

In the 1850's the two major explorer-reconnaissance projects were the United States-Mexican Boundary Survey and the Pacific Railroad Surveys. The boundary survey, led at various times by Frémont, John R. Bartlett, and Lt. William H. Emory, resulted in a great resource survey of the Southwest, the mapping of the country, and, as the boundary survey indicated that additional land in the Southwest would be needed if a southern transcontinental railroad across United States territory to the Pacific was to be built, the Gadsden Purchase.

The official Pacific Railroad Surveys of 1853 were exploratory surveys made by U.S. Army topographical engineers across the West in an effort to locate the best route for a transcontinental railroad. There were five main surveys, one in the far north from Minnesota to Washington Territory under Lt. Isaac I. Stevens, one under Capt. J. W. Gunnison and Lt. E. G. Beckwith through southern Colorado and across the Great Basin, one along the 35th parallel under Lt. Amiel W. Whipple, one across the Southwest under Lt. John Pope and John G. Parke, and one running north and south on the Pacific coast under Lt. Robert Williamson and H. L. Abbott. All of the survey parties reported feasible railroad routes, but sectional politics paralyzed the nation and no railroad was built until after the Civil War. The main contribution of the surveys was the tremendous body of geographical and scientific information which they assembled and which was published in thirteen volumes. The maps made by these explorers, especially

the master map of the whole West compiled by Lt. Gouverneur Kemble Warren in 1857, were American cartographic landmarks. Among the railroad survey maps, too, were the first geographical maps of the West done by James Hall, W. P. Blake, and Jules Marcou, respectively. They were of uneven quality but were important beginnings for the study of Western geology.

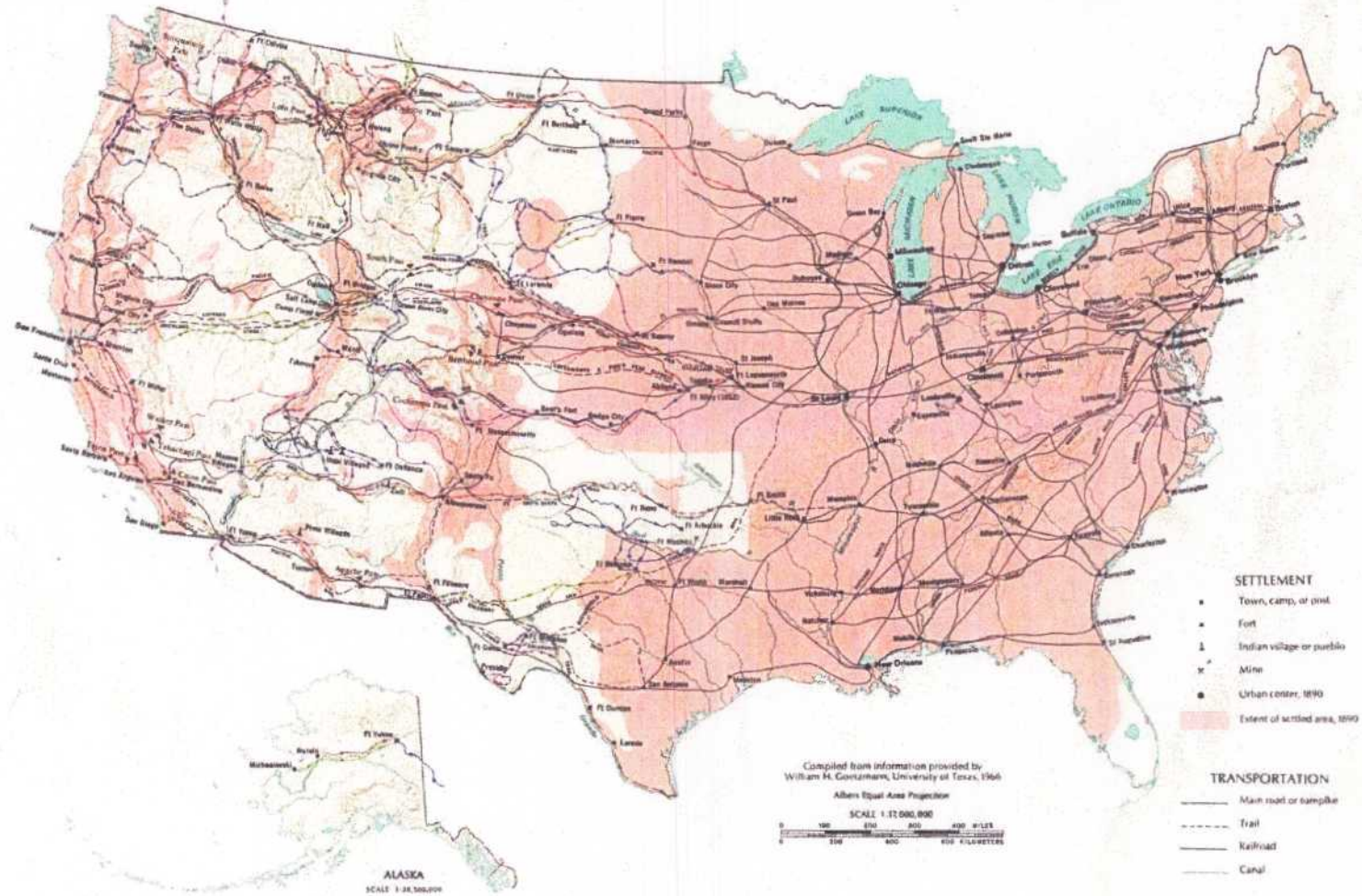
Also during the period preceding the Civil War there were numerous other Army exploring expeditions. Lt. G. K. Warren explored the Dakotas and opened up the Black Hills to the outside world. His expeditions in these regions also enabled the geologists F. V. Hayden and F. B. Meek to construct the first independently American paleontological stratigraphic sequence.

