The Army Engineers as Road Surveyors and Builders in Kansas and Nebraska, 1854-1858

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At the close of the Mexican war the territory of the United States was greatly increased by the addition of California and the New Mexico and Utah territories. The population of California, gradually becoming stabilized after the gold rush, began to demand better mail facilities and more satisfactory roads for the travel of emigrants from the Mississippi and Missouri valleys to the coast. Delays brought about dissatisfaction and some talk of the establishment of a separate Pacific republic. During the war years the Mormons had also laid the foundations of their commonwealth in the Great Basin. The intermediate country between the Missouri river settlements and the Great Salt Lake and that beyond it to the California communities was controlled by Indian tribes which were often hostile and guilty of occasional depredations.

To facilitate the movement of troops destined for California, New Mexico and Utah as well as to decrease the cost of transporting supplies needed for military operations in the newly acquired domain, it was imperative that the federal government improve the means of communication and travel across the Great Plains. Roads which could be used with reasonable speed would bind the nation together, improve the mail service, aid the emigrant and insure the safety of the frontier settlements. The congress of the United States justified its appropriations for federal road building on the basis of national defense, for the most part, and therefore assigned the supervision of many constructions to the Secretary of War.

The corps of topographical engineers, which since 1838 had been responsible for all nonmilitary engineering projects of the army, including road building, was engaged shortly after the termination of the Mexican war in making surveys for possible military routes into the newly acquired Mexican cession.1 In 1849 Capt. R. B. Marcy’s expedition was ordered from Fort Smith, on the Arkansas, to Santa Fe for the purpose of locating the best route to New Mexico, conciliating the Indian tribes along the way and escorting a group of California-bound emigrants westward. Lt. James H. Simpson, of

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the topographical engineers, was sent along to survey and improve a wagon route along the southern bank of the Canadian river.\textsuperscript{2} Two other officers of the corps, Capt. Howard Stansbury and Lt. J. W. Gunnison, directed an exploring party from Fort Leavenworth to Oregon during the same spring. Captain Stansbury was ordered to make a survey from the northern shore of Salt Lake to Fort Hall to determine the practicability of a wagon road between that fort and the Mormon community.\textsuperscript{3} A third expedition, sponsored by the topographical engineers, under Capt. L. Sitgreaves, explored the route from Santa Fe to the Bay of California by the way of the Zuni river, a tributary of the Colorado, and down the latter stream to its mouth.\textsuperscript{4}

As a result of the recommendations of Jefferson Davis, Secretary of War, the United States congress inaugurated in 1853 an extensive road building program in the territories acquired during the 1840’s. Appropriations were first made for Oregon roads,\textsuperscript{5} and during the following two years the activity spread to the entire Pacific Northwest.

Appropriations were approved in 1854 and 1855 for five federal roads in New Mexico territory, connecting the forts and more important towns in the vicinity of Santa Fe.\textsuperscript{6} A survey was ordered from Salt Lake City to the eastern boundary of California for the construction of a military road. Lt. Col. E. J. Steptoe, Third artillery, was charged with making the necessary contracts. Twenty-five thousand dollars had been allocated for this road from Salt Lake, passing through Provo City, Fillmore City, Parowan and Cedar City, in the direction of Cajon pass.\textsuperscript{7} In 1855 additional roads


\textsuperscript{3} The official report of Simpson has been used extensively by Grant Foreman in editing the journal of Captain Marcy, \textit{Marcy and the Gold Seekers, the Journal of Captain R. B. Marcy, With an Account of the Gold Rush Over the Southern Route} (Norman, Okla., 1939). Background material is also furnished by Ralph P. Bieker’s scholarly \textit{Southern Trails to California in 1849} (Glendale, Calif., 1937), and his article "The Southwestern Trails to California in 1849," in \textit{The Mississippi Valley Historical Review}, Cedar Rapids, Iowa, and Lincoln, Neb., v. 12, No. 3 (December, 1925), pp. 342-375.


\textsuperscript{6} United \textit{States Statutes at Large}, v. 10, pp. 151, 303.


in Oregon and Washington were authorized and the principal forts of the region, such as Columbia City Barracks (Fort Vancouver) and Fort Steilacoom, were to be joined by military routes.\(^8\)

The area between the western boundary of the prairie states and the Rocky Mountains was designated as the Kansas and Nebraska territories in 1854. Across these plains the great tide of migration had swept to Oregon, California and the Great Basin. The valley of the Platte had been the greatest route of all and since the beginning of the Great Migration in 1841 the Oregon trail had been fixed upon its southern bank. In 1847 the Mormons, leaving their winter quarters at Omaha, chose a new western route along the north bank of the stream. The War Department decided in 1854 to improve this Mormon trail from Omaha as far as New Fort Kearny at the southern bend of the Platte. Military supplies could be more quickly and cheaply transported to the post by bringing them up the Missouri along the western Iowa boundary to the Council Bluffs-Omaha region and thence overland on a shorter land route than that from Fort Leavenworth. On February 17, 1855, $50,000 was made available by the federal government for this public work.\(^9\)

