16]

[13] See Herbert E. Bolton, *Pageant in the Wilderness* (Salt Lake City, the Utah State Historical Society, 1950); also Herbert S. Auerbach, *Father Escalante's Journal* (Utah State Historical Society, 1943).

[14] The copy in the Archives of the Indies (Karpinski S 16–2–2) differs slightly from that of the British Museum (Additional Mss. No. 17,661c), and both are less picturesque than de Miera's probable original, reproduced by Bolton (whereabouts not stated). Photostats of various copies are in the Library of Congress (see Lowery 593 and 607).

[15] Costansó was the author of a celebrated map of the northwest coast of North America. See Wagner, item 625, and *Spanish Southwest*, 149.

[16] Another Mascarò map, dated 1782, is of interest as showing de Anza's California expedition, as well as the routes of Garcés. It is quite detailed in the Arizona and New Mexico areas (see Wagner, item 681 and Lowery 632), and exists in manuscript in the British Museum (Additional Ms. 17,652a).

This de Anza Comanche campaign was a great success. He moved up the Rio Grande, thence to the headwaters of the Arkansas (his Nepeste River) and across the Front Range of the Rockies to a point north of present-day Colorado Springs, where he met and defeated the Comanches under their chief, Cuerno Verde, who was killed in the melée. On his return he crossed the present La Veta Pass to Taos. An interesting anonymous manuscript map delineated this campaign, and carried knowledge considerably farther into the northern wilderness than had any previous map.[17] The campaign was also hinted on a beautiful manuscript map of New Mexico by de Miera dated 1779 (Lowery 619, 620), but that map—though the most detailed to its date for the area included—did not reach north beyond the upper Pecos. More important was a map by an anonymous cartographer entitled "Mapa de las Provincias Internas de la America Septentrional," in which the efforts of Costansó, Mascarò, de Miera and the maker of the de Anza campaign map are all included.[18] It shows the Rio Grande rising west of the Sierra Almagre, with the Colorado's headwaters just west and the "Provincia de Timpanogos" of Escalante northwest. Garcés' Rio de Sn. Felipe appears in California, and his rumored Great Basin river flows from a great Lake Timpanogos—the final and doubtless to-be-expected enlargement of the orphan stream of the Nochis into a great continental river. In later times this stream was to become the mythical Buenaventura, and its headwaters are here so labeled.

[17] Reproduced in Alfred B. Thomas, *Forgotten Frontiers* (Norman, University of Oklahoma Press, 1932). The original is stated (p. 402) to be in the Archives of the Indies.

[18] This manuscript map was dedicated "Al Exmo Señor Principe de la Paz," and is in the collection of the American Antiquarian Society. It is a map of first importance in the development of Western cartography, and although it is somewhat similar to a map by Mascarò, it seems to have come from a different hand.

During the 1780's one Gerónimo de la Rocha y Figueroa drew a map of the Sonoran frontier (now preserved in manuscript in the Library of Congress), and another of the upper Gila basin (reproduced in Alfred B. Thomas, *op. cit.*, opposite page 257). In 1787 Father Palou's Life of Junipero Serra included a map on which a boundary line appears between Upper and Lower California, apparently for the first time on a map. Father Ignaz Pfeffercorn's 1794 book of description of Sonora (Wagner, *Southwest*, 176) included a map by C. Du Puis which named many places in Sonora but was quite unsatisfactory farther north.[19] A year later Don Juan Lopez published in Spain a map of New Granada or New Mexico, with the provinces of Nabajo and Moqui (see British Museum, Additional Ms. 17,651 and Lowery 703) on which the river systems of the Internal Provinces are exceptionally well depicted.[20]

Just after the onset of the nineteenth century, a group of manuscript maps was prepared by Don Juan Pedro Walker. They are preserved at the Huntington Library, and are included among the so-called "Berlandier Papers," acquired from Henry R. Wagner.[21] Walker was a Mexican Army Officer, born in Louisiana when it was ruled by Spain. He was one of the two Spanish officers who signed the receipt for Zebulon Pike's papers at Chihuahua, and he seems to have drawn a number of maps. Most interesting for present purposes is one of 1805 that extends as far as Hudson Bay

[19] This map was reproduced in *Yan*, journal of the Centro de Investigationes Anthropológicas, Mexico City, 1953, with an article by Don Juan Leonard, who praises it for the number of placenames included in the Sonora area.

[20] In 1801 Lopez, though he was the King's geographer, drew another map which stuck to the geography of almost a century earlier. A year later Don Isidero de Antillon, also geographer to the Spanish King, used Arrowsmith data (to be considered later) and Escalante material on an important map of North America.

[21] Jean Louis Berlandier was a Swiss astronomer who accompanied General Mier y Teran, the Spanish Commissioner, on the United States-Mexican boundary survey initiated in 1825. Berlandier's papers were sold in Europe many years later, and were there acquired by Mr. Wagner.

on the north, with MacKenzie's track clearly shown, and with the words "Posesiones Españolas" drawn in no uncertain letters no less than four times along the northwest coast.[22] Coastal California is crudely delineated, and Walker's map follows the theory that several great continental rivers (the Columbia, Missouri, Colorado, Arkansas, and Rio Grande) had their sources in a common area. Father Garcés' troublesome unknown river lies off to the west, southwest of Escalante's Lake Timpanogos, but little other Escalante material was used, while Walker's showing of the New Mexico and Pimería Alta settlements was sketchy. Of interest, however, near the common source area of the Rio Grande, Colorado, Arkansas, Platte, and "Pequeño Missouri," is a tall unlabeled cone (Pike's Peak) just north of where the Arkansas River leaves the mountains. These were features of Pike's map of 1810, and it is suggested that Pike's sketch map drawn in Chihuahua for General Salcedo probably gave Walker these ideas, since on no other map of this date did this particular combination appear. Though it added little to accumulated knowledge of the American West, this Walker map is an interesting relic.[23]

The story of the western American maps that developed "from the south" may well be closed with the important and frequently-copied Map of New Spain drawn by the cele-

[22] This map is reproduced, on a reduced scale, on the end-papers of R. G. Cleland, *From Wilderness to Empire* (New York, 1944). In that work it is stated that Lewis and Clark material is present on Walker's map.

[23] Two other Walker maps at the Huntington Library cover New Mexico and Texas respectively. They also, are interesting, though not contributing much, if any, new material. Among the Berlandier papers is also a map, probably drawn by Francisco Amanzuel, of an expedition from San Antonio de Bejar to Santa Fe, showing considerable detail along the route. In 1811 Father José Pichardo drew a highly-stylized map of New Mexico, showing Escalante's discoveries, with symbols of various types covering every square inch of the area of New Mexico and vicinity, but with outlines of the Pacific Coast and the Gulf of California so placed that no one could have fitted the two areas of the map together. Pichardo was a well-known scholar, who was making a historical study of the boundary between Texas and Louisiana, but as a cartographer he had his betters. (See Charles W. Hackett, *Pichardo's treatise on the Limits of Louisiana and Texas* [Austin, 1931].)

brated German scientist and savant, Alexander von Humboldt. He spent several years in New Spain and wrote an extensive report, published in 1811. His map was first developed in 1804, but was apparently completed in 1809, and in its preparation he seems to have consulted the maps of Kino, Barreiro, Font, Lafora, and de Miera. In the northern areas, however, this map is not a mere copy of any earlier one. Humboldt gave a better picture of the Colorado River's course than had anyone before him (though the details of that strange river-basin would not be fully known for many years). The New Mexico settlements are exceptionally well shown, but Humboldt foreshortened his topography to the northwest. East of New Mexico he inserted a shrewd guess that the Nepestle River (northeast of New Mexico) might be the head of the Arkansas, though he did not (doubtless could not) correct the current mistake about the headwaters of the Canadian River, which were at that time associated with the Red River of Louisiana. At any rate, Humboldt did not accept the common source area theory involving the continental rivers—perhaps he had not heard of it.

Humboldt included on his influential map the old notion, already mentioned, that the Aztecs came from the north and rested at certain spots en route to Mexico. The large lakes in the Utah area are carefully covered by questioning legends or statements that their boundaries were unknown. South of the lakes is a short stretch of river labeled "Rio de las Piramides sulfureas," which had been Escalante's name for the Virgin River and was a term destined to be repeated on numerous later maps. Humboldt also showed that troublesome river of Garcés, but the Great Basin was still a great mystery.

Along the Gila few placenames appear on Humboldt's map. Perhaps he knew that most of those on earlier maps

had been mere gleams in some wandering Padre's eye—mirages of cities and missions never to materialize. But he did show the Presidio of Tubson (sic) and Father Kino's favorite, the Mission of San Xavier del Bac. Since Humboldt's map was published in a book that enjoyed wide currency, it had an effect on the cartographers of Europe and America not equalled by any previous map developed from the south.[24]

[24] Humboldt's *Political Essay on the Kingdom of New Spain, Containing Researches Relative to the Geography of Mexico. . . . With Physical Sections and Maps* was published in several formats, editions, and languages, usually with a separate atlas of maps, plates, and charts. The map of New Spain occurs in two sizes. In the French atlas there is also a large "Carte du Mexique et des Pays Limitrophes Situées au Nord et â l'Est Dressée d'aprés la Grande Carte de la Nouvelle-Espagne de Mr A. de Humboldt et d'autres materiaux par J. B. Poirson. 1811." This map includes a large area to the northeast not shown on the map of New Spain, and also covers the California coast as far north as Latitude 42. It names the coastal missions and settlements and a long mountain range appears near and roughly parallel to the coast, labeled near Santa Barbara "Sierra de Sta. Lucia." Farther east, in the latitude of the part of San Francisco is a huge, amorphous "Sierra de San Marcos." Humboldt's legends respecting the earlier homes of the Aztecs do not appear on this map.

In a Spanish edition of Humboldt published in Paris in 1822 by the "Casa de Rosa," the map of Mexico also appears, this time with Spanish instead of French legends.

Although Humboldt's published work was dated 1811, it is apparent that Aaron Arrowsmith had seen the map of New Spain when, on October 5, 1810, he published in London "A new map of Mexico and adjacent provinces" with an insert labeled "Valley of Mexico, from Mr. Humboldt's map." (The Library of Congress copy has hand-colored seacoasts.) Although many of Humboldt's legends appear, including those concerning the early habitations of the Aztecs, Mr. Thomas W. Streeter has pointed out to the writer that in the Texas area this Arrowsmith map differs materially from that of Humboldt. Moreover, the Nepestle River is shown (without Humboldt's question) as the upper reach of the "Arkansaw," and Escalante's route (not shown, as such, by Humboldt) appears on this map in detail.

Chapter III

The Search for the Western Sea (1540–1814)

Although from time to time over the years maps of individual regions continued to be made by Spaniards from the south, the exploring spirit of the early Spanish leaders waned in direct proportion to their failure to find treasure in the lands of the "Northern Mystery." Meanwhile, from the east Frenchmen were probing the unknown in search of treasure of another sort—furs for the fashionable of Europe. In their heads was always the notion that the Western Sea—the Pacific, the route to the Orient—must lie just beyond that next hill or turn in the river. Even after the seamen of Europe had sailed up the Northwest Coast and fairly ascertained its longitudes, men from the east still held fast to the belief that by ascending rivers they already knew they would reach a spot whence they could glide down a short western stream to the waters of the Western Sea.

Cartier and Cabeza de Vaca were contemporaries, but after Cartier reached the site of Montreal the French, like the Spaniards, ceased their exploration, and it was Champlain, in Oñate's time, who took up the paddle—for to the very end the French were waterborne. Champlain heard tales of great seas just beyond his farthest west, and—true enough—there were vast lakes of fresh water. But it was not until 1673 that the upper Mississippi was reached, and the mouth of the Missouri was found. This muddy, snag-filled stream they called the Pekistanomi, a name that—in various forms—would be applied to the Missouri for many a year. La Salle reached the Mississippi's mouth in 1682 and

named the land it drained Louisiana in honor of his King, thus ending the first great era of French exploration. With the maps that depicted these earlier exploits this study is not concerned, though La Salle did try to colonize a port in Texas, and left a tradition that the Mississippi flowed far to the west of its true course in its lower reaches.

The first French map to come even close to the western areas here considered was that of the Belgian Recollect Priest, Louis Hennepin, who in 1683 pointed the Mississippi in almost its correct southerly direction, though he had seen only a bit of its upper course. The Missouri was the puzzler. Where did this great flood come from? Could it be the avenue to the Western Sea? The explorers checked with the Indians; the cartographers used their imagination. In 1687 Jean Baptiste Louis Franquelin produced a map (Lowery 189; see also 190) showing the Missouri flowing through the land of "Les Panimaha," near a town named Pana—and thus the Pawnees, that formidable human barrier, found their way onto a map. For upwards of a century these "Panis" and the Padoucas (the fierce Comanches) dominated the plains country on many maps. Another Franquelin map, of about 1697,[1] shows a "R. des Emissourites," and farther north, in the Tinton (Sioux) region is the legend "Peut. 200 l. a la M. d'Ouest." (Perhaps two hundred leagues to the Western Sea! The French were always plagued by that notion of its nearness!)

De Rossi and Sanson and Coronelli and Nolin all made attempts to map the French discoveries. By 1700 the Missouri was shown on most of their maps, often as a mere creek. The western plains were not canoe country, and though French voyageurs later became highly useful assist-

[1] The Newberry Library copy of this map was traced by Pièrre Margry about 1850 from a copy stated to have been drawn by Claude Delisle after Franquelin's original.

ants to the Anglo-Saxon fur traders, the waterborne French of early Louisiana and of the Illinois country made only slow and painful progress after they reached the prairies, especially when they passed beyond the easy canoe streams.

Like the French in every generation, however, a volatile and imaginative soul might be expected to look in on this region some fine day. And at last one did, the Baron Louis de la Hontan (today usually written Lahontan, as it is in respect of the great Pleistocene lake of the western Great Basin which today bears his name). He was only twenty-two when he headed from New France toward the Mississippi, and he wrote a highly readable book ostensibly about his experiences. It would have been a notable book had it been founded wholly on fact, but in this story Lahontan showed himself a veritable Munchausen. Apparently he camped somewhere on or near the Minnesota River—at least, this seems to be as likely a guess as any respecting the river he claimed to have ascended. There, said he, he first met some Indians called by him the Eokoros, and then he found the Esanapes, and farther west he reached the land of the Gnacsitares. Here four Mozeemleks from even farther west appeared and drew for him a map showing the Riviere Longue (on which Lahontan was allegedly traveling) heading in some low hills beyond which was a westerly-flowing stream where these visitors said they lived. Only 150 leagues from where Lahontan now sat, it seems, there was a large salt lake, 300 leagues around, which drained into the ocean. This, said the Mozeemleks, was Tahuglauk country.

Lahontan speculated about those Tahuglauks, but he himself proceeded no farther. Instead, he hurried home and published his fascinating book, with a delightful map of this adventure and the country beyond. When the book

was published in 1703 it created a sensation. Here was the Riviere Longue—a great stream—flowing due east from its lake-and-islands source near a low mountain ridge. Beyond, flowing due west, was that river described by the Mozeemleks. If only Lahontan had gone on, what a tale he could have concocted! As it was, his yarn was reprinted frequently in various tongues, and his strange rivers, lakes and odd-named aborigines were copied onto many—for a time most—of the maps that Europe produced. The legend of that Long River, of the strange Mozeemleks, and of the river flowing west, just across those low hills, lived long and lustily.[2]

A few years later, however, a young Frenchman, Juchereau de Saint-Denis, did some more realistic exploring. It was in 1714 that he started from New Orleans for New Mexico, looking along the way for gold and silver mines which he failed to find. He struck cross-country, through the valleys of the Trinity and Colorado (of Texas) rivers, and finally reached the Spanish town of San Juan Bautista, on the Rio Grande near the mouth of the Conchos. A manuscript map in the Ministry of the Marine in Paris, drawn by "le Sr. Vermale cy devant Cornette de Dragons," shows his route quite clearly.[3] In addition to following the trail of Saint-Denis to the Rio Grande, this map shows the lower Missouri, with Pani and Padouca villages and the legend "Les François non remonte le missouri que jusques

[2] This Lahontan map saw the light of day the same year (1703) in which Guillaume De l'Isle published a celebrated "Carte du Mexique et de la Floride" on which the true course of the Mississippi was clearly shown. Even the greatness of the Missouri was hinted, though as yet no Frenchmen had ascended it very far, and this map, together with other de l'Isle maps of the period, became "mother maps," copied and recopied for a generation.

[3] A photostat of this map in the Yale Library indicates that it is manuscript C-4044 No. 11 in the French Hydrographic Bureau. It is entitled "Carte generale de la Louisiane ou du Miciscipi dressée sur plusieurs memoires et dessinee par le Sr. Vermale cy devant Cornette de Dragons. 1717."

icy." North of New Mexico one reads, "Par cette hauteur se place le Pais imaginaire de la grande-Quivira." In fact, Acoma and Zuñi (or Cibola) are named, and both the exploration and this map were remarkable achievements, though young Saint-Denis' backers failed to follow up his discoveries.

In 1718, the year following the production of Vermale's manuscript, Guillaume de l'Isle published a great map, his "Carte de la Louisiane et du Cours du Mississipi." Here are Vermale's materials, including the Saint-Denis routes. The Missouri is labeled no less than three times, and on this map it is shown rising far in the west, not far from the sources of the Rio Grande. Here was a cartographic achievement of first rank.

Bénard La Harpe explored what is now central Oklahoma in 1718–19, and several manuscript maps show his trek. The earliest seems to be a crude sketch in Paris (Karpinski F 4–1–6), with various labeled Indian tribes in the region east of Sta. Fee, and with a mention of La Harpe amid them. A larger map, drawn by the King's "Ingenieur Ordinaire," le Sieur de Beauvilliers, also memorialized this explorer and bore in an insert what was probably the earliest drawing of the youthful town of New Orleans (Karpinski F 2–5–2, F 22–1–6 and F 27–2–1). Lowery (301) suggests that a copy of this map in LaHarpe's manuscript *Journal* was drawn by Beaurain, geographer to the King, but regardless of its author it is a map of prime interest.

While the European cartographers were going on with their imaginary creations, a Frenchman, Pierre Gaultier de Varennes, Sieur de la Vérendrye, was making the last French efforts at exploration in the West. Between 1728 and 1743, he and his sons located the canoe route from Lake Superior to Lake Winnepeg, and saw the hills called the Turtle Moun-

tains, called by him "Shining Mountains," a term later adopted by many cartographers for the Rockies. Vérendrye visited the Mandan Indians on the upper Missouri, and his sons even reached the Black Hills of South Dakota. His was a great name, and his were great achievements. Yet neither he nor any other Frenchman whose exploits are recorded had yet seen the Rocky Mountains, much less found that westerly flowing river that was to take them to the Western Sea.

Two interesting manuscript maps memorialize Vérendrye's work and geographic delusions. One, which exists in a copy at the Newberry Library, is entitled "Cart contenant les nouvelles decouvertes de l'ouest de Canada, mers, rivieres, lacs, et nations qui y habittent en Lanne [small portion torn out] 1737." It is endorsed "Découvert de la mer de l'ouest. Joint à la lettre de Mr. de Bauharnois du 14 Sbre 1737." On this map is the "hauteur des terres," a popular notion, with a "Lac de la hauteur" from which flow three rivers, one to the south and finally into what is apparently the Gulf of California; another southeast, possibly meant for the Missouri, and a third to the north, with open water communication to the shore of Hudson Bay.[4]

Another French manuscript map (Karpinski F 28–3–1) was frankly based on Vérendrye's reports. On it is a noteworthy legend—a great river, rising in a lake near the "Nation du Serpent," flows easterly past "La belle Nation," and here one reads "Riviere des Mantanes [Mandans], *qu'on croit etre le Missouri.*" The explorer was correct. It was indeed the Missouri, though many years were to elapse before men from Europe would travel up its long lower

[4] This copy is a tracing made about 1850 by Pierre Margry of a map then in the Depôt de la Marine in Paris. It is oriented with Northeast at the top, and while it is not technically very much of a map, it clearly discloses the geographical ideas developed by Vérendrye as the eighteenth century was reaching its mid-point.

courses to reach the Mandan villages from the south.[5] Vérendrye's achievement was the last gasp of French exploration in Louisiana, which passed to the Spaniards in 1763.

Meanwhile, a strange aberration found its way onto the European maps—the Sea of the West. This weird myth was apparently derived from an apocryphal tale by a certain Admiral de Fonte, who claimed he had found an inlet on the northwest coast at 53° north latitude. This inlet was soon confused with another tale, that of an inland sea alleged to have been found by one Juan de Fuca in 1592. About 1750 Joseph Nicolas Delisle (younger brother of the redoubtable Guillaume) and his brother-in-law, Philip Buache, announced an entirely new far-western geography. Wagner has discussed their "fantasy" of a great inland sea—the Sea of the West—and the 1752 Delisle map which displayed it (see *Northwest Coast*, pp. 158–162). Father Burriel, of the Venegas *Noticia de la California* (Madrid,

[5] In 1758 Le Page du Pratz, a Frenchman who had resided in Louisiana for sixteen years, published in Paris a three volume *Histoire de la Louisiane*, now best known for its fantastic tale of an Indian, Moncacht-Apé, who—according to du Pratz—had reached the Western Sea. The book contains a "Carte de la Louisiane Colonie Française avec le cours du Fleuve St. Louis"—the Mississippi—the lower reaches of which are quite well portrayed. Many mines are shown on or near its course, and near Natchitoches appear a "Fort François" and also a "F. Espag." The Arkansas River heads just east of Santa Fe, and a dashed line, apparently meant to denote the boundary between Louisiana and New Mexico, leads up the (unnamed) Pecos and around the Rio del Nort's headwaters. The Missouri comes in from the west, with no hint of its long southerly course nor of the Mandan villages.

Du Pratz estimated the length of the Missouri as 800 leagues (about 2200 miles), a rather good guess, since its actual length from the Three Forks is now taken as 2547 miles. Abraham Nasatir, in his *Before Lewis and Clark* (St. Louis, 1952), discusses the du Pratz map at some length, and suggests that his Missouri resembles the Platte. The Lahontan vagaries are shown in the far northwest, with "Grande Riviere suivant Mr de la Hontan" and—beyond some mountains—the "Belle Riviere" flowing to the west. The du Pratz map (which is dated 1757) represents in excellent fashion the basic French beliefs with respect to Louisiana as their regime drew to its close, though Vérendrye's remarkable achievements were apparently unknown to its author. (Re the strange tale of Moncacht-Apé see Andrew M. Davis, "The Journey of Moncacht-Apé," in *Proceedings* of the American Antiquarian Society, New Series, II, and De Voto, *The Course of Empire* (Cambridge, 1952), Notes, pp. 566–567).

1757), and others soon attacked this thesis, but for years many cartographers took to the fantastic idea, and the Lahontan geography was often so mingled with these notions of Delisle and Buache as to render the resulting maps almost ludicrous. Since no one had been there, however, no one could disprove these strange new ideas, any more than anyone could prove their truth. So the delusions grew in magnitude and fantasy. There was even one charming Japanese map of North America, printed in 1794, showing a vastly magnified peninsula of California *attached to the mainland at its southern, rather than at its northern extremity*. (Ah, so!)

This map, preserved at the John Carter Brown Library, was no more weird than were many of the better known maps made by the cartographers of Europe. The fact is that the great mapmakers of the period were naturally confused as to the nature of the American West, and this confusion is clearly disclosed on the otherwise excellent maps of Vaugondy, Covens and Mortier, Mitchell, Bellin, Bowles, Sayer, Pownall, Faden, and others of their time.

In 1788, one Edward Ruggles, Junior, of Pomfret, Connecticut, engraved a large, rather crude world map, a copy of which is preserved in the Library of the American Antiquarian Society in Worcester. Ruggles declared it to be the first work of the kind he ever attempted, and asked that its errors be overlooked by "the candid public." His contribution to Western American cartography was chiefly quaintness, but he did use one phrase of interest when he spoke of a "Mountain of bright stones." Here are Vérendrye's "Shining Mountains," identified with those that other cartographers were commencing to call "Stony" or "Stoney," and which we still denote as "Rocky."

As the eighteenth century drew to a close, even the careful cartographer Aaron Arrowsmith found himself

hard put to it to portray the West save by leaving most of his paper blank. This he was honest enough to do when, in 1795, he published the first of many editions of his notable map of North America, dedicated to the Governor and Company of Adventurers of England Trading into Hudson's Bay. It seems certain that Arrowsmith did everything he could to obtain all available information, and he showed the Canadian northwest in great detail, but when it came to what is now western United States about all he could do was to draw a short stretch of the upper Missouri, near which appear the Snake Indians, Shoe Ind., Mandane Ind., Flying Bigbellys and Shevitoon Inds., with the legend "These 4 tribes live on the Islands being afraid of the Snake Indians, and hunt on the east side of the river." Just to the east is a short wavy line marked "R. St. Peter, seen by Mr. Mackay." (The Nor'westers were moving steadily farther into the wilderness, and at the Mandan villages they were treading the path of Vérendrye.)

West of the short stretch of the Missouri on Arrowsmith's map is a single, north-south range of mountains marked "Snowy Mountains 3520 feet high above the level of their base and according to the Indian account is [sic] five ridges in some parts." Nearby is the Great Lake River, flowing west, with Long Hair Ind. along it, and as the mountain range proceeds south great peaks appear—The King, The Heart, The Pap, Battle Hills, and Bears Tooth. On the Pacific Coast appears a short River Oregon, with Pt. Vancouver some miles inland. And that is all!

In 1802 Arrowsmith did a little better, showing the Missouri sketchily from its mouth to the "Villages of the Tall Indians & Manders," with two dotted lines of river leading east to this point from the still-single mountain range. Pawnees, Aricaras, and Padoucas are here, with Snake

Indians near the upper "Missourie," and the Knife River branching to the west with the words "Pawnee Village Conquered down from this place by the Tall Indians & their allies summer of 1797." Nearby is "The Most Northern Bend of the Missesourie Rios," while far below the stream is called the "River Missouri." (Arrowsmith was trying hard, but his information was still very meagre.) West of the mountain ridge a few words have been added, and the Great Lake River now runs, as a dotted line, past Pt. Vancouver, with the legend "The Indians say they sleep 8 nights decending [sic] this river to the sea." To the south is the legend "Hereabout the mountains divide into several low ridges," while some short rivers flow east from the ridge. One of these (the same labeled "Knife River" below) is called the "River Mississury." (Apparently, Mr. Arrowsmith left it to his patrons to choose for themselves from among his four different spellings of that pesky river.)

What Arrowsmith could not do in faraway London, however, a few explorers in then Spanish Louisiana were actually doing on the ground. Governor Carondelet, in 1794, bemoaned the fact that "all the maps printed both in England and in the United States and in France are absolutely false, especially in regard to the course of the Mississippi and Missouri rivers." He did send a map to his government, but it is apparently lost. However, a Mr. Soulard drew a remarkable map in August, 1795 (preserved in the Service Hydrographique in Paris in a copy made in 1804 by a Colonel de Laussat). Of somewhat similar nature was the map of "Louisiana" of Arrowsmith and (Samuel) Lewis of 1804, which (with very few changes) was later used to illustrate some semi-apocryphal books anent the Lewis and Clark expedition. The geography of these maps, according to Dr. Aubrey Diller, is "very crude scientifically,

but very informative historically."[6] West of the Mississippi, the areas shown by Soulard are from five to ten degrees too far west. The Big Bend and Grand Detour of the Missouri are merged into a single, exaggerated feature, near the Turtle Mountains. The Missouri watershed extends almost to the Pacific Ocean, with a narrow "Pays inconnu" between. However, several Missouri tributaries seem here to be first named on any map, and James Mackay's expeditions are clearly shown, almost to the Rockies. Soulard did a highly respectable job in bringing together on his map all the information he could obtain.[7]

An important name in the Louisiana of this period was that of James Mackay, formerly of the North West Company, but later employed by the (Spanish) Missouri Company. In 1787 he had visited the Mandans from the north, as noted by Arrowsmith, and in 1796 he explored the upper Missouri for his new employers. (Soulard probably placed information respecting this effort on his map after conferring with Mackay in St. Louis.) Mackay joined forces with John Evans (a Welshman searching for "Welsh Indians" in the western country), and the two seem to have thought they could reach the Pacific without too much difficulty. They spent the winter of 1795 at the site of Dakota City, Nebraska, building "Fort Charles" in Maha Indian coun-

[6] Buried, along with many other contributions on extraneous subjects, in a book privately printed in New York in 1946, is an important essay by Dr. Aubrey Diller, of Indiana University, called "Maps of the Missouri River before Lewis and Clark." The book itself is entitled *Studies and Essays in the History of Science and Learning in Homage to George Sarton*, and it seems virtually inaccessible. Even the Library of Congress did not possess a copy until the present writer drew it to the attention of the Librarian. Dr. Diller has generously sent us an off-print of his article which has proved most useful.

See Nasatir, *op. cit.*, in which several important maps of this period are reproduced, and see also other works cited under Wagner-Camp 3.

[7] Diller remarks on the similarity of Soulard's map and the map (in English) found by R. G. Thwaites and reproduced by him as number 2 in the Atlas accompanying *The Original Journals of the Lewis and Clark Expedition* (8 vols. 1904). A similar map, in Spanish, is said to be preserved in the Archives of the Indies. Thwaites' Number 2 is now in the Coe Collection at Yale.

try, and Evans went on in 1796 to the Mandan villages, where he found some English traders, while Mackay toured present-day Nebraska.

After returning to St. Louis in 1797, Mackay drew a map showing the course of the Missouri in detail as far as the Mandans, with the river also shown to the mouth of the Yellowstone, west of which rise "Black Mountains" (the present Black Hills). Apparently a manuscript map now in the Library of Congress is this very map. Evans also drew a map, which Diller believes was one of those reproduced by Thwaites (Plates 5–11) under the assumption that it was a Clark map. In any event, Diller concludes that the maps of these two explorers "show a vast improvement over all previous maps of the Missouri River, and are in many respects superior even to Lewis and Clark's maps," as far as they extend.

The map published by Perrin du Lac in 1805 was probably drawn while the author was in Louisiana in 1801–3, but Dr. Diller suggests that the book it accompanies was "compiled entirely from the records of Truteau and Mackay and Evans."[8] The map contained nothing new. However, there is a more interesting manuscript map in the Bibliotheque Nationale, doubtless drawn somewhat earlier and probably copied from a map in the French Ministry of War (Karpinski F 14–4–4), itself deemed to be copied from a map of a Louisiana merchant.[9] This map—like most of its period—shows the source of the Missouri altogether too far west—close to the Pacific Ocean—while both the Missouri (above the Mandans) and the Columbia basins are greatly foreshortened.

Since several of the maps just discussed were doubtless among those sent to Lewis and Clark before they started on their transcontinental journey, they must have been as

[8] The book (Wagner-Camp 3) is entitled *Voyage dans les deux Louisianes, et chez les nations sauvages du Missouri* (Paris and Lyon 1805, Leipzig 1807).

[9] Reproduced in Nasatir, *op. cit.*, p. 110.

astonished as were the mapmakers to find the Pacific so much farther away than had been thought. At any rate, correction of this geographic error was a prime result of the Lewis and Clark expedition, even if their geographical contribution in respect of the Missouri River below the Mandans may not have been as great as was formerly supposed—in the light of Mackay's and Evans' maps, as now identified.

Before considering the maps that resulted from Lewis and Clark's great effort, a few other maps must be discussed. Not pertinent geographically to the present study, but important in the historic picture, were certain maps drawn by Peter Pond, a Connecticut citizen who for many years was associated with the British North West Company.[9] He was obsessed with the idea that a water route to the Pacific could be found by heading north from his farthest explorations, and he drew at least three maps, one in 1785, another about 1790, and a third known in a copy made by Ezra Stiles, President of Yale, on March 25, 1790 (now in the Yale Library). Pond showed a water route to the "Mer du Nord West" (as a French copyist of one of his maps puts it) by way of Slave Lake, and (on one of the later maps) also by way of Red Knife Lake. Moreover, the distance on his maps between the "Stony Mountains" and the Pacific was much less than it is in fact.