To the south, Lt. Joseph Christmas Ives in 1857 explored the lower Colorado River and led the first scientific expedition to the floor of the Grand Canyon. Capt. John M. Macomb in 1859 located the junction of the Green and Grand Rivers, thereby revealing the nature of the Colorado River system and making possible the explorations of that river by Maj. John Wesley Powell in 1869. All of these expeditions added immeasurably to scientific knowledge, from cartography and geology to botany and zoology. It was Ives, Macomb and Powell, likewise, who began to give us the first systematic studies of the American Indians, and out of their studies of the local inhabitants came the first important suggestions as to the possible nature of planned settlement in the arid West.

Upon the work of these explorers of the pre-Civil War period, the great postwar geological and geographical surveys under Maj. John Wesley Powell, Clarence King, Ferdinand V. Hayden, and Lt. George M. Wheeler necessarily rested.

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EXPLORATION AND SETTLEMENT: 1850-1890

Abbott, H., 1853-1855 (down Deschutes R.—The Dalles—Ft. Walla Walla—return to The Dalles—Willamette Valley—Redding)	Nes, L., 1857 (up Colo. R.—Mojave villages—Ft. Defiance)	Parke, J., 1853-1855 (Santa Cruz—Santa Barbara—San Diego—Tucson—Apache Pass—El Paso)	Warren, G., 1855 (Ft. Pierre—Ft. Kearny—Ft. Laramie—Ft. Hayes)
Arnold, R., 1851-1855 (Ft. Colville—Ft. Walla Walla)	Lander, F., 1851-1855 (Ft. Union—Savitt R.—Ft. Benton—Maras R.—Lynn & Clark Pass—Ft. Owen—Ft. Walla Walla—Oregon Trail—Kaman City)	Pope, J., K. Carazzi & C. Tapin, 1853-1855 (El Paso—Ft. Belknap)	Warren, G. & F. Hayden, 1856 (Ft. Pierre—Mo. R.—Yellowstone R. and return)
Beckwith, E., 1853-1855 (Sevier R.—Great Salt L.—Wauatch Range—Great Salt L.—Humboldt R.—Redding)	Alcorn, J., 1829 (Santa Fe—Colo. R.—San Juan R.—Santa Fe)	Powell, J., 1869-1872 (Galis R. country from Green River City to mouth of Virgin R.)	Warren, G. & F. Hayden, 1857 (Sioux City—Ft. Randall—Ft. Laramie—Black Hills—Ft. Randall)
Berthoud, E. & J. Bridger, 1860—(Denver—Berthoud Pass—White R.—Utah L.)	Marcy, R., 1852 (Ft. Belknap—Red R.—Canadian R.—Prairie Dog Town Fork—Ft. Arbuckle)	Raynolds, W. & H. Maynadier, 1859 (Ft. Pierre—Ft. Sully—Mojave Territory—upper Big Horn R.—H. Maynadier heads north)	Wessels, H., 1852 (San Francisco—northern Calif. coast—Klamath R.)
Bryon, T., 1856 (Ft. Riley—Ft. Kearny—west to Rocky Mtn. passes and return)	Marcy, R., 1854 (Ft. Washita—Wichita R.—Ft. Belknap)	Raynolds, W., 1859 (up Wind R.—Three Forks—Ft. Benton—Ft. Union)	Whipple, A., 1853-1855 (Ft. Smith—Canadian R.—Albuquerque—Zuni—Mojave villages—San Bernardino)