Fort Leavenworth, on the eastern boundary of Kansas, was at this time the principal depot from which the military stations along the routes to Utah, California and Oregon were supplied, and the contracts for the transportation of these supplies amounted to three or four hundred thousand dollars each year. One hundred thirty miles west of Fort Leavenworth, at the forks of the Kansas (Kaw) river, a new fort, known as Fort Riley, was under construction in 1854-1855. This fort, built for the protection of the Kansas settlements and as a subordinate depot and advanced rendezvous for troops, was connected with Leavenworth by a water route on the Kansas and by a military road on its north bank.\(^10\)

The President on March 3, 1855, approved a bill for $50,000 for the construction of a road from Fort Riley to the Arkansas river at any point which the Secretary of War deemed most desirable for military purposes. An equal sum was approved for a road from Fort Riley to Bridger’s pass in the Rocky Mountains.\(^11\) The army planned that the route to the Arkansas would reach that river either at the Cimarron crossing or at Bent’s Fort, so troops and supplies from the two Kansas forts, as well as emigrants, might then travel

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9. Ibid., p. 608.
to the New Mexico settlements by the long established Santa Fe trails. The road to the Rockies would provide a more direct route from the Missouri river towns and forts in Kansas to Utah and California than the Oregon trail, diminishing the distance to Great Salt Lake by one hundred miles. The route was declared to be equally easy and Bridger’s pass as accessible as the South pass farther north.12

FROM FORT RILEY TO THE ARKANSAS RIVER

Lt. Francis T. Bryan, chosen to direct the construction of these three projects and supervise the expenditure of $150,000 of federal funds, hastened to St. Louis where essential equipment for the surveys was purchased.13 At Fort Leavenworth he resolved first to travel the route to the Arkansas and hired several Delaware Indians, reported to be well acquainted with the country between Fort Riley and the Arkansas, to serve as guides for his party. An outbreak of cholera delayed his departure from Fort Riley until July 30, 1855. Accompanied by a military escort, the Bryan survey expedition traveled along the northern bank of the Kansas river for approximately fifty miles, crossing Solomon’s fork about 35 miles from Fort Riley and the Saline ten miles farther west. At the Saline the party crossed the plains in a southwesterly direction to avoid the bend in the Smoky Hill. Immense herds of buffalo were observed here.

At their crossing of the Smoky Hill, the explorers reported the river to be 220 feet between its banks, the crests of which were 22 feet above the bottom of the stream. Although the water was only a few inches deep at the time of crossing, the party experienced some difficulty in keeping the wagon wheels from cutting too deeply and becoming stuck in the loose sand. In the opinion of Bryan, the thinly scattered cottonwoods on the banks of the stream near this crossing would be of little value in constructing a bridge.

Leaving the river, Bryan’s men headed southwest, crossing open country that they reported to be exceptionally level, covered with buffalo grass and inhabited by prairie dogs, until they arrived at Walnut creek, a tributary of the Arkansas. En route they had crossed the Little Arkansas near its headwaters. Bryan realized that this level country, exceptionally good for a wagon road in dry

13. Letter from Bryan to John J. Abert, colonel and chief of the topographical engineers, June 14, 1855. Bryan had been assigned the duty in Kansas and Nebraska on April 28, 1855. Within two weeks he was on his way to St. Louis.—“Letters Received, Bureau of Topographical Engineers, War Department Records,” The National Archives. All correspondence and manuscript reports used in the preparation of this study are in The National Archives. No further reference relative to the location of sources will be necessary.
weather, would be impassable in the wet seasons and resolved on the return trip to seek a parallel route slightly to the north. From Walnut creek, the surveyors crossed over to the Pawnee fork of the Arkansas and ascended it to the headwaters. They noted that the timber on the streams was more scattered and smaller, and the general appearance of the country indicated that they were approaching the dry region bordering the Rocky Mountains. In the march from the Pawnee to the Arkansas the country was destitute of timber and the party resorted to buffalo chips for fuel. At the Arkansas the party came upon the well-beaten road from Fort Atkinson to Bent's Fort.\(^{14}\)

At Bent's Fort, Bryan, learning that a direct route could be made from the Big Timbers at the fort to the head of Walnut creek, attempted to employ competent guides who could direct his party there. Thus, the timberless, desolate stretch between the Pawnee fork and the Arkansas could be avoided. Bent, who knew the country well, was departing for St. Louis the morning following the arrival of Bryan’s group and could not assist personally but recommended Cheyenne or Arapaho guides. However, these tribes strongly objected to the road-building activities of the government and would provide no aid. As a result the explorers returned to the camp where they first struck the Arkansas, gathered supplies of wood, and crossed directly to the head of the Pawnee.