Both considerations seem to have misled Alexander Mackenzie, who disproved the first (the water route to the North Pacific) on his expedition of 1789 down what is now known as Mackenzie River, but which he, with much reason, called "Disappointment River." The second (the relatively short distance over the mountains to the sea) he disproved

[9] See H. A. Innis, *Peter Pond, Fur Trader and Adventurer* (Toronto, 1930); L. J. Burpee, *The Search for the Western Sea* (Revised ed., New York, 1936); G. C. Davidson, *The North West Company* (Berkeley, 1918), and *The Literary Diary of Ezra Stiles* (New York 1901). Henry R. Wagner is understood to be at work at this time on a critique of Pond's maps. (At 91, the great bibliographer is still indefatigable!)

on his second expedition, in 1793, when, in a magnificent exploratory *tour de force*, he pushed over the mountains and down the Pacific slope to salt water.[10] His map of this first transcontinental crossing north of the Spanish dominions must have sent cold chills down the spines of Captains Lewis and Clark, for it showed them a great deal about the length of the journey they were about to undertake. Mackenzie's identification of the wild river he first tried to descend as the Columbia (rather than the Fraser) threw everyone off the track. Mackenzie even thought for a time that it might be the legendary "River of the West," perhaps flowing into San Francisco Bay, but on his map he calls it the "Tacouche Tesse" and definitely identifies it with the Columbia.[11] For a number of years this led many cartographers astray, and had Mackenzie's theory proved correct it would have had no little bearing on the later rival claims of Great Britain and the United States to the Oregon Country.[12]

The most ambitious American program of exploration actually to materialize in publication before Lewis and Clark's transcontinental trek was the expedition led by Lieutenant Zebulon Montgomery Pike to the Rocky Mountains in 1806 and 1807. Pike had already explored part of the upper Mississippi watershed, and was overjoyed when General James Wilkinson ordered him to the headwaters of the Arkansas River. His apprehension by Spanish officers on upper Rio Grande waters, his polite but still very firm imprisonment and transportation to Santa Fe and Chihuahua, and his return to the United States by way of Natchitoches have been frequently related. In 1810 the account of his

[10] Mackenzie's account of his two voyages (London, 1801) is item 1 in Wagner-Camp.

[11] For a readable account of both Pond's and MacKenzie's exploits, see Bernard DeVoto, *The Course of Empire* (Boston, 1952).

[12] On the 1802 edition of his Map of North America, Arrowsmith added a dotted line labeled "Tacouche Tesse," calling the lower course of that river the Oregon, and thus definitely attaching the Columbia (his Oregon River) to Mackenzie's wild-water river.

adventures was published in Philadelphia (Wagner-Camp 9), with several maps. Of present interest is "The First Part of Capn. Pike's chart of the Internal Part of Louisiana," which takes his party to the point on the Arkansas where some of the group left to descend that river in canoes. Much new knowledge of the Plains country is shown on this map, the rivers being especially well drawn.

The second part of Pike's map, also an excellent example of draftsmanship, extends westward to New Mexico. The route led up the Arkansas to the mountains and on up the stream to its source, where, from an eminence, Pike gazed upon another river farther north and took it to be one of the sources of the Yellowstone. In reality, it was a head stream of the South Platte, but it took many good cartographers a long time to realize that Pike was really hundreds of miles from the Yellowstone when he came to his erroneous conclusion.

Pike's judgment stemmed from the theory—already old—that the sources of several of the great continental rivers of North America were to be found in a common region. "I have no hesitation," wrote he, "in asserting that I can take a position in the mountains from whence I can visit the source of any of those rivers in one day." In this group he included the Arkansas, the Yellowstone, the Platte, the Colorado, and the Rio Grande. He did not mention the Columbia, but others found no difficulty in believing that it, too, had its rise in this common source area—Pike's "Grand reservoir of snows and fountains."

At any rate, Pike's map also shows, just north of where the Arkansas leaves the mountains, a great cone labeled "Highest Peak." It is precisely where Pike's Peak stands today, and the explorer wrote feelingly of how he climbed a subsidiary mountain and marveled at the great peak before him, which he doubted the ability of man to climb. The map also discloses how Pike's party crossed over to the Rio

Grande, where they were "met by the Spaniards," and how they traveled south to Santa Fe. In addition, on what is labeled the Red River, is the legend "The route pursued by the Spanish Cavalry while going out from Sta. Fee in search of the American Exploring Parties, commanded by Major Sparks[13] & Captn. Pike in the year 1806." This route finally crosses to the Arkansaw, thence to the mountains and over them to Taos, whence the Spanish party returned to Santa Fe just before Pike was picked up on the upper Rio Grande.

Pike also published "A Map of the Internal Provinces of New Spain," probably copied from a Spanish original not yet identified by the present writer. Pike translated some of its legends and added a few of his own, one denoting the mountain areas he had explored. Here the Yellowstone is mentioned, called the "Rio de Piedro Amaretto del Missouri" (for Piedra Amarilla), and near the point where the Arkansas leaves the mountains is the interesting legend "Immense Plains used as pasturage by the Cibolas." The buffalo were of course there, and the map Pike copied doubtless used the historic Spanish term for these wild *vacas* of the plains. But why the explorer failed to include his "Highest Peak" is unexplained.

Pike's maps, with all their faults, are beautiful examples of draftsmanship, and they were the first published maps made by an American to offer any details of a penetration in depth of the Transmississippi West.[14] Along with the

[13] Sparks was an American officer who in 1806 examined the Red River to a point where a superior Spanish force prevented him from going farther. (Warren, *Memoir*, p. 21. See also Wagner-Camp 9 note.)

[14] In a list of the papers taken from Pike in Chihuahua occurs the following: "A small draught or map of the country which is situated between the Mississippi and Santa Fe." It is Number 18 on the list. When, in recent years, those papers were recovered in Mexico, Number 18 was found to be just that—a small "draught" or map—a crude sketch of Pike's route, but with no mention of either the Yellowstone or the "Highest Peak." It is a delightful fragment, and it has been suggested that it may turn out to be the earliest map of an American's route to Santa Fe. (Respecting the recovery of Pike's documents, see Stephen H. Hart and Archer Hulbert, *Zebulon Pike's Arkansaw Journal* (Denver, 1932); see also Wagner-Camp 9, note).

almost simultaneously published map of Humboldt, they exerted great influence on other cartographers. Even after the publication in 1814 of the first reasonably accurate map of Lewis and Clark's discoveries, these maps of Pike and Humboldt continued to provide the cartographic basis for wide areas not visited by Lewis and Clark. In this connection, it is of interest that Clark, in his large manuscript map (discussed later), allowed Pike to be his mentor for much of the area he wished to depict but which he had not himself seen.

Before considering the maps of or those influenced by Lewis and Clark's expedition, another "Nor'wester" may well be mentioned—David Thompson—whose maps of the Columbia basin were long lost to view. Thompson had been eight years with the Hudson's Bay Company before he went with the North West Company in 1797, and after several years spent in exploring its Canadian trading area, he spent five years, 1806–1811, on the Columbia. In 1808 he built Kullyspell House on Pend d'Oreille Lake, and he later established Saleesh House and Spokane House. In 1811, at the mouth of the Snake, he took formal possession of the Columbia basin for Great Britain, and he then went down the great river, only to find the Astorians there before him by a bare few months. The next year he returned to Canada where he drew his map of the North-West Territory, completing it in 1814. He was a competent surveyor and geographer, and though his cartographic symbolism was somewhat individual his map was a magnificent achievement. In his work on Alexander Henry (New York, 1897), Elliott Coues characterized Thompson as "the greatest geographer of his day in British America, and maker of what was then by far its greatest map."

It covers the area between 45° and 60° north latitude and between 84° and 124° west longitude. Within what is now

United States territory it shows Lake Superior, the Red River (of the North), the Missouri above the Mandan villages, and the mountain, lake and river country westward to the mouth of the Columbia, whose watershed is remarkably detailed. This great map is entitled "Map of the North-West Territory of the Province of Canada from actual survey during the years 1792 to 1812." It is a cartographic landmark of first magnitude.[15]

Thompson also drew a larger scale map of the northwest area, and a more detailed map of the Oregon Territory.[16] Somewhat difficult to interpret because Thompson's placenames did not always survive, they become clear when adequate orientation is achieved. All three of these maps are of large historical import, and one must regret that they remained so long unknown to geographers.[17]

[15] The original map is now owned by the Ontario Government. It was reproduced in part by Coues, and in full, somewhat reduced in size, by J. B. Tyrrell in his *David Thompson's Narrative* (Toronto, The Champlain Society, 1915).

[16] The originals of these maps are in the British Museum. Photostatic copies are deposited in the Library of Congress.

[17] Dr. Diller, *op. cit.*, points out that Thompson visited the Mandans in January, 1798, and made observations respecting their geographical location. These observations, says Diller, were "the first correct positions for any point on the Upper Missouri and they remained the only ones until long after Lewis and Clark." A copy of a 1798 Thompson map showing the Great Bend of the Missouri was known to Clark and became one of his sources. It is now in the Library of Congress.

Chapter IV

The Continent Conquered (1805–1830)

Although Mackenzie was the first European to reach Pacific waters north of the Spanish settlements, it was the Americans, Meriwether Lewis and William Clark, who first achieved the transcontinental passage within what is now the United States. Their 1804–1806 expedition needs no summary here, and while it eventually resulted in several maps used later by other cartographers, neither the explorers' report nor their main map saw the light of day until 1814, when an edition of their story, with a beautifully engraved map, was published in Philadelphia, followed immediately by publication in England. The importance of Lewis and Clark's achievement as a support for later American territorial claims in the northwest is apparent. Their map became one of the foundation stones of those contentions.

Before considering this 1814 map in detail, some mention must be made of certain maps which were based, in whole or in part, on Lewis and Clark data, or which claimed to show their route, but which appeared—or were drawn—before their map was finally published. Earliest of these are three large, beautifully-executed manuscript maps drawn by Nicholas King, a notable draftsman. On each he appears as copyist, and since two of the three seem to be identical except for date, there are really two different King maps. They may be said to represent the appropriate basis for a discussion of Lewis and Clark cartography. One, preserved

in the Department of State, is marked "Copied by Nicholas King, 1805"; the other, now in the National Archives, transferred from the War Department, is similar and is labeled "Copied by Nicholas King, 1806." Both state the author to be M. Lewis, and they include data sent back by him to St. Louis from the Mandan wintering-place. Both maps frankly admit that "The Country west of Fort Mandan is laid down principally from Indian information."

The result is that, although the course of the Missouri is well shown as far upstream as its great bend from east to south, its upper reaches are highly foreshortened, reflecting the apparent beliefs of the two captains that the Pacific Ocean was much nearer than it was in fact, and that this foreshortened Missouri had its source quite near the western coast. Pike's material was of course not yet available, and the characterization of both the northwest and the southwest on these King maps is weak and largely imaginary. He does show two mountain ranges, one the "Rock Mountain" and the other "The Rocky or Shining Mountains." The Yellowstone heads far in the south, where it almost meets the sources of the Colorado, the Rio Grande, the Arkansas and the South Platte—reflecting the opinion shortly to be expressed on Pike's map.

The Indians had told Lewis and Clark about the falls of the Missouri, and on King's map there are "Falls" marked on the upper river, which has its source not far from Cap Mendocino on the Pacific, just east of a long southerly branch of the Columbia. That river has a short main stem, and an even longer branch comes in from the north, labeled "Tecontibe River." Apparently either Mackenzie's map or the 1802 edition of Arrowsmith's 1795 map of North America was available to the author of this map, and he seems to have used some material from the Evans and

Mackay maps which extended as far as the Mandan country. This Nicholas King map, in these two magnificently-drawn copies, does not offer much in the way of new knowledge, but it is otherwise highly illuminating, since it affords an excellent notion of what Lewis and Clark were thinking when they headed west from Fort Mandan, and it forcefully discloses how comparatively little they then knew about the arduous pathway before them.

A third King map is preserved at the Boston Athenaeum. It bears the legend "Copied from Lewis & Clark's Map— By N. King, for the War Department of U.S." Although the American southwest is similar to that area on the other King maps, west of Fort Mandan the Missouri River becomes a living stream, with carefully drawn curves and courses, and with many named tributaries. A large number of items reflecting Lewis and Clark's entire expedition are shown, and in some respects the upper Missouri basin is better portrayed on this map than it is on the published Lewis and Clark map of 1814. Farther west, the Columbia is much better drawn than on King's earlier map, and it is apparent that this Boston Athenaeum map was taken from some map that showed the course of the expedition in detail. It is obvious, however, that it was not copied from the Clark manuscript map now at Yale. Possibly Lewis was the basic author of this beautiful map, which possesses much historic import, and which may have been drawn shortly after the party returned to St. Louis in 1806.

Another manuscript map of unusual importance, now preserved at the Library of Congress, is that of Robert Frazer, a member of Lewis and Clark's party. It seems to have been unknown to Coues, Thwaites, Quaife, and De Voto, the editors of Lewis and Clark materials, and it is said to have been for many years in the possession of the descendants of John Henry Alexander, a well known early

Maryland cartographer. It has long been known from a broadside announcement that Frazer planned to publish his journal (see Wagner-Camp 5-a, note), and he may possibly have transmitted to Alexander or to some Maryland printer a sketch of the party's route to be put into form for publication. The map now in Washington is entitled "A Map of the discoveries of Capt. Lewis and Clark from the Rockey mountain and the River Lewis to the Cap of Disappointment or the Columbia River At the North Pacific By observation of Robert Frazer."

Apparently Frazer had seen no map by either of the two captains, and while his southwest is crude, even grotesque,[1] he did a better job with the northwest, and his interesting map was apparently a wholly independent production. There are three main north-south mountain ranges, and the Mandans are mentioned, as are the Falls of the Missouri. Much of Frazer's spelling and many of his placenames differ from the Lewis and Clark expedition maps, but he shows the area traversed by the party in considerable detail and his map is obviously one to be considered by future students of the expedition. So far as has been determined, it has not hitherto been reckoned with—at least it has not been previously mentioned by investigators of this subject.

The King and Frazer maps are of great interest—almost as much for what they omit as for what they show—but unquestionably the most important forerunner of the published Lewis and Clark map was the large manuscript map—apparently in Clark's hand—now preserved at Yale University. It is on the same scale (50 miles to the inch) as King's first pair of maps, and while much of the Clark material is similar to that on the published map of the

[1] On this map, however, the error respecting the Canadian River and the Red has been corrected, perhaps by Alexander after publication in 1823 of Major Long's map and Dr. James' account of the Long expedition.

Lewis and Clark expedition,[2] there seems to be some question whether it was the document from which that engraving was prepared. There has been considerable criticism, over the years, as to an alleged lack of accuracy on the published map in the Rocky Mountain area, especially respecting "Colter's Route" which is also shown on Clark's drawing. However, in the areas actually seen by the captains, these maps are remarkably accurate. Clark did fail to use certain important information afforded him in 1808 by George Drouillard, a redoubtable mountain man, but possibly that part of the map had already been completed and its author either did not understand this new material or did not consider it important for his purposes.[3] There has been some argument over the date of the Clark manuscript, but apparently its author drew it soon after his return and then placed additional material on it from time to time, in some instances erasing and altering items of the original drawing. In every respect this map was a monumental achievement.[4]

The engraved "Map of Lewis and Clark's Track, across the Western Portion of North America from the Mississippi to the Pacific Ocean" published in the 1814 Philadelphia edition of the narrative, was stated to have been "Copied

[2] For example, both accept the old theory, best expressed by Pike, respecting a common source area for the great continental rivers, and both show a "Southern Pass" at the head of Madison's River, with a trail going through it and proceeding west—the 1810 track of Andrew Henry. Interestingly enough, though the trail itself is shown on the map in the English edition of Lewis and Clark (also 1814), the words "Southern Pass" do not appear.

[3] Two maps purporting to represent this information are extant. One, now at the Library of Congress, is a faint pencil sketch purporting to have been drawn by "Drewyer" in 1808. The other, a more detailed and much better drawn map, was perhaps actually drawn by Clark from Drouillard's data. It seems to be the first reasonably accurate sketch of the Yellowstone-Bighorn country, and is preserved at the Missouri Historical Society. Drouillard, who was killed by Blackfeet Indians in 1810, believed that the route to the "Spanish Settlements" was to be found from the Yellowstone-Bighorn sources. These two maps are historically of basic importance.

[4] Internal evidence discloses that Clark had a copy of Pike's 1810 map before him at some time before he completed his map. Moreover, on the Pacific coast, at "Bodega" north of San Francisco Bay is the legend "Russian Fort-Rosse 38″ 34″ (sic)." This fort was founded in 1812.

by Samuel Lewis from the Original Drawing of Wm. Clark." This was the same Lewis who had drawn the crude little 1804 map of Louisiana,[5] but now he had something to work with, and the map is beautifully executed. It exerted a great influence on other cartographers, and although it does not include as much extraneous territory as did Clark's manuscript map, it follows the explorers' routes in detail, and its delineation of the western country actually traversed by the expedition is generally excellent. As already remarked, it has been the subject of criticism in respect of certain errors in the Rocky Mountain region, but to the present writer these are relatively minor faults. The fact is that this is a noble and historic map. What if "Lake Biddle" (some have tried to read it "Lake Riddle") did on this map drain into the Bighorn, rather than into the Snake (if, indeed, it was meant for what later came to be known as Jackson's Lake)? What if Colter's route as shown on the map, does not comport with all we now know of the region? What if Lewis and Clark's Multnomah (Willamette) River was shown to rise in the Great Basin, far from its true source? Hindsight is as poor a vantage point in cartography as in most other areas of developing knowledge. It seems unnecessary to describe this map in detail.

Aaron Arrowsmith, in England, took immediate advantage of Lewis and Clark's map, and on the 1814 edition of his North America the discoveries of the two captains are carefully portrayed. Brué, in Paris, did the same in the same year, and these two European maps brought the Lewis and Clark

[5] In the earlier—spurious—accounts of the journey, and in at least one edition of Patrick Gass's Journal, are certain maps seemingly stemming from this 1804 map of Louisiana. Thus the 1809 version of Lewis and Clark (Wagner-Camp 8) carried a "Map of the Country Inhabited by the Western Tribes of Indians," not showing Lewis as author or Tanner as engraver. It had a few name changes at the head of the Missouri, though even these were missing on the similar map (still headed "Louisiana") that appeared in the 1812 edition of the Gass Journal. A French edition of Gass (Paris, 1810) contained a similar map, mentioning the Mandan wintering place and the "Fourches du Missouri."

findings to wide public attention. Both cartographers also used material obtained from North West Company explorers, and their maps represented important steps in forwarding general understanding of the nature of western America.

Other cartographers followed suit. In 1816 John Melish published the first of many editions of his well-known map of the United States.[6] He had already (1812) published a book of "Travels in the United States of America," and his 1816 map closely followed the Lewis and Clark map in the northwest. Farther south he followed Pike, and in the Great Basin he showed a Buenaventura river flowing into a large, unnamed lake, with a dotted line extending west to St. Francisco Bay labeled "Supposed course of a river between the Buenaventura and the Bay of San Francisco which will probably be the communication from the Arkansaw to the Pacific Ocean."

This notion of several great rivers flowing to the west was growing at this period. It was a relic of old-time wishful thinking anent the "River of the West," and also of recollection about that mysterious river of which the Indians told Garcés. For many years this idea of the Buenaventura, the San Felipe, the Timpanogos and other westward-flowing streams dominated much cartographic thinking.[7]

A map of considerable interest was drawn in 1818 by Major Isaac Roberdeau,[8] with advice from William Rector.

[6] Lawrence Martin, formerly Director of the Map Division of the Library of Congress, has reported twenty-two issues of this map between 1816 and 1823.

[7] Matthew Carey's excellent 1817 map of "Mexico or New Spain" made no attempt to include Upper California. The New Mexico area was modeled on the maps that showed de Anza's Comanche campaign, and Lake Timpanogos, the R. Buenaventura and the "R. de los Piramides sulfureas" are prominent in the far north.

[8] Major Roberdeau was one of the first eight topographical engineers appointed in 1813 to make surveys in connection with Army operations during the War of 1812. The group was disbanded in 1815, but Roberdeau was kept on this duty and remained when the group was reactivated a year later. He died in 1829 (see Henry P. Beers, "A History of the U. S. Topographical Engineers, 1813–1863," in *The Military Engineer*, XXXIV, No. 200, June and July, 1942).

It showed the western region in some detail, and was praised by Lieutenant Warren in his 1859 *Memoir*. It was even endorsed by Josiah Meigs of the General Land Office as "probably the most correct map of the country now extant." The original drawing, preserved in the National Archives, is well enough executed, but the map adds little that Melish had not already shown. The Pike material and that of Lewis and Clark (including "Coulter's route"), with north-south foreshortening in the mountain region, are present. There is a "Southern Pass" reminiscent of Lewis and Clark, west of their Lake Eustis (probably Yellowstone Lake). However, it seems difficult to understand why Rector or Roberdeau, or both, took all the trouble to draw this map, when in a few minutes they could have added to a good published map every element of new data they actually used.

There were many commercial maps that attempted to show the recent discoveries, but of special interest is a large and now extremely rare published map by Dr. John Hamilton Robinson, entitled "Mexico, Louisiana and the Missouri Territory" copyrighted at Philadelphia in 1819. Robinson had been with Pike, and later became a Brigadier General in the Mexican revolutionary army. The particular impelling force that brought about the production of his map is not apparent, unless it was the very good one that he wanted to make a little money from its sale. On it he states that he had available to him "several manuscript maps" obtained in Mexico, and his map was derived in part from that of Lewis and Clark, in part from that of his old companion Pike (whose "Highest Peak" is here, for the first time, labeled "Pike's Mountain"), perhaps in part from that of Lafora or some similar Spanish map, and apparently in part from the maps of Font and de Miera. Escalante's, Font's and Garcés' journeys are shown in detail, though

the California coastline is reminiscent of that drawn by Alzate, almost a caricature. Robinson also cluttered up his otherwise rather good map with mountains and mountain ranges, many wholly apocryphal, but he does have one legend that should be noted. At "Passo" (now Juarez, across the Rio Grande from the present El Paso) appear the words "Excellent wines made here," the only Chamber-of-Commerce-like language on this imposing map.[9]

Robinson carried the western river notion to its predictable conclusion, with mighty streams (instead of mere dotted lines) flowing across what are in fact the highest ridges of the Sierra Nevada and the California Coast Range. Like others of his time, he confounded the sources of the Canadian with those of the Red, and his southwestern boundaries are highly imaginary. Just north of the Columbia's mouth he shows a region "claimed by Russia, England, the United States and Spain," while a great Canadian area north of a line drawn between the United States and Canada along approximately 47°45′ north latitude is labeled "Territory claimed by Russia, England and Spain." Though his map is interesting, Robinson added little, if anything, to western cartography.[10]

Stephen H. Long, however, made a lasting and important contribution. He was an officer of the United States Topographical Engineers—the first, after Roberdeau, of the many whose names will appear in this study[11]—and his map, published in 1823, was followed by most cartographers

[9] At this point, the present investigator—deeming Robinson's remark unquestionably inspired—took a needed recess from cartographic research and drank deeply to the good doctor's health in tasty California claret. *Pax vobiscum*, John Hamilton Robinson, M.D. *Requiescat in Pace.*

[10] Copies of Robinson's map are to be found in the Library of Congress, at the New York Public Library, at Princeton, and in the Thomas W. Streeter collection.

[11] Long was appointed to this branch on April 29, 1816, and became Senior Colonel of the Corps of Engineers when the Topographical Engineers were merged with it on March 31, 1863 (see Beers, *op. cit.*, pp. 287, 352.)

for a number of years. In 1820 he led a celebrated expedition to the Rocky Mountains and the sources of the Platte and the Arkansas, and to him we are indebted for ending the confusion about the sources of the Red and the Canadian rivers. An immense manuscript map presumably drawn by Long is today in the National Archives, and essentially the same map on a much smaller scale was used to illustrate the published account of the expedition, written by Dr. Edwin James, the party's botanist and geologist (Wagner-Camp 25). It is there entitled "Country drained by the Mississippi Western Section," and it extends west to the headwaters of the Missouri on the north, and to Santa Fe on the South.

Long was responsible for one of the outstanding legends of the early American West—the "Great American Desert" east of the Rockies—which appeared on his map in large letters, and on other maps by the legion over many later years. His party viewed the front range of the Rockies for a considerable distance, and called one of its summits "Highest Peak." (It is now Long's Peak.) Farther south, Dr. James ascended Pike's earlier "Highest Peak," and Long gave to that majestic mountain the name James' Peak. For a number of years this name appeared on many maps, but in the end the name of the mountain's discoverer, rather than that of him who first clambered to its summit, won out in public esteem—and Pike's Peak it is today.

Long's large manuscript map shows the Rio Grande's source west of James Peak, near the headwaters of the South Platte, with the North Platte rising just north of his "Highest Peak." West of that mountain a westerly flowing stream is shown. Pike, it is to be recalled, saw a distant stream and identified it with the Yellowstone, but Long went Pike one better. He identified the mysterious stream he had seen with the headwaters of Lewis Fork of the Columbia, thus confounding the existing confusion and leading a generation of

cartographers sorely astray. The stream was doubtless one of the sources of the Colorado, or possibly—as Dr. James thought—a headstream of the North Platte. Curiously, the error was not repeated on the published Long map, which became a much-copied analysis of the country lying toward the Rockies, though Long's views impressed many cartographers and led them to place a Lewis Fork source west of his "Highest Peak." In general, Long's map was an excellent depiction of the areas he visited, and with the map of Lewis and Clark, and to a lesser extent that of Pike, it became one of the progenitors of an entire class of maps of the American West.

Although "the Astorians" (Wilson P. Hunt, westward, and Robert Stuart, eastward) had made the second and third crossings of the continent by land in territory now within the United States, their exploits did not appear for some years on any map. Indeed, the earliest published representation of these explorations was on a map by a certain "Chev[alier] Lapie," published in Paris in 1821.[12] It was based largely on the 1814 Lewis and Clark map, and in addition to the routes of Hunt and Stuart there appears a portion of Escalante's trail. The Pike foreshortening of the area between the sources of the Arkansas, the Rio Grande, and the Bighorn is also present, but this French map—all things considered—was a notable production. Albert Gallatin and John Jacob Astor were named as sources of information by the French editor of the Astorian journals, and doubtless Lapie obtained firsthand cartographic information from similar sources.[13]

[12] *Nouvelle Annales des Voyages*, Tome XII. See Wagner-Camp 19, and Philip A. Rollins, *The Discovery of the Oregon Trail* (New York, 1935), in which the accounts of "the Astorians" are printed, along with a reproduction of Lapie's map.

[13] During the eighteen-twenties a large number of maps purporting to represent Western America appeared—many in atlases. Unless they were important base maps or introduced new knowledge they will not be mentioned in this preliminary study.

The year 1822 witnessed the publication of H. S. Tanner's monumental map of North America. In this production Tanner "fathered" a "mother map" that became a cartographic landmark. In an accompanying memoir Tanner stated that he had used in its preparation the maps of Humboldt, of Pike, and of Long, as well as "Pedro Walker's 'Map of New California'" (a Walker map not seen by the present writer), and others. Here one finds Lewis and Clark geography in the north and northwest, with Long's Lewis River heading near the sources of the Platte, Rio Grande, and Colorado. Though the Multnomah is brought back to reasonable size, from Lake Timpanogos not one, but two rivers (the Los Mongos[14] and the Timpanogos) flow to the western sea. From a Salt Lake south of Lake Timpanogos flows the Buenaventura, while farther south the R. St. Felippe flows from the same lake. All these streams cross what is in fact the Sierra Nevada, and even farther south a R. de los Martires (really the Mojave) is shown flowing to the coast not far north of San Diego.[15]

That Tanner's far western geography was not wholly accurate is a fault not fairly attributable to him, for he used his available source material with care and intelligence—and it must be recalled that it would be another third of a century before a cartographer would be able to tie up the loose ends and present a reasonably accurate map of the entire Western region.

[14] "Los Monges" (the Monks) was an early term for certain rocks rising from the sea southwest of Cap Blanco (See Wagner 473), and in at least one instance it was used for the apocryphal river. The word "Mongos" does not appear in Spanish dictionaries or encyclopaedias consulted by the writer.

[15] Tanner must have had his tongue in his cheek when he drew these magnificent rivers coursing toward the Pacific. At any rate, in the ocean west of New California is a note stating that the information respecting "the interior of New California" and respecting these rivers "was not of that authentic character which distinguished nearly all the other materials" used in constructing the map. "It is therefore very doubtful," he adds, "whether the representation afforded by it, of the courses and magnitude of those streams, should be relied on as correct." (No other cartographer seems to have been as forthright on this subject!)

On Tanner's remarkable map Long's "Highest Peak" was first given the name it bears today, "Long's Peak," and in 1825 Tanner used the southwestern portion as his Map of Mexico, from which, as will later appear, the Disturnell map of the Treaty of Guadalupe Hidalgo was derived.[16]

In 1823, José M. Narvaez, a well-known Mexican cartographer, drew a beautiful map of Mexico, Sonora, and the Californias, of which a photostat exists in the Library of Congress.[17] Had Tanner possessed a copy of this manuscript map he would have been saved many errors. Narvaez' Upper California is remarkably accurate, each mission and town being carefully shown. The route of de Anza to California appears (as does the river "del qual tuvo noticia el Padre Garcés"), and the Colorado River basin is more accurately developed than on any previous map. Only Tubson (sic) and the St. Xavier mission are shown in Arizona, but the New Mexican settlements appear in detail. In 1830 Narvaez drew an excellent map of Upper California (Wheat 6), and had his work been currently published, many aberrations of better-known mapmakers could readily have been avoided.

The second half of the decade of the twenties was not productive of many important western maps. A. Finley's North America of 1826 was said by Lieutenant Warren (*Memoir*, p. 29) to show that "no advancement had been made in accurate knowledge of the regions west of the Rocky Mountains since the explorations of Lewis and Clark," and, seeing on this map the mighty western rivers, he remarked (apparently in some surprise), "At what time and

[16] Tanner's Map of Mexico, though representing a portion of his North America, was on a slightly larger scale. That it went to five editions, with some ten separate issues between 1825 and 1847, is reported by Lawrence Martin in his *Disturnell's Map* (Washington, 1937).

[17] Henry R. Wagner has reported that the original manuscript of this Narvaez map is in a private collection in Mexico. (See Wheat 4.)

for what reason these rivers gained a place on the maps of that period I am not acquainted." There was one innovation on S. G. Goodrich's map of the United States of the same year—the term "Western or Oregon Terr." for the transmontane portion of the original Missouri Territory. The conflicting claims of the United States and Great Britain in this area gave rise later to a large number of maps.

By this time considerable pressure had developed for the opening of a route between the American settlements on the Mississippi and Santa Fe, and in 1826 authority for a survey was obtained from Mexico. It was made by Joseph C. Brown, and though his map even today remains in manuscript in the National Archives, it exerted considerable influence on later mapmakers.[18] The map shows the trail proceeding up the Arkansas River as far as Chouteau's Island, thence south to the Cimarron past Lower Spring and Middle Spring and on to Upper Spring, where it leaves that stream, crosses certain forks of the Canadian, passes the "Rabbit Ears," and continues up the main Canadian to Ocate Creek, where it crosses the mountains to a terminus at Taos. Brown made the first relatively careful survey of this trail, and while he was not a skilled topographer, his map was both understandable and influential. Even as late as 1857, Lieutenant Warren found much of Brown's material useful.

With the exception of an immense map of North America, in a large number of separate sheets, published at Brussels in 1828 by the Belgian cartographer Vandermaelen, few of the other maps of this period deserve special consideration. Vandermaelen's map is mentioned only because of its large scale, a factor which made for legibility but added nothing to

[18] Brown's field notes were published in A. B. Hulbert, *Southwest on the Turquoise Trail* (Denver, 1933) pp. 107–131, and the effort is discussed in Henry P. Beers, "Military Protection of the Santa Fe Trail to 1843," *New Mexico Historical Review*, April, 1937, pp. 113–133, at pp. 117–118.

knowledge. In 1829 Sidney Hall, though an Englishman, gave the American version of the Oregon boundary dispute, then growing increasingly acrimonious, and in 1828 the New York firm of White, Gallaher and White published a plagiarism of Tanner's Map of Mexico, with Spanish title and legends, interesting as the progenitor of Disturnell's 1846 "Mapa de los Estados Unidos de Mejico," some of the bibliocartographical facets of which will later be considered.

Three original maps closed the decade, two by Britons, the third by an American. The British maps refer to Hudson's Bay Company activities on the Snake River and the Great Basin, and were a pencil sketch of Peter Skene Ogden's expedition of 1828–29, and a manuscript sketch map by William Kittson, who was with Ogden in 1824–25. Both maps are still in the archives of the Hudson's Bay Company.[19] Had these maps, crude as they were, and had Jedediah Smith's manuscript maps become available to cartographers, much confusion in respect of the mountain country would have been avoided. The third map was that of Hall Jackson Kelley, of Boston, the so-called "prophet of Oregon." He published several pamphlets on the Oregon Country, urging it as a suitable goal of emigration, and the first of these, entitled "A Geographical Sketch of that part of North America called Oregon" contained the map in question. It was not an original production, Lewis and Clark geography being its base, but it is interesting as representing the idea of the far western country currently entertained by the man who was the most vociferous of his

[19] Kittson's map was reproduced in 1950 by the Hudson's Bay Record Society in *Ogden's Snake Country Journals*. (See Wagner-Camp 269 n; also Dale L. Morgan, *Jedediah Smith* (Indianapolis, 1953).) In David E. Miller (ed.), "Peter Skene Ogden's Journal of his Expedition to Utah, 1825," *Utah Historical Quarterly*, XX, No. 2, April, 1952, pp. 159–186, a portion of Kittson's map was reproduced. One omission was corrected in the same editor's "William Kittson's Journal" (*ibid.*, XXII, No. 2, April, 1954), which includes Ogden's southernmost penetration of the Utah country. Miller declares Kittson's map remarkably accurate.

time in urging that something be done about that magnificent territory.