Culbertson, A. & E. Evans, 1856 (Ft. Pierre—Bad Lands—Ft. Pierre)	Marcy, R., 1858 (Ft. Bridger—Cochetopa Pass—Ft. Mammoth)	Saxton, R., 1851-1855 (Ft. Walla Walla—Cour d'Alene L.—Ft. Owen—Cadotte Pass—Ft. Benton)	Williamson, R., 1851-1855 (San Francisco—Ft. Miller—Tejon Pass—Los Angeles)
Danielson, A., 1851-1855 (Milk R.—Ft. Benton—Cadotte Pass—Pend Oreille L.—Ft. Walla Walla)	Marmaduke, H., 1839 (down Big Horn R.—Three Forks—Ft. Sully—Ft. Union)	Simpson, J., 1860-1839 (Camp Floyd—Ft. Bridger—Camp Floyd—Hastings Pass—Walker R.—Sacramento—return to Camp Floyd)	Williamson, R., 1853-1855 (Los Angeles—Cajon Pass—Teachapin Pass—Walker Pass)
Daly, J., 1851-1855 (Ft. Benton—St. Mary L.—Ft. Benton, Cour d'Alene L.—Palouse R.—Ft. Walla Walla)	McClellan, G., 1853-1855 (Vancouver—Mt. Adams—Snoqualmie Pass—Dkamgan R.—Ft. Colville)	Stigebbers, I. & J. Parke, 1851 (Santa Fe—Mojave villages—Ft. Yuma—San Diego)	Williamson, R. & H. Abbott, 1853-1855 (Sacramento Valley—Klamath L.—upper Deschutes R.—H. Abbott heads north)
Echols, W., 1859 (Pecos R.—Ft. Davis—Ft. Stockton—Big Bend area and return)	Mendell, C., 1855 (Ft. Walla Walla—Ft. Boise—Ft. Hall)	Stanley, J., 1853-1855 (Ft. Benton—Canada—Ft. Benton)	Williamson, R., 1853-1855 (Deschutes R.—Three Sisters—Lugene—Vancouver)
Frémont, J., 1844 (Ft. Leavenworth—Bent's Fort—Fillmore—Stockton)	Mexican Boundary Survey, 1849-1855 (San Diego—Tucson—El Paso—Rio Grande)	Stevens, I. & G. Sockley, 1853-1855 (St. Paul—upper Mo. R.—Ft. Benton—Ft. Walla Walla)	<b>ALASKA</b>
Garrison, I., 1853-1855 (Ft. Leavenworth—Ark.—Cochetopa Pass—Manti, killed at Sevier R.)	Mullan, J., 1851-1855 (Ft. Benton—Mustelchell R.—Mullan Pass—Ft. Owen—Ft. Hall—Ft. Owen—Flathead L.—Kootenai R.—Ft. Owen—Ft. Walla Walla—Ft. Benton)	Tinkham, A., 1853-1855 (upper Milk R.—Ft. Benton—Cadotte Pass—Flathead L.—Ft. Benton—Lolo Pass—Ft. Walla Walla—Inoquaine Pass—Seattle)	Campbell, R., 1850 (upper Yukon R.—Ft. Yukon)
Hamblin, J., 1857-1862 (Grand Canyon region—Ft. Defiance)	N.W. Boundary Survey, 1859 (49th parallel)	Wallen, H., J. Dixon & L. Schull, 1858 (The Dalles—Malheur R.—Owyhee R. anti Snake R.—Camp Floyd; return via Oregon Trail)	Lukner, I., 1863 (Nulato—Ft. Yukon)
			Stikine R. Survey (Stikine Strait—Stikine R.)
			Tringobach Survey (J. Kennicott & J. Burkers) 1865-1866 (Michalofoski—Nulato—Ft. Yukon)



1850

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Arnold, R., 1853-1855 (Ft. Colville—Ft. Walla Walla)

Beckwith, E., 1853-1855 (Sevier R.—Great Salt L.—Wasatch Range—Great Salt L.—Humboldt R.—Redding)

Berthoud, E. & J. Bridger, 1860—(Denver—Berthoud Pass—White R.—Utah L.)