Here the first norther of the season struck, bringing heavy rains and bitter cold. Having exhausted their fuel at this encampment, the men were forced to move quickly in search of firewood. The return route took the party down the Pawnee until it was close enough to cross over to the Walnut in a single day’s march. The engineer decided it was unnecessary to bridge these streams unless a military post was established in the vicinity and the garrison would be conveined thereby. On the trip down the Walnut and across to the Smoky Hill, bad weather continued to plague the party; it was now the third week in September. Once they struck the Smoky Hill, that stream was followed to Fort Riley along the outward track.\(^{15}\) The total length of the road surveyed was 360 miles.\(^{16}\)

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\(^{14}\) Fort Atkinson was located just west of present Dodge City and Bent’s Fort was near present Prowers, Colo. For a history of Bent’s Fort, see “Bent’s Old Fort and Its Builders,” by George Bird Grinnell, in the Kansas Historical Collections, Topeka, v. 15, pp. 28-81.

\(^{15}\) Bryan to Abert, December 15, 1855. This annual report of Bryan contains many interesting details of the survey that are too extensive to be included in this account.

\(^{16}\) All distances mentioned in this study are those recorded by the engineers in their official reports. In many cases they do not correspond with accepted present-day estimates. This is largely explained by the devious routes followed by the army men over unknown terrain, although undoubtedly there were occasional mistakes in estimating distances.

Bryan reported to his superiors that the road was for the most part over open prairie and, since there was no timber to cut out and none at sufficient intervals to provide stakes for the surveyors, there was no means of marking it except by the track of the wagons. The track which his few wagons had made was so dim that within six months it would be obliterated, and he urged the immediate passage of a large train over the road to mark it plainly. After the major streams were bridged the only obstructions to wagon travel would be the small drains of a few inches depth that each pioneer party would be forced to make passable. Bryan recommended that a working party of twenty men travel a day in advance of the next freighters and emigrant trains to prepare the way.

Bridges would be necessary at the crossings of Solomon's fork, the Saline and the Smoky Hill rivers. Oak could be found on the banks of the first two streams that would provide lumber for the 120-foot structures which were needed, but as no suitable timber could be found on the Smoky Hill and as the road crossing was 80 miles beyond Fort Riley's men and materials, the cost of the 200-foot span would be greatly increased. Bryan requested the assignment of one company of infantry as an escort for the contractors and workmen while employed upon these bridges.17

At Fort Leavenworth all camp and surveying equipment of the expedition was left with the quartermaster, and the animals that would be needed the next season were placed in the care of herders on the post. Bryan then returned to St. Louis for winter quarters where he opened an office and hired two draftsmen to assist in making maps and charts to accompany his report on the season's activities.18 In February the contract for the building of five bridges on the Fort Riley-Big Timbers road was granted to J. O. Sawyer, whose bid of $38,400 was the lower of the two submitted.19 The bureau of topographical engineers refused Bryan's request for an escort for Sawyer's workmen, and the contractor, in desperation, wrote directly to Jefferson Davis:

We have information of hostilities and depredations being commenced by the Cheyenne Indians, now in that region and as I have no protection . . . . I should be provided with an escort as was verbally guaranteed to me by Lieut. Bryan and is really a part of the consideration of contract. . . . I am departing for the place of operation today. . . . I hope you will see the importance of granting me an escort, as any depredations, arising for want

17. Bryan to Abert, December 15, 1855.
18. Ibid., October 30, 1855.
19. Ibid., February 8, 1856.
of protection, might prove disastrous to the government as well as seriously injurious to me.\textsuperscript{20}

A detachment from the Second dragoons at Fort Riley was finally ordered by the local commandant to join the laborers after they had been in the field for over a month.

When the army engineer left Leavenworth with his new exploring party to go to Bridger’s pass in May, 1856, he left a civilian engineer, Coote Lombard, to superintend Sawyer’s construction of the bridges on the road to the Arkansas. Two small creeks, the Sycamore and Armistead’s, between Fort Riley and Solomon’s fork, were the first bridged. At Solomon’s fork the contractor worked from mid-June to mid-July hauling wood and building the false work. As he was ready to start the actual bridge on July 24, the stream began to rise as a result of freshets and in two days it was six feet above its previous high water mark, carrying off all the false work. The contractor began again, but heavy rains in late August and September delayed the completion of the bridge, including the construction of ice breakers, until October.

At the Saline fork the river was also at flood stage most of the time and full of driftwood. The men continued to work, several suffered from exposure, became ill, and the force was steadily reduced. One laborer died at this encampment. From here they moved up to the site of the Smoky Hill river bridge where the climate was drier; most of the men recovered, but a second laborer, who had been ill for several weeks, died shortly after they arrived in the new camp. Lumber was hauled in from the two previous sites by ox teams, which, on at least one occasion, lost the road and had to be located and redirected by the mule wagons transporting rations for the crew.\textsuperscript{21}

Sawyer had experienced a difficult season. Realizing that he was losing money on the contract, he appealed to Lombard, and the engineering agent permitted him to omit the construction of ice breakers on the Saline and Smoky Hill bridges since it had become necessary to build the Solomon’s fork bridge longer than the contract specified.\textsuperscript{22} On his return from Bridger’s pass, Bryan proceeded to examine the work on the road and accepted the bridges for the United States government. At the beginning of 1857 Sawyer put in claims for what he termed “extra work,” not in his contract. The

\textsuperscript{20} June 26, 1856.