A curious map was published by R. H. Laurie in England, and went to several editions. It was drawn by I. C. Crutchley, and is entitled "Fredonia or the United States of North America, including also Cabotia, or the Canadian Provinces." It is not geographically important, but a note in the Pacific Ocean is interesting. "Freedonia or Fredon," it reads, "is a name originally proposed by the Hon. Saml. L. Mitchill in 1801, and since adopted, as a broad and universal appellation, to designate the territory of the 'United States of North America.' Hence Fredonian or Frede, a native of, and Fredish, of or belonging to the same territory. Thus are obviated the vague distinctions of Anglo-Americans, or simply Americans, United States' men, &c." (We Fredes don't somehow seem very receptive to such progressive notions!)

Chapter V

Squaring the Circle
1831–1840

(With particular reference to the Maps of Jedediah Smith)

In the year 1830 the run-of-the-mill commercial map purporting to include parts of western North America was based largely on Lewis and Clark geography, with considerable reliance on Long, to a lesser degree on Pike, and usually with a slight nod to Humboldt. There would be from two to five large rivers flowing westward to the Pacific from a "Lake Timpanogos" or a "Lake Salado," directly across the area where the Sierra Nevada raises its tremendous barrier. Great Salt Lake had been discovered by Jim Bridger in 1824 or 1825, and in 1826 Jedediah Smith had found the way from that lake to southern California, also making the first crossing of the Sierra and struggling eastward across the desert to reach Salt Lake from the west. Yet it was not until the mid-forties that the true nature of the Great Basin was cartographically represented on a published map.

From the mid-twenties to the mid-thirties was the heyday of the fur trade, with scraps of knowledge constantly filtering through, as the trappers searched out the nooks and crannies of the mountain country. However, little of the trappers' information found its way onto the maps of the early thirties. Here and there some cartographer would record a new idea, as did Eleazer Huntington, of Hartford, on his 1831 Map of the United States. "Missouri Territory," wrote Huntington, "is a vast wilderness consisting chiefly of immense plains almost destitute of wood, except in the neighborhood

of streams. It is traversed by numerous herds of Buffaloes & wild Horses, and by a few roving tribes of Indians." Here was indeed a wilderness, but it was a far cry from Long's "Great American Desert," a label that still sounded good to many cartographers, particularly those who published school geographies. One gleam of new light came from across the Atlantic. A. B. Brué, the erudite French mapmaker, had died, but in 1833 his widow published a monumental map of North America which deserves more attention than it has thus far received. On the debit side, the enlarged Multnomah River of Lewis and Clark was made the outlet of Lake Timpanogos (and was labeled at one point R. Mackay, after a Hudson's Bay Company associate of Ogden). But the Sacramento was declared navigable by large vessels for fifty leagues, and on this map is a Mt. St. Joseph, Jedediah Smith's name for the Sierra Nevada. Moreover, rivers called Ashley and Adams appear southeast of lakes Timpanogos and Teguayo. These are Smith names, and Smith's term for the Green River, the "Seeds Keeder," is also used along that river, as well as along what must be the Sevier and Virgin rivers. Smith's rocksalt cave is also shown in the Sevier River country, and on this interesting map, Escalante's old River of the Sulfurous Pyramids carries the note "probablt le Seeds Keeder de Smith"—the very earliest cartographic mention of the great explorer yet found.[1]

David H. Burr, whose 1839 map will be discussed shortly, published a highly conventional map in 1833, and in the same year Humphrey Phelps, although he used similar conventional geography, added in the Oregon region: "This Vast Territory from its fertile soil, salubrious climate and

[1] Some years ago the present writer pointed out that the Brué map of 1834 carried a line purporting to show Smith's tracks to and from California. This 1833 Brué map, with its earlier textual reference to Smith was located by the writer only recently. (See Wagner-Camp 35 n.)

local situations is destined to become the Garden of America." In the plains country, however, except for roving Indians, "the Wild Horses & Buffalo remain Lordly Possessors of its unbroken solitude."[2]

Another Brué map, his Mexico of 1834, was a landmark in that it included a line south from what is meant for Great Salt Lake to San Diego labeled (in what is now Utah) "Route de Smith in 1826," and again (farther south) "Route de Smith." The line turns north from a point across certain mountains from San Diego to the R. Wimmelshe (a tributary of the San Joaquin, probably Kings River), thence east across Mt. St. Joseph, marked "8 Journées," and across the Great Basin country, where it is labeled "20 jours. Route de Smith en 1826." Whoever drew this map for the widow Brué probably lacked access to a Smith map, but he did know about Smith's descriptive letter, published in 1828 in the *Nouvelles Annales des Voyages* at Paris (see Wagner-Camp 35). From that letter, Smith's main courses could readily be deduced, but this mapmaker was hampered by inadequate basic geography on which to show this exploration. He took a step in the dark, so to speak, and while the result is not wholly satisfactory, this map must be deemed a foundation stone of western cartography because this enterprising Frenchman was willing to take this important step.

The next year witnessed the publication of a noteworthy map entitled "Map of the Western Territory, etc." showing the country of the Indian Tribes, with Brown's route to Santa Fe. It extends westward as far as the front wall of the Rockies, which is quite accurately portrayed, and it was used to illustrate Horace Everett's report entitled "Regulating

[2] The Indian Tribes are exceptionally well shown on this map, whose maker expressed his debt to Isaac McCoy for this information. (See Wagner-Camp 38, 49, and 181.) McCoy's manuscript maps of Indian locations are preserved in the National Archives.

the Indian Department."[3] Doubtless Isaac McCoy assisted in its preparation. The next year Colonel Henry Dodge took some Dragoons to the mountains and back, and two excellent maps resulted, one by Lieutenant Enoch Steen of the Company, also probably with McCoy's advice.[4]

Even more important was the map which accompanied Albert Gallatin's learned "Synopsis of the Indian Tribes."[5] It was entitled "Map of the Indian Tribes of North America about 1600 A.D. along the Atlantic; & about 1800 A.D. westwardly." Here, for the first time, Jedediah Smith's track is so portrayed as to suggest the aid of a map drawn by that explorer. Along Smith's "Inconstant River" (the Mojave) is the legend "J. S. Smith's route 1826," while a Smith's Peak rises in the Sierra Nevada. South of this, and extending to Great Salt Lake, is a line labeled "J. S. Smith's route 1827," which was the correct date, as contrasted with Brué's "1826" for this particular route. The Great Basin is called "Sandy Desert," and south of Salt Lake are Ashley Lake, Lost River, and Adams River. Brué may have preceded Gallatin by a couple of years, but here was a better—though still very sketchy—portrayal of the explorer's routes. It was new geography as far as American maps were concerned, and Gallatin's map is one of the landmarks, though, strangely enough, it was apparently unknown to Lieutenant Warren when he prepared his 1859 *Memoir*.

In that document, however, the Lieutenant commented on Henry R. Schoolcraft's remark of the thirties to the effect that in "modern times" American geography had three important problems—the location of the source of the Mis-

[3] 23rd Cong., 1st Sess., H. R. 474 (Serial 263). Wagner-Camp 49.

[4] See Wagner-Camp 63; also 59 re an 1834 Dragoon tour.

[5] Published in *Transactions* of the American Antiquarian Society, Vol. II of *Archaeologica Americana* (Cambridge, 1836).

souri and the course and termination of the Columbia, both of which Schoolcraft believed Lewis and Clark had "substantially resolved," and the discovery of the source of the Mississippi, which Schoolcraft thought he had found in Lake Itasca. Of this Warren said:

> Lewis and Clarke [sic] did probably determine the source of the Missouri . . . . Of the Columbia, however, Lewis and Clarke determined but little, and that only below the junction of Lewis's Fork. Its source, even to this day [1859] is undetermined by any accurate exploration. But if these were the *great* problems of modern American geography, surely there were more than three. The sources of the Rio Grande del Norte, of the Yellowstone, of the great Colorado of the West, might have been considered of equal importance, and the discovery since of large lakes of salt water, of large basins and long rivers with no outlets to the ocean, show that the field was not yet deprived of objects of great geographical interest. (*Memoir*, pp. 28–29.)

A long lost map, drawn by a fur hunter, Warren A. Ferris, in 1836, was recently discovered and was first published in 1940.[6] It pictured the fur trade country as it was when young Ferris traveled it as an employe of the American Fur Company from 1830 to 1835, and it was by all odds the best map of that region to its date. Since it unfortunately lay undiscovered for a full century, it had no influence on contemporary cartography. Ferris unquestionably knew the region well, and had his map been published, as he hoped and planned, it would doubtless have helped resolve many geographical anomalies. As things stand, though today only of historic interest, it has already greatly assisted students of the fur trade in their researches. It is highly detailed, names "Yellowstone Lake" (for the first time?), shows Jackson Lake correctly draining into the Snake, and (save for foreshortening in some areas) it shows the general lay-out of the upper Missouri, Green, and Columbia basins quite adequately.

[6] See W. A. Ferris, *Life in the Rocky Mountains* (Denver, 1940).

Washington Irving's tour of the prairies developed in him a great interest in the West, which led him in 1836 to publish his two-volume work, *Astoria, or anecdotes of an enterprise beyond the Rocky Mountains* (Wagner-Camp 61). The accompanying map shows the Hunt and Stuart trails, with some material on Captain B. L. E. Bonneville, and though it makes no pretense at over-all coverage, it is an excellent map of what it purports to show. Some critics have urged that Irving made some errors, but this map is another of the milestones of western cartography. It cuts the "Wellamut" to size, properly shows Great Salt Lake (labeled "Lake Bonneville"), accurately delineates the Bear River, and indicates what must have been meant for the Humboldt, as well as the large lakes east of the Sierra. Doubtless Irving picked up this information from Captain Bonneville.

The very next year (1837), Irving published his work on that officer's unsuccessful but exciting fur trade adventures, under the title *The Rocky Mountains: or, Scenes, Incidents and Adventures in the Far West* (Wagner-Camp 67). Two important maps accompanied this work. The first dealt with the sources of the great rivers and with "Lake Bonneville," and was by far the best map of the fur trade territory that had been published up to its date.[7] The second dealt with the country west of the Rockies and is another excellent map. Bonneville later wrote to Warren indicating that he had been the author of these two maps, and Warren remarked that the maps were "the first to correctly represent the hydrography of this region west of the Rocky Mountains," continuing (*Memoir*, p. 33):

Although the geographical positions are not accurate, yet the existence of the great interior basins, of Mary's or Ogden's river (named afterwards

[7] For a scholarly account of the development of knowledge respecting the geography of this general region see A. C. Veach, *Geography and Geology of a Portion of Southwestern Wyoming* (U.S. Geological Survey, Professional Paper No. 56, Washington, 1907).

Humboldt by Captain Fremont), of the Mud Lakes, and of Sevier river and lake was determined by Captain Bonneville's maps, and they proved the non-existence of the Rio Buenaventura and of other hypothetical rivers. They reduced the Willamuth or Multnomah (Willamette) river to its proper length, and fixed approximately its source, and determined the general extent and direction of the Sacramento and San Joaquin rivers. The map of the sources of the Yellowstone is still the best original one of that region.

Early in the thirties Aaron Arrowsmith published an important Atlas, in which the Map of British North America is of particular interest for its delineation of the Oregon Country.[8] South of the boundary with Mexico (i.e., in present California, Nevada, and Utah) the map is conventional, with all the errors of its period. It has certain "Swamp Lakes & Is." in the Great Basin area, into which flows a Buenaventura River, with a dotted line leading west to an unnamed Sacramento River, labeled higher on its course "R. Buenaventura N[orthern] Bra[nch]." In the Oregon area, however, the map is remarkably well executed, with many named tributaries along the Snake, and with the entire Columbia Basin better portrayed than on previous maps. Arrowsmith was profiting from the explorations of Ogden and his associates. On the east side of the "Rocky or Oregon M." crest Lewis and Clark geography is followed, with Lake Biddle still draining into the Big Horn. Farther south, Long's geography is used, with a line that must be meant for a route running from the Pawnee Village on Loup Fork of the Platte, up the Platte and its South Fork, thence west across the Rockies (here called the "White Ms.") north of Long's Peak, to an "American Fur Depot" on the eastern shore of "Youta or Gt. Salt L." Ashley's River is shown farther south, and just west are "Friendly R." and "Unknown R."

[8] The issue consulted by the present writer is that of 1834.

This Arrowsmith map is of importance because it apparently formed the basis for a number of outstanding American maps. First of these was the well-known 1838 map drawn by Captain Washington Hood of the Corps of Topographical Engineers to accompany Senator Linn's report on a Bill (Senate Bill 206, 25th Cong., 2nd Sess.) to "Authorize the President to occupy the Oregon Territory."[9] Linn, who was a direct actionist, stated that Hood's "Map of the United States Territory of Oregon West of the Rocky Mountains" (actually drawn by M. R. Stansbury) was "believed to be the most correct, and furnishes the most recent and authentic information, of any yet published." It was clearly taken from Arrowsmith's map, with a few additions and emendations of no great moment. The Oregon region is almost a direct copy, and south of it the "Swamp Lakes and Islands" of Arrowsmith are present in the Great Basin, Unknown River has Ogden's name added, while the term Lake Bonneville is used in addition to Arrowsmith's names for Great Salt Lake. The "A. Fur Co's Depot" is there, on the east side of the lake, though without any line leading to it from the east. The Sacramento River is now named, with several named eastern tributaries. Two upper branches of the "Rouge Clamet R. or Too-lo-nez or McLeods R"[10] are called respectively the "Nasty R." and the "Shasty R." words that serve to identify the source of several later maps. There is a slight nomenclature change at the mouth of the Columbia, but generally speaking Hood's Oregon is a copy of Arrowsmith (with no credit given), it being apparent that Hood had either not seen, or else had

[9] See 25th Cong., 2nd Sess., Senate Doc. 470, Serial 318 (1837–38); also 25th Cong., 3rd Sess., House Rept. 101 (1839), a report by Caleb Cushing, and 27th Cong., 2nd Sess., House Rept. 830, Serial 410 (1842). This map, with a few minor changes, also illustrated Wyndam Robertson, *Oregon, our Right and Title* (Washington, 1846).

[10] The Klamath. Arrowsmith did not use the word "Rouge." Could it have meant the "Rogue"?

wholly ignored, both the Gallatin and the Bonneville maps. Hood did, however, carry the 1818 northern boundary of the United States west along the 49th parallel from the Rockies to the ocean, taking in a small southern tip of Vancouver Island (called on both maps "Wakish Nation"). Arrowsmith had ended that boundary at the crest of the Rockies, with the apparent intent of showing all of Oregon as British territory.[11]

Samuel Parker's 1838 Map of Oregon Territory was made from personal observation and represented an important advance (see Wagner-Camp 70). Though South Pass is not named, the various streams of the pass area are correctly shown. Lake Biddle (or Riddle) is absent, and west of the crest of the Rockies is Jackson's Lake, draining into Henry's Fork of the Snake. West of Salt Lake is Ogden's River. Much could be said of Parker's map, which had wide circulation and was a notable achievement.

Another excellent map was that of 1839 which accompanied Prince Maximilian of Wied's account of his travels in North America (Wagner-Camp 76). It extends west only to the Rockies, but its Missouri River is well drawn and it carefully locates many Indian Tribes. Though it contained nothing new, Prince Maximilian's map was beautifully en-

[11] In 1837 Hood had drawn two slightly different maps to illustrate plans for "the defenses of the Western and Northwestern Frontier," one as proposed by Charles Gratiot and the other as proposed by J. R. Poinsett, Secretary of War. (See 25th Cong., 2nd Sess., Senate Doc. 65.)

In 1839 Hood prepared a map (still in manuscript at the National Archives) "Exhibiting the practicable passes of the Rocky Mountains," from information furnished by some of the fur traders. Warren later noted that, despite a few errors, this map quite accurately showed the mountain country. Hood recommended a road from the sources of the "Big Shyenne" through the Black Hills, thence north of the Big Horn Mountains to the Yellowstone and over the mountains to Three Forks of the Missouri, up the Jefferson and Beaverhead, and finally over the crest to the sources of the Bitterroot. Of this, Warren noted that, even in 1859, the area between the Black Hills and the Yellowstone River had not yet been explored. Two other possible routes across the mountains are also shown by Hood, who died in 1840, shortly after this map was completed.

graved and was—for the area covered—a highly creditable production.

In view of his remarkable 1839 performance—soon to be considered—David H. Burr's map drawn to illustrate Robert Greenhow's 1840 *Memoir on the North West Coast* (26th Cong., 1st Sess., Sen. Doc. 174) is a wholly inexplicable throwback. On it are Arrowsmith's "Swamp Lakes and Islands" with the Sacramento River flowing from them, but there is a great east-west mountain range called the "Snowy Mountains" extending from Smith's River, on the coast, to Great Salt Lake. Perhaps Burr actually drew this map before he prepared the one dated 1839. At any rate, his "Snowy Mountains" appear on a manuscript map by Hall J. Kelley (now preserved at the Department of State), sent to Secretary Poinsett by Kelley on June 12, 1839. Aside from this item, Kelley's map is highly original, resulting from a trip he made from Monterey to the Oregon Country. Following a currently popular movement, he called most of the Cascade peaks after American Presidents, and he named the main northern branch of the Sacramento "Kelley's R." Many of the Sacramento's other branches are also named, but since this map was not published at the time, these names have failed to survive. With all its faults and crudities, this map is of uncommon human interest, and Wagner-Camp (Item 47 note) suggest that Kelley's association with the well-known fur trapper Ewing Young may have been responsible for some of his quaint placenames.

The decade of the thirties closed with a map by F. A. Wislizenus of St. Louis, an obvious simplification of Hood's 1838 map and of a portion of one of Bonneville's maps, with a few additions possibly adapted from Parker. About the only original item on it is an indication on the Green River of the "fur trappers' rendezvous," a gathering its author attended. His little book, *Ein Ausflug nach den Felsen-*

Gebirgen im Jahre 1839 (Wagner-Camp 83) is today a considerable rarity, but the map it contained has little to commend it, save as a curiosity.[12]

The Maps of Jedediah Smith

Before discussing the maps of the forties, the puzzling problem of Jedediah Smith's maps should be considered. In addition to a sketch given to Father Sanchez at San Gabriel Mission in 1826 and another sketch made the day he arrived at Fort Vancouver in 1828, Smith seems to have drawn at least two rather comprehensive maps. One of these was probably sent by him to General William H. Ashley in 1827, and it seems to have been available to David H. Burr when he drew his 1839 Map of the United States. The other, it was thought until recently, might have been drawn by Smith while sojourning at Fort Vancouver in 1828–29, after his debacle on the Umpqua.

Burr's 1839 map was an important achievement, and its western area, especially the Great Basin and Oregon, owes much to Jedediah Smith. The Oregon of Burr differs markedly from that of Arrowsmith and Hood, and on the Owyhee River Burr shows the "Route of Ogden & McKay of the Hudson Bay Co. 1826" (probably Smith information). East of the Rockies the "Wagon Road to Santa Fe" is well shown leading up the Arkansas, across to the "Cimarone," thence across the Canadian River and on to Santa Fe. Much Long and some Dodge geography is here used, and the New Mexico settlements are carefully shown. Farther north, a "Rendezvous" appears on Wind River, with Soublett (for Sublette) Lake on the east and Jackson Lake on the west of a mountain range labeled "Eternal Snows,"

[12] An English translation of the book, with a reproduction of the map, was published by the Missouri Historical Society in 1912.

south of which "Wm. H. Ashley's Route" is shown crossing the mountains. Certain legends should be noted in connection with another map that will shortly be mentioned. They are:

At the crest of the Rockies, north of the head of Jefferson River:

> Black feet, Blood, Pagan, Little Robe & Grosventres of the Prairie Indians are known under the general name of Black Feet Inds.

Northwest of Taos and east of James' and Pike's peaks:

> Of this Country the little that is known is learned from the Trappers of Santa Fe. They represent the Country from the Colorado to the Sources of the Arkansas & Platte as very Mountainous and the Vallies narrow.

In the northern Great Basin, west of Great Salt Lake and south of an over-extended Bridges (sic) Fork of Lewis River (the name Snake does not appear):

> This Country is extremely Rocky and Rough, the River running through Cliff Rocks.

Farther south in the Great Basin:

> Great Sandy Plain Some Isolated Mountains rise from this Plain of Sand to the regions of Perpetual snow, the small streams that flow from these are soon absorbed in the Sand. It contains a few miserable Indians, and but little Game.

The problem of what happened to the Smith map that Burr undoubtedly consulted when he drew the western country has not been resolved. But there must have been another Smith map. It had been thought by some investigators that it was drawn by Smith at Fort Vancouver; that about 1850 it was purchased by some American Army and Navy officers, and that it was taken or sent by them to Washington, where it apparently disappeared. In fact, George Gibbs, a well-known early Oregon resident and ethnologist, had been quoted as authority for the existence

of the map in Oregon in 1849 or 1850 and its purchase by the officers.[13]

One morning in late November, 1953, the present writer was examining some maps in the files of the American Geographical Society of New York. While turning them over and selecting a few for photostating in connection with this study, he came upon a copy of Fremont's well-known 1845 map of his first and second expeditions. That map was an important cartographic milestone, and will be considered later at some length, but it is not a rare map, and the writer already possessed several copies. On the copy in question was a notation initialed by a former curator of the Society's map collection to the effect that this must be the earliest edition since it bore no imprint of the printer. About to pass to other maps, the writer casually noted some pen notations and many faint pencil markings on other parts of the map, the first of which turned out to be:

> J. S. Smith's route across the great sand plain in the year 1826.

along a dashed line extending from the Sierra Nevada to the southern shore of Great Salt Lake. Also, near an inked-in Colorado River, was the legend "Course of the Colorado according to J. S. Smith's map," and a note:

> At this place ten men were killed by the Amuchaba Indians while we were in the act of crossing the river. *J. S. Smith.*

Mindful of the Burr map and its notations, the Missouri headwaters were next scanned. There, next to Philanthropy River, was:

[13] In Gibbs' Journal of the 1851 tour of Colonel Redick M'Kee, U.S. Indian Agent, through northwestern California, Gibbs mentions a Jedediah Smith map frequently, showing intimate acquaintance with many of its details. In his entry for Sept. 29, 1851, he says "Smith's map, it is believed, was recently purchased in Oregon by the Joint Commission of Army and Navy officers, and is probably now in Washington." Henry R. Schoolcraft, *Archives of Aboriginal Knowledge* (Philadelphia, 1860), originally published as *Information respecting the History Condition and Prospects of the Indian Tribes of the United States* (Philadelphia, 1853), III, 135. Gibbs' Journal of the M'Kee expedition is an unusually well-written document, and his excellent manuscript map of northwestern California is preserved in the National Archives.

> Black feet, Blood indians, Pagans, Little Robe indians & Gros Ventres of the prairie are known under the general name of Blackfeet. 5000 warriors or 2500 lodges.

Near "Bridger's fork," in the Great Basin, were the words:

> This country is extremely rocky & rough the rivers running through clift rocks. *Smith.*

Farther south was the legend:

> This plain is a waste of sand with a few detached mountains some of which rise to the region of perpetual snow from which flow some streams that are soon lost in the sands. A solitary antelope or black tailed deer may sometimes be seen but extremely wild, and in some parts the black tailed hare, a few Indians are scattered over the plain, the most miserable objects in creation. *Smith.*

And west of the "Navahoe's Country," was the note:

> Of this country little is known except what is learned from the trappers of Santa Fe. They say that from the Colorado to the sources of the Arkansas and Platte, the country is very mountainous and the value small. *Smith.*

Finally, the word "Gibbs" signed to another note drew attention to the words:

> Adams River is evidently the Virgin of Fremont but is placed a degree too high. As I have retained all his latitudes & longitudes in this section, the course is therefore given as on his map. The topography it will be seen in some such places duplicated. *Gibbs.*

George Gibbs could have been referring to nothing other than a Jedediah Smith map. Here, then was a Fremont 1845 map on which Gibbs—himself a noted early western cartographer[14]—had placed data from a map of Jedediah Smith. Further examination revealed numerous other references to Smith, with the explorer's routes carefully indicated. The similarity between the various notations showed that, though probably not the same map, this Smith

[14] Not to be confused with Charles Drayton Gibbes, who drew several important gold-rush maps in California, and was for many years curator of minerology at the California Academy of Sciences in San Francisco. (See Carl I. Wheat, "The Maps of the California Gold Region, 1848–1857" (San Francisco, 1942) item 157 note.)

map and that consulted (and in part copied) by Burr must have had a common source. Gibbs put much other material on his copy of the Fremont map, some of it from a later (1848) Fremont map, some from other sources, including his own route west in 1849, but his chief source was unquestionably Jedediah Smith.

But the question of precisely where and when Gibbs saw Smith's map was not resolved.[15] In 1849 he had headed for California, and at Fort Leavenworth had made connection with the Regiment of Mounted Riflemen with which he traveled to Oregon, making many drawings en route. For three years he resided in Oregon Territory, with a lengthy trip to California in 1851,[16] but in 1852 he moved to Fort Steilacoom, Washington Territory, where he assisted in railroad surveys and continued his studies of Indians and their languages. He also worked on Governor Isaac I. Stevens' northern Pacific railroad survey of 1853–54, and acted as astronomer and ethnologist on the northwest boundary commission expedition of 1857.[17] He returned to New York in 1860, living after the Civil War in New Haven, Connecticut, where he died in 1873.

Obviously, if there was a Jedediah Smith map at Fort Vancouver, or elsewhere in Oregon, Gibbs could have seen

[15] George Gibbs was born in 1815, graduated in 1838 from Harvard, practised law in New York and published in 1846 *The Memoirs of the Administration of Washington and Adams*. He was a great-great-grandson of Roger Wolcott of Connecticut colonial fame. His great-grandfather, Oliver Wolcott, was a Signer of the Declaration of Independence and a Major General in the Revolution. His grandfather, also Oliver Wolcott, became Secretary of the Treasury in 1795, and was later Governor of Connecticut. His father, another George Gibbs, accumulated the largest mineral collection in the country, which he sold to Yale University.

[16] On this trip, as already noted, he accompanied the expedition of Colonel Redick M'Kee, U.S. Indian Agent, into northwestern California, as a result of which he drew the important map of the north coastal and mountain region, the original of which is now in the National Archives. His Journal (*op. cit.*, p. 177) discloses that, after reaching Humboldt Bay, he took ship to Oregon and then back to San Francisco.

[17] Gibbs wrote several articles on western Indians and their ethnology, all but one published by the Smithsonian Institution.

it at any time between 1849 and 1851. However, the fact that the Fremont-Gibbs-Smith map at the American Geographical Society contains Smith data down to a period more than two years after Smith left Fort Vancouver for the Rocky Mountains, never to return, offers at least some evidence that the Smith map seen by Gibbs may have been elsewhere.[18] There seems to be no record of any Smith map having been in Oregon, other than the map Gibbs mentions in his 1851 Journal, nor is there any record of how, when, or from whom the remarkable Fremont-Gibbs-Smith map came into the collection where it is now preserved. Accordingly, without attempting to make further assumptions, it may be well to let the matter rest by saying that at some time after 1848 George Gibbs drew on a Fremont map published in 1845 certain information which he took from a manuscript map by Jedediah Smith that has not yet been located.

Dale L. Morgan, who recently (1953) published a scholarly life of Smith, has carefully examined this document, and has offered an interesting commentary on Jedediah Smith's map "as we may glimpse it through the two cracked mirrors of the Gibbs and Burr maps." The map, he feels, has a double significance today—"what it reveals of Smith's itineraries in the West; and, more generally, what it shows in the way of advancing knowledge of the West down to the time Smith left the mountains in 1830."

Mr. Morgan points out that, in accepting Fremont's superior geography, Gibbs in some areas had difficulty in fitting in Smith's material—as where he drew a second

[18] Dale L. Morgan, the biographer of Smith, believes that Gibbs saw Jedediah Smith's map in Oregon sometime in 1851, basing this conclusion on the Gibbs Journal, already cited. However, if the map from which Gibbs drew his Smith material onto Fremont's map was, in fact, in Oregon in 1851, it had either been drawn as late as 1830 and sent out to Fort Vancouver or elsewhere, or someone had added later material to an earlier Smith map, or else Gibbs obtained the later Smith material from some other map or informant—no one of which situations seems entirely probable.

Colorado River in order to preserve Smith's topography. Of primary importance, however, is what Smith's map disclosed respecting the geography of the upper Missouri and its tributaries, the White, Yellowstone, and Big Horn rivers. Farther south, Smith is suggested as the first to locate on a map Scotts Bluff, Chimney Rock, Laramie Peak, and the eastern and western limits of the buffalo. Farther west, he was undoubtedly the first to show the proper character of Jackson Lake, and his map was the first to disclose the essential features of the Great Basin, with its internal drainage. Moreover, Smith apparently showed correctly the Bear, Weber, and (unnamed) Jordan rivers as the principal affluents of Great Salt Lake, and he showed islands in the lake and gave it a more correct shape than had earlier cartographers. Farther south, the course of Sevier River and the location of Sevier Lake are correctly shown, with Beaver River indicated (somewhat incorrectly) as Lost River. The Virgin and the lower Colorado, as drawn by Smith, add much to the earlier data of Escalante, and the Inconstant (Mojave) River adds to that derived from Garcés.

What Smith thought of the interior valley of California is best taken from Burr's map, since Gibbs accepted the later Fremont geography. The Willamette Valley, on the other hand, is much more correctly shown by Gibbs than by Burr, and Smith was doubtless the first to draw Ogden's and McKay's explorations on a map (their earliest *published* cartographic recognition seems to have been on Arrowsmith's 1834 map, already mentioned). Mr. Morgan concludes that

> Overall, this Smith map constituted a remarkable geographic advance. Had Smith lived to publish it, say in 1832, backed by a book describing his travels, it would probably stand today as a landmark in American cartography. For the first time someone had come to grips with the

most complicated drainage area of this nation, the entwined watersheds of the Platte, Yellowstone, Missouri, Green, Colorado, Snake and Great Basin, had disentangled them, and had set forth their major features as they exist in fact. Smith dealt with the central area, the point of merger for the Lewis and Clark, Long, Pike, de Miera and Garcés maps where error had been most prevalent, and he straightened them all out.

Jedediah Smith clarified the problem of the Great Basin (to which Fremont later affixed the name), and he showed the essential nature of the Interior Valley of California and the Sierra Nevada. There are some to-be-expected errors of geographic positioning, for Smith was not supplied with adequate instruments, but, as Mr. Morgan writes, "in its general features this map was eminently correct, more so than any map previously constructed, and more so than any that would be constructed for another fifteen years." Moreover, the Fremont-Gibbs-Smith map is of extraordinary importance—far more so than Burr's map—for what it shows of Jedediah Smith's early travels in the West. The fact is that, with only a few relatively minor exceptions, all of Smith's travels from the time he entered the fur trade in 1822 are shown on this map—sometimes clumsily, sometimes puzzlingly, but nevertheless shown—down to the very last weeks of his life, just before he left on his final expedition to the Southwest. It is not too much to say that had this map and the Jedediah Smith *Journals* been published in the eighteen-thirties, they would have given him a stature in American exploration comparable to that of Lewis and Clark.[19]

[19] Mr. Morgan and the present writer are at present collaborating on a study of the Fremont-Gibbs-Smith map, which the California Historical Society plans to publish in facsimile, along with pertinent sections of the Burr, Gallatin, Wilkes, and Brué maps.

Chapter VI

The Decade of the Forties

To deal with the maps of the American West produced in the eighteen-forties in a single chapter of even a preliminary effort such as this means that many maps must go unmentioned, while others—many worthy of detailed study—can be given only brief notice. For the forties were years of great and increasing activity in the West—activity fully reflected on the contemporary maps. Though the fur trade had waned, the Santa Fe trade increased and the human surge to Oregon began. The reports—and the maps—of Fremont's expeditions led to wide public interest in the entire area, and did much for better understanding of the West in general. The Mexican War (1846–1848) demanded a great deal from the cartographers, and the discovery of gold at Sutter's Mill on January 24, 1848, led to a feverish popular demand for maps of the diggings and the routes to reach them. A blotch of yellow color at the end of the trail and the magic words "Gold Region" were enough to sell any map, no matter how geographically deficient.