Bryan, F., 1856 (Ft. Riley—Ft. Kearny—west to Rocky Mtn. passes and return)

Culbertson, A. & E. Evans, 1856 (Ft. Pierre—Badlands—Ft. Pierre)

Donelson, A., 1853-1855 (Milk R.—Ft. Benton—Cadoite Pass—Pend Oreille L.—Ft. Walla Walla)

Doty, J., 1853-1855 (Ft. Benton—St. Mary L.—Ft. Benton; Coeur d'Alene L.—Palouse R.—Ft. Walla Walla)

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Frémont, J., 1854 (Ft. Leavenworth—Bent's Fort—Fillmore—Stockton)

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Macomb, J., 1859 (Santa Fe—Colo. R.—San Juan R.—Santa Fe)

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Maynadier, H., 1859 (down Bighorn R.—Three Forks—Ft. Sarpy—Ft. Union)

McClellan, G., 1853-1855 (Vancouver—Mt. Adams—Snoqualmie Pass—Okanogan R.—Ft. Colville)

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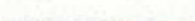










Campbell, R., 1850 (upper Yukon R.—Ft. Yukon)













Lukeen, I., 1863 (Nulato—Ft. Yukon)

Stikine R. Survey (Stikine Strait—Stikine R.)






















Telegraph Survey (R. Kennicott & J. Buckley) 1865-1866 (Michaelovski—Nulato—Ft. Yukon)

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-  Mullan, J., 1853-1855 (Ft. Benton—Musselschell R.—Mullan Pass—Ft. Owen—Ft. Hall—Ft. Owen—Flathead L.—Kootenai R.—Ft. Owen—Ft. Walla Walla—Ft. Benton)
-  N.W. Boundary Survey, 1859 (49th parallel)

## SETTLEMENT: 1850-1890

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|    | Parke, J., 1853-1855 (Santa Cruz-Santa Barbara-San Diego-Tucson-Apache Pass-El Paso)  |    | Warren, G., 1855 (Ft. Pierre-Ft. Kearny-Ft. Laramie-Ft. Pierre)  |
|    | Pope, J., K. Garrard & C. Taplin, 1853-1855 (El Paso-Ft. Belknap)   |    | Warren, G. & F. Hayden, 1856 (Ft. Pierre-Mo. R.-Yellowstone R. and return)                                     |
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|    | Saxton, R., 1853-1855 (Ft. Walla Walla-Coeur d'Alene L.-Ft. Owen-Cadotte Pass-Ft. Benton)   |    | Williamson, R. & J. Parke, 1853-1855 (San Francisco-Ft. Miller-Tejon Pass-Los Angeles)                         |
|  | Simpson, J., 1858-1859 (Camp Floyd-Ft. Bridger-Camp Floyd-Hastings Pass-Walker R.-Sacramento-return to Camp Floyd)                      |  | Williamson, R., 1853-1855 (Los Angeles-Cajon Pass-Tehachapi Pass-Walker Pass)                                  |
|  | Sitgreaves, L. & J. Parke, 1851 (Santa Fe-Mojave villages-Ft. Yuma-San Diego)   |  | Williamson, R. & H. Abbott, 1853-1855 (Sacramento Valley-Klamath L.-upper Deschutes R.; H. Abbott heads north) |
|  | Stanley, J., 1853-1855 (Ft. Benton-Canada-Ft. Benton)   |  | Williamson, R., 1853-1855 (Deschutes R.-Three Sisters-Eugene-Vancouver)  |
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|  | Campbell, R., 1850 (upper Yukon R.-Ft. Yukon)  |
|  | Luken, I., 1863 (Nulato-Ft. Yukon)   |
|  | Stikine R. Survey (Stikine Strait-Stikine R.)  |
|  | Telegraph Survey (R. Kennicott & J. Buckley) 1865-1866 (Michaelovski-Nulato-Ft. Yukon) |