\textsuperscript{21} Lombard to Bryan, November 23, 1856.

\textsuperscript{22} Ibid. The Secretary of War had agreed to modifications of the contract provided the total payment was not in excess of the contract figure of $38,400. By omitting the ice breakers at the Saline the contractor had saved the time necessary for the water to go down and on the Smoky Hill it would have been necessary to haul piles for 52 miles.
army engineer forwarded the claims to the bureau with an evaluation of each and a recommendation that all be disallowed. His decision was sustained by the War Department. All concerned admitted that the contractor had little profit to show for his work.23

Kansas settlers pushed westward as the road was built and the bridges erected. During the season of 1856 the civilian engineer observed:

The bridging of this road has induced settlers to move out at least forty miles beyond the heretofore bounds of civilization, i.e. at and beyond Saline Bridge. I expect that there will be settlers at the Kaw [Smoky Hill] River Bridge eighty-five miles west of Fort Riley by next Spring—the opening of this road has pushed the settlements beyond where they would be if the road had not been opened.24

Bryan notified the War Department early in 1857 that the road from Riley to Bent’s Fort was “passable for trains of any kind.” His greatest concern was the section of road beyond the Smoky Hill river bridge, which “would be very difficult to find except to persons who had once traversed it and knew it by landmarks, as the prairie grass of two summers has effaced the marks made by the surveying party of 1855.” 25

FROM FORT RILEY TO BRIDGER’S PASS

During the winter of 1856 in St. Louis, Lieutenant Bryan notified the War Department that the survey to the Arkansas was his accomplishment of the previous season. He requested the appointment of a trained engineer as agent to supervise the Nebraska road from Omaha to Fort Kearny in the spring while he would be engaged in locating the route to Bridger’s pass. An escort would be necessary for the safe conduct of both parties.26

Col. John J. Abert, chief of the topographical bureau, quickly reprimanded him for the failure to survey all three roads in the Kansas and Nebraska territories during 1855 and requested an explanation that might be presented to the Secretary of War and possibly to congress. Bryan reminded his chief of the delay at Fort Riley

23. Bryan to Abert, February 10, 1857. Bryan deducted $50 from Sawyer’s payment to complete the grading of the approach to one of the bridges. Sawyer produced the evidence required by law that he had paid his laborers with the exception of four men. In time, Bryan discovered that each of these four had wages coming, one for as much as $143.75. The administration of contracts was one of the greatest problems that confronted the topographical engineers.

24. Lombard to Bryan, November 22, 1856.

25. Bryan to Abert, February 10, 1857. Bryan reported that trains traveling over the route could be saved detention and much labor if the small streams and sloughs could be bridged and their approaches graded. The remaining $916.90 of the appropriation on January 1, 1857, was not enough, however, to commence operations. The engineer also renewed his request that a large train be sent over the road to New Mexico so that its wagon wheels would make a trace that could not be effaced before emigrants followed and permanently marked the route. The road, as far as the Smoky Hill, was already thus marked.

26. Ibid., October 30, 1855.
due to the cholera, the two months consumed in traveling to and returning from the Arkansas, and explained that commerce over the plains stopped during October and did not begin until spring. An additional survey late in the season, he thought, would have meant a great loss of material and men from frost and starvation.  

With the coming of spring thaws, the breaking ice and resulting flood waters on the Republican fork of the Kansas river destroyed the bridge in the immediate vicinity of Fort Riley as well as those on the Blue and Grasshopper rivers where the road to Fort Leavenworth crossed those streams. The commanding officer at Riley appealed for assistance to Bryan who was in the midst of preparations for his trip to the Rocky Mountains. The engineer notified the bureau that on the basis of his assignment he could perform no work east of Fort Riley and recommended a $50,000 additional appropriation by congress to improve the road between the Kansas forts, which he now considered the worst section of his route between the Missouri and Arkansas rivers.  

Bryan wrote the bureau in April that his plans for the reconnaissance of the Fort Riley-Bridger's pass road were nearing completion. Guides had been employed and he intended to start out in May as soon as the grass of the plains would support his animals. Officers from the west reported the Indians hostile to any attempt to make a road through their country and his guides likewise considered an escort necessary in the western part of the territories. The Secretary of War had spoken to the engineer in Washington during 1855 about detailing two companies of dragoons as an escort for this survey and Bryan hoped the necessary orders could be obtained by the bureau and dispatched to Fort Riley. Bryan also restated his intention of placing the Omaha-Fort Kearny road under a civilian agent of the army engineers since his own time would be consumed in going and returning from the Rockies and therefore solicited information relative to the procedure used in hiring agents.  

On May 28 the bureau notified him that Lt. John H. Dickerson had been assigned the responsibility of supervising the road in Nebraska.

27. Ibid., November 12, 1855. In reading the correspondence between Bryan and Albert, the historian will discover what appears to be a growing friction between the officers. Bryan felt his chief was unsympathetic with his problems and overly critical; Albert seems to have lacked confidence in the young officer and considered him at times disrespectful, if not bordering on insubordination.