Probably early in 1841, Josiah Gregg, soon to become the chief chronicler of the Santa Fe trade, contributed a sketch of his routes of 1839 and 1840 which became the basis for a manuscript map, now in the National Archives, stated to have been "drawn for Col. John Garland."[1] Here is the

[1] It is entitled "Map of the Prairies, with parts of the Adjoining Frontier of the United States & Mexico." This map was reproduced in *Dairy & Letters of Josiah Gregg Southwestern Enterprises 1840–1847* (Norman, Univ. of Okla. Press, 1941), opp. p. 94. It is stated on this reproduction that "This copy carries suggestions of being Gregg's handiwork, although it possibly was made by Lieutenant Henry D. Wallen, Fourth Infantry, whose signature is in the lower right corner of the original" (then in the files of the War Department, Engineering Corps). On the original map, in the title cartouche, are the words "Copy from Mr. Gregg's Sketch of his route 184 [last digit illegible]."

trail to Santa Fe carefully laid down by one who knew it well, including both the Cimarron route surveyed by Brown in 1827 and the road by way of Bent's Fort on the Arkansas. A route from Fort Smith up the Canadian is also shown, and this map and that of Brown—also in manuscript—were the earliest cartographic portrayals of the legendary "caravan route" to Santa Fe.

By far the majority of commercial maps of the West during the early eighteen-forties were of dubious geographic legitimacy. The cartographers should not be blamed, however, since they still had little to go on except Lewis and Clark, Pike, Long, and Humboldt. Few seem to have heard of Gallatin's little map, and few took cognizance of Bonneville's contributions, while Burr's 1839 map was largely ignored. Thus, even that "cracked mirror" reflection of Jedediah Smith's exploits failed to influence most maps of the period.

Two maps dated 1841, but not published until 1844, do, however, evidence a knowledge of the particular Smith map that was reflected by Gibbs, or of a similar map probably drawn by Smith. They were included in Commodore Charles Wilkes' report of his "U. S. Exploring Expedition," one being of Oregon Territory and the other of Upper California. In the former, the Great Basin is shown with Smith's "Cliff" (or "clift" or "cleft") rock legend, as well as "Ogden's or Unknown R.," and it is apparent that either Hood's or Arrowsmith's maps of the Oregon Territory were also known to whoever drew this map. The other map has on it Mt. St. Joseph, and Ashley, Adams, and Inconstant rivers, with "Smith's Track" across a "Great Sandy Plain" from a point east of the Sierra Nevada to a point near a Mt. Smith, and on to Youta Lake, with the precise wording of the longer Smith Great Basin legend as shown by Gibbs, omitting one sentence. Wilkes' map also

carries a Smith legend about the streams possibly being lost in the sand or perhaps flowing around Mount Joseph into the Buenaventura, with the clause (used by Smith) "but either of these conjectures may be erroneous." It seems necessary to conclude that the author of this map either saw the Smith map used by Gibbs or some other Smith map on which these precise legends appeared. Could Wilkes or his cartographer have seen such a map at Fort Vancouver? Or was the map from which Gibbs drew his Jedediah Smith material already in Washington in 1841–44, and was it there consulted by Wilkes? And—if so—did Gibbs see it before he headed west in 1849 or in Washington after 1860, instead of in 1850 or 1851 as has been conjectured? These are interesting questions the resolution of which must await further study.

In 1842 the cerographic (wax) method of printing maps was invented, presumably by Sidney E. Morse, who with Samuel Breese published a number of undistinguished western maps, mostly based on traditional geography. On them, in the Great Basin area, one finds the Swamps and Lakes of Arrowsmith and Hood, while a R. Astley flows into an unnamed lake. The Chapman and Hall map of Central America, London 1842, also has "R. Astley," and there are references on that map to Escalante, Garcés, and Font material, along with Humboldt's early residences of the Aztecs.

A young Lieutenant of the Topographical Engineers, John Charles Fremont, assisted the old master, J. N. Nicollet, on the latter's field trip to the upper Missouri country in 1839 (Wagner-Camp 98 note), and by 1842 was ready to head his own expedition. Fremont was no "pathfinder," but he did travel extensively in the west, and he had the good fortune on two of his expeditions to have with him a cartographer of unusual ability, by name Charles Preuss.

The reports of Fremont's expeditions were interestingly written and enjoyed wide popular esteem, and their maps—by Preuss—were landmark maps.

Fremont's earliest report had to do with an 1842 trip up the Platte and the Sweetwater, across South Pass and into the Wind River Mountains, the next-to-highest peak of which Fremont climbed (it still bears his name).[2] The accompanying map shows the region traversed west of the mouth of the South Platte, Preuss taking care not to include areas he or Fremont had not themselves examined.

Fremont's second expedition (in 1843 and 1844) was much more ambitious, and its cartographic results correspondingly more important. The report was published in 1845 and at once attained even greater popularity than had his 1843 report, data of which was included in the 1845 document.[3] The large map drawn by Preuss to illustrate this report was a monument of western cartography, and, again, it was "strictly confined to what was seen and to what was necessary to show the face and character of the country."[4] Lieutenant Warren, in 1859 (*Memoir*, p. 45), declared that the skill of Preuss "in sketching topography in the field and in representing it on the map has probably never been surpassed in this country," and he added that this map "in most respects may serve as a model."

This was the map used by George Gibbs as the base on which to display the material he took from Jedediah Smith's

[2] The report was entitled *A Report on an Expedition of the Country Lying between the Missouri River and the Rocky Mountains on the Line of the Kansas and Great Platte Rivers* (Washington, 1843, Wagner-Camp 95).

[3] 28th Cong., 2nd Sess., Senate Ex. Doc. 174 (Serial 461), and House Doc. 166 (Serial 467). The report was reprinted several times (See Wagner-Camp 115). It was entitled "Report of the Exploring Expedition to the Rocky Mountains in 1842, and to Oregon and North California in the years 1843–44 by Brevet Captain J. C. Fremont, Washington, 1845."

[4] It was entitled "Map of the Exploring Expedition to the Rocky Mountains in the year 1842 and to Oregon and California in the years 1843–4 by Capt. J. C. Fremont." (See Wheat 21.)

map. Since the expedition made a wide circle going into the west by a northern route and returning by a much more southerly one, the map contains large areas of white paper, highly useful for Gibbs' purposes. It is noteworthy as the first published map on which the nature and extent of the Great Basin was clearly displayed. Near St. Vrain's Fort (north of present-day Denver), New Park, Old Park and Bayou Salade (South Park) appear, south of the Black Hills. Up the Platte and the Sweetwater and across South Pass this map was detailed—and became a much used guide for later emigrants. Bear River is carefully shown, as is Great Salt Lake, on which Fremont used an inflatable rubber boat. Northwesterly, the party's trail goes over to the Snake at Fort Hall, thence to Fort Boise and on to Fort Walahwalah on the Columbia and down that stream to the Dalles. Here Fremont turned south[5] and ascended Fall River (the present Deschutes) to Tlamath (Klamath) Lake, thence past what he termed Summer, Abert, and Christmas lakes and the sources of the Pit River, and south to Pyramid Lake, up the Salmon Trout River (the Truckee), across the Sierra Nevada south of Lake Tahoe (which is shown but not named) and down the American River to Sutter's Fort. The lower courses of the Sacramento and San Joaquin rivers and the shorelines of San Francisco Bay are better drawn on this than on any preceding maps, and Fremont—who inexplicably had sought the mythical Buenaventura River on his southerly course—disposes of that legend by using the name on what is now the Salinas, near Monterey, as had others before him.

From Sutter's Fort the party ascended the San Joaquin, crossed the Tehachapi Mountains and the southern Mojave

[5] The lower Columbia had been surveyed by the Wilkes' expedition, and Fremont wished to connect up his surveys with those of Wilkes. Having accomplished this, he was now free to examine the cartographically unknown areas lying to the south.

Desert, and reached the "Old Spanish Trail" just north of Cajon Pass. This trail led Fremont down the Mojave River and thence northeasterly to Vegas (now Las Vegas, Nevada). He continued northeast, to and up the Virgin River and then north to the Sevier River, here better shown than on previous maps, finally reaching Utah Lake, having almost completely circled the Great Basin. Henceforth, no cartographer could reasonably fail—though some did—to show that curious physiographic feature with reasonable correctness, and Fremont's legend was copied on many maps:

> *The Great Basin:* diameter 11° of latitude, 10° of longitude: elevation above the sea between 4 and 5000 feet: surrounded by lofty mountains: contents almost unknown, but believed to be filled with rivers and lakes which have no communication with the sea, deserts and oases which have never been explored, and savage tribes which no traveler has seen or described.

The route continued up Spanish Fork, on to Fort Uintah and to Brown's Hole on the Green, thence east to the three "Parks," down the Arkansas past Pike's Peak to Bent's Fort, and finally by the Smoky Hill Fork of the Kansas River to Westport. The map that Preuss drew of this expedition altered the entire course of western cartography, and formed a solid foundation for such later maps as pretended to reflect actual conditions. After its publication there remained little excuse for not correctly representing at least the skeletal features of western geography.

Before considering later maps, brief mention should be made of certain maps that just preceded Fremont's 1845 report. Captain Washington Hood's 1838 Map of Oregon Territory was used to illustrate Nathaniel Pendleton's 1843 report on Military Posts from Council Bluffs to the Pacific (Wagner-Camp 100), and in the same year, 1843, Edward Hutawa of St. Louis published a direct plagiarism of that map, even to that charming pair, the "Nasty" and the

"Shasty" rivers, which Hood had himself copied from Arrowsmith. Between 1842 and 1845 Sidney E. Morse and Samuel Breese published an Atlas of the United States with cerographic maps of Mexico, the Indian Territory, and Oregon. J. Calvin Smith, a prolific mapmaker, drew an immense map of the United States in 1843, with an inset of North America, displaying the traditional western geography. The next year Robert Greenhow published a large map to illustrate his *History of Oregon and California*, with a bit of Fremont's cartography.

However, a much more noteworthy 1844 map was that of Eugene Duflot de Mofras, which had wide circulation in Europe. It was entitled "Carte de la Côte de l'Amérique sur l'océan Pacifique" and was in part based on Long and on Lewis and Clark material (see Wheat 19). De Mofras represented the French Government and was an astute observer. He was much interested in travel routes, and while his work was published too early for him to benefit from Fremont's second expedition, he showed the "Old Spanish Trail" between New Mexico and southern California, and the "Route des Chariots des Etats-Unis" east of Santa Fe, together with Escalante's route and a badly misplaced emigrant route to California. In Oregon appears the "Route des Wagons des Etats-Unis au Ouallamet," and along the Snake the "Route par eau des Etats-Unis au Rio Colombia," while up the Platte, across the mountains south of South Pass and on to "Lac Salé, Youta ou Timpanogos" is the "Route des Caravanes de la Cie. des fourrures de St. Louis," reminiscent of Ashley and of Arrowsmith's map. De Mofras even has a short line in the Utah country labeled "le Cape. Smith en 1828."

Had this Frenchman been a modern California "realtor" he could not more strongly have praised California's climate, and while he did mention a "Grand Désert Américain

Immenses. Plaines Sablonneuses" in the Great Basin, he doubtless gave heart to those who in 1844 viewed his excellent map when he inserted the words near the Gila River: "Terrains ou l'or vierge se trouve en abondance et en morceaux pesant jusqu' à dix Kilograms."

In 1844, also, there appeared the basic account of the Santa Fe Trade, Josiah Gregg's *Commerce of the Prairies* (Wagner-Camp, 108), the first edition of which contained a cerographic map of first importance, entitled "A Map of the Indian Territory Northern Texas and New Mexico showing the Great Western Prairies by Josiah Gregg." It is reminiscent of the 1841 map, already mentioned, made for Colonel Garland, and on it appear the routes of "the Santa Fe Caravans" with both branches of the Santa Fe Trail (Brown's 1826–27 material being carefully used), the New Mexican settlements, Gregg's route in 1840, the 1841 track of the Texas Santa Fe expedition,[6] and numerous other items of first importance. Gregg's map, when combined with Fremont's, afforded much solid ground which the contemporary cartographers might safely tread.

Another important contribution came from an indefatigable Jesuit missionary, Father Pierre-Jean de Smet. This Belgian priest commenced his long series of maps with that in his *Voyages aux Montagnes Rocheuses*, published in Malines in 1844—largely a copy of Hood and Wilkes with a dash of Fremont, and that delightful pair, the Nasty and the Shasty (Wagner-Camp 102). The convent of the Sisters of Notre Dame appears on the Willamette, and the map shows de Smet's own route up the Platte, over South Pass, across country to Bear River and on to Fort Hall, up the

[6] George Wilkins Kendall's 1844 work, the *Narrative of the Texan Santa Fe Expedition* contains a map, otherwise unimportant, showing the Chihuahua Trail from Fulton, Texas, the route of the ill-fated Santa Fe expedition, and Gregg's route from Van Buren to Santa Fe in 1839.

Snake and Henry's Fork and (curiously) back over the crest of the Rockies to Jefferson river by way of a "Passe du Père de Smet," thence westward once more over the crest to the Bitterroot, and down it to Clark's Fork, where two routes are shown, one to Fort Colville and down the Columbia, the other across country to the Eglise du Sacré Coeur de Jesus, near Coeur d'Aléne Lake, and southwest to Fort Nezperces.[7]

During de Smet's long career in the northwest he traveled almost everywhere, and his maps, some still in manuscript, are of no little historic importance. In contrast to these carefully drawn maps, the woodcut map that the Protestant missionaries, Daniel Lee and Joseph D. Frost, included in their 1844 book *Ten years in Oregon* (Wagner-Camp 111) was a crude affair with little to commend it, accentuating religious establishments and representing quite a comedown from the excellent map drawn by that other Protestant, Samuel Parker, some years earlier.

It was at this period that the argument in respect of Oregon's boundaries was becoming more and more heated, and several maps were published by the respective protagonists of Great Britain and the United States, none of them offering much by way of advances in cartography or geography. Farther south, Texas was also the subject of debate, and in 1844 Lieutenant W. H. Emory, of the Topographical Engineers, drew for the State Department a map of "Texas and the Country Adjacent," showing its western boundary as the Rio Grande to its source. It has much of Gregg's material, plus certain data from an 1841 Arrowsmith map

[7] In the library of the Society of California Pioneers at San Francisco is a small undated pamphlet of letters by de Smet and a Father Vercruysse, another Belgian missionary, printed in Ghent and referring to events in Oregon in 1844. In it is a small map called "Amérique Septentrionale," extending only from Ft. Nezperces on the east to the Océan Boréal on the west. It is an exact copy of a portion of the larger map, just described, published the same year in Malines.

of Texas.[8] In the north some of Fremont's information was also used, while advice from Ceran St. Vrain is specifically referred to. The map is a celebrated one, but all that Lieutenant Warren could think to say about it in 1859 was that it showed that the existence of the basins and lakes of the Great Basin was by 1844 "admitted as an established fact in the Topographical Bureau (*Memoir* 43)."

In addition to Fremont's remarkable 1845 map, that year witnessed the publication of a map of Colonel S. W. Kearney's dragoon expedition to South Pass, drawn by Lieutenant W. B. Franklin of the Topographical Engineers (see Wagner-Camp 117). The route also led down the east face of the Rockies past Pike's Peak, thence down the Arkansas River and across country to Fort Leavenworth. Franklin's map contains an interesting item west of Long's Peak—a dotted line labeled "Grand River," with the Green's headwaters shown near South Pass, and with a dotted course continuing farther south. (The headwaters of the Colorado were still a mystery!)

A monumental map of the Republica Mexicana was engraved in 1845 by B. R. Davies of London for General Pedro Garcia Conde, Mexican Minister of War, "from the original survey made by order of the Mexican government." In the north it is based largely on Humboldt and de Miera, and it displays much of the conventional geography that preceded Fremont's discoveries respecting the Great Basin. Of interest is the Rio Smith north of "Port St. Fernando" (San Francisco). Possibly Conde was a good general, but this map does him no honor. About all that can be said of

[8] This Emory map copies, east of New Mexico, an Arrowsmith legend: "This tract of Country explored by La Grand in 1833 is naturally fertile well wooded and with a fair proportion of water." Emory uses this language prefixed by "According to Arrowsmith." Alexander Le Grand was a Santa Fe trader who was said to have surveyed certain western Texas areas, though it is not now considered certain that he actually did so. (See William Kennedy, *Texas* (1841) and *Handbook of Texas* (Austin, Tex., 1952), II, 47.)

it, for areas now within the United States, is that it was beautifully engraved. There is a copy in the Library of Congress.

A much more interesting map for present purposes was the "Map of the Californias" " in Thomas J. Farnham's *Travels in the Californias, and Scenes in the Pacific Ocean.*[9] Farnham had gone overland to Oregon in 1839–40 and later visited California by sea. He claimed to have talked with Ewing Young, the celebrated trapper, and with a Dr. Lyman of Buffalo, and to have used data from them on his map, which is otherwise of the familiar Timpanogos River type. An overland route is shown proceeding across "Farnham's Pass" in the Rockies, thence by way of Brown's Hole to Lake "Timpanigos," down Mary's River (the Humboldt), and over the Sierra by a "low gap" (possibly Walker Pass). "Dr. Lyman's" route from Santa Fe to Los Angeles also appears, and far to the north is a hint of Fremont geography.

The Mexican War Period

The outbreak of the Mexican War in 1846 was followed by widespread demand for maps. During 1845 Lieutenants J. W. Abert and W. G. Peck, of the Topographical Engineers, had traveled through the Comanche country and the upper Arkansas River area and their 1846 "Map showing the route pursued by the Exploring Expedition to New Mexico and the southern Rocky Mountains" reflected the first accurate astronomical observations in much of the area covered.[10] The original draft, preserved in the National Archives, includes areas north of their route, copied from Fremont's map of 1845. As printed, however, the map includes only the southern portion of this manuscript draft,

[9] Included in Farnham's *Travels in the Californias* (New York, 1844). The map itself is dated 1845. See Wagner-Camp 107 and Wheat 20.

[10] 29 Cong., 1st Sess., Senate Doc. 438, Serial 477 (Wagner-Camp 120).

i.e., the Smoky Hill Fork of the Kansas, the Arkansas basin west of Forts Smith and Gibson, and the watershed of the Canadian. The Santa Fe trail is well shown, and Raton Pass is now named, as is Eagles Nest on the trail to Taos.[11]

1846 witnessed the appearance of Disturnell's "Mapa de los Estados Unidos de Méjico,"[12] on which the Great Basin area, including Great Salt Lake, is modeled on Fremont's 1845 map. The old "Monte de Oregon" still appears near South Pass, but Disturnell tried hard to keep up to date, for he placed near the mouth of the Rio Grande "Gen. Taylors Route 1846."[13] This was by far the best commercially published map of the West of this period, even if its history did go back to 1822.

A curious 1845 map was that of Albert M. Gilliam, showing Pacific railroads (in straight lines), one between San Francisco and "Napolian" (at the junction of the Arkansas and the Mississippi), and another between San Francisco and New Orleans. Another Gilliam map showed that he had seen Fremont's 1843 map, but not that of 1845. Of interest is a mountain range running south from San

[11] A manuscript map by "E. Burgvin" (in the National Archives) was drawn for P. M. Butler, agent to the Cherokees, and affords much information on the location of Indian tribes. Two parallel lines run north from the Red River, one marked "Supposed Boundary of the U. States," and the other (farther west) labeled "True Boundary of the United States." Whether the latter was located by precise methods is not stated.

[12] Called "Second edition" by Lawrence Martin, to whom the 1838 White, Gallaher and White plagiarism of Tanner's 1825 Map of Mexico was the first edition. That 1838 map carried Spanish titles and legends, and Disturnell merely changed the date, substituted some new geography in the north, added his own name as publisher, and used the old plate. (See Lawrence Martin, *Disturnell's Map*, Washington, 1937.) The 1837 Rosa plagiarism (in Spanish) was independent of that of White, Gallaher and White.

[13] Martin distinguishes four more "editions" of this map in 1846, seven in 1847, four in 1848, four in 1849, two in 1850, and one in 1858, making twenty-four in all. Most of the changes found by him are minor. However, it is of interest to note that the Disturnell map attached to the American copy of the Treaty of Guadalupe Hidalgo was Martin's "seventh edition," whereas the copy attached to the Mexican government's copy was his "twelfth edition." Fortunately, this made no practical difference, and doubtless the treaty negotiators thought the maps identical. Both carried the words "Revised Edition." (See Wheat 33.)

Francisco labeled "San Bruno Mountains." Thus the hills near South San Francisco are magnified into important mountains, and several later cartographers gave themselves away by copying this apocryphal entry.[14]

John Haven's broadside "Map of the United States, including Oregon, Texas and the Californias" (Wheat 26) was a portion of an earlier broadside. Though unimportant, it attained considerable popularity, and it carefully showed the disputed Oregon boundary claims. The Oregon emigrant route and that of the Santa Fe traders are shown, together with a "Route to Oregon" running north from Yerba Buena (on San Francisco Bay), and a "Route to the United States" heading east from that settlement, rounding the Sierra on the south, thence proceeding to and up Mary's R. (the Humboldt) and meeting the Oregon emigrant route near L. Youta or Bonneville (Great Salt Lake). Though South Pass is not named, Lake Biddle (of the Lewis and Clark map) appears. This map was essentially the northern portion of a larger contemporary broadside map surrounded by state seals (see Wheat 26).

The prolific Philadelphia cartographer, S. Augustus Mitchell, produced in 1846 at least three maps that show western areas (Wheat 27, 28 and 29). One was of Oregon and California, a second was of Mexico and Guatemala—neither of more than passing import, though showing some Fremont influence—while the third was "A New Map of Texas Oregon and California with the regions adjoining," a well-known document usually found folded in a small green leather binder labeled "Texas, Oregon and California," with a 46-page pamphlet "Accompaniment" of description. For a commercial production this map (which

[14] Gilliam's book, first published in Philadelphia in 1846, was entitled *Travels over the Tablelands and Cordilleras of Mexico during the years 1843 and 1844; Including a Description of California* (Cowan, 1914 ed., p. 97). A second edition, without maps or plates, was published in Aberdeen in 1847. (See Wheat 24 and 25.)

must have been highly popular, in view of the number of copies that have survived) was an important step forward. The emigrant route to Oregon across South Pass is carefully drawn, as is the "Caravan route to Santa Fe." The new knowledge about the Great Basin is here depicted, the Texas boundaries are shown as on Emory's map of 1844, and this map appears to have exerted considerable influence on other commercial cartographers.[15]

Charles Preuss was responsible for a seven-sheet 1846 map of the "Road from Missouri to Oregon," published by the Senate (see Wagner-Camp 115 note). It is essentially an enlargement of a portion of the Fremont 1845 map which Preuss had drawn, with quotations from Fremont's Report and many hints as to availability of water and grass, along with the nature of the terrain. Each of the seven sections is so oriented as to place in a horizontal position that portion of the trail shown on it, and this map became an invaluable guide—used and copied widely—though some modern scholars suggest that it contains certain inaccuracies not present on the 1845 Fremont map from which it was derived.

The Rufus Sage "Map of Oregon, California, New Mexico, N. W. Texas, & the proposed Territory of Ne-Bras-Ka" was drawn to accompany his *Scenes in the Rocky Mountains . . . or, Notes by the Way* (Philadelphia, 1846), but the map was delayed and was sold separately by Sage for twenty-five cents a copy. It is unimportant except for certain legends that connect it with Sage's account of his participation in Warfield's company, a part of Snively's Texas filibustering escapade. (See Wagner-Camp 103.) Sage enlisted at Fort Lancaster, near St. Vrain's establishment on the South Platte, and took

[15] The Oregon boundary debate kept on, with unimportant maps in Nicolay's *Oregon Territory* (the British side) and in Wyndham Robertson's *History of Oregon* (the American side), this last being of the "Nasty-Shasty" type, essentially Hood's map.

part in the disreputable sacking of the tiny New Mexican village of Mora. The map shows traces of Fremont (for example, Pyramid Lake is shown), but its South Pass and Fremont's Peak are altogether too close to Salt Lake, and his various trails and supposed wagon roads are generally misplaced. Oddly enough, at least two copies of this map, possibly from a "remainder," have been found in a later Fremont document (his *Oregon*, published at Syracuse, New York, in 1847. See Wagner-Camp 115 note and 123, note) instead of Fremont's own map.

H. S. Tanner, in a "second edition" of his 1832 map of Mexico, used in 1846 the conventional geography of the earlier map, even to the Mongos, Timpanogos, Buenaventura, and San Felipe rivers. Perhaps he was in a hurry to cash in on the war demand, for later in 1846 he put out a "third edition" taking full advantage of Fremont's 1845 map, but leaving the river of "Sulphurous Pyramids" near the Colorado, where he had no new material to go by. On both maps New Mexico is relegated to a narrow area west of the Rio Grande and east of the nearby mountains.[16]

If the maps of 1846 may be said to represent a transition period, those of 1847 begin to disclose more actual exploration. General S. W. Kearny and Colonel Alexander W. Doniphan had marched to Santa Fe, and Colonel Philip St. George Cooke explored a southern route for a wagon road from New Mexico to California. Cooke's "Sketch of part of the march & wagon road of Lt. Colonel Cooke, from Santa Fe to the Pacific Area, 1846–7" (see Wagner-Camp

[16] On his "second edition" Tanner showed by colors a southern boundary of Upper California along the 32nd parallel. On the "third edition" this has been changed to an engraved line running southwesterly from the mouth of the Gila to a point on the coast near Pt. Moindrains, following a number of earlier maps. As Martin points out, if Disturnell had done likewise on his map, the boundary might well have been different today, with considerably more territory within the United States.

148) was used in the preparation of Lieutenant Colonel W. H. Emory's important 1848 map of Kearny's route to California. Cooke's map extends from the Rio Grande to the Pima Villages on the Gila River, and although it is a simple map (showing only Cooke's own route) it is of interest as providing a basis for the demand that resulted in 1853 in the so-called "Gadsden Purchase," which included the town of Tucson. There is a dotted line north of Cooke's route, but south of that taken by Kearny, labeled "Believed by Mr. Leroux to be an open prairie good route, if water is found sufficient." Antoine Leroux was a well-known mountain man who served Cooke as guide. The march itself was an important achievement, and on it Cooke commanded the "Mormon Battalion," of which much has been written.

Father de Smet published in 1847 his "Oregon Territory 1846," a great improvement over his previous maps.[17] On it the various Roman Catholic missions and churches are carefully shown, along with "Press" (Presbyterian) Missions near Fort Walla Walla and on the Salmon River, while the "Main Chain of the Rocky Mountains" is represented by two parallel lines running northeasterly through the map. Another, somewhat simplified, map of L'Orégon was published at Ghent in the French edition of this book, de Smet's travels being there well shown. Two other de Smet maps, there published, his "Sources du Fleuve Colombie" and "Sources de la Riviere Tête-Plate," were excellent contributions to geographic knowledge, based on the personal observations of an astute observer.

The commercial cartographers were as busy in 1847 as they had been in 1846. More and more, Fremont's geo-

[17] The original drawing of this map is preserved at the Huntington Library, along with the manuscript of his book, *Oregon Missions and Travels over the Rocky Mountains, in 1845–46* (New York, 1847), in which it appeared. (See Wagner-Camp 141.)

graphical novelties were finding their way onto these maps. Even Julius Hutawa out in St. Louis—who had not always been known for keeping up with the times—prepared a "Map of Mexico, New Mexico, California & Oregon," used on October 1, 1847, as a Supplement to the *Missouri Republican*, on which appeared much from Fremont, with many explorers' routes shown, including Smith's Track across the Great Basin. Here was a map as "modern" as a commercial cartographer could then hope to accomplish, and the same may also be said of the work of Doolittle and Munson of Cincinnati (whose "New Map of the United States" was prepared for Monk and Scherer, its publishers), and that of J. H. Colton (whose "Map of the United States of America, the British Provinces, Mexico and the West Indies" was drawn by Sherman and Smith).[18] There were, of course, numerous pot-boilers, as—for example—Humphrey Phelps' flamboyant throwback called "Ornamental Map of the United States & Mexico,"[19] but generally speaking the commercial mapmakers were taking advantage of the new discoveries.

The Maps of 1848

With the close of the War with Mexico, public attention turned to the new territorial acquisitions, and the California gold discovery found mention on a few 1848 maps. Some commercial publishers retained the older geography, but most were apparently anxious to keep up with the rapidly changing picture.

[18] One George Stealey, a civil engineer, published in Louisville a large map of Mexico, with some Fremont material, showing the "Great Spanish Trail" from Los Angeles to Santa Fe, and the "Caravan Route to Santa Fe" east of that city. This map also mentions several Mexican War battles and shows Fort Marcy at Santa Fe.

Frank S. Edwards, in his *A Campaign in New Mexico with Colonel Doniphan*, included a map of Doniphan's routes which well served the special purpose for which it was made, though it was not otherwise significant. (Wagner-Camp 132.)

[19] See Wheat 36 and reproduction opposite.

Lieutenants J. W. Abert and W. G. Peck drew an excellent "Map of the Territory of New Mexico" (30th Cong., 1st Sess., Senate Doc. 23, Serial 506; see Wagner-Camp 143)., which became the basis for many later maps of the Territory. On a reduced scale, its information was used by Emory on his important map entitled "Military Reconnoissance of the Arkansas, Rio del Norte and Rio Gila," published in his *Notes of a Military Reconnoissance, from Fort Leavenworth, in Missouri; to San Diego, in California* (30th Cong., 1st Sess., Senate Doc. 7 and House Doc. 41; see Wagner-Camp 148). This Emory report was a popular document, and the map for the first time tied in the southern areas with those already explored farther north.

Like the maps of Fremont's expeditions, the territory shown on this magnificent Emory map was limited to the author's route, except where he took advantage of Cooke's effort and of the Abert and Peck map. Such "outline maps" possessed scientific significance much greater than did the more showy maps of the commercial publishers. They furnished the corrected positions on which later cartographers could tie one place to another, and Emory's map was a true milestone.

Charles Preuss also drew a momentous map in 1848. It was entitled "Map of Oregon and Upper California from the Surveys of John Charles Fremont and other Authorities," and was prepared to accompany Fremont's *Geographical Memoir upon Upper California*, addressed to the Senate (Wheat 40 and 41). Fremont had been on a third expedition, the one during which he assisted in the conquest of California, and on that trip he had at last come to a realization of the true nature of the Humboldt River, as well as of many elements of importance in the remainder of the Great Basin and in the interior valleys of California. At last the western country was taking on shape and form reasonably consistent

with geographic fact,[20] and whatever may be said in criticism of Fremont in other directions, it is only fair to recall that he (for it was he who made Charles Preuss's work possible) was responsible for more actual new mapping of western areas than had been anyone else before him. Combined with Lewis and Clark's work to the north and Emory's to the south, Fremont's work gave to the American West its first reasonable published cartographic reflection.

Two interesting tiny legends appear on this 1848 Preuss-Fremont map. They are identical: "El Dorado or Gold Region," one along the South Fork of the American River and the other along what must have been meant for the Feather. A third legend, "Chrysopylae or Golden Gate," recalls that it was Fremont who gave that title to the entrance to San Francisco Bay. He spoke of this map as "preliminary only," and urged that he be given the opportunity to make further on-the-ground studies upon which a more definitive map might be prepared. This chance was not afforded him by Congress.

Of the other maps of 1848 there is little to be said. A large number have been seen, photostated and catalogued, and while many of these may find a place in the more extended study of western cartography now proposed, except for a map illustrating Frederick A. Wislizenus' *Memoir of a Tour to Northern Mexico* (30th Cong., 1st Sess., Sen. Misc. Doc. 26; Wagner-Camp 159), showing its author's routes to Santa Fe and Chihuahua, it seems appropriate to pass to a new phase of western mapping—that which developed around the California Gold Rush and the emigration to Oregon.

[20] Almost the only criticism to be made of this beautiful map arises from the one place where Fremont departed from his and Preuss' usual plan of showing only those things they had seen with their own eyes. In the Great Basin are two wholly imaginary east-west mountain ranges, one on the north, the other on the south, each labeled "Dividing range between the waters of the Pacific and the Waters of the Great Basin." Near the southerly of these ranges Fremont discloses their tenuous background by stating that "These mountains are not explored, being only seen from elevated points on the northern exploring line."

Chapter VII

Gold—and the Cartographic Torrent (1849–1852)

The Maps of 1849

Though gold had been found in California early in 1848, it was not until the succeeding year that the first great tide of goldseekers reached the new American territory. All through the year 1849 a flood of "literature" swept over the country—maps, pamphlets, books, reports—every conceivable type of publication to catch the pennies of those afflicted with the gold-fever. Many of the maps might be deemed appropriate for listing in the writer's proposed more extended study, but their mention here would serve only to confuse. There were, however, some maps of much more than passing import in the forty-niner period. T. H. Jefferson, for example, published a remarkable "Map of the Emigrant Road from Independence Mo. to St. Francisco California," which is as scarce as is information about its author.[1]

This Jefferson map consists of four large sheets on which the route by way of South Pass, Great Salt Lake (south side), Humboldt River, and Donner Pass is carefully shown in detail. Jefferson was just ahead of the Donner Party (he calls it Reed's Party), and had the Argonauts who soon followed him possessed his map their way would have been made both clearer and easier. He took great pains to locate every side-stream, every spring and camping spot, with notes respecting the places where grass and water could be expected. Sheet I takes Jefferson up the Kansas River from Independence, thence along the Pawnee (the Little Blue)

[1] Wheat 101; Wagner-Camp 168. Reproduced in 1945 by the California Historical Society, with an introduction by George R. Stewart.

and over to the Nebraska (Platte) River. Sheet II continues the route up the Platte and its North Fork to Forts Laramie and Platt and on past Independence Rock to the upper Sweetwater. Sheet III picks up just east of South Pass and takes Jefferson past the Little and Big Sandy to the Green, up the Black River to Fort Bridger, thence to the Bear and on west through the Wasatch Range, then south past the site of Salt Lake City. Jefferson proceeded across the Salt Desert, south of the Lake, to the Valley of Fountains (Ruby Valley) and around the Ruby Mountains to the South Fork of the Humboldt. Sheet IV takes the cartographer down the Humboldt and across to the "Truckey River" (probably the first appearance of this name on a map—to Fremont it had been the Salmon Trout) thence over a pass (probably south of Donner Summit) and down the Bear River to the Feather, thence to Fort Sutter, and finally, by way of Livermore's Ranch, to Mission Dolores and St. Francisco. Jefferson's map was a memorable achievement and should have been more widely used and known. It was perhaps the most remarkable cartographic *tour de force* by an individual during the entire Gold Rush era.

Jefferson was not one of the gold-seekers—he came in 1846. A redoubtable Argonaut, however, was J. Goldsborough Bruff, from Washington, D. C. (whose *Journals* were published by the Columbia University Press in 1944). In the National Archives is a small manuscript sketch map by Bruff showing the Lassen trail—or Lassen cutoff—across the Sierra from Mary's River to the Sacramento at the mouth of Deer Creek. On this map, Mount Lassen is called "St. Jose, or Snow Butte" (Smith's Mt. Joseph!), and the map is of particular interest because, though somewhat distorted toward the east, it is the record of an actual 1849 passage along this notoriously difficult trail. There is another manuscript map in the Archives which may possibly

be by Bruff, and is at any rate a map of much interest. It is in two sheets, and bears neither title nor maker's name, but it records the gold rush trail from S. Joseph, on the Missouri, up the Platte and over South Pass to Fort Bridger and Great Salt Lake, thence south of the lake to Mary's River and down it as far as the bend toward its sink, where the trail heads due west past the Mud Lake of Bruff's map (this is on the Lassen Cutoff), thence northerly, across a Pass, down the Pitt River (where the spot at which the Indians killed Lieutenant Warner is marked), and finally around the easterly slopes of "Mt. St. Jose or Snow Butte" to the mouth of Deer Creek. There is much, including at least some of the orthography, which might lead to the belief that Bruff drew this map, but in any event it is a remarkable performance. Lassen Cutoff maps are curiosities in themselves, especially such early examples.

Many of the books on California subjects that appeared in 1849 were accompanied by maps, and while only a few can be mentioned here, there are two prime examples. The first was published in a fascinating little volume, *Four Months among the Gold-finders in Alta California*, ostensibly by one J. Tyrwhitt Brooks. It appeared in London in 1849 (Wheat 60) and was soon reprinted in Philadelphia, and (in translation) in France, Holland, and Germany. This is not the place to relate the story of this astonishing literary hoax, actually written by young Henry Vizetelly in London.[2] Its English edition carried a small map based on Fremont's map of 1845, with a colored line surrounding an abbreviated gold region. This map, with a minor change in size, was used in the French edition, and—with language changes—

[2] The bibliographer of *Californiana*, Robert G. Cowan, was long taken in by this remarkable book, which he termed "One of the first works to give the results of actual experience in working in the newly-discovered gold region." (See Wheat 60 note; also Watson, Douglas S. "Spurious Californiana. 'Four months among the Gold Finders'," *Quarterly* of the California Historical Society, XL, 65, March, 1932).

in the German and Dutch editions. The American edition, however, was accompanied by a crude woodcut map, covering only an area from San Francisco Bay to the Sierra, with the word "Gold" on the Feather, American, and Cosumnes rivers, and the words "Lower mine" and "Upper mine" on the American, reminiscent of an important report and map of Colonel Richard B. Mason, which Vizetelly doubtless had before him when he wrote his engaging table.

This same rude map was also used to illustrate the 1849 New York edition of Edwin Bryant's *What I Saw in California*, as well as the book to be described later as "Fremont and Emory." Bryant's work was first printed in 1848 without a map. The London edition (1849) had a "New Map of California drawn from the American Survey," with some Fremont material. The French edition carried a larger "Carte de la Californie," consisting of a portion of the 1844 map of de Mofras. Neither of these maps bore the slightest hint of the gold discovery. (See Wheat 66–69).

Guidebooks also came thick and fast. One of the rarest is that of Joseph E. Ware, *The Emigrants Guide to California* (Wagner-Camp 175; Wheat 133), with a long woodcut "Map of the Route to California," from the mouth of the Kansas River to the Pacific Ocean. Its author did a rather good job considering his medium. On a Fremont base, the map shows the transplains trail, with its various cutoffs and alternative routes, crossing what must be Donner Summit and descending to "Suters" and San Francisco. Another guide consisted almost entirely of maps—five of them—and though published in New York, was prepared by Robert Creuzbaur, of Austin, Texas.[3] His main map (No. 1) is entitled "A Map to illustrate the most advantageous communication from the Gulf of Mexico and the Mississippi Valley to California and

[3] *Route from the Gulf of Mexico and the Lower Mississippi Valley to California and the Pacific Ocean.* (Wheat 76, 77; Wagner-Camp 166).

the Pacific Ocean." It takes material from both Fremont and Emory, and in the Great Basin Fremont's curious 1848 aberration—that east-west mountain range—is carefully shown. A second map is of a route from Austin to El Paso, taken from the journals of Dr. John S. Ford and Major Robert J. Neighbors. This is an original map of considerable importance, being the first to display portions of this route from personal reports. The third Creuzbaur map is essentially a copy of Cooke's map, and "No. 4" is a copy of Emory's map from the Pimo Village, on the Gila, to the coast. The last map, "No. 5," covers the area between Los Angeles and the Tlamath River, largely taken from Fremont and having the same "El Dorado or Gold Region" legends. Creuzbaur performed a distinct service to potential southern route emigrants by bringing together these otherwise scattered maps.

As the commercial mapmakers vied with one another to meet the public demand for western maps, Disturnell took the bull by the horns, cut off the western half of his Map of Mexico (which, however, he continued to issue), and called it "Map of California New Mexico and Adjacent Countries showing the Gold Regions &c" (Wheat 81). Many new placenames were added and many others were Anglicized, and the map was used to illustrate the second edition of Disturnell's *Emigrants Guide to New Mexico, California and Oregon*, the first and third editions of which carried a map by J. Calvin Smith.

In Germany, Carl Friedrich Alexander Hartmann published a map of "Californien" (Wheat 94) largely taken from de Mofras, but with a few additions, such as "Gold M." near New Helvetia, and "Goldminen" a bit farther north on the Three Forks R. (whatever that was).[4] Everyone was busy doctoring up older maps—Mitchell, Ensigns and Thayer, House and Brown, Sherman and Smith, Reed and Barber,

[4] Hartmann's book, published in Weimar, was called *Geographisch-statistische beschreibung von Californien.*

and H. S. Tanner among others. In England, James Wyld put out no less than three Gold Region maps. One—based on Fremont—carried many gold region placenames, another had a strange mixture of geography in the Great Basin, and the third was of no significance (Wheat 138, 139, 140).

Two French maps of 1849 warrant mention, if only as curiosities. Doubtless the strangest portrayal of western cartography was Romat and Baillet's "Carte populaire de la Californie avec les Nouvelles Mines d'Or" (Wheat 118). Here Monterey and St. Francisco are drawn at approximately the same latitude as the head of the Gulf of California, with "Sables Aurifères" and a "Placer" near "Nlles. Mines d'Or" along a curiously distorted Sacramento River. Far to the east, the Mississippi is contorted almost as it was on the Franquelin map of La Salle's day. In between are Espejo's lake (at the head of the Rio Grande), Rey Coronado (sic!) where the Gila should be, and—*mirabile dictu*—"Cibola" west of Santa Fe. Whoever or whatever Romat or Baillet may have been, they certainly were not cartographers. Almost as wild a map was "Les Californies" by C. Arnaud.[5] He copied some de Mofras material, but apparently knew of nothing later, so he placed "Région Aurifére in large letters on his map, with "Grand Désert Américain" to the east, while along the Gila is the old familiar come-on, "Terrain ou se trouve de l'or vierge en abondance." Robert Cowan had apparently not seen these maps when he characterized the strange white-on-black map in E. Sanford Seymour's *Emigrants Guide to the Gold Mines of Upper California* (Wheat 121, Wagner-Camp 173a) as "doubtless the most crude representation of California ever attempted." In comparison with the Romat and Arnaud maps, however, and considering the peculiar medium

[5] Used to illustrate a booklet on California by one M. de Mouncie Thornton, printed in Paris in 1849 (Wheat 131).

adopted by Seymour, his map was not badly done, though it does not mention the gold region.

More worthy of note was a "Map and profile sections showing the Railroads of the United States" drawn by Julius Hutawa for J. Loughborough, of St. Louis, who used it at a local "railroad convention." It was published in Loughborough's *Pacific Telegraph & Railway. An Examination of all Projects* (St. Louis, 1849). On it are many dashed lines representing railroad projects, but—curiously—none of these ends at San Francisco Bay. A far more important, and even prophetic, document was published by W. L. Dearborn, of Boston, whose "Map illustrative of the route of the proposed railroad from St. Louis to the Bay of San Francisco" (Wheat 78) accompanied his description of the route in letters written to P. P. F. Degrand. Save for the first stretch from St. Louis to the Kansas River and across to the Platte; save for a proposed use of South Pass, and save for the Sublette Cutoff portion, the Union Pacific and Central Pacific railroads were built almost precisely along Dearborn's proposed route.

Another railroad project, that of Asa Whitney, had to do with a more northerly route. The accompanying map is disappointing, but is of interest along with Mill's 1848 map, in showing what men were thinking about the Pacific Railroad problem as early as 1849. Indeed, a detailed study of these various projects should be undertaken. For some years there was a war of rival railroad project pamphleteers, and numerous maps resulted, which cannot be given adequate consideration in this abbreviated discussion.[6]

Finally, Charles Wilkes' 1849 version of his "Map of Upper California," published in his *Western America* (Wheat 135), was taken almost entirely from Fremont's maps of

[6] "Asa Whitney: Father of Pacific Rail Roads" was the subject of an article in Vol. VI of the *Proceedings* of the Mississippi Valley Historical Association. Whitney's first Memorial to Congress was presented in 1845, and he offered his more extensive proposal in 1849.

1845 and 1848. It is highly illuminating when compared with its author's 1841 map of the same region. Perhaps these two maps disclose as well as any the great advances in knowledge of Western American geography that took place in less than a decade. An excellent Map of Oregon Territory was also included in Wilkes' 1849 work, as well as F. D. Stuart's map of that part of California "between Monterey and the Prairie Butes in the valley of the Sacramento shewing the placeres 1849" (Wheat 134).

Although Lieutenant J. H. Simpson drew his map of Lieutenant-Colonel John M. Washington's Navajo campaign in 1849, it was not published until later, and will therefore not be discussed at this point. However, before leaving 1849 a curious map should be mentioned. It is a rough sketch showing where the well-known Indian Agent to New Mexico, James S. Calhoun, wanted agencies established. It extends from Bent's Fort and Las Vegas (N. M.) on the east to the Colorado River on the west, and from the upper Grand River basin on the north to the Mexican Border on the south. On it Calhoun located many New Mexican towns and many Indian tribes, with estimated distances from Santa Fe. Calhoun had been with Colonel Washington in the Navajo Country, and was a man of great ability. He died not long after sending this map and its accompanying recommendations to Washington.[7]

The Maps of 1850

By 1850 the commercial cartographers had their machinery running on a double shift basis—even more so than in 1849. In general, however, their contributions possessed

[7] This map was reproduced in Annie Heloise Abel's *Official Correspondence of James S. Calhoun while Indian Agent at Santa Fe and Superintendent of Indian Affairs in New Mexico* (Washington, 1915). Three other maps were also there reproduced: (1) The Abert and Peck 1848 "Territory of New Mexico" with the six original territorial counties added by Calhoun with a pen; (2) the Parks map of New Mexico of 1851, and (3) the Marcy map of the country between Arkansas and New Mexico of 1852. These latter two will be considered in due course.

little significance from the viewpoint of advancing knowledge. In California more and more placenames appeared, and as the decade of the fifties wore on, developments in Oregon and Utah, as well as in California, began to be shown on the commercial maps. An intensive study of those maps might well be undertaken by some interested scholar, but in this preliminary study such a course would be as inappropriate as it would be impracticable. Henceforth, therefore, little will be said of the work of such cartographers, and emphasis will be placed on the unfolding scene as government explorers and scientists sought to draw the loose ends together.

On that front the year 1850 proved important. The Mexican War had been over long enough for the Topographical Engineers to catch their breath, and a number of worthwhile maps resulted. An undated and untitled map of frontier posts and of lines of land and sea communications to the Pacific Coast is of particular interest, since it shows the "old frontier stations," both occupied and abandoned, and "new frontier stations," including those "recently abandoned." Its provenance has not been learned, but a copy is preserved at Yale University, and it was drawn and lithographed (by "P. S. Duval's Steam Lith. Press, Philada.") prior to the Gadsden Purchase of 1853. It is apparently the only published map showing the March of the Mounted Riflemen of 1849, the Fremont-Gibbs-Smith map having contained only George Gibbs' penciled notations on that interesting expedition.[8] A line showing the "Extreme limit of line of frontier stations on the 30th June

[8] Major Osborne Cross wrote *A Report in the form of a Journal, to the Quartermaster General, of the march of the Regiment of Mounted Riflemen, from May 10 to October 5, 1849,* which was published by C. Sherman at Philadelphia in 1850, illustrated only with one of J. Calvin Smith's commercial maps (see Wagner-Camp 181). In 1940 the Cross *Journal* and that of George Gibbs (for a portion of the route) were reprinted in Glendale, California, edited by Raymond W. Settle, who outlined the background of this regiment and its remarkable march over the Oregon Trail. In a note to Wagner-Camp 181 it is stated that Gibbs' map is in the Bureau of Indian Affairs at Washington, but the writer is informed that this refers to Gibbs' map of Northern California now in the National Archives, rather than to a map of the Riflemen's route.

1845" extends from the mouth of the Sabine on the south, past Forts Jesup, Washita, Gibson, Scott, Leavenworth, Atkinson, and Snelling to Ft. Wilkins on Lake Superior. West of this line appear many new military posts, disclosing the efforts then being made by the Army to afford protection to the flood of emigrants who by this time were moving westward by every practicable route. As for the map itself, its far west is somewhat of a curiosity, with a single east-west range of mountains through the center of the Great Basin merging with mountains south of Great Salt Lake, which in turn join a north-south range. The group of ranges is labeled "Dividing Range between the Waters of the Pacific and of the Atlantic," but without apparent recognition of the Great Basin's real nature. As a map, this document is somewhat of a throwback, but for its frontier information it amply deserves attention. It was probably used to illustrate a Congressional report not yet identified by the writer.

In July, 1850, the Senate published a series of reports to the Secretary of War, including "reconnaissances" of routes from San Antonio to El Paso by Lieutenant Colonel J. E. Johnston, assisted by Lieutenants W. F. Smith, F. T. Bryan, and N. H. Michler (also Captain S. G. French, Q. M. Dept.); Captain R. B. Marcy's report of the route from Fort Smith to Santa Fe; Lieutenant J. H. Simpson's report of Colonel Washington's expedition to the Navajo country, and Lieutenant W. H. C. Whiting's report of reconnaissances of the western frontier of Texas (31st Cong., 1st Sess., Senate Ex. Doc. 64; Wagner-Camp 184). This group of reports was accompanied by two maps of fundamental importance, the first being that of Johnston on the routes from San Antonio de Bexar to El Paso del Norte, and the second that of Simpson on the Washington expedition to the Navajo Country.

Johnston's large map was not confined to his party's 1849 reconnaissance between San Antonio and Santa Fe. It includes data respecting Whiting's expedition from Preston, on the Red River, to San Antonio and through western Texas, and also data on Marcy's expedition of 1849 from Fort Washita to Santa Fe and return through western Texas.[9] Like most maps of the Topographical Engineers, this map shows only the routes actually explored, and makes no effort to cover the intervening areas. It was an important stepping-stone in the development of southwestern cartography in that it afforded precise locations for many positions, and also because it afforded the best early cartographic depiction of the emigrant route east of El Paso. For this latter reason, if for no other, it would be memorable.

Simpson's map of Lieutenant Colonel Washington's route into the Navajo country (the 1849 manuscript of which is in the National Archives) was another excellent achievement. The party started from Santa Fe and visited the pueblos of Domingo and Jemez before heading across country by a "Navajo trail" to Chaco Canyon, thence proceeding over Washington Pass in the Chuska Mountains, and on to the mouth of Canyon de Chelly. The return route took the party south to Zuñi, thence east past the Pueblo of Laguna and Albuquerque and finally to Santa Fe. Some of Emory's material was used, as well as some of Abert and Peck's, but most of this map constituted an original contribution. This was the expedition which Calhoun, the Indian Agent, had accompanied, and he was quite put out when Simpson refused to afford him the many astronomical

[9] Captain Marcy's report and a beautifully drawn map of his route from Fort Smith to Santa Fe, and from Dona Ana, New Mexico, to Fort Smith, was also published in 1850 in a separate document, which included Simpson's Fort Smith-Santa Fe report. The Simpson map (see Wagner-Camp 192) was in three large parts, with detailed topography (31st Cong., 1st Sess., Senate Ex. Doc. 12, Serial 554). The survey was made with chain and compass, checked by frequent astronomical observations, and the map, which was drawn in Santa Fe, affords many details not previously shown on any map.

locations he had made along the route—Simpson alleging departmental regulations, which even then seem to have been rather stu - - - let us say, strained. Simpson was assisted in his efforts by Edward M. Kern, and since Washington's expedition was the first formal exploration after that of Escalante to traverse interior areas of the Navajo country, Simpson's map is of basic value.

Another able cartographer who was associated with the Corps of Topographical Engineers was Richard H. Kern. About this time he prepared an important southwestern map, which exists in manuscript in the National Archives. It illustrates a military reconnaissance of the Pecos River under Captain Henry B. Judd, of the Third Artillery, and it draws on earlier maps in such manner as to afford an excellent picture of the New Mexico country, with the Pecos adequately mapped for the first time as far south as Bosque Grande. Now that the maps of Abert and Peck, and of Simpson were available, it was possible to provide a much more adequate base for such more detailed tours of observation, and the Corps of Topographical Engineers performed a highly important task in this, as in other regions.[10]

Captain W. H. Warner, who had been with Emory, made a number of surveys in California in 1849 and 1850, including one of routes along the Pacific Coast and in the coast mountains from San Diego to San Francisco. Warren's *Memoir* (pp. 53–54) relates that Warner had almost completed a map of "that then unknown area" when he was directed to explore the northern Sierra Nevada for a railroad route across the mountains. On this expedition he went up the Sacramento and later the Pit to Goose Lake and

[10] Warren, *Memoir*, 97, states that Kern assumed the longitude of Anton Chico to be 105° 25′, whereas Lieutenant Whipple later determined it to be 105° 9′, or 16′ east of Kern's position. On Warren's 1857 map this error was corrected.

(according to Warren) to Fremont's "Lake Abert," thence south along the easterly base of the Sierra, intending to recross the mountains on Lassen's trail. On September 26, 1850, however, his party was attacked by Indians and both Captain Warner and his guide were killed, while another member of the party died before the California settlements were reached. A report and a map of the route were prepared by Lieutenant R. S. Williamson, the map being the first to show any details of the area traversed.[11]

Although Lieutenant Warren had practically nothing to say about it in his *Memoir* (see p. 60), the "Map of the United States and their Territories between the Mississippi and the Pacific Ocean; and part of Mexico," compiled in 1850 by the Bureau of Topographical Engineers under a Senate resolution, enjoyed wide currency and disclosed in detail what the Bureau then knew about the western country. It is a large map, beautifully engraved by Sherman and Smith of New York, but the important 1850 surveys mentioned in this chapter were of course not available to its makers. Fremont's data, and the material developed by Emory, were used, and the map seems important as a landmark. When compared with Warren's map of 1857, it shows by its own patent inadequacies how rapidly the West was becoming known during the decade that followed Fremont's and Emory's work. Comparison with some of the commercial maps (such as those of Colton and Mitchell) made concurrently with this Bureau map of 1850 shows that the commercial cartographers were keeping fully up-to-date with their maps—in fact, certain of their maps are to be

[11] It was published in 31st Cong., 1st Sess., Senate Ex. Doc. 47, Part II (wheat 182). In the writer's possession is a small notebook with many details of this expedition, and small sketch maps of almost every day's travel—ending with data concerning the day before Captain Warner was killed, but having notes (and a sketch map) for one succeeding day, October 5th. It is not known to whom this notebook belonged, but Warren reports that Warner's own notes were saved and formed the basis for Williamson's map.

preferred over this official publication, which may have been hurriedly gotten up to appease the Senate.

An interesting map (Wheat 155), drawing heavily on both Duflot de Mofras and Fremont, with a large gold region located just west of the Sierra crest, was used to illustrate Hypolite Ferry's *Description de la Nouvelle Californie* (Paris, 1850). The Italian edition included long notes and legends not found on the map in the French edition, which—interestingly enough, in view of earlier French western explorations—was engraved by a firm having its office on the rue de la Harpe.

Before the year was over, Father de Smet was at it again. He made extensive notes for Captain A. Pleasanton, of the Second Dragoons, and Private R. S. Peterson, of Company E, Fourth Infantry, drew from these notes an interesting map of the Lake Pend d'Oreille—Clark's Fork of the Columbia country. Private Peterson also drew a "Map of the Country between the Cascade and Rocky Mountains" from de Smet's notes and earlier maps, which afforded about the best representation of the complex mountain and river areas of the northern Rockies that had yet been produced. Dotted lines denoting Father de Smet's travels traverse the map in all directions, and both of these interesting maps are preserved in manuscript at the National Archives.

The Maps of 1851

Again disregarding the host of commercial maps, certain maps of 1851 deserve mention. The first is a rather crude, poorly lithographed affair entitled "Tracé de la route de Westport, etat di [sic] Missouri, à Walla Walla, Orégon." It accompanied Bishop Augustin Maglorius Alexandre Blanchet's *Voyage de l'Eveque de Walla-Walla*, which appeared in the *Rapport sur les Missions du Diocèse de Québec*, dated March 1851 (Wagner-Camp 195). The Bishop trav-

eled up the Platte, across South Pass to Forts Hall and Boise, and on to Fort Walla Walla. St. Paul de Wallamette, residence of the Archbishop, is shown near Oregon City, and the various Jesuit Missions also appear. The map is not a very good one, but for what it purports to show it is passable, and Mr. T. Ireland, its Montreal lithographer, filled much of it with little mountain peaks, reminiscent of Barreiro.

The Topographical Engineers continued busy. In the National Archives is a manuscript "Sketch of the route pursued by Capt. J. Pope Top. Eng'rs. from Ft. Union N. M. to Ft. Leavenworth Mo." Fort Union was located on a branch of the Mora River, not far from Las Vegas, New Mexico, and Pope's map reflects his route, crossing from the old Cimarron trading route to a "proposed site for new post" on the Arkansas east of Bent's Fort, thence northeast to the Smoky Hill Fork of the Kansas and down that stream, crossing back to the Little Arkansas and then by the old route to Fort Leavenworth. Pope shows the older routes, by both the Cimarron and Bent's Fort, and certain "proposed new routes, to be explored," wholly eliminating the Cimarron and in the region father east following the Kansas River.

The most ambitious work prepared by the Topographical Engineers in 1851 was the large "Map of the Territory of New Mexico," by Lieutenant John G. Parke, assisted by Richard H. Kern (see Wagner-Camp 230 note). Of it Warren states (*Memoir, p. 60*), "This map was a careful compilation of all the available and reliable information in relation to New Mexico which could be obtained at that date from trappers and hunters, as well as by actual survey." It was worked up by Parke while he was in New Mexico, and was drawn by Kern in 1851, later being reduced in size for publication from the original drawing which is now in

the National Archives. Its list of authorities for various regions is impressive, including such officers as Emory, Abert, Peck, Fremont, Marcy, Simpson, and Cooke; and such old-timers as "Old Bill Williams," San Vrain (sic), Le Roux (sic), and Hatcher.

The eastern limits of this map are Chouteau's Island on the Arkansas and the Lower Spring of the Cimarron route, while on the west it extends to the Virgin River and the mouth of the Gila. On the north is Pike's Peak while at the south are El Paso and Cooke's wagon road. Roads and trails are carefully shown, usually with a legend stating Parke's authority, and this seems to be the only—at least the earliest—map to carry the suggestion of Lieutenant Simpson that from Zuñi it should be possible to discover a wagon-road route down the Zuñi River to the Little Colorado, thence to Williams' Fork, and on to the Colorado at the Mojave villages. This is very nearly the route actually later used by the Santa Fe Railroad, although Parke did not possess sufficient information to place Simpson's suggestion adequately on his map. Much farther north the old "Spanish Trail," from Los Angeles to New Mexico is delineated, but it is located too far south, in the wild Green-Grand river country. Parke and Kern did a most workmanlike job in constructing this map, one copy of which seems to have served the Boundary Commission party when it set forth under J. R. Bartlett.[12]

Before passing to the maps of 1852, another map by Father de Smet deserves attention. It is a very large manuscript,

[12] This copy, now in the collection of Robert J. Woods, of Los Angeles, bears the notations "Genl. Shields will please send this map to J. R. Bartlett," and "Note—Cooke's road is laid down 18 or 20 miles too far north on this map. The small red line denotes the journeys of J. R. Bartlett with the Boundary Commission." The "Line proposed by General Conde" (the Mexican Commissioner), the 32° 22′ line, and "Grays Line" are added on this copy, and the fact that the "Gadsden Treaty Line" is also added discloses that the map was used at least as late as 1854. South of the lower Gila is the notation, "Desert—without water wood or grass—uninhabited."

with an ornamental leaf-and-fruit border in color, and in one corner are the words, "Respectfully Presented to Col. D. D. Mitchell by P. J. De Smet Soc. Jes." near which appears the date "1851." The original map is now in the Library of Congress, and without doubt is one of the most remarkable of all the maps considered in the present study. One of its primary purposes seems to have been the location of Indian tribes, and this map was apparently once filed in the Bureau of Indian Affairs. A tracing of it is in the National Archives, and the map has been used as an exhibit in several Indian tribal suits in the U. S. Court of Claims. It not only locates the tribes from the western borders of Missouri, Iowa, and Minesota (sic) to Walla Walla, on the Columbia, and from the international boundary south to the Utah line, and, father east, to the Arkansas, but the river systems are drawn in great detail, not always altogether accurately, but with much more over-all accuracy than had previously been the case. This is a map of great interest and importance, and one must regret that it has remained so long unpublished except much reduced in size in a lawyer's brief.[13]

The Maps of 1852

In this year, once again, the commercial mapmakers were busy, but again their productions will be left for the more detailed study. The Mexican Boundary Commission was

[13] No. J-31, Court of Claims, *Assiniboine Tribe v. United States*, Plaintiff's Request for Findings of Fact, and Brief.

In the National Archives is a copy of another de Smet map, undated but apparently drawn on July 16, 1858, at "Cotton Wood Springs" by an unnamed copyist while en route from Fort Leavenworth to Salt Lake City. Like all de Smet manuscript maps, it is at first somewhat difficult to read because of its author's tendency to place his legends at all angles, apparently depending on which edge of the map he was facing when he was writing. This map extends from the upper Snake River on the south to the North Saskatchewan, the international boundary cutting the map in half. On the west is the upper Columbia, and on the east the upper Missouri. Like de Smet's 1851 map, the locating of Indian tribes and settlements was apparently its primary purpose, and while this map is on a much smaller scale than the 1851 map, it—like that map—deserves more detailed consideration than is practicable in this preliminary study.

now fully active, and John R. Bartlett contributed a report (32nd Cong., 1st Sess., Sen. Ex. Doc. 119) containing several preliminary maps (see Wagner-Camp 234 note).[14] J. H. Colton, who published Hosea B. Horn's *Horn's Overland Guide* (New York, 1852, Wheat 221, Wagner-Camp 214), contributed a map obviously copied from some earlier commercial map of the period, but with the routes described by Horn carefully shown. There is the main central emigrant route to Oregon, with Sublette's and Lassen's cutoffs, and a detour to Salt Lake City. This map contains certain geographic curiosities, such as a much magnified Wind River Chain of Mountains connecting with the Black Hills, and a U-shaped range enclosing the Salmon River. It has none of the charm of the map that accompanied Ware's guide.

A crude woodcut map bearing the legend "R. N. White Sc. English Prairie, Ill." seems to have accompanied a small booklet *The Traveler's guide, across the Northern Overland Route, from the States to California*, which may have been printed in 1854, but possibly appeared as early as 1852 (see Wagner-Camp 242, Wheat 230). A single, imperfect copy of this guide was discovered some years ago by Henry R. Wagner, and is now in the collection of Thomas W. Streeter. The map shows the route up the Platte and Sweetwater, through South Pass, thence either by Bear River or "Mormon City" to Mary's River and Carson River, and finally to Sacramento. The Oregon route is also shown from Fort Hall to the Columbia. The first sixteen pages of the book are missing in the unique Streeter copy, but its title was filed for copyright in California early in 1852. It is supposed that a man by the name of Platt, and possibly one named Slater, were responsible for this publication.

[14] In 1850 a preliminary report had been made (31st Cong., 1st Sess., Senate Ex. Doc. 34). As yet, however, only sketch maps of local areas had been prepared. (See Warren *Memoir* 78–80 for an outline of the boundary survey reports and maps.)

More important than any of these from the standpoint of western map development was the "Map of a Reconnoissance between Fort Leavenworth on the Missouri River, and the Great Salt Lake in the Territory of Utah" contained in Captain Howard Stansbury's *Expedition to the Valley of the Great Salt Lake of Utah* (32nd Cong., Spec. Sess., Sen. Ex. Doc. 3, Serial 608; also Philadelphia, 1852; Wagner-Camp 219). Stansbury was assisted by Lieutenant J. W. Gunnison, Albert Carrington, and Lieutenant G. W. Howland, the expedition having been undertaken during 1849 and 1850. The routes followed are of interest by reason of their detours at certain points from those usually taken by emigrant parties. On the way west, Stansbury led a small group from Fort Bridger to Ogden's Hole, instead of following the "Mormon Road" to Salt Lake City. On the return trip, the party crossed the continental divide by Bridger's Pass, struck the North Fork of the Platte, crossed several spurs of the Laramie Mountains (the Black Hills) and (after Stansbury had been accidentally injured) proceeded down the Chugwater to Fort Laramie.

From the vicinity of Fort Bridger to Cheyenne, Wyoming, this route anticipated that later followed by the Union Pacific Railroad, and Warren (*Memoir* pp. 56–57) outlines these various routes of the Stansbury party in some detail. Stansbury's large map of his routes was the most detailed that had yet appeared of the region covered, and the almost equally large map of the Great Salt Lake and Adjacent Valleys, which also accompanied the report, was by far the best to its date. Since it was drawn on a much larger scale than any preceding map of the area, it was possible for its author to show many more details than Fremont—for example—had been able to disclose on his pioneering map of 1845.

Chapter VIII

The Home Stretch

1853–1856

Early in 1853 Congress authorized the War Department to send expeditions to the Pacific Coast for the purpose of seeking out the best route or routes for the Pacific Railroad that everyone knew would one day have to be built. It was recognized that hit-or-miss development of geographic knowledge about the West had not afforded sufficient basis for sound judgment as to routes, cost, or approximate termini of such a railroad. At first, only the central and southern routes were thought feasible, but Jefferson Davis, then Secretary of War, decided to add a survey of the northern route. The maps which resulted from these surveys will be considered as of the dates of their publication, but the fact that the surveys were being organized and discussed during 1853 aroused public interest in a marked degree.