28. Ibid., March 31, 1856.

29. Ibid., April 14, 1856. On April 29, Bryan wrote again: "The appointment of this agent is necessary if these two roads are to be surveyed in the same season as it is impossible for one person to attend to both at the same time on account of the distance between them and the difficulty of moving about from one point to another in such a wild and unsettled country. . . . Early action is requested as the season is fast approaching when parties destined for the plains should take the field."
territory and Bryan replied by telegram, “I am prepared and wait only for Lt. Dickerson.”

When Bryan left Fort Riley on June 21 he was accompanied by several assistants: a topographer, John Lambert; a geologist, Henry Engelmann; a barometer expert, and two trained rodmen. They traveled along the east bank of the Republican fork for 100 miles to the northwest in the direction of Fort Kearny, and then crossed over the prairie 35 miles to the Little Blue. After crossing the Little Blue, the party struck the established military road between Forts Leavenworth and Kearny which they followed to a point on the Platte about fifteen miles east of Fort Kearny, and then up that stream to the fort. In the opinion of Lieutenant Bryan, a great amount of labor would be necessary on this first division of the route to the Rockies to make an acceptable wagon road. Many of the creeks needed bridging and the approaches to practically all entailed grading to avoid the capsizing of heavily loaded freight and emigrant wagons.

Leaving Fort Kearny, the surveyors’ route lay along the valley of the Platte, the usual way traveled by Oregon-bound trains, to a point sixteen miles beyond the much used Laramie crossing. Here was located a new ford where the river was reported to be 610 yards wide, with a gravel bottom and water scarcely covering the axle trees of the wagons. Like all previous explorers, Bryan realized that bridging the Platte was out of the question and trains must take their chances in locating a good ford. From the Platte crossing the party ascended the south fork of that stream and its tributary, Lodgepole creek, to the Pine Bluffs, just across the present western Nebraska boundary in Wyoming. This area was known as a favorite winter residence of the Sioux and Cheyenne Indians. The members of the expedition gathered dwarf pine for several days’ use because fuel, even buffalo chips, was reportedly scarce at the headwaters of Lodgepole creek.

The party crossed the hills between this creek and the Laramie river in a single day and journeyed to the Little Laramie river on the following. Here they struck an emigrant road along the foot of the Medicine Bow range, which Captain Stansbury had used during his explorations of 1849–1850, and followed it for a few miles to an encampment on Cooper’s creek. The expedition experienced difficulty with the animals in this mountain country because of sore

30. Ibid., May 28, 1856. Bryan also notified the bureau of the equipment which he might provide for Dickerson’s work.

31. The “Laramie crossing” of the Platte was the established ford for emigrants on the Oregon trail traveling to Fort Laramie.
feet, resulting from the wearing out or loss of shoes. Bryan recommended that trains traveling through the country should carry additional horse and mule shoes, a supply of shoe nails, and a forge. From Cooper's creek the men crossed rocky hills to the Medicine Bow in the vicinity of Medicine Bow Butte, a favorite rendezvous for beaver trappers in years past and still a council place used by the Sioux, Snakes and Arapahoes.

From here their circuitous route toward the Continental divide led to the headwaters of Pass creek where, on August 9, they experienced a mountain storm with the temperature dropping to freezing and leaving ice on their tents. From Pass creek to the North Platte the route was so steep that ropes were used to hold the wagons in line and, in spite of precautions, two overturned. The expedition observed several unfinished and abandoned trading houses on the North Platte and assumed that traders had left because of the assaults of hostile Indians.

Leaving the North Platte the party traveled to Sage creek, a tributary, which they assumed would lead to Bridger's pass. None of the guides, who had spent years in the mountains, had been to the pass, and the appearance of the country did not coincide with Captain Stansbury's descriptions. The leaders agreed, however, that they could not be a great distance from Bridger's pass, located on the map between the head of Sage creek, flowing easterly to the North Platte, and Muddy creek, flowing westerly into a branch of the Green. A consultation was held and all concurred that the mission of the expedition was to find a practicable pass to the western slope and that they should not be concerned over the exact location. The party crossed the divide and descended Muddy creek to make certain its waters flowed to the west. The reconnaissance was complete, and the pass over the divide was named Bryan's pass.32

The engineering party returned to the North Platte, across Pass creek and the Medicine Bow on a route a few miles to the north of the outward route and rejoined it before reaching Laramie river. Seeking a new route which might prove better than the one traveled on the outward journey, the explorers turned to the south, crossing the hills to the Cache la Poudre river in the vicinity of the present Wyoming-Colorado boundary. They descended this stream to its junction with the South Platte, forded the latter stream and descended it in an easterly direction, crossing the Kiowa, Bijou and Beaver creeks flowing from the south.