The Maps of 1853

In addition to many purely commercial productions, maps relating to the Mexican boundary continued to appear in 1853, and the so-called "Gadsden Purchase" late that year added a new area as to which there was considerable interest. Included in the purchased area was the old Spanish settlement of Tucson and the neighboring Mission of San Xavier del Bac, Father Kino's erstwhile favorite. Interest in the Indians continued, and Captain S. Eastman drew a small but valuable "Map showing the

location of the Indian Tribes within the United States," on which appear a large number of tribal names west of the Mississippi.[1]

Perhaps it would be just as well to take time off at this point to note the curious "Complete map of 31 states of the Republican Government," published in the first Japanese book to be devoted entirely to America, a five volume work published in Edo in 1853 entitled *Meriken Shinshu* (New Account of America). Though not so curious as that earlier Japanese map with the reversed California peninsula, this map stretches the Mexican State of Sonora in an arc to the north, and consists largely of a maze of lines representing rivers. Its Missouri River country is highly erroneous, and while two parallel lines, close together, seem to represent the Rocky Mountains, the rivers farther west are badly mixed up. Probably its author, one Tsurumine Shigenobu (who wrote under the pen-name of Kaisei Gyofu), had seen one of the Buenaventura River type maps.[2]

On May 4, 1853, L. Humphreys, of Ohio, signed at "Willamette Forks, Oregon T." a packet of notes on the emigrant trail headed "Over Land Guide from Kanesville Iowa to Oregon City &c." Attached to these notes are three rather roughly sketched maps, two of which are pertinent

[1] This map is "Plate 21" in Henry R. Schoolcraft, *Archives of Aboriginal Knowledge*, III (Philadelphia 1860, originally published in 1853 as *Information respecting the History, Condition and prospects of the Indian Tribes of the United States*). Eastman was an artist as well as a cartographer, and this volume contains some excellent examples of his work, and a map (without maker's name) of the Indian Tribes of Oregon in 1852, showing the Emigrant Road on both sides of the Snake from about Fishing Fork to Fort Boise. It is possible that George Gibbs drew this anonymous map, as it was in this volume that the Journal of his 1851 California efforts with Colonel Redick McKee was published.

[2] This book contains a number of double-page pictures, one of Koronbus kneeling before Queen Isaberra. See *Transactions of the Asiatic Society of Japan*, Second Series, XVII (Tokyo, 1939). (The present writer has recently acquired a small collection of early Japanese maps of America, many purporting to include western areas. A study of these maps might prove interesting, not to say hilarious. Mayhap they will constitute such comic relief as the projected more-detailed study of western mapping could expect—or endure!)

here.[3] The first extends from Prairie Creek (a branch of the Platte) on the east to Soda Springs (near Fort Hall) on the west, while the second picks up at Fort Hall and continues to the Pacific Coast. Most rivers are numbered, a list of 53 appearing on the margin, whereas cities are lettered (some are both lettered and numbered). In the Black Hills is the legend "Good signs of Gold Here," and just west of South Pass is the "old Road" and a "New cut off to avoid the Gt Desert." West of Fort Hall is a route much north of that usually traveled to Fort Boise, labeled "New road traveled by wagon first July 20th 1852," but whether this was done by this author is not stated. However, west of Fort Boise is a road to the source of the Willamette marked "New Road of 53 not traversed yet by Wagon March 20th 1853." Farther south the "Tuckeyo [Truckee] Road," Lawson Cut off and Southern Rout to Oregon branch off from each other at the Humbolt L. or Sink, the last going northwest to Klamath Lake, thence south almost to "Mt. Shata" and continuing to Jackson Ville, in Oregon, by way of "Wyreka." Maps of this character drawn by actual emigrants are as rare as they are interesting and *vice-versa*.

Two valuable maps illustrated Captain Randolph B. Marcy's report on the *Exploration of the Red River of Louisiana in the year 1852* (32nd Cong., 2nd Sess., Senate Ex. Doc. 54, Serial 666. See Wagner-Camp 226, and note respecting two other editions). One, a "Map of the Country between the frontiers of Arkansas and New Mexico," includes the area between the Mississippi on the east and the Colorado on the west, and from the Arkansas on the north to Latitude 30° on the south. Marcy's 1849 route from Fort Smith to Santa Fe is shown, as is his 1851 return route from Donna

[3] This manuscript guide is preserved in the Coe Collection at Yale. (*Catalogue of Manuscripts in the Western American Collection Yale University Library* [New Haven, 1952] No. 266).

Anna (north of El Paso) to Arkansas, together with General Kearny's routes of 1846 and 1847, Colonel Cooke's wagon route, the 1851 route of Captain Sitgreaves, the Boundary Com. Wagon road, Messrs. Bartlett and Conde's Line 32°22, the Disputed Territory—6000 square miles, and Mr. Gray and Coln. Graham's Line 8 miles above El Paso 31°52. North of the Gila is the word "Unexplored" and the legend "In the vicinity of this place a tract of country is found which is said by several trappers to be exceedingly fertile, and abundantly timbered and watered."[4] Marcy's second 1853 map deals with the upper Red River country and is on a larger scale than the other, on which the Red was merely shown in outline. Marcy was a careful cartographer, and was assisted on this expedition by George B. McClellan of Civil War fame, at this time only a Brevet Captain.

Another rising young officer was Captain Lorenzo Sitgreaves, whose *Report of an expedition down the Zuni and Colorado Rivers* was published in 1853, having to do with an exploration made in 1851 (32nd Cong., 2nd Sess., Senate Ex. Doc. 59, Serial 668; Wagner-Camp 230). The announced purpose of this effort was to determine whether the Zuñi River emptied into the Colorado, and to examine the intervening territory. The Zuñi was followed to the Little Colorado, which was left at the head of its canyon, probably near the present-day Cameron trading post. Passing near the San Francisco Peaks (a spur of which now

[4] Two small maps are pertinent at this point. The first, consulted at the Huntington Library, illustrates the disputed boundary near El Paso and was drawn by G. Schroeter of the firm of Disturnell and Schroeter of New York. It shows Conde's proposed line, that of the Constitution of Chihuahua as claimed by Mexico; the line of 32°22′ (said to be the line according to the treaty map), and the line of 31°52′ claimed by the United States, after the treaty map boundary had been "reduced to the true position of El Paso." The other is a small woodcut map, without title, showing "Gadsden's Boundary" as well as railroad routes from St. Louis and other Mississippi River cities through "Pass" (El Paso) and on to San Diego, Los Angeles and San Francisco. (This is a separate map, now in the Library of Congress, and its provenance has not been learned. Doubtless it was prepared to forward the cause of some railroad projected for the southern route.)

bears Sitgreaves' name), the party continued west, reaching the Colorado near the Mojave villages. After a brush with these Indians (who had once ambushed Jedediah Smith's party and had continued to prove difficult), Sitgreaves turned south to Camp Yuma and proceeded thence to San Diego. Oddly enough for one who had thus been in the area, the Mojave River is shown on Sitgreaves' map flowing into the Colorado near the site of present-day Needles. On this trip Sitgreaves had with him Lieutenant J. G. Parke, and Richard H. Kern, while Antoine Leroux acted as guide, as he had for the earlier Cooke expedition. The map is entitled "Reconnoissance of the Zuñi, Little Colorado and Colorado Rivers. Made in 1851 . . . drawn by R. H. Kern 1852." The Gila River area was taken from Emory's map, and the Colorado below Camp Yuma from a map drawn by Lieutenant George H. Derby.

Edwin F. Johnson, C. E., got into the Pacific Railroad squabble in 1853 with a series of articles entitled "Railroad to the Pacific—Northern Route. Its General Character, Relative merits, etc." in the *American Railroad Journal* published weekly in New York (Second Quarto Series, IX, Nos. 45–52). To illustrate his thesis he drew a large "Map of the Proposed Northern route for a railroad to the Pacific." On it are a number of printed straight lines, marked with distances, from points in the middle west to points on the Pacific Coast, with other lines denoting several potential rail routes. On a copy at the University of California Library extra water-color emphasis has been given to a route from New York to Council Bluffs, up the Platte and the South Platte, thence through South Park and down the Grand River, across the Colorado in the center of the wildest stretch of country in the United States,[5] thence to the

[5] This stretch coincides with a portion of a line marked "Route proposed at meeting Taos Co. June 1853."

Sevier and the Virgin, thence directly across the area where Death Valley lies, and finally over Walker's Pass and north to San Francisco. Most of Mr. Johnson's other routes seem about as far-fetched as this, and on the same copy of his map an alternate route to San Francisco is shown from South Park west to "Utah Fort" (he means Uintah) and past the "Mormon City," thence south of Salt Lake, on to the Humboldt, across the Sierra just west of Pyramid Lake, and finally to the Feather River, Sacramento City, and San Francisco. No such hand-affixed lines have been noted on other copies of his map. His own proposal was for a line from Chicago through St. Paul, continuing thence northwesterly to the Missouri near Fort Mandan, thence west across the Rockies at approximately the point where Lewis and Clark crossed, thence to Fort Colville and Bellingham Bay. (Mr. Johnson seems to have scoffed at the hard facts of geography, so far as railroad building is concerned.)

The Maps of 1854

Edwin F. Johnson was at it again in 1854, pressing for acceptance of his northern route, but now he had competition. One George Walter got out a *History of Kanzas* in New York (Wagner-Camp 246), with a "Map of the Great Central Route between the Atlantic and the Mississippi" showing a main railroad line from termini at Boston and New York to Albany, thence to Rochester, with a rail line through Ontario to Detroit, and also a water line from Buffalo to Detroit, thence to Chicago, from which point many lines strike off in various directions—that to Council Bluff connecting with a dashed line headed "South Pass Route for Pacific R. R.," and that to St. Louis connecting with a line through West Port and Fort Lawrence, in Kansas, thence to old Ft. Atkinson, where another (more southerly) route from St. Louis joins it. The combined

route, labeled "Central route for Pacific R. R." then heads due west, apparently up the Arkansas, and across the headwater of the Canadian and the Rio Grande. Far to the north is a line from "St. Pauls" called "North route for Pacific R. R."[6]

While this public tumult about a railroad to the Pacific would not die nor would the shouting cease, the air would be considerably cleared the very next year, when the preliminary reports of the Pacific Railroad Survey parties were published. No one in the early fifties apparently foresaw the full extent of the great practical difficulties in the way of *any* railroad to the Pacific, or dreamed that such a line would not even be started for another decade. Another event—one that served to halt the battle of maps and arguments anent the Mexican Boundary—was the Gadsden Purchase, which occurred on December 30, 1853. The story of the differences between the various Americans named to survey the Mexican boundary is a long one. John R. Bartlett, the American Commissioner, whose *Personal Narrative of explorations and incidents in Texas, New Mexico, California, Sonora and Chihuahua, connected with the United States and Mexican Boundary Commission, during the years 1850, 51, 52 & 53* (New York, 1854; Wagner-Camp 234), got around the fact that the troubles were over by the time his map was published (in this book) by using fairly heavy dashed lines for all other boundaries and a very faint line of tiny dots for the "Commissioners Boundary Parallel 32°22′" (west of "Don Anna" on the Rio Grande north of El Paso), and by then drawing another line of tiny double-dots along the Gadsden

[6] W. T. Steiger, of the U.S. General Land Office, drew a map in 1854 called "Diagram of the U.S.A. . . . showing proposed routes of the Pacific Railroad." It is just what it claims to be—a diagram, with straight, or almost straight lines denoting a Northern Route, a Central Route, a "Main Track" from Santa Fe to San Francisco, a Southern Route, and a "Branch to Puget's Sound" from a point southeast of San Francisco. (The copy examined is in the Collection of the American Geographical Society.)

line.[7] Bartlett made the claim, probably correctly, that the careful astronomical observations of Lieutenants Whipple and Emory and their associates, while surveying the boundary, were the first accurate determinations of most of the locations adopted, especially along the Gila River.

One of the earliest and also one of the most attractive maps to show the new boundary was that of the well-known early western surveyor, promoter, and former Texas cartographer, Herman Ehrenberg, who from "his private notes, & those of Major Heintzleman, Capt. Sitgreaves, Lieut. Derby; Bartlett; Gray; Julius Froebel & Others," drew and published in 1854 a "Map of the Gadsden Purchase Sonora and portions of New Mexico, Chihuahua and California," the California Historical Society's copy of which is inscribed "F. D. Atherton Esq. with the compliments of A. G. Randall & H. Ehrenberg." On this map the "Probable Route of the Atlantic & Pacific Rail Road via Texas" is given special treatment. One branch goes northwesterly to the Gila and down that stream to Ft. Yuma and "Colorado City," while another branch proceeds west past San Xavier and thence somewhat north to the same points. Captain Sitgreaves' route and Cook's (sic) Wagon Road, together with Kearny's route (unlabeled) and a small portion of "Fremont's Route to Great Salt Lake" are shown, and a line marked "Express Trail" is drawn east of San Diego. Ehrenberg published other maps in later years, but none has been seen that seems more interesting, or better constructed than this of 1854.[8]

[7] See *Boundaries, Areas, Geographic Centers, and Altitudes of the United States and the Several States* (2nd Ed., Washington 1939, U.S. Geological Survey Bulletin 817), pp. 37–39, which outlines the problems faced by the officials who sought to run the boundary stipulated in the Treaty of Guadalupe Hidalgo and points out how, for $10,000,000, the United States not only silenced the Mexican claim under that treaty, but obtained an area which included what was thought to be essential territory for a far southern railroad line. The El Paso of the boundary period was, of course, the town now known as Juarez, Mexico, the American town then being called Franklin. (See also Warren *Memoir* 78–80.)

[8] See Wagner-Camp 280 for note on Ehrenberg.

The original boundaries of the Territory of Utah had been established by the Act of September 9, 1850. They included most of present-day Nevada, a small part of Wyoming, and a portion of Colorado west of "the summit of the Rocky Mountains." The commercial mapmakers commenced to show this large Territory as early as 1851, but it seems doubtful whether a more attractive cartographic representation occurred during the early fifties than the map of the "Territory of Utah" published in Edinburg by "Prof. H. D. Rogers & A. Keith Johnston, F.R.S.E." This map shows the Territorial counties, and is well drawn, with numerous routes carefully shown. It was copyrighted in Massachusetts in 1857, and while no other date appears on its face, it is said to have appeared originally in 1854.

Perhaps the most interesting manuscript survival from 1854 is a pen-and-ink sketch of a route across the Sierra Nevada between Fort Reading, on the Sacramento River, and a point in the Humboldt Valley declared to be seventy miles above the river's sink. This map was drawn by one John A. Dreibelbis, and his proposed route crossed the "Lawson Road" at Pine Creek, just west of the head of Susan River, descended to the sink of that stream and crossed the Black Rock Desert before reaching the Humboldt.[9] Dreibelbis wrote a detailed description of the route, stating that from the Sacramento (presumably at Fort Reading) to the head of the Susan River was 105 miles, and that from that point to the Humboldt River was an additional 166 miles, a total of 271 miles. The map is drawn on a long

[9] This map and the accompanying manuscript description are in the present writer's collection. Little is known of Dreibelbis, but in the California State Library is a letter from him to Pierson B. Reading, dated at San Francisco July 14, 1861, supporting Reading for the gubernatorial nomination by the Breckenridge wing of the Democratic Party. *Hutchings' Illustrated California Magazine*, I (1856–57), 539–541; carried a "Description of the country and road from the Humboldt River to the Sacramento Valley, by Honey Lake Valley and Noble's Pass" written by Dreibelbis, who is declared to have "passed over the route several times during the summer and fall of 1853."

narrow sheet of blue notepaper, and is an interesting relic of the days when many were thinking how such barriers as the Sierra Nevada could best be conquered by the hoped-for Pacific Railroad.

Gwinn Harris Heap's 1854 "Map of the Central Route from the Valley of the Mississippi to California" is far too little known, for the expedition of Edward F. Beale, newly appointed Superintendent of Indian Affairs in California, the account of which this map illustrates, was one of the most important non-governmental exploring efforts of the fifties.[10] Beale was a redoubtable character with a number of western exploits already to his credit,[11] and on this expedition he elected to follow what he believed to be the most direct route to California. Leaving Westport (present-day Kansas City), the party struck southwest past Council Grove to the Arkansas River at its Great Bend, thence past Fort Atkinson and Bent's Fort. The Huerfano River was ascended, and the group crossed Sangre de Christo Pass to Fort Massachusetts, on the Rio Grande's headwaters. They ascended the Rio Grande and crossed Coochatope Pass, reaching a stream called by the Mexicans "Rio de los Cibolos" (!) and finally encountered the "Grand River Fork of the Great Colorado" in full flood. Most of their equip-

[10] The story of the trip was published (with this map in some copies only) in Gwinn Harris Heap, *Central Route to the Pacific* (Philadelphia, 1854; Wagner-Camp 235). A note on the map reads, "The route from the mouth of the Huerfano R. to Las Vegas de Santa Clara [now Las Vegas, Nevada] is from notes kept by G. H. Heap during the Expedition of Superintendent Beale from Westport Mri. to California in the year 1853. The remainder is from the surveys of J. C. Fremont and others."

[11] See Stephen Bonsal, *Edward Fitzgerald Beale a Pioneer in the Path of Empire* (New York, 1912). Beale accompanied Kit Carson on his midnight dash from Kearny's Camp after the battle of San Pasqual, bringing news of the American forces' desperate situation to Commodore Stockton at San Diego. He later carried the first California gold across Mexico to New York and Washington. He was Indian Superintendent during a trying period, and he was instrumental in attempting to introduce camels for western freighting. He later engaged in rail and wagon road surveys, was Surveyor-General of California and Nevada under Lincoln, and Minister to Austria under Grant. Gwinn Harris Heap was related to Beale. He drew a number of interesting illustrations for the 1854 book, and later made drawings of the camel-buying expedition to the middle east.

ment was lost in an attempt to cross, first by raft then by canoe. Heap went to Taos for provisions, the Grand was successfully crossed, and the party proceeded across country to the Green. Crossing it in boats made of hides, they went on to the "Rio Severs. or Nicollet River" (the Sevier), to the Mormon Settlements of Paragoosa, Parawan, and Cedar City, thence southwest down the Virgin, along the "Old Spanish Trail" to the Mojave River, across Cajon Pass, and finally Los Angeles.[12]

Heap's map was the first to show the middle Rocky Mountain region, through what is now Southern Colorado, and it was also noteworthy as the first to indicate the 1849 Death Valley pioneer route, a double dashed line extending on it west from a point south of Cedar City and turning south at a point east of Owen's Lake, labeled "Revd. Mr. Brier's Route." Though not as detailed as were the Pacific Railroad Survey maps, this is a document of great merit and interest.

The Maps of 1855

The year 1855 witnessed the publication of the first concrete results of the Pacific Railroad Surveys, but before these are discussed certain other maps are worthy of attention. The first is entitled "Map of New-Mexico and the Territory acquired by the Gadsden Treaty. Also showing the proposed Southern or Texan Rail Road Route." It is a map of more than passing importance and it is regrettable that it bears no author's name. Both Ehrenberg and Colonel A. B.

[12] As far as the Sevier River, Heap and Beale were followed later in 1853 by Captain Gunnison's Pacific Railroad survey party. The Captain, R. H. Kern, and six others were killed by Indians near Sevier Lake. The map of this expedition, drawn by Lieutenant E. G. Beckwith, will be considered with other maps of the Pacific Railroad Reports.

In 1857 Beale led a notable exploring expedition from Fort Defiance to the Colorado River, which resulted in an important map, published in 1858 (35th Cong., 1st Sess., House Ex. Doc. 124). It was on this expedition that a drove of camels was used, being praised by Beale in no uncertain terms. In 1858–59 Beale headed surveys from Fort Smith to the Colorado along the 35th parallel. (See Wagner-Camp 297.)

Gray were at work in this area just before this map must have been drawn, and after Gray left the Boundary Survey he became interested in the proposed Texas Western (later Southern Pacific) Railroad, but the style of this map seems to be neither his nor Ehrenberg's.[12a] At any rate, the map shows the New Mexico Counties and various Indian tribes, the routes of many explorers, the "Old Boundary" and the "New Boundary or Gadsden Treaty Line," the "Texan Rail Road Route" reaching Franklin (El Paso) from the east, and a small part of southern California.

Gray's own 1855 map accompanied his last official report (33rd Cong., 2nd Sess., Senate Ex. Doc. 55, Serial 753; Wagner-Camp 254), and represents the culmination of his boundary survey efforts. It has a long title commencing "Map of that portion of the boundary between the United States and Mexico" with statements of those responsible for various sections. In addition to the various potential and finally-agreed boundaries, it shows a "Route recommended for Rail Road" from El Paso to a point south of Tucson and a "Route Suggested for examination" from that point to the Gila River a few miles east of Fort Yuma, with a "Practicable Rail Road Route" northwesterly from Fort Yuma over the San Gorgonio Pass to San Pedro, and two routes "suggested for examination" farther south, terminating at San Diego. Colonel Cooke's road is termed a "Practicable Rail Road Route." The map extends from slightly east of El Paso to the Pacific, and from the Salt River south into Sonora, below Arispe. It is a beautifully executed map, and its author lists his sources in detail. Gray was the government surveyor who successfully protested the 32°22′ line west of Dona Anna on which Bartlett and Conde had

[12a]Copies of this map are preserved in the Huntington Library and Southwest Museum collections.

agreed, and he records the incident along the discarded boundary.[13]

One of the most beautiful books of western description of any period was James Linforth's *Route from Liverpool to Great Salt Lake Valley* (Liverpool, 1855; Wagner-Camp 259), illustrated with superb steel engravings by Frederick Piercy. Its map of "Utah and the overland routes to it from the Missouri River" was engraved by F. D. Richards and embraces the territory from the Mississippi to the Pacific and from Fort Mandan to the Mexican boundary. The Utah counties are delicately colored by hand, the route from Council Bluffs across South Pass to Salt Lake City being likewise colored.

The Report of the Quartermaster General for 1855 (34th Cong., 1st Sess., Vol. 2, Senate Ex. Doc. 1; see Serials 811 *seq.* and for the House Doc., Serials 841 *et seq*; Wagner-Camp 256) includes a report by Rufus Ingalls with a map showing the route of Colonel E. J. Steptoe's detachment west of Great Salt Lake. In the Library of Congress is a manuscript map drawn by Louis Scholl, but prepared by Captain Ingalls for Major General John E. Wool, commandant at San Francisco, showing Colonel Steptoe's Carson Valley route, Captain Ingalls' Humboldt-Goose Lake route, and Lieutenant Sylvester Mowry's Utah Lake—Virgin River—Fort Tejon route, with certain routes "proposed by Colonel Steptoe." This map was doubtless the source of the printed map in the House Document referred to, entitled "Map showing the different routes travelled over by the Detachments of the Overland Command in the Spring of 1855 from Salt Lake City, Utah to the Bay of San Francisco." In the

[13] Gray also reproduced a portion of "Disturnell's Treaty Map" near the Rio Grande, with lines representing parallels of latitude and the Bartlett and Conde line west of the river. (This is Lawrence Martin's Disturnell facsimile number 11.)

Gray also published in 1855 a map showing the proposed route of the Texas Western Railroad, to accompany a report on the project (See Wagner-Camp 255).

present writer's collection is a map on tracing cloth, without title, embracing the area from South Pass to the Pacific and from Flathead Lake to Latitude 38°, showing two "proposed routes" of Colonel Steptoe south of the Humboldt River route, along which he actually traveled. It has a "Table of Distances from Vancouver Depot to Great Salt Lake City, U. T.," and a line showing the route from Salt Lake to Fort Dalles on the Columbia (with three separate routes from a point near Fort Boisée to Fort Dalles). It also has some egregious errors, such as calling Gunnison "Cunnison," and displaying "Baytown" (for Ragtown, near Carson Sink), "Gold Cannon" (for Gold Canyon), and a "Truckley" River.

The so-called *Pacific Railroad Reports* have long constituted a bibliographical headache. There were two separate editions, the *octavo* of 1855, found usually in two volumes of text and one of maps, and the *quarto*, which appeared haphazardly from 1855 to 1859 in twelve large volumes.[14] The maps which accompanied these reports do not constitute so complicated a problem. Those of the *octavo* edition of 1855 will be considered at this point, and those of the *quarto* edition will be discussed later, in connection with Lieutenant Warren's general map of 1857.

The preliminary report of Secretary of War Jefferson Davis was dated February 6, 1854 (33rd Cong., 1st Sess., Senate Doc. 29). His further report, dated February 27, 1855, was accompanied by seven additional reports of the several surveys, and it is this group of reports that is generally referred to as the *octavo* edition.[15] It was not illustrated

[14] Usually bound in thirteen, with Vol. XII in two parts. For a discussion of these Reports, see Wagner-Camp 261–267 and George L. Albright, *Official Explorations for Pacific Railroads* (Berkeley, 1921, University of California Publications in History, Vol. XI).

[15] 33rd Cong., 1st Sess., House Ex. Doc. 129, consisting of two volumes of Reports (Serials 736–738) and one volume of maps (Serial 739).

with drawings, as was the later edition, but it carries a general map and also maps outlining each expedition.

The general map was prepared by Lieutenant Gouverneur Kemble Warren, and is entitled "Map of Routes for a Pacific Railroad Compiled to accompany the Report of Hon. Jefferson Davis, Sec. of War in Office of P. R. R. Surveys 1855." On it appears the following note:

> This map is a hurried compilation of all the authentic surveys and is designed to exhibit the relations of the different routes to each other. An elaborate map on a scale of 1:3000 000 is being compiled and is in an advanced state
>
> G. K. Warren
> Lt. Top. Engrs.

In the Library of Congress is a copy of this map without lines denoting survey routes, presumably an early or trial draft. The published map, however, has on it a complicated series of solid lines and some dashed lines, none labeled, generally showing the routes examined by the various survey parties west of the Mississippi River. The base map is in outline form, showing only the main river systems and highly simplified mountain ranges. Many present-day railroads follow portions of these routes, but it is believed that no route shown on this map is followed by rails from terminus to terminus. Probably the Santa Fe Railroad comes as close to doing so as does any existing line, though there are important deviations even on that route. The contrast between this hurriedly gotten up preliminary map and Lieutenant Warren's magnificent Transmississippi map of 1857 are striking.

The Report of explorations made in 1853, 1854, and 1855 near the 47th and 49th parallels—the northern route—was signed by Isaac I. Stevens, Governor of Washington Territory, who led this expedition. (33rd. Cong., 1st Sess., House Ex. Doc. 129, Serial 736). The accompanying map, entitled "Preliminary Sketch of the Northern Pacific Rail

Road exploration and survey," is in three sheets, the first part starting at St. Paul and showing the survey proceeding northwesterly along the Plateau du Coteau du Missouri to the Riviere des Lacs. The second part extends westward from that point to the Rocky Mountains, reaching the Missouri River at the mouth of the Big Muddy River and leaving it by way of the Milk River, which is followed to the Bears Paw Mountains, whence the route extends southwesterly to "Lewis and Clark's Pass." The third part displays the survey from the Rocky Mountains to Puget Sound, with alternate routes coming down the Blackfoot Fork of the Bitter Root River and the Hell Gate River, thence continuing westward across the Coeur d'Alene Mountains (also Clark's Fork to Pend d'Oreille Lake), thence across the "Great Plain of Columbia" to a point near Fort Wallah Wallah, whence one branch follows down the Columbia to Fort Vancouver, while another goes up the Yakima River, crosses the Cascade Range at Snoqualme Pass, and reaches a terminus at Seattle (then recently founded). A connection between Seattle and Fort Vancouver is also shown, with a dashed line running north, west of Puget Sound, to the Strait of Juan de Fuca. A tiny insert of a route across Nobles Pass in the northern Sierra Nevada is included on this third sheet of Stevens' map.

The next two Reports are those of Lieutenant E. G. Beckwith, the first dealing with his explorations near the 38th and 39th parallels, from the mouth of the Kansas River to the Sevier River in the Great Basin in 1853, and the second pertaining to his explorations along the 41st parallel to the Pacific Coast in 1854 (33rd Cong., 1st Sess., House Ex. Doc. 129, Serials 737 and 739). It was on the first of these expeditions that Beckwith's superior, Captain J. W. Gunnison, and Richard H. Kern were killed by Indians near Sevier Lake, Utah. Apparently a single map was

intended to cover both explorations. It is entitled "Skeleton map exhibiting the route explored by Capt. J. W. Gunnison U.S.A. 38 Parallel of North Latitude—1853, also that of the 41 Parallel of Latitude Explored by Lieutenant E. G. Beskwith [sic] 3d. Arty. (1854)." The map was drawn by F. W. Egloffstein, who later became a well-known cartographic artist.

On this map one line is shown from St. Louis to Kansas (City), thence up the Kansas River and its Smoky Hill Fork and across to the Arkansas at Fort Atkinson, thence west, north of the Spanish Peaks, over Sangre de Cresto (sic) Pass and generally west across the Grand and Green rivers to the Sevier River, where, almost at its lake, are the words "Capt. Gunnison killed by the Indians." From the Kansas River, a branch of this route goes up the Republican Fork and across to the Platte at Cheyenne Pass (in the Black Hills).

The other route shown on this map starts at Chicago (not named) and reaches the Platte at Fort Kearney, using the south fork for a short distance, thence continuing west across Cheyenne Pass and Bridger's Pass to Bridger's Fort on Black's Fork of the Green, thence to Utah Lake and across the desert (south of Great Salt Lake) to the Humboldt; which is followed to a point northeast of Pyramid Lake, thence across an unnamed pass over the Sierra Nevada (probably the one commonly called "Noble's Pass") and down the Sacramento River to a point near Shasta (City), thence due south (west of the Sacramento) to Benecia.[16]

[16] The pass sometimes written "Beckwith," over which the Western Pacific Railroad now reaches California, should not be confused either with Lieutenant Beckwith or his route (farther north) across the Sierra Nevada. The pass in question is properly termed "Beckwourth" and was named for its discoverer James P. Beckwourth, the celebrated (and notorious) mulatto adventurer whose tales were recorded by T. D. Bonner in 1854–55 in the Feather River Country, just west of the Pass. See *The Life and Adventures of James P. Beckwourth* (New York 1856, Wagner-Camp 272, reprinted by Alfred Knopf 1931); see also Erwin G. Gudde, *California Place Names* (Berkeley 1949) p. 26.

Lieutenant Amiel Weeks Whipple reported on his survey for a rail line near the 35th parallel (33rd Cong., 1st Sess., House Ex. Doc. 129, Serial 737). His map (in Serial 739) is in two very large sheets, and is entitled "Reconnaissance and survey of a railway route from Mississippi River near 35th parallel north lat. to Pacific Ocean." Whipple[17] was assisted by Lieutenant J. C. Ives and by A. H. Campbell, a civil engineer. His "Map No. 1" extends from Memphis, on the east, to Santa Fe, the explored route starting at Van Buren, near Fort Smith, Arkansas, and proceeding up the Canadian River Valley to one of its head streams, Pajarlto (Pajarito) Creek, thence to Anton Chico on the Pecos and on to Albuquerque. "Map No. 2" shows Whipple's route from Albuquerque and Isleta proceeding westerly past Laguna, El Moro (Inscription Rock), and Zuñi, across country to the Little Colorado, which is followed almost to the head of its canyon, thence around the south side of the San Francisco Peaks and then due west past Bill Williams Mountain and down Bill Williams Fork to the Colorado south of the Needles, crossing at the Mojave villages and proceeding thence to the Mojave River, which is followed to and over Cajon Pass, after which the route passes "Cocomongo" and Los Angeles and reaches tidewater at San Pedro Bay. Whipple made it clear that the Mojave did not drain into the Colorado.

Captain John Pope's exploration was along the 32nd parallel from the Red River to the Rio Grande. (33rd Cong., 1st Sess., House Ex. Doc. 129, Serial 737). His map—a monumental piece of paper with very little on it—shows a narrow mapped route between Preston, Arkansas, and Dona Ana, on the Rio Grande north of El Paso. This was largely a cross-country route, crossing the Trinity, the

[17] See Grant Foreman, *A Pathfinder in the Southwest* (Norman, University of Oklahoma Press, 1941).

Brazos, and the Colorado (of Texas), thence to the Pecos near present-day Carlsbad, New Mexico, thence west, around the point of the Guadalupe Mountains and past the "Hueco Tanks" and "Hueco Pass" to Franklin (El Paso), with a southerly bend from the Pecos west "suggested for examination," and a route from Hueco Pass northwesterly to Dona Ana.

Lieutenant John Grubb Parke continued his exploration of the 32nd parallel route between Dona Ana and the Pimas Villages, on the Gila (33rd Cong., 1st Sess., House Ex. Doc. 129, Serials 738 and 739). He went from west to east, starting at the Pimas Villages, heading southeasterly then slightly north of east to the Peurto del Dado in the Chiricahui Mountains, thence to a crossing of Cooke's Wagon Trail near Ojo de Vaco, past Cook's (sic) Spring in the Mimbres country (with an alternate route farther south) and finally to Fort Fillmore, near Mesilla (south of Dona Ana) on the Rio Grande.

The final map of the *octavo* edition of the *Pacific Railroad Reports* is the "General Map of a survey in California in connection with railroad routes to the Pacific Ocean made . . . by Lieut. R. S. Williamson, U.S. Topl. Engrs. assisted by Lieut. J. G. Parke, U.S. Topt. (sic) Engrs. and Mr. Isaac Williams Smith, C. E., drawn by Charles Preuss." It extends from the San Francisco Bay region to the southern boundary of California, and shows routes of exploration in both the San Joaquin Valley and the Coast Range, the former crossing old Tehachapi Pass, and continuing in the desert to Cajon Pass, the other passing San Luis Obispo and Santa Barbara, and crossing San Fernando Pass to Los Angeles. A route is then shown to San Diego, and another from San Bernardino over San Georgino (Gorgonio) Pass and finally to Fort Yuma.

These maps, though "preliminary," were of the highest importance. It has long been fashionable for some historians (and many near-historians) to "talk down" the Pacific Railroad Surveys and the resulting Reports. With all their faults, however, these organized reconnaissances did much for western geographical knowledge, and in the field of cartography they—and they alone—rendered possible the preparation of a reasonably definitive map of the West. From that viewpoint, they were of paramount importance—even in this preliminary stage.

The Maps of 1856

Probably the most important publication of 1856, from the standpoint of western cartography, was the Report of the General Land Office, in which appeared maps prepared by the United States Surveyor of California (John C. Hays), of the Territory of New Mexico (William Pelham), of Washington Territory (James Tilton), and of Oregon Territory (C. K. Gardiner), the last limited to the area west of the Cascade Range. These maps reflected surveys made in 1855 or earlier, and accompanied the Report of the Surveyor General, attached to the 1856 Message of the President. (34th Cong., 1st Sess., Senate Ex. Doc. 1). Lieutenant Warren (*Memoir*, p. 88) states that he found the work of the General Land Office useful in constructing his 1857 map, but explains that certain deviations occurred because of the use by the Land Office of "principal meridians." Other participants in the Pacific Railroad Surveys also found the work of the Land Office useful, especially in California and in Utah, where for a time David H. Burr was United States Surveyor. Moreover, the United States Coast Surveys were progressing rapidly at this time along the Pacific. They are not within the scope of the present study, but many maps here considered made good use of them. Lieutenant Warren,

for example, followed them wherever possible, but found that this coastal work was really "just beginning," with many changes in coastline representation as the surveys progressed.

An interesting woodcut map entitled "Route to the Pacific" accompanied a communication from one George B. Simpson to the *Railroad Record: Supplement* (Cincinnati, February 11, 1856). That journal was commencing a series of issues devoted to "the great question of the Pacific Railroad"—in fact, this initial issue carried an article on "The Texas Pacific Railroad and its Advantages." Simpson wrote from Lower Cascades, Columbia River, Washington Territory, addressing his letter to "E. Gest, Esq., President of the Platte River Valley and South Pass Railroad Company," and pressing the advantages of the mouth of the Columbia as the proper terminus of the continental railroad. His map extends from "Ft. Larmie" on the North Platte to Vancouver on the Columbia, and his proposal was for a railroad up the Platte and Sweetwater, through a "Continental Pass" north of South Pass, thence across the headwaters of the Green to those of the Portneuf (admittedly "Unexplored") and down it to Fort Hall. From this point the route curved north of a "Great volcanic crater and lava plain" to a point near Fort Boise, whence it descended the north bank of the Snake River to Walla Walla, where it crossed the Snake and continued down the south bank of the Columbia, and finally across to Vancouver (and presumably on to Astoria, with a branch to Olympia and beyond). In the concluding paragraphs of his letter Simpson waxed oratorical, concluding:

> Would to God, that every American [h]earth was lighted with the fire of our forefathers—the fire of patriotism that kindled the revolution—then would their motto be, the Continental Railroad—the Highway of Nations—the European and the Oriental Commerce!

It would take much more than patriotic hearthfires to construct the Continental Railroad. Four shopkeepers in Sacramento, spurred to action by an engineer who had found where he could put rails across the Sierra, would in the end accomplish more by way of actual results than did all these pamphleteers—more even than flowed from the Pacific Railroad Surveys themselves, or their beautifully printed Reports and maps.

Much more down to earth, as the editor of the *Railroad Record* noted, was the practical work of the men who were promoting the "Texas Western Railroad." The name was soon changed to "Southern Pacific Railroad," and as such the line was eventually built. Colonel Andrew B. Gray, formerly of the boundary survey, made a report for the company, published in 1856[18] and illustrated with a "Preliminary Map to accompany report of A. B. Gray of the route of the Texas Western Railroad now changed to Southern Pacific Railroad compiled from explorations by A. B. Gray." The proposed line had much in common with that surveyed and mapped by Lieutenant Parke. From the east it was to receive connections from many cities, and west of El Paso a number of "practicable" routes (and routes "suggested for examination") are shown. The Colorado was to be crossed at Yuma, with a line to San Diego, and another to Los Angeles. Apparently these promoters were content to end their line at that "Queen of the Cow Counties," since Gray's map shows no railroad proceeding north to San Francisco. Much of this map stems from Gray's earlier map, made for the Boundary Survey.

During the late forties and early fifties the Army devoted much attention to the finding of practicable wagon-road locations, and some expeditions—such as Cooke's—had the

[18] See *Survey of a route for the Southern Pacific R. R., on the 32nd parallel, by A. B. Gray, for the Texas Western R. R. Company* (Cincinnati, Ohio, 1856). This is Wagner-Camp 275.

development of wagon-road routes as one of their prime purposes. In Utah, New Mexico, Oregon, and Washington the Topographical Engineers were kept busy on these projects, and much was accomplished. Many maps eventuated and some have been discussed, although many manuscript maps from the Bureau's files—now in the National Archives—have not been mentioned in this preliminary study. During the middle fifties agitation developed to place these activities in civilian hands, or at least under the supervision of some other government department. Senator John B. Weller, of California, a determined proponent of road construction, led this movement, and in 1856 the Department of the Interior was selected by Congress to engage in road construction. Some work was done, but it was not until after the close of the period selected for the present study that maps of any importance were published. Shortly thereafter Frederick W. Lander, an experienced engineer (who had assisted Governor Stevens in the Northern Pacific Rail Line survey) did produce maps of considerable interest, especially of the Fort Kearny, South Pass, and Honey Lake road project, while John Mullan did the same for a more northern road. The 1859 *Report upon the Pacific Wagon Roads* by Albert H. Campbell was a document of basic importance (35th Cong., 2nd Sess., House Ex. Doc. 108, Serial 1008; Wagner-Camp 321).[19]

[19] For an excellent account of wagon road projects and development, both by the Military and by the Interior Department, see W. Turrentine Jackson, *Wagon Roads West* (Berkeley, 1952).

Chapter IX

The Maps of 1857, Including Warren's Map of the Territory West of the Mississippi

Before closing this bird's-eye-view of the mapping of the West with a description of Lieutenant Warren's 1857 map, a few other maps of that year deserve attention, and the maps of the *quarto* edition of the Pacific Railroad Reports—of which Lieutenant Warren's map was the culmination—should at least be mentioned.

Sylvester Mowry, last heard of in connection with Colonel Edward J. Steptoe's 1854–55 expedition in the Great Basin, had by now been elected Delegate to Congress from the proposed Territory of Arizona, and had written a *Memoir of the proposed Territory of Arizona* (Washington, 1857; Wagner-Camp 293). The map (accompanying some copies only) was taken from Gray's map of 1856, and extends from El Paso to the Pacific Coast, showing all of Gray's "proposed," "practicable" and "suggested for further examination" railroad lines. The words "New Mexico" run across the upper portion of the map, which reaches north only to slightly above the Salt River. Apparently the idea was to cut New Mexico in half horizontally, and a copy of this map at the Huntington Library has water-color boundaries so drawn. When Arizona was finally set off from New Mexico, the line was drawn vertically, thus leaving the Rio Grande settlements from El Paso north to Fort Conrad in New Mexico.[1]

William Chandless published in London in 1857 an engaging account of *A Visit to Salt Lake* (Wagner-Camp 287), with

[1] This map, with a different title—"Map of the mineral regions on the proposed Southern Pacific Railroad through Gadsden Purchase"—was used to illustrate a report of the Sonora Exploring and Mining Company for 1856. It seems to have been omitted in the 1857 report, but that document reprints an interesting "Sketch of Silver Regions around Tubac," drawn by Herman Ehrenberg. He was one of the promoters of this enterprise, along with Heintzelman, Poston, and Brunckow (well-known Arizona pioneers), and this group was also behind the Southern Pacific Railroad project. (See Wagner-Camp 275, 280 and 293).

a small "Map shewing the author's Route." He went up the Platte and across South Pass to Salt Lake City, and from there south, through Cedar City, to the Mojave River and Los Angeles, continuing to San Francisco by boat. The map is interesting and deserves mention here because it is one of those maps that reflects a personal trip. Another map, published in the *Placer Herald*, at Auburn, California, showed "the proposed emigrant roads" across the Sierra. With Sacramento and Marysville as western termini, and Auburn, Nevada (City), and Grass Valley prominently displayed, no less than six ways to cross the mountains are shown, the "Placer Route"—through Auburn—being labeled east of the Sierra "Placer route connecting with Government Route," which comes in from the north around the east side of Pyramid Lake and continues eastward south of the emigrant route (by way of the Sink of the Humboldt). It probably reflects Steptoe's ideas, and possibly the proposals for a route by way of Honey Lake. This is a crude woodcut map, but in human interest it is revealing, and in a lengthy article the editor describes "The Placer County Road over the Sierra Nevadas," on which the people of his community had pinned their hopes.[2]

The final chapter of the Mexican boundary story was written by Major William H. Emory, the last American Commissioner, whose monumental two-volume "Report on the United States and Mexican Boundary Survey" was dated 1857 (34th Cong., 1st Sess., House Ex. Doc. 135, Serials 861–863; Wagner-Camp 291). It was accompanied

[2] An undated map in the New York Public Library's map collection was probably issued in 1857 in connection with the mail route proposals then under consideration. It is entitled "Skeleton Map of the Overland Mail Route to California," and was apparently published to support the proposal of John Butterfield and his associates for a route from San Francisco across the Tejon Pass, thence to Albuquerque and finally to St. Louis. However, the Post Office Department (doubtless under political pressure) preferred the Memphis route (also here shown) through Los Angeles, Yuma, El Paso, and Little Rock. On this map the central overland route also appears, but the two more southerly routes are heavily accented in color, and it is stated that the more northerly of these two is 391 miles ("four days travel") shorter than the other, which was to become famous as the route of the "Butterfield Stages," starting in 1858.

by a beautifully executed "Map of the United States and their Territories between the Mississippi and the Pacific Ocean and part of Mexico," stated to have been compiled from Emory's surveys, as well as "The Maps of the Pacific Rail Road, General Land Office, and the Coast Survey." Although the Report bore the date 1857, this map is dated "1857–8." It was drawn by Thomas Jekyll, a talented draftsman, under the supervision of Lieutenant Michler of the Topographical Engineers. This map was neither so large nor so complete as that of Lieutenant Warren, but it was an outstanding monument of western cartography, and it embodied more of the discoveries of the preceding decade than had any previous map. The Mexican boundary, and the various earlier alternative boundary proposals, are of course given prominence. Emory was a man of great ability, and his contributions to western mapping, prior to the publication of the Pacific Railroad Survey Reports, were surpassed only by the team of Fremont and Preuss.

The *quarto* edition of the Pacific Railroad Reports was now appearing, volume by volume (33rd Cong., 2nd Sess., Senate Ex. Doc. 78, Serials 758–768, and Doc. 46, Serial 992; House Ex. Doc. 91, Serials 791–801, and 36th Cong., 1st Sess., House Ex. Doc. 56, Serials 1054 and 1055. See Wagner-Camp, page 332, for bibliographic details). Volume XI, actually published in 1859, but containing maps of the various expeditions completed earlier, was the general map volume. In addition to the maps (and profiles of routes), it contained Gouvernour Kemble Warren's *Memoir upon the Material used and Methods employed in compiling the General Map*. The maps were (1) Warren's General Map; (2) the three-sheet map of Isaac I. Stevens' survey of the northern route; (3) Lieutenants Williamson's and Abbot's two-sheet map of "Routes in Oregon and California" (Map No. 1 being "From San Francisco Bay to the Northern Boundary of California," and Map No. 2 being "From the Northern Boundary of California to the Columbia River"); (4) Lieu-

tenant Beckwith's map of the 41st parallel survey (Map No. 1, "From the Valley of the Green River to the Great Salt Lake"; Map No. 2 "From Great Salt Lake to the Humboldt Mountains"; Map No. 3 "From the Humboldt Mountains to the Mud Lakes" and Map. No. 4, "From the Valley of the Mud Lakes to the Pacific Ocean"); (5) Captain J. W. Gunnison's maps on the 38th and 39th parallel route (Map No. 1, "From the Western Boundary of Missouri to the mouth of Trap Creek"; Map No. 2, "From the Mouth of Trap Creek to the Santa Fe Crossing"; Map No. 3, "From the Santa Fe Crossing to the Coo-cheto-pa Pass"; and Map No. 4, "From the Coo-cheto-pa Pass to the Wahsatch Mountains"); (6) Lieutenants Whipple and Ives' maps of the "Route near the 35th Parallel" (Map No. 1, "From Fort Smith to the Rio Grande"; and Map No. 2, "From the Rio Grande to the Pacific Ocean"); (7) Lieutenant Williamson's "General Map of Explorations and Surveys in California," from San Francisco south (together with "Map of Passes in the Sierra Nevada from Walker's Pass to the Coast Range"; "Map and Profile of the Cañada de las Uvas," and "Map and Profile of Tejon Pass"); (8) Lieutenant Parke's map of the California Coast Route entitled "Map No. 1 from San Francisco Bay to the Plains of Los Angeles," and also his "Map No. 2, From the Pimas Villages to Fort Fillmore"; and (9) Captain Pope's "Map and Profile No. 1" of the 32nd parallel route, "From the Red River to the Rio Grande."[3]

In his 1859 *Memoir*, Lieutenant Warren discusses these maps (pp. 63 *et seq*). The three-sheet Isaac Stevens map is more complete in the *quarto* edition. The Gunnison maps

[3] In addition, Volume II has Captain Pope's Geological map from the Red River to the Rio Grande, drawn by William P. Blake; Vol. III has Lieutenant Whipple's geological map from the Mississippi River to the Pacific Ocean, also by Blake; Vol. V has Blake's geological map of the portion of California surveyed by Leiutenant Whipple, and of the country between San Diego and the Colorado River; Vol. VII has a geological map from San Francisco Bay to Los Angeles (on Lieutenant Parke's route) by Thomas Antisell; Vol. XII, pt. 1 has Isaac Steven's Isothermal Chart from the Atlantic to the Pacific Oceans, and Vol. XII, pt. 2 includes his large map of the route from Milk River to the Columbia River.

were not included in the *octavo* edition, nor were the detailed Williamson maps. Apparently the *quarto* edition did not carry several of the maps that had appeared in the *octavo* edition, but some copies may have them, as some sets seem not to follow the same pattern as others.[4] Lieutenant Williamson's survey from the Sacramento River to the Columbia did not take place until the summer of 1855, and his report and map (prepared by Lieutenant H. L. Abbot, in Williamson's illness) appears only in the *quarto* edition.

The Warren Map

The general map combined in one document not only the cartographical data secured on the several Pacific Railroad Surveys, but also such material as had been developed in the office of the Army's Topographical Engineers and in the General Land Office. Lieutenant Warren also consulted many earlier maps, and seems to have done his best to trace the cartographic development of the Transmississippi West. He was a meticulous young officer, and numerous original drawings of small portions of his map have been examined in the National Archives. Edwin Freyhold, who seems to have been responsible for the actual drawing of the topography, was an unrivaled expert in this type of work. His penned originals are almost unbelievably delicate, and must be examined with a powerful magnifying glass to be appreciated.[5] He was assisted by F. W. Egloffstein, who drew many important maps of the period.

[4] The present writer has examined three *quarto* sets in detail. In these sets the Volume XI maps here listed are identical, and in each case Governor Stevens' Milk River to the Columbia map is bound into Volume XII, part 2.

[5] Freyhold was later the author of a beautiful map of the Transmississippi West published in 1868. It contains all the material he could locate resulting from explorations and surveys made subsequent to those used by Warren. No other maps of this region, even those of the present day, seem superior to these two great maps in workmanship. The method has of course been altered. The Barreiro "picture" method gave way to so-called "hachures," and for a time an almost photographic method of showing relief by shadows and differences in tonal quality was used on some maps, but in the end the contour method was found to carry so much additional information—respecting any given point on a map—that it has been generally adopted, at least in the United States. A Freyhold manuscript map, however, is still something of great beauty.

Warren's map is entitled "Map of the Territory of the United States from the Mississippi to the Pacific Ocean Ordered by the Hon. Jeffn Davis, Secretary of War to accompany the Reports of the Explorations for a Railroad Route made in accordance with the 10th & 11th sections of the Army Appropriation Act of March 3rd, 1853. Compiled from authorized explorations and other reliable data by Lieut. G. K. Warren, Topl. Engrs. In the office of Pacific R. R. Surveys, War Dep. under the direction of Bvt. Maj. W. H. Emory, Topl. Engrs. in 1854 and of Capt. A. A. Humphreys, Topl. Engrs. 1854–5–6–7." On the map Warren lists an impressive group of "Authorities," commencing with the work of Lewis and Clark and continuing to the date the map was published. It is stated in a note that, except for a few stated items as to which information had not been completed or was not "at hand," the map is "a correct representation of our information up to May 1, 1857, and the engraving has been carefully verified."

In his *Memoir* Warren states that his instructions were "to carefully read every report and examine every map of survey, reconnoissance and travel which could be obtained, to ascertain their several values, and to embody the authentic information on the map." He adds that he has done this to the best of his ability, and that he prepared his *Memoir*[6] in order to aid future compilers. Since most of the maps used in the work were made from reconnaissance, rather than from actual survey, they did not possess critical accuracy, and "the geographical positions are therefore rarely determined absolutely, even relatively, with certainty. . . ." The adopted plan was to represent only such areas as had been examined and explored and on which information considered to be reliable was available. Where discrepancies existed,

[6] Published in Volume XI, *quarto* edition, Pacific Railroad Reports; also published separately.

the work of those who had the best instruments and experience was adopted.

Several early maps were reproduced, in whole or in part, in the *Memoir*, usually on a greatly reduced scale. These included the map that accompanied Winterbottom's *History*, published in New York by John Reid and dated 1795; the so-called "Roberdeau and Rector" map of 1818; a portion of the Finley map of North America of 1826; and the Bonneville map of 1837. Apparently the work of Lewis and Clark was deemed the appropriate starting point for the actual mapping effort, and a list of all the explorations considered, with some discussion of each, is included. In his *Memoir*, Chapter V, Warren describes in detail the methods adopted in actually compiling the map, and he lists the principal positions used and their adopted longitudes. The care taken in resolving discrepancies between the positions given by various explorers is apparent, and the resulting map was unquestionably the most accurate that had been made, up to its date.

Much more could be said about this cartographic milepost. There were many later maps of import representing later discoveries in portions of its included area, and most of the sections left blank by Warren for want of reliable information have now been filled in. However, as stated at the outset of this study, it is believed that the information on which this map was based was sufficient to afford a reasonable over-all picture of the American West, that its compiler made effective use of that information, and that subsequent efforts in the way of maps may properly be deemed merely the filling in of detail.[7]

[7] In the more extended examination of Western mapping contemplated by the writer, a number of maps of the later fifties and a few of even later years will be considered, because of their implications in connection with the definitive mapping of the West. However, these maps were not available to Lieutenant Warren when he drew his 1857 map, and since that map has been adopted as this preliminary study's appropriate stopping point, they will not be considered here.

Chapter X

The Cartographic Forest

From the inception of this study the chief problem has been to retain some semblance of the forest while observing so many of its trees. The process of mapping the American West was almost as complex as the area itself, and if the way of the explorer was hard, that of the cartographer was no less difficult. The result is that only after many individual maps of all the involved periods have been examined can the over-all story be discerned at all. In this preliminary study the more important documents have been briefly considered, and perhaps an informed view may now prove practicable.

It was in the nature of things that Spaniards from the south should have been the first to set foot in any portion of this area. Their story, including that of the maps they produced, is comparatively simple. Here and there over the years a leader would emerge—Coronado, Oñate, Kino, Garcés, Escalante, de Anza—and some further part of the unknown land would be looked upon—and mapped. More often the Spaniards were content to follow beaten trails, and since they found in this difficult area no treasure to spur them on, the Cross early replaced the Sword as the impelling symbol of such exploration as eventuated.

The result was that, save for a relatively few maps reflecting the prime adventures, the cartographic story of Spanish effort in what is now the American West is essentially one of successive interpretations of given regions—Nuevo Mexico, Pimería Alta, the California coast, the Texas country. Except for a small area in its far southern reach, for the most part along the "Old Spanish Trail" between New Mexico and California, and except for Escalante's remarkable ex-

ploits along its eastern limit, no Spaniard ever set foot in the Great Basin. Nor did any Spaniard surmount the Sierra Nevada, or press north beyond the Rio Grande's source, or seek to go very far northeast, except for two dramatic dashes to Quivira and de Anza's successful Comanche campaign in what is now Colorado.

However, since the Spaniards were avid mapmakers, a number of excellent representations of their exploits and their settlements have been located. Few of these were published, and thus the commercial cartographers were for long periods kept largely in the dark. One result was the lingering of much mythical geography which could and doubtless would have been avoided had the maps found during recent years in the archives of Spain, Mexico, and elsewhere, been available for public inspection when they were made. In the present study, a number of these maps have been considered, but it should be kept in mind that only a few in this category seem to have become generally known at any early date. An exception was Father Kino's "Passage by Land to California," a key map, for knowledge of which the cartographers had the Jesuits to thank, rather than the highly secretive Spanish officials.

It is to be regretted that Coronado's chart of his journey did not survive, since otherwise much apocryphal geography might have been avoided. When an actual map of personal experience did eventuate (the 1602 map of Enrico Martínez), it was locked up in the files and only recently came to light. Peñalosa's little map of New Mexico, drawn late in the seventeenth century, seems to have been one of the first to become known to a European cartographer, and Coronelli's use of it gave other mapmakers a firmer basis for that area. However, the excellent early eighteenth century maps of Barreiro remained unknown to them, as did Lafora's later and somewhat similar maps of the *Frontera*.

Father Font's maps of de Anza's California expedition did find reflection in published maps, as did the magnificent maps drawn by de Miera to reflect Escalante's explorations. The exploits of Father Garcés were also brought to public attention, largely through the cartographic work of Font, as well as that of Costansó and his associate Mascarò. The most noteworthy published map of any part of this area, however, was that of Alexander von Humboldt, which did not see the light of day until 1811.

Even then, knowledge of what some have called the "Northern Mystery" extended only to its periphery, except for that one great piercing of the unknown by Escalante, and the Spanish period of exploration closed with relatively little accomplished from the standpoint of mapping what is now the American West. Juan Pedro Walker and José Maria Narvaez drew interesting maps early in the nineteenth century, but they, too, were bound by limitations of knowledge. The result was that Humboldt's map and those that reflected de Miera's work remained the standard authorities until upstart Americans came from the east and began to produce more definitive maps of the area still termed "The Spanish Southwest."

So far as maps showing anything of the Transmississippi West are concerned, the French were even more disappointing than the Spaniards. They were waterborne, and they seem to have lost most of their earlier urge toward exploration when they reached areas through which canoes could not readily carry them. They talked much about that Western Ocean just over the next hill, but after they reached the Mississippi they did very little about finding it. Though some French traders did travel the Missouri as far, at least, as the mouth of the Platte, they seem to have left no maps, and no Frenchman of the early period whose name or exploits were recorded seems to have viewed even the Front

Range of the Rockies, where vast riches of their particular form of treasure—furs—would one day be sought by men of another breed.

In the southwest, Saint Denis and La Harpe did set eyes on a portion of the area here under consideration, but farther north only Vérendrye made any substantial progress. The French always gazed upon the Missouri at or near its mouth with wondering eyes, but until Vérendrye saw a small segment of its upper course at the Mandan villages, no Frenchman had viewed the muddy, snag-filled flood much beyond the site of present-day Omaha. Certainly, the maps that disclosed the French exploits did little to add materially to knowledge of the Transmississippi West.

Of course, Lahontan's fantastic tale and map caused much excitement when in 1703 they were published in Europe, but no other Frenchman attempted to go and have a look at the Mozeemleks or the Tahaugluks, or any of Lahontan's other phantasies. And when, sixty years later, Spain took over Louisiana, the French had accomplished so little that the Spanish Governor was forced to report that he could locate no reliable map of more than a small portion of his vast new province.

The next-comers were Britons, who—like the French—sought furs and arrived waterborne from eastern Canada. By the late seventeen hundreds they had pushed farther and farther into the wilderness northwest of the Great Lakes, and were taking peltries almost at the Arctic Circle, while others of their nation were pushing westward from Hudson Bay. An American, Peter Pond, drew perhaps the most interesting maps of their explorations. He had himself spearheaded some of the most fabulous of these exploits, and though his maps long remained unpublished, they exerted an important influence on that other great explorer, Alexander Mackenzie. In the late seventeen-eighties he dis-

proved Pond's notion that a waterway could be found from Great Slave Lake to the northern Pacific Ocean, and in 1793 he disproved Pond's thesis that the Western Sea lay relatively near the mountains that bounded the plains country on the west.

Mackenzie's map of his transcontinental expedition, published in 1801, made cartographic history, and his identification of the upper Fraser River with the Columbia led even the politicians astray. If he had been right, the claims of Britain to the Oregon country might have been greatly strengthened. Another Briton, David Thompson, drew some important maps of the Columbia region, and Aaron Arrowsmith, the London cartographer, took good advantage of every discovery of which he could obtain information. However, the very fact that his excellent 1795 map of North America was largely white paper in what is now the American West shows more forcefully than could words how little was then known of the area. Seven years later, when he published his 1802 edition of this map, Arrowsmith found that he could do little better.

Two other Britons, James Mackay and John Evans, accomplished for the Spaniards of Louisiana during the seventeen-nineties what the French and the Spaniards had never been able to do for themselves. Evans reached the Mandan villages from downriver, and Mackay (who had visited these settlements earlier from the north) explored the unknown region now called Nebraska. The maps drawn by these two explorers showing the Missouri River as far as the Mandan settlements were masterpieces. For this important stretch their maps have even been praised as more noteworthy than that of Lewis and Clark.

Nicholas King had the advantage of Captain Lewis' notes as far as the Mandans, and his three beautifully-executed manuscript maps (of which two are apparently identical)

have much to commend them. West of the Mississippi, however, and west of the Mandans, King had little to go on. So, in the earlier pair of his maps, he foreshortened the country farther west and showed the Missouri rising close to the Western Ocean. In this he was doubtless reflecting the thinking of Lewis and Clark, who left their Mandan wintering-place early in 1805 apparently believing the Pacific only a short distance beyond the mountains of which their Indian informants had told them.

Lewis and Clark's own map was not published until 1814. Meanwhile a member of their party, Robert Frazer, drew an interesting map of the trip, and Clark himself developed a large map, including much more territory than did the printed map. Both of these documents remained in manuscript, and certain remarkable maps by another redoubtable American explorer were given to the public before that of Lewis and Clark appeared. These represented the explorations and geographic ideas of Captain Zebulon Montgomery Pike. They exerted an important influence on western cartography, and they even influenced Clark, as is disclosed on his manuscript map now preserved at Yale.

Pike did an excellent job of representing the areas actually visited by his party, and the popularity of his book was such that the old theory, accepted by him, of a common source area for several of the great continental rivers was given new life and impetus, not only among the general readers of his book, but among the cartographers. Moreover, his identification of one of the upper sources of the South Platte with the Yellowstone River led many astray respecting the Rocky Mountain region. Pike's maps were long used as the basis for most maps of the southwest as far as Santa Fe, and not even Major Stephen Long's map of 1823 (another American Cartographic monument) forced Pike's theories wholly into the discard.

It was Lewis and Clark, however, who did most—cartographically as well as otherwise—for the spread of new and reliable knowledge of the American West. The expedition had been disbanded the better part of a decade before their map was published in 1814. It was republished that same year in England, and Arrowsmith, on the 1814 revision of his map of North America, made full use of the explorers' findings. The entire northern reach of the American Transmississippi West was now mapped, and the errors of omission and commission on Lewis and Clark's map were of a comparatively minor nature. It is true that a good many years were to elapse before the intricate complex of interlaced mountains and rivers in the central and northern Rockies would be fully understood, much less accurately mapped, but with respect to their actual track through the unknown wilderness, Lewis and Clark did a masterful job. This aspect of the work of these two American captains was fundamental. The great distances along their northern route to the Pacific were now understood, and the basic nature of the terrain was fully reflected on their map. The result was that their essential geography came to be followed by every knowledgeable mapmaker.

After 1823, when Major Long's map of his explorations to and along the central Rocky Mountain region was published, the commercial mapmakers had vastly more to go on. The efforts of Long, Pike, and Lewis and Clark made it possible for them to offer a reliable portrayal of much of the western country, though Long had gone Pike one better by identifiying a stream he saw west of his "Highest Peak" (now Long's Peak) with Lewis Fork of the Columbia River.

As yet, however, the nature of the Great Basin was wholly unknown, the Sierra Nevada and the Cascade Range were not even meagerly understood, and the basin of the Colorado as well as the Columbia watershed had not been adequately

mapped (Thompson's remarkable early maps of the latter area had not been made publicly available). Even after Great Salt Lake had been found (1824 or 1825) and Jedediah Smith had reached California by the southern route (1826) and had crossed the Sierra and the Great Basin in their central portions (1827), a great deal of apocryphal geography still found its way onto the published maps. Several large but wholly mythical rivers—the Buenaventura, the Mongos, the Timpanogos, the San Felipe, and others—flowed westward on the maps to the Pacific, directly across what are in fact the highest ridges of the Sierra Nevada, and much of the far southwest, the Great Basin, the Colorado River watershed, and the Rocky Mountain region remained inadequately or erroneously mapped.

It is to be regretted that Jedediah Smith's map of his widespread travels and explorations during the few active years he spent in the West (1822–1830) was not published soon after it was drawn. As it was, only a few elements of his remarkable exploits came to be generally known. No other participant in the fur trade had the background or understanding sufficient to produce a map of scholarly value. The next best effort was by a young man, Warren Angus Ferris, who in 1836 drew a crude though generally excellent map of the fur traders' Rockies, but whose map, like Smith's remained unpublished. This Ferris map was recently located and reproduced, but Jedediah Smith's original map or maps have not yet been found.

Nevertheless, the shadow of that great explorer rested over the desks of several cartographers who during the eighteen-thirties sought to depict the American West. The earliest map yet located on which his explorations are suggested is one published in Paris in 1833 by the widow Brué. On it appears the first cartographic mention of his name, along with several of his placenames. Another Brué map,

published a year later, contains lines purporting to represent his route to California and his successful west-east crossing of the Sierra and the Great Basin. Apparently Smith's written account, rather than a map, was the source of this French effort, but in 1836 Albert Gallatin so drew Smith's route on his "Map of the Indian Tribes of North America" as to suggest that he had an actual map of Smith's explorations before him while he worked.

Other mapmakers of the mid-thirties seem to have been ignorant of Smith's achievements. Thus, when Washington Irving publicized the experiences of the Astorians, Hunt and Stuart, and the adventures of Captain Bonneville, Smith's efforts were not disclosed on the otherwise important maps that accompanied his *Astoria* and *Rocky Mountains*. Only a single legend, "Ashley's River," on one of the Bonneville maps is reminiscent of Smith. Irving's work was of large importance, however, and the maps in these highly-popular books brought considerable new information to the attention of the commercial cartographers. Among other things, one or another of the three maps gave form to the fur trade territory, for the first time correctly showed the river later known as the Humboldt, proved the nonexistence of the mythical Rio Buenaventura, and gave the earliest reasonably accurate picture of some of the Yellowstone's sources.

Aaron Arrowsmith's delineation of the Oregon country on his magnificent 1834 Map of British North America, though offering no hint of Smith's exploits, was a significant document. It was the map on which two of the Klamath's source streams were labeled the "Nasty" and the "Shasty," and use of these bizarre terms disclosed the ancestry of several later maps. Four years after its publication, Washington Hood, of the American Army's Topographical Engineers, lifted its data bodily and used it on his own map of the Oregon area without the slightest credit to the English

cartographer. This Hood plagiarism was attached to Senator Linn's celebrated Report recommending forcible American seizure of the Oregon Territory, and brought Arrowsmith's geographic contributions to widespread public attention in the United States. Another excellent map of this area was published by the missionary, Samuel Parker, and a beautiful map of the Upper Missouri illustrated Prince Maximilian of Wied's account of his western travels, while Hall J. Kelley, prime promoter of emigration to Oregon, offered to the American government a map (only recently reproduced) covering his northbound route from Monterey.

Although these otherwise significant maps were silent in respect of Jedediah Smith and his discoveries, before the close of the decade a map was published on which appeared much information unquestionably derived directly from a Smith map. David H. Burr called himself "Geographer to the House of Representatives," and in 1839 he drew a large and lucid map of the United States. On this document the entire Far West is clearly a reflection of Smith's own work. Where or in what manner Burr obtained access to that basic effort is not known, though it was probably through General Ashley, who for a time was a member of the House. In all probability Ashley was also the source of Gallatin's Smith data, but what became of the map Ashley had received from Smith, perhaps as early as 1829, is still a mystery.