Fourteen miles beyond the mouth of the Beaver, Bryan resolved to leave the South Platte and cross the open country to the Republican fork of the Kansas. The party remained in camp, however, the following day, September 14, because of the illness and sudden death of Frederick Børtheaux, who was buried on a ridge near the banks of the river. Resuming the march, the surveyors crossed the flat, sandy prairie en route to Rock creek, a tributary of the Arickaree fork of the Republican. This proved the most desolate country of the entire trip and very fatiguing for the draft animals. A large party of Cheyenne Indians met the explorers on Rock creek and gave evidence of preparing to attack before they discovered the strength of the party's escort. Bryan's men went into camp immediately, and the commander of the escort stationed sentinels to keep the Indians out. A cold rain set in, and the party was greatly inconvenienced by lack of fuel, there being only buffalo chips which could not be used in wet weather.

The final section of the return route was down the Arickaree and the Republican fork to Fort Riley. Bryan noted that the river bottoms furnished subsistence for large herds of buffalo and elk which made this valley a favorite hunting ground of the Cheyennes, Comanches and Kiowas. These Indians intended to prevent the government from making a wagon road along the river. He felt this valley was superior to the Platte both for the establishment of military posts and for settlements.

Leaving the main party in charge of John Lambert with instructions to proceed to Fort Riley, the lieutenant took a detachment across to Solomon's fork for a further reconnaissance. After inspecting the new bridges on the Arkansas route constructed in his absence, his party arrived at Fort Riley on October 21. Both groups disbanded at Leavenworth on November 7, having been in the field four and a half months.

Bryan reported to the War Department that in view of the limited funds remaining of the congressional appropriation the route followed on the outward journey was the most advantageous. Running water was available the entire distance and that portion of the road along the Platte was already well established. The greatest obstacle was the lack of fuel. From Fort Kearny to Pine Bluffs a distance of 300 miles, only buffalo chips were to be found. In Bryan's opinion this absence of timber, and consequently fuel and shelter, would always make traveling along the Platte during the winter a hazardous and painful experience. However, the road be-
Memorial

to the

CONGRESS, UNITED STATES,

for the Construction of a

WAGON ROAD across

the

And for the Establishment of

MILITARY POSTS.

CALIFORNIA,

1856.

Title Page From California Memorial to Congress, 1856

The memorial, for the construction of a wagon road to California, was in two leather-bound volumes and contained 75,000 signatures. It is now in The National Archives, Washington. The lettering on the title page, which is 16" x 11", was in red, blue and gold-leaf.
tween Fort Riley and Bridger's pass could be considered "practicable," for 33 wagons had gone over it in the season of 1856. The engineer's only concern was the fact that his road led into the heart of the mountains with no definite terminus. To make it of some practicable value the War Department was urged to connect it with the posts or stations west of the divide, possibly in the Salt Lake Basin. 33

During the winter in St. Louis, Bryan and his associates prepared a comprehensive report of their season's work. The topographer, with two draftsmen, made an elaborate map of the road, including nearby topographical features. Lambert also reported on several side-surveys made under instructions from the army engineer; Engelmann, the geologist and mining engineer of the expedition, summarized his observations in a technical paper. The fossils he had collected on the government expedition were examined by B. F. Shumard of St. Louis who submitted a report on the paleontology. In time, these maps and reports were forwarded to the bureau in Washington. 34

In the spring of 1857 Bryan organized a party of laborers to pass over his road again to remove obstacles and to grade the banks of streams at crossings. Only with the assurance that an armed escort of cavalry would be provided, could the engineer find men willing to leave the settlements for several months on the assignment. 35 The distance between Forts Riley and Kearny, measured at 193 miles, was traveled in fourteen days and left in a "passable" state so that the farther portions of the road might be worked first. No improvements were deemed necessary between Fort Kearny and the Laramie crossing, a road distance of 168 miles. When the Bryan party arrived at the ford used the previous season it was impassable due to high water, but four miles upstream a satisfactory crossing was located at a camping ground of the Cheyenne Indians.

Along the route from the Platte to the head of Lodgepole creek the crossings of streams were graded and in the timbered country at the headwaters of the creek, trees and stones were removed from

33. Ibid., pp. 404-481.
34. Bryan to Abert, December 1, 1856, January 1, February 25 and May 11, 1857. The main reports were published by the Secretary of War in his annual report for 1857, loc. cit., pp. 453-626. Two maps were forwarded during the winter: "Military Road from Fort Leavenworth to Fort Riley, Kansas; profiles Rock, Vermillion, Grasshopper & Stranger creeks, & Blue and Republican Rivers" and "Reconnaissance of a Road from Fort Riley, Kansas to Bridger's Pass made in obedience to instructions from the War Department in June, July, August, September, and October, 1856." On the latter map Bryan listed J. Lambert, C. T. Larned and S. M. Cooper as assistants. These maps may be seen in the division of cartographic records, The National Archives.
35. Bryan to Abert, April 24, 1857.
the road. Crossings of the Laramie and Medicine Bow were improved, but Bryan noticed that the Medicine Bow was not susceptible to permanent improvement due to boulders and gravel brought down by the mountain torrents each season when the snows melted. At several crossings of Sage creek, small log bridges were constructed sufficient for the passage of a single wagon. Bryan justified his cursory improvements by remarking: "In opening this road, I have endeavored to carry into effect the instructions of the Secretary of War, namely, not to expend an undue amount on any one section but to equalize as much as possible the expenditure, so as to make all parts practicable before any part was elaborated."

The laborers returned to Fort Kearny by September 1 and then turned their attention to improving the eastern section of the road. At the crossing of the Little Blue the banks were graded and the road opened through the timbered bottom. No bridge was deemed necessary because the stream was usually fordable, but many of the smaller streams between the Little Blue and Fort Riley were deep and narrow and so difficult to cross that bridges were required. Bryan did not have the requisite tools and mechanics to do the job so resolved to discharge the party and sell the animals and property belonging to the project to secure additional funds for the construction.

By March, 1858, drawings and specifications for ten small bridges on the road immediately north of Fort Riley had been prepared and a construction contract given to Alfred Hebard for $12,500. The unexpended funds for the road only totaled $9,500, but Bryan assumed the mules, wagons, harness and other equipment of the expedition would bring $3,000 at an auction. When this state of affairs was reported to the Secretary of War, Bryan was relieved of his command and the Nebraska and Kansas roads were assigned to Capt. E. G. Beckwith.

On July 23 the public auction held at Fort Leavenworth was stopped by Beckwith’s order because no reasonable bids were being made by which a sufficient sum could be realized to cover the contract. Since the Secretary of War’s approval of Hebard’s contract was contingent upon raising $3,000 at the auction, Beckwith renegotiated the contract whereby Hebard would accept the balance of the funds for the road plus income from property sales, even if under

36. Ibid., December 10, 1857.
37. Ibid.
38. Ibid., March 29, 1858. The bridges were located at the following creeks: Madison, Miry, Middleton, Loup, Parson’s, Uphill, Rocky Ford, Crooked, Goodale’s branch and Bryan’s fork.
$12,500, provided an extension of time from September 1 to December 1, 1858, was granted to complete the bridges. He was also to be permitted to use government mules for hauling supplies and for construction work. This arrangement was approved by the War Department. 39

Hebard’s laborers used the timber growing on the Kansas streams to build several log bridges, but iron and flooring had to be hauled in to construct a half dozen frame bridges over the larger creeks. The first grading proved a simple problem, but the contractor noted that it was not permanent, for once the sod was broken the dirt washed out on the slightest grades. During September Beckwith reported the road in good traveling condition fifty miles above Fort Riley. The contractor was putting up the bridge at Parson’s creek, which he hoped to complete during the first week of October and, should the season prove favorable for work during November, all the bridges would be completed within contract time. 40

On November 20 the laborers arrived at Fort Kearny, having completed all bridges except two small log structures. Returning immediately over the route, the contractor supervised the improvement of approaches to bridges and the final constructions prior to the end of the month. Beckwith announced that the road was in excellent condition for the travel of the heaviest trains across the plains, and hastened to Fort Leavenworth to report the close of the season’s operations on the road. 41

FROM OMAHA TO NEW FORT KARNY

While Lieutenant Bryan was engaged in locating the route west of Fort Riley to the Rockies in 1856, Lieutenant Dickerson concentrated his efforts on improving the eastern Nebraska military road. The fifteen months elapsing between the passage of the law authorizing this road and the assignment of Dickerson had been ample for Nebraska residents to evaluate the effects of the government project on the frontier communities. Residents south of the Platte were disappointed that federal funds were to be concentrated on a road along the north bank and at least one, who described himself

39. Beckwith to Lt. Col. J. H. Long, February 12, 1859. This report includes extensive specifications for each of ten bridges which are of interest primarily to the engineer.
41. Beckwith to Long, February 12, 1859. Beckwith also prepared a map showing the location of bridges constructed in the valley of the Republican fork which is available in the division of cartographic records, The National Archives.
as "a resident of Nebraska interested in the development of the country," wrote the chief of topographical engineers urging the appointment of a surveyor to examine and report on the possibility of bridging the Platte near its mouth and building on the south bank to avoid the crossings of the Elkhorn, Loup fork, and Wood rivers.\textsuperscript{42} While the local debate continued, the Nebraska governor, Mark W. Izard, complained to officials in Washington that nothing had been done on the road in the season of 1855.\textsuperscript{43} This communication inaugurated the investigation of Bryan’s activities that culminated in the division of the Kansas-Nebraska road work with the appointment of Lieutenant Dickerson.

Jefferson Davis, intensely concerned over the pattern of the army transportation system as well as emigrant travel to the West, personally prepared Dickerson’s instructions, the form and content of which provided the basis for a general circular of instructions to officers and engineering agents of the topographical bureau assigned to road building projects:

The road will be located along the most direct line connecting the two points [wrote the Secretary of War] with due regard to cost of construction, the selection of good points for passing streams by bridges or otherwise, and a supply of wood and water.

The guiding consideration in the construction will be so to apply the amount as to make the road practicable for the passage of wagons throughout its entire length; if this can be accomplished for a less sum than that appropriated then the remainder will be applied to the improvement of those parts which present the greatest natural difficulties and give the least assurance of remaining in repair.

While the best style of road possible should be constructed, no standard should be adopted that will require any expenditure beyond the amount of the appropriation, $50,000.

It is supposed that the streams to be crossed will form the chief obstacle to overcome; the crossings of these will be carefully selected, with a view to their being readily bridged in the shortest practicable time. You are therefore authorized, after completing the reconnaissance and making the estimates to put the road under construction at once, either by contract for the whole work, or by contract for such portions as may be thus more advantageously constructed, or by contract for the supply of tools, materials, laborers, etc. either for the whole or each part of the work as it may be found more advisable to have performed under your own immediate charge. If contracts are made they will be submitted for approval to the Department, but . . . you will proceed at once to their execution, and if disapproved, the work done, materials supplied will be paid for at the rate agreed upon up to the time such disapproval is communicated to the contractors.

\textsuperscript{42} Bird B. Chapman to Abert, March 28, 1855.

\textsuperscript{43} Izard to Robert McClelland, September 18, 1855. McClelland was Secretary of the Interior. The governor obviously did not know where the responsibility for delay should be placed.
Plans and estimates for the work to be contracted for will be sent with the contracts.

As soon after the location of the road as practicable, without . . . interfering with the progress of the construction, you will prepare and transmit a report and map or sketch showing the line of reconnaissance and of location, and also a profile of the route if one should be obtained.

The Quartermaster, Subsistence, and Medical Departments will furnish you with such supplies as you may require for your party. . . . The Ordnance Department will furnish you on your requisitions such arms, accoutrements, and ammunition as may be necessary. . . .

You are authorized to employ two assistants and to purchase such minor instruments as may be necessary to carry out these instructions. Such further instructions as may be required for your guidance will be given by the Colonel of the Corps of Topographical Engineers, to whom your report will be made.44

Dickerson met Bryan in St. Louis on June 1. There he received the funds and instruments available for the survey, and within a week departed for Fort Leavenworth where five wagons and teams, twelve riding animals, camp equipage and forty days’ rations for his party were provided by the commandant. Dickerson’s command included two engineering assistants, hired in St. Louis, a wagon master and twenty teamsters and laborers.45 From Leavenworth they crossed the Missouri river at Weston and marched through Missouri and Iowa to Council Bluffs where they recrossed the Missouri to Omaha. The party remained in Omaha four days, employing a guide and collecting information about the route. Out of Omaha the surveyors followed the “Winter Quarters’ trail” of the Mormons across the Big and Little Papillon and struck the Elkhorn river 18 miles above its junction with the Platte and 24 miles from Omaha. The broken country between the Missouri and the Elkhorn had made the route circuitous and would necessitate extensive grading on approaches to streams.

At the Elkhorn the party came into the valley of the Platte and continued upstream to the Loup fork which was crossed at the Mormon ferry established to facilitate the migration of the Saints. After continuing up the Loup fork on its southern bank for 57 miles, Dickerson’s men crossed the sand hills in a southwesterly direction to Prairie creek, which they followed 20 miles before leaving its banks to pass over to Wood river at a point 25 miles above its junction.

44. Jefferson Davis to Dickerson, May 27, 1856. Colonel Abert, as customary, had prepared a rough draft of instructions to be sent to Dickerson and forwarded it to the secretary's office, but it was returned with a notation: “The Secretary desired the instructions to be more full than those contained in the rough draft . . . and finding it necessary to give his authority to other branches of the service to aid Lt. Dickerson in his work he concluded to give the instructions directly to him.” Abert was instructed to give further directions relative to reports and accounts.

45. Dickerson to Abert, July 20, 1856.
with the Platte. The group left the Wood after six miles of travel upstream and struck south to the Platte near Grand Island, along which they traveled to a camp opposite Fort Kearny. The Platte valley had not been followed west of its junction with the Loup fork because it was reported to be so miry that wagons could not travel through.

Dickerson's detachment saw no Indians along the route, for the Pawnees, who wintered in villages along the Platte, had gone out to the summer hunting grounds for buffalo, but having met hostile Sioux and Cheyennes, some 3,500 had returned to Fort Kearny for protection. Upon Dickerson's arrival, he was invited to attend a council of their chiefs at which the Pawnees complained bitterly that the federal government was running a road through their country without their approval and without having purchased the right to the land from them as had been the custom when building through lands belonging to other tribes. However, the Pawnees assured Dickerson that they would offer no resistance to his party locating the road, but they wanted to protest now lest it later be said they had consented to the construction. The older chiefs observed that the roads always brought white men who chased away their game, and that emigrant roads involved them in many difficulties because other tribes molested the trains and stole animals for which the Pawnees received the blame.

The army engineer's outward route had coincided with that recently used by Mormon and California emigrant parties, but at the fort he learned that the earliest travelers along the north bank of the Platte had come directly up the valley along the stream without diverging to the north and going up the Loup fork. He resolved to return along the Platte valley. First surveying a line due north of Fort Kearny for three miles, Dickerson turned east, striking the Wood river and following that stream to its junction with the Platte. Moving down the Platte, across two small creeks, the Prairie and the Boovis, the party discovered excellent ground for a road with sufficient wood, water and grass. By this new route the length of the march between Omaha and Kearny could be shortened 26 miles.