It has long been thought that another map was drawn by Smith while he was at Fort Vancouver in 1828–29. George Gibbs, an eminent early northwestern scientist, certainly saw a Smith manuscript map somewhere before he wrote his journal of an expedition to northwestern California in 1851. He thought that this map had been sent to Washington, but it has never turned up there or elsewhere.

Be that as it may, a Fremont 1845 map covered with pen and pencil additions by George Gibbs from a Smith original

has now been found. When or from whom the American Geographical Society received this map is not known. For many years it remained unnoticed among the many maps of the Society's collection, but it is a notable historic document, affording a new and comprehensive view of the fur-trade world. There are a number of problems still unsolved in reference to it. For example, it contains detailed information in relation to Smith's movements in 1829 and 1830, after he left Fort Vancouver. Perhaps some one bound for Oregon may have acquired or copied it in St. Louis after 1830, or Smith may possibly have sent a manuscript map to someone in Oregon—all of which assumes, of course, that Gibbs saw it there, as seems probable.

In any event, it is now apparent that had Smith's map been published around 1831, before or soon after he set out on his last fatal journey, the store of information shown on it would have been public property long before Fremont heard himself characterized as "the Pathfinder," and knowledge respecting the nature and geography of the American West would have been advanced by at least fifteen years. As it was, only a few contemporary cartographers knew anything about Smith's achievements, and only on Burr's 1839 map was more than sketchy information used. Now, however, with both that map and the Fremont-Gibbs-Smith version available, a rather complete view of the great explorer's efforts has become possible. The discovery of the latter map was one of the most interesting results of the present project.

Jedediah Smith and his journeys through the West were long almost forgotten, and it was not until the mid-forties that the true nature of the Great Basin and other items well known to him became public knowledge. Most important in the process were the efforts of John Charles Fremont, and his able cartographer, Charles Preuss. In 1843 Congress published the report of Fremont's 1842 expedition to South

Pass and the Wind River Mountains, and in 1845 there appeared the widely-read report of his expedition of 1843–44 to the Columbia, the eastern Sierra Nevada region, the great valleys of California, and the route from southern California back through the Utah country to the middle-west. Most of these areas Jedediah Smith had known well, but the Fremont-Preuss map of 1845 constituted the first appearance of these important physiographic features in a published document. This was the map used by Gibbs as a base for his delineation of the material he took from Jedediah Smith's map.

The forties also witnessed the appearance of Josiah Gregg's map of the Santa Fe trade area, the maps of the Wilkes expedition, the map of the far West by Duflot de Mofras, the earliest maps drawn by that indefatigable Jesuit missionary, Father de Smet, and several maps by the Army's Topographical Engineers. The Mexican War forwarded the cause of Western cartography by several years, and the work of Lieutenants Abert and Peck along the routes to New Mexico, as well as in that Territory, the map of Colonel Cooke's traverse of the far southern route west of the Rio Grande, and the 1848 map by Preuss of Oregon and Upper California resulted in much new public realization of what a map of the West should look like. The commercial cartographers took heed and produced numerous maps of much improved quality, and when—in 1848—Lieutenant Emory's map of General Kearny's route from New Mexico to California was also published, there was finally available sufficient information to afford a reasonably accurate representation of much of the Western area.

California's Gold Rush resulted in widespread demand for more and better cartographic effort. Guidebooks were in special demand, and although T. H. Jefferson's remarkable map of the route to California seems not to have reached the

public in quantity, the map in Ware's Guide had some influence, and those of Mitchell, and of Tanner, Disturnell, and other commercial mapmakers became well known. Certain maps by Pacific Railroad promoters, Asa Whitney and others, also disclosed new cartographic understanding, though they frequently drew railroads where not even a mule could have scrambled.

By 1850 Lieutenant Simpson had mapped Colonel Washington's expedition to the Navajo Country, and Captain Marcy and Lieutenant Colonel Johnston had examined and mapped large areas east of Santa Fe. The Southwest thus began to take on form and cartographic content, while father west Captain Warner and Lieutenant Williamson developed the nature of the northern Sierra Nevada as it had not previously been shown on any map. Before the close of 1850 the Corps of Topographical Engineers was able to prepare for the Senate a comprehensive map of the West much superior to any that could have been drawn only a few years earlier, and it is of interest that some of the commercial cartographers did even better.

New Mexico remained for some years a favorite stamping ground for the Topographical Engineers, and by 1851 Lieutenant Parke and Richard Kern prepared a most workmanlike map of the area from Chouteau's Island on the Arkansas to the mouth of the Gila. Parts of this southwestern region would not be mapped in detail for many years, but Parke's map was a boon to the parties then in the field attempting to agree upon and to mark the new boundary between the United States and Mexico. A map of the Mexican Republic by the New York cartographer Disturnell had been used by the Commissioners at Guadalupe Hidalgo to show where this boundary was intended to go, but when the parties from both countries found themselves on the ground some puzzling issues had to be faced. The story of

the controversies that arose even between different members of the American Commission would seem a bit ludicrous had the disputed boundaries not been so important, but the maps that resulted did much to forward knowledge of the area involved. By late 1853, when Gadsden arranged the purchase of additional territory, he not only put an end to these unseemly controversies, but made possible an all-American wagon road—and eventually a railroad—generally following the route of Colonel Cooke and his Mormon Battalion.

Had Father de Smet's imposing 1851 manuscript map of the Rocky Mountain region become generally available, much greater understanding of the Indians as well as of the area itself would have resulted. As it was, this map remained filed in the Bureau of Indian Affairs, and de Smet's vast fund of geographic knowledge became public only in the form of maps of portions of the region in various editions of his books.

Farther south, Captain Stansbury explored and drew important maps of the Great Salt Lake region and of certain routes to it from the east. Published in 1852, these maps proved invaluable to other cartographers. Fremont and Preuss had been the first to represent the lake in scientific fashion, but the larger scale of Stansbury's map afforded opportunity for the delineation of many more details.

The country was now ready for a much more comprehensive effort of both exploration and mapping, and when, in 1853, Congress authorized Secretary of War Jefferson Davis to dispatch parties to survey possible routes for the highly popular project for a Pacific Railroad, the Secretary found ready in the Corps of Topographical Engineers a large group of able and by this time thoroughly experienced officers. They went to work at once, and in 1855 were

ready with preliminary reports and maps. Meanwhile, Captain Marcy contributed an important map of the area between Arkansas and New Mexico, and a flood of promoters drew more maps of their pet Pacific Railroad notions. John R. Bartlett published an engaging book, with a map, relating his experiences as one of the boundary commissioners, and on Colonel A. B. Gray's map of 1855 the already dead boundary disputes loomed large, though Gray was by then much more interested in possible far southern routes for a railroad.

About this time also, the Arizona pioneer, Herman Ehrenberg, drew a notable map of the Gadsden Purchase, while Gwinn H. Heap published a remarkable map of his expedition with Edward F. Beale through the middle Rocky Mountain region to Southern Utah and California. Moreover, Colonel Edward Steptoe offered a chart of several possible routes west of Great Salt Lake. He had looked into a route south of the lake in 1854, but receiving poor reports, was himself content to follow the more traveled route to the headwaters of the Humboldt and down that stream.

When the preliminary (*octavo*) edition of the Pacific Railroad Reports appeared in 1855, it contained two volumes of reports and one of maps. There was a general map, called a "hurried compilation" by its author, Lieutenant G. K. Warren, and there were maps of the far northern route (near the 47th and 49th parallels) explored by Governor Isaac I. Stevens of Washington Territory; of routes explored by Lieutenant E. G. Beckwith (along the 38th and 39th parallels), partially under Captain J. W. Gunnison, who left Beckwith in command when he was killed by Indians near Sevier Lake; of surveys made by Lieutenant A. W. Whipple near the 35th parallel, from Fort Smith to Albuquerque and west generally along the present route of the Santa Fe Railroad; of Captain John Pope's exploration along the 32nd

parallel from the Red River to El Paso; of Lieutenant John G. Parke's expedition along the same parallel west of the Rio Grande, and of the California surveys of Lieutenant R. S. Williamson. Though denoted "preliminary," these maps displayed many new and important features of Western topography.

By the mid-fifties the General Land Office also commenced much more detailed surveys of individual areas in several of the new western Territories, as well as in California. For the limited regions surveyed, these were fairly good maps, and they served a useful purpose wherever settlers commenced to pour in. The Coast Survey was likewise progressing during this period, and almost every year new features of the coastline were added to the maps, while changes in older representations of the coast were frequent—and at times drastic.

The railroad promoters continued vociferous, and to their forces was added the name of Colonel A. B. Gray, last heard from in connection with the Mexican boundary survey. He now aligned himself with the proposed "Texas Western Railroad," soon to be called the "Southern Pacific," and his 1856 map of its proposed route had much in common with his earlier boundary survey map. The route in question was generally much like that surveyed and mapped by Lieutenant Parke, and when the Southern Pacific Railroad was actually constructed during the seventies it followed portions of this route.

By 1857 the second (*quarto*) edition of the Pacific Railroad Reports was on its way. There were twelve large volumes (usually bound in thirteen, with Volume XII in two parts), most of them beautifully illustrated with well-executed engravings of scenery and natural history. Volume XI contained most of the maps, and here are to be found the final cartographic results of this impressive enter-

prise. The surveys did not themselves result in the building of the first transcontinental railroad, or even of the second or third actually to be constructed, but they brought to public attention the practicability of such a project in a manner not possible through the efforts of the many private promoters who for more than a decade had been hammering away at Congress.

Before the final Pacific Railway Reports appeared, Major Emory published the final Mexican Boundary Survey report, in two *quarto* volumes, and with it a beautiful map of Western United States, a map surpassed only by that soon to be fathered by Lieutenant Warren. Emory was a cartographer of great ability, and his exploratory efforts in the Southwest were second to none.

The maps in the *quarto* edition of the Pacific Railroad Reports were generally improved in detail and accuracy over those of the *octavo* edition. Here were maps of Governor Stevens' "Northern Pacific" survey; of Lieutenants Williamson and Abbot's California and Oregon surveys; of Lieutenant Beckwith's expedition and that on which he had accompanied Captain Gunnison; of Lieutenants Whipple and Ives's 35th parallel route; of Lieutenant Parke's California Coast route and his explorations along the southern transcontinental route, and of Captain Pope's survey on the 32nd parallel east of El Paso. In addition, other volumes contained colored geological maps, some drawn by William P. Blake, one of the West's ablest early geologists, and (in Volume XII, part 1) appeared a large map by Governor Stevens of a route from Milk River to the Columbia. Some of these maps appeared only in the *quarto* edition.

The "General Map," however, was by far the most important to result from these surveys. It was drawn over a period of years by Lieutenant Gouverneur Kemble Warren, of the Corps of Topographical Engineers, and has been

deemed the appropriate map with which to conclude this particular examination of Western cartography. It is a large map, comprehending that portion of the country west of the Mississippi River, and it was accompanied by a significant *Memoir* by Lieutenant Warren, which was published in Volume XI of the *quarto* Pacific Railroad Reports and also separately (in 1859). In this *Memoir* the sources consulted and the methods of constructing the "General Map" were described in detail, and the care which Lieutenant Warren took to make this map a definitive document up to the very date of its publication is apparent. As stated at the outset of this study, the task of cartographers was henceforth that of the filling in of detail.

The problem of geographic positioning—the accurate determination of latitude and longitude at given points—has not been accented in this study, primarily because the over-all sweep of the cartographic process seemed vastly more important in this preliminary examination than did the fact that most of the West's explorers lacked the means to avoid geographic errors, especially of longitude. The area had only one absolute boundary, that to the west along the Pacific Ocean, and it was not until the seventeen-nineties that competent navigators, provided with appropriate instruments, determined the coast's position with reasonable accuracy. Though much was owed by cartographers generally to these efforts of La Perouse, Malaspina, Vancouver, and others, their results did not soon become common knowledge, and Lewis and Clark left the Mandan villages with little understanding of the continent's great breadth.

Another half century elapsed before Lieutenant Warren's cartographic effort was practicable, and it was many more years before present-day precise geodetic methods came into general use. The accuracy with which individual

explorers were able to determine given positions is, of course, a matter of interest and in a few instances an element of consequence, but the crude maps of the earliest periods often displayed scenes of the unfolding drama more lucidly than did the much more scientific maps of later days.

Warren's impressive map may well be deemed the culmination of more than three centuries of effort to come to grips with reality in this vast and complex area. It was natural for the process at first to be slow. It was quite to be expected that there would be long periods of no progress at all. And it is not surprising that it took men of several nations some three hundred years to acquire the tremendous store of knowledge needed as the background for such a map.

On Warren's map "the forest" is carefully portrayed. The trees are there too—the facts so falteringly gathered over the long years, the elements that have been outlined in respect of many maps that preceded this effort. When Cabeza de Vaca wandered through a corner of the American West, no European knew anything about its secrets; when Lieutenant Warren laid down his pen, all but the details and their filling in had been accomplished. It had been a long course of exploration, and this examination of the cartographic results—this view of some hundreds of the maps that intervened—has also been long and at times confusing. But knowledge of these many trees is fundamental to any informed understanding of this forest, for no one can with intelligence comprehend either Warren's map or a modern map of the American West without at least some background respecting the long and rocky cartographic road upon which such later efforts were developed.

By 1857, knowledge of the long—mysterious Missouri's course and those of its chief tributaries was reasonably complete; the Columbia and its great branches had been fairly mapped; the Arkansas, the Canadian, and the Red were

well understood; the Rio Grande and the Gila had been cartographically reflected quite early; the San Joaquin, the Sacramento, and the Willamette had been appropriately shown, and the Humboldt, with its strange surroundings, was accurately laid down. Of the basic geographic elements, only the middle reaches of the Colorado watershed remained for later exploration, along with certain refinements of detail in the complex central mountain region. With the building of the Central Pacific Railroad, and later of railroads farther north and south, the conquest of the American West was complete. Great cities now stand where explorers once toiled and only nomadic Indians lived; empires of fact have replaced the imaginary kingdoms of Quivira and Tontonteach. The mapping of the West was a long story, but one well worthy of the telling.

CHRONOLOGICAL INDEX OF MAPS

	Page
1540 – Coronado	29
1541 – Agnese	30
1542 – Ulpius	30
1546 – Gastaldi	30
1548 – Gastaldi	30
1556 – Agnese	31
1566 – Zaltieri	31
1602 – Martínez	33
1683 – Hennepin	47
1687 – Franquelin	47
1688 – Coronelli	34
1688 – Peñalosa	34
1697 – Franquelin	47
1702 – Kino	34
1703 – de l'Isle	49
1703 – Lahontan	49
1706 – Jesuit Relations	34
1717 – Vermale	50
1718 – de l'Isle	50
1719 – (La Harpe)	50
1719 – (La Harpe, Beaurain)	50
1728 – Barreiro (1)	35
1728 – Barreiro (2)	36
1728 – Barreiro (3)	36
1737 – (Vérendrye)	51
1738 – (Vérendrye)	51
1750 – Menchero	37
1752 – Delisle	50
1756 – Marin	37
1758 – DuPratz	52
1768 – Alzate	38
1771 – Lafora	38
1771 – Urrútia	39
1776 – Font	39
1777 – de Miera (Escalante)	40
1777 – Font	39
1777 – (Garcés Route) (1)	39
1777 – (Garcés Route) (2)	39
1778 – Costansó	40
1779 – de Miera (N. Mex.)	41
1780 – (Comanches)	41
1780 – (Provincias Internas)	41
1782 – Mascarò	41
1785 – Pond	58
1785 – LaRocha (1)	42
1785 – LaRocha (2)	42
1787 – Palou	42
1788 – Ruggles	53
1790 – Pond	58
1790 – Pond (Stiles)	58
1794 – Du Puis	42
1794 – (Japanese)	53
1795 – Arrowsmith	53
1795 – Lopez	42
1795 – Soulard	55
1797 – Evans	57
1797 – Mackay	57
1798 – (Louisiana)	57
1798 – Thompson	63
1800 – (Provincias Internas)	42
1801 – Lopez	42
1801 – Mackenzie	59
1802 – Antillon	42
1802 – Arrowsmith	54
1804 – Arrowsmith and Lewis	55
1804 – De Laussat (see 1795 – Soulard)	
1805 – Amanzuel	43
1805 – King	65
1805 – Perrin du Lac	57
1805 – Walker (1)	42
1805 – Walker (2)	43
1805 – Walker (3)	43
1806 – Frazer	66

	Page
1806 – King (1)	65
1806 – King (2)	67
1807 – Pike	59
1808 – Drouillard (Drewyer)	68
1808 – Drouillard	68
1809 – Lewis and Clark	68
1810 – Gass	69
1810 – Pike (1)	59
1810 – Pike (2)	59
1810 – Pike (3)	60
1811 – Humboldt	44
1811 – Pichardo	43
1812 – Clark	67
1812 – Gass	69
1814 – Arrowsmith	69
1814 – Bruê	69
1814 – Lewis and Clark	69
1814 – Thompson	62
1815 – Thompson (1)	63
1815 – Thompson (2)	63
1816 – Melish	70
1817 – Carey	70
1818 – Rector and Roberdeau	70
1819 – Robinson	71
1821 – Lapie	74
1821 – Long (1)	73
1821 – Long (2)	73
1822 – Tanner	75
1823 – Long	73
1823 – Narvaez	76
1825 – Kittson	78
1825 – Tanner	76
1826 – Finley	76
1826 – Goodrich	77
1827 – Brown	77
1828 – Vandermaelen	77
1828 – White, Gallaher & White	78
1829 – Hall	78
1829 – Ogden	78
1830 – Kelley	78
1830 – Laurie	79
1830 – McCoy	83
1830 – Smith (Jedediah) (1)	90
1830 – Smith (Jedediah) (2)	90
1831 – Huntington	80
1833 – Bruê	81
1833 – Burr	81
1833 – Phelps	81
1834 – Arrowsmith	86
1834 – Bruê	82
1835 – Everett	82
1836 – Dodge	83
1836 – Ferris	84
1836 – Gallatin	83
1836 – Irving	85
1836 – Steen	83
1837 – Bonneville (1)	85
1837 – Bonneville (2)	85
1837 – Hood (1)	88
1837 – Hood (2)	88
1838 – Hood	87
1838 – Parker	88
1839 – Burr	90
1839 – Hood	88
1839 – Kelley	89
1839 – Maximilian	88
1839 – Wislizenus	89
1840 – Burr	89
1841 – Garland (Gregg)	98
1841 – Wilkes (1)	99
1841 – Wilkes (2)	99
1842 – Morse and Breese	100
1843 – Fremont	101
1843 – Hutawa	103
1843 – Smith, J. Calvin	104
1844 – De Mofras	104

	Page
1844 – de Smet (1)	106
1844 – de Smet (2)	106
1844 – Emory	106
1844 – Gregg	105
1844 – Greenhow	104
1844 – Kendall	105
1844 – Lee and Frost	106
1845 – Conde	107
1845 – Farnham	108
1845 – Franklin	107
1845 – Fremont	101
1845 – Morse and Breese	104
1846 – Abert and Peck	108
1846 – Burgvin	109
1846 – Disturnell	109
1846 – Gilliam (1)	109
1846 – Gilliam (2)	109
1846 – Haven	110
1846 – Mitchell (1)	110
1846 – Mitchell (2)	110
1846 – Mitchell (3)	110
1846 – Nicolay	111
1846 – Preuss	111
1846 – Robertson	111
1846 – Sage	111
1846 – Tanner (1)	112
1846 – Tanner (2)	112
1847 – Cooke	113
1847 – de Smet (1)	113
1847 – de Smet (2)	113
1847 – de Smet (3)	113
1847 – de Smet (4)	113
1847 – Edwards	114
1847 – Hutawa	114
1847 – Stealey	114
1848 – Abert and Peck	115
1848 – Emory	115
1848 – Mills	123
1848 – Preuss	115
1848 – Wislizenus	116
1849 – Arnaud	122
1849 – Brooks (1)	119
1849 – Brooks (2)	119
1849 – Bryant (1)	120
1849 – Bryant (2)	120
1849 – Bryant (3)	120
1849 – Bruff (1)	119
1849 – Bruff (2)	119
1849 – Calhoun	124
1849 – Creuzbaur (1)	120
1849 – Creuzbaur (2)	121
1849 – Creuzbaur (3)	121
1849 – Creuzbaur (4)	121
1849 – Creuzbaur (5)	121
1849 – Dearborn	123
1849 – Disturnell	121
1849 – Hartmann	121
1849 – Hutawa	123
1849 – Jefferson	117
1849 – Romat	122
1849 – Seymour	123
1849 – Stuart	124
1849 – Ware	120
1849 – Whitney	123
1849 – Wilkes (1)	123
1849 – Wilkes (2)	124
1849 – Wyld (1)	122
1849 – Wyld (2)	122
1849 – Wyld (3)	122
1850 – de Smet (Peterson) (1)	130
1850 – de Smet (Peterson) (2)	130
1850 – Ferry	130
1850 – (Frontier Posts)	125
1850 – Johnston	127
1850 – Kern	128
1850 – Simpson (1)	127

	Page
1850 – Simpson (2)	127
1850 – (Topographical Engineers)	129
1850 – Williamson	129
1851 – Blanchet	130
1851 – de Smet	132
1851 – Fremont-Gibbs-Smith	91
1851 – Gibbs	91
1851 – Parke	131
1851 – Pope	131
1852 – Bartlett	134
1852 – Horn	134
1852 – Stansbury (1)	135
1852 – Stansbury (2)	135
1852 – White (Platt)	134
1853 – Eastman	136
1853 – Humphreys	137
1853 – Johnson	140
1853 – Marcy (1)	138
1853 – Marcy (2)	139
1853 – (Oregon Indians)	137
1853 – (Railroad Routes)	140
1853 – Schroeter	139
1853 – Shigenobu	137
1853 – Sitgreaves	139
1854 – Bartlett	142
1854 – Dreibelbis	144
1854 – Ehrenberg	143
1854 – Heap	145
1854 – Rogers and Johnston	144
1854 – Steiger	142
1854 – Walter	141
1855 – Beckwith	146
1855 – (Gadsden Purchase)	146
1855 – Gray (1)	147
1855 – Gray (2) (Disturnell)	148
1855 – Gray (3)	148
1855 – Ingalls (1)	148
1855 – Ingalls (2)	148
1855 – Ingalls (3)	148
1855 – Linforth	148
1855 – Parke	154
1855 – Pope	153
1855 – Stevens	150
1855 – Warren	150
1855 – Whipple	153
1855 – Williamson	154
1856 – Gardiner	155
1856 – Gray	157
1856 – Hays	155
1856 – Pelham	155
1856 – Simpson	156
1856 – (Sonora E. & M. Co.)	159
1856 – Tilton	155
1857 – Antisell	162
1857 – Beckwith	162
1857 – Blake	162
1857 – Chandless	159
1857 – Emory	160
1857 – Gunnison	162
1857 – (Mail Routes)	160
1857 – Mowry (Gray)	159
1857 – Parke	162
1857 – Placer Herald	160
1857 – Pope	153
1857 – Pope (Blake)	162
1857 – Stevens (1)	161
1857 – Stevens (2)	161
1857 – Warren	163
1857 – Whipple (Blake)	162
1857 – Whipple and Ives	162
1857 – Williamson	162
1857 – Williamson and Abbot	161
1858 – Beale	146
1858 – de Smet	133
1868 – Freyhold	163

ALPHABETICAL INDEX OF MAPS

	Page
1846 – Abert and Peck	108
1848 – Abert and Peck	115
1541 – Agnese	30
1556 – Agnese	31
1768 – Alzate	38
1805 – Amanzuel	43
1802 – Antillon	42
1857 – Antisell	162
1849 – Arnaud	122
1795 – Arrowsmith	53
1802 – Arrowsmith	54
1814 – Arrowsmith	69
1834 – Arrowsmith	86
1804 – Arrowsmith and Lewis	55
1728 – Barreiro (1)	35
1728 – Barreiro (2)	36
1728 – Barreiro (3)	36
1852 – Bartlett	134
1854 – Bartlett	142
1858 – Beale	146
1855 – Beckwith	146
1857 – Beckwith	162
1857 – Blake	162
1851 – Blanchet	130
1837 – Bonneville (1)	85
1837 – Bonneville (2)	88
1849 – Brooks (1)	119
1849 – Brooks (2)	119
1827 – Brown	77
1814 – Brué	69
1833 – Brué	81
1834 – Brué	82
1849 – Bruff (1)	119
1849 – Bruff (2)	119
1849 – Bryant (1)	120
1849 – Bryant (2)	120
1849 – Bryant (3)	120
1846 – Burgvin	109
1833 – Burr	81
1839 – Burr	90
1840 – Burr	89
1849 – Calhoun	124
1817 – Carey	70
1857 – Chandless	159
1812 – Clark	67
1780 – (Comanches)	41
1845 – Conde	107
1847 – Cooke	113
1540 – Coronado	29
1688 – Coronelli	34
1778 – Costansó	40
1849 – Creuzbaur (1)	120
1849 – Creuzbaur (2)	121
1849 – Creuzbaur (3)	121
1849 – Creuzbaur (4)	121
1849 – Creuzbaur (5)	121
1849 – Dearborn	123
1804 – De Laussat (See Soulard)	
1703 – de l'Isle	49
1718 – de l'Isle	50
1752 – Delisle	51
1777 – De Miera (Escalante)	40
1779 – De Miera (N. Mex.)	41
1844 – De Mofras	104
1844 – De Smet (1)	106
1844 – De Smet (2)	106
1847 – De Smet (1)	113
1847 – De Smet (2)	113
1847 – De Smet (3)	113
1847 – De Smet (4)	113

	Page
1850 – De Smet (Peterson) (1)	130
1850 – De Smet (Peterson) (2)	130
1851 – De Smet	132
1858 – De Smet	133
1846 – Disturnell	109
1849 – Disturnell	121
1836 – Dodge	83
1854 – Dreibelbis	144
1808 – Drouillard (Drewyer)	68
1808 – Drouillard	68
1794 – Du Puis	42
1758 – Du Pratz	52
1853 – Eastman	136
1847 – Edwards	114
1854 – Ehrenberg	143
1844 – Emory	106
1848 – Emory	115
1857 – Emory	160
1797 – Evans	57
1835 – Everett	82
1845 – Farnham	108
1836 – Ferris	84
1850 – Ferry	130
1826 – Finley	76
1776 – Font	39
1777 – Font	39
1845 – Franklin	107
1687 – Franquelin	47
1697 – Franquelin	47
1806 – Frazer	66
1851 – Fremont-Gibbs-Smith	91
1843 – Fremont	101
1845 – Fremont	101
1868 – Freyhold	163
1850 – (Frontier Posts)	125
1855 – (Gadsden Purchase)	146
1836 – Gallatin	83
1777 – (Garcés Route) (1)	39
1777 – (Garcés Route) (2)	39
1856 – Gardiner	155
1841 – Garland (Gregg)	98
1810 – Gass	69
1812 – Gass	69
1546 – Gastaldi (World)	30
1548 – Gastaldi (New Spain)	30
1851 – Gibbs	91
1851 – Gibbs (Fremont, Smith)	91
1846 – Gilliam (1)	109
1846 – Gilliam (2)	109
1826 – Goodrich	77
1855 – Gray (1)	147
1855 – Gray (2) (Disturnell)	148
1855 – Gray (3)	148
1856 – Gray	157
1844 – Gregg	105
1844 – Greenhow	104
1857 – Gunnison	162
1829 – Hall	78
1849 – Hartmann	121
1846 – Haven	110
1856 – Hays	155
1854 – Heap	145
1683 – Hennepin	47
1837 – Hood (1)	88
1837 – Hood (2)	88
1838 – Hood	87
1839 – Hood	88
1852 – Horn	134
1811 – Humboldt	44
1853 – Humphreys	137
1831 – Huntington	80
1843 – Hutawa	103

	Page
1847 – Hutawa	114
1849 – Hutawa	123
1855 – Ingalls (1)	148
1855 – Ingalls (2)	148
1855 – Ingalls (3)	148
1836 – Irving	85
1794 – (Japanese)	42
1849 – Jefferson	117
1706 – Jesuit Relations	34
1853 – Johnson	140
1850 – Johnston	127
1830 – Kelley	78
1839 – Kelley	89
1844 – Kendall	105
1850 – Kern	128
1805 – King	65
1806 – King (1)	65
1806 – King (2)	67
1702 – Kino	34
1835 – Kittson	78
1771 – Lafora	38
1719 – (La Harpe)	50
1719 – (La Harpe, Beaurain)	50
1703 – Lahontan	49
1821 – Lapie	74
1785 – La Rocha (1)	42
1785 – La Rocha (2)	42
1830 – Laurie	79
1844 – Lee and Frost	106
1809 – Lewis and Clark	68
1814 – Lewis and Clark	69
1854 – Linforth	148
1821 – Long (1)	73
1821 – Long (2)	73
1823 – Long	73
1795 – Lopez	42
1801 – Lopez	42
1798 – (Louisiana)	57
1797 – Mackay	57
1801 – Mackenzie	59
1857 – (Mail Routes)	206
1782 – Mascarò	41
1756 – Marin	37
1853 – Marcy (1)	138
1853 – Marcy (2)	139
1602 – Martínez	33
1839 – Maximilian	88
1830 – McCoy	83
1816 – Melish	70
1750 – Menchero	37
1848 – Mills	123
1846 – Mitchell (1)	110
1846 – Mitchell (2)	110
1846 – Mitchell (3)	110
1842 – Morse and Breese	100
1845 – Morse and Breese	104
1857 – Mowry (Gray)	159
1823 – Narvaez	76
1830 – Narvaez	76
1846 – Nicolay	111
1829 – Ogden	78
1853 – (Oregon Indians)	137
1787 – Palou	42
1851 – Parke	131
1855 – Parke	154
1857 – Parke	162
1838 – Parker	88
1856 – Pelham	155

	Page
1688 – Peñalosa	34
1805 – Perrin du Lac	57
1833 – Phelps	81
1811 – Pichardo	43
1807 – Pike	59
1810 – Pike (1)	60
1810 – Pike (2)	60
1810 – Pike (3)	61
1857 – Placer Herald	160
1785 – Pond	58
1790 – Pond	58
1790 – Pond (Stiles)	58
1851 – Pope	131
1855 – Pope	153
1857 – Pope	153
1857 – Pope (Blake)	162
1846 – Preuss	111
1848 – Preuss	115
1780 – (Provincias Internas)	41
1800 – (Provincias Internas)	42
1853 – (Railroad Routes)	140
1818 – Rector and Roberdeau	70
1846 – Robertson	111
1819 – Robinson	71
1854 – Rogers and Johnston	144
1849 – Romat	122
1788 – Ruggles	53
1846 – Sage	111
1853 – Schroeter	139
1849 – Seymour	123
1853 – Shigenobu	137
1850 – Simpson (1)	127
1850 – Simpson (2)	127
1856 – Simpson	156
1853 – Sitgreaves	139
1851 – Smith (Fremont, Gibbs)	91
1843 – Smith, J. Calvin	104
1830 – Smith, Jedediah (1)	90
1830 – Smith, Jedediah (2)	90
1856 – (Sonora, E. & M. Co.)	159
1795 – Soulard	55
1852 – Stansbury (1)	135
1852 – Stansbury (2)	135
1847 – Stealey	114
1836 – Steen	83
1854 – Steiger	142
1855 – Stevens	150
1857 – Stevens (1)	161
1857 – Stevens (2)	161
1849 – Stuart	124
1822 – Tanner	75
1825 – Tanner	76
1846 – Tanner (1)	112
1846 – Tanner (2)	112
1798 – Thompson	63
1814 – Thompson	62
1815 – Thompson (1)	63
1815 – Thompson (2)	63
1856 – Tilton	155
1850 – (Topographical Engineers)	129
1542 – Ulpius	30
1771 – Urrútia	39
1828 – Vandermaelen	39
1717 – Vermale	50
1737 – (Vérendrye)	51
1738 – (Vérendrye)	51
1805 – Walker (1)	42
1805 – Walker (2)	43
1805 – Walker (3)	43

	Page
1854 – Walter	141
1849 – Ware	120
1855 – Warren	150
1857 – Warren	163
1855 – Whipple	153
1857 – Whipple and Ives	162
1857 – Whipple (Blake)	162
1852 – White (Platt)	134
1828 – White, Gallaher and White	78
1849 – Whitney	123
1841 – Wilkes (1)	99
1841 – Wilkes (2)	99
1849 – Wilkes (1)	123
1849 – Wilkes (2)	124
1850 – Williamson	129
1855 – Williamson	154
1857 – Williamson	162
1857 – Williamson and Abbot	161
1839 – Wislizenus	89
1848 – Wislizenus	116
1849 – Wyld (1)	122
1849 – Wyld (2)	122
1849 – Wyld (3)	122
1566 – Zaltieri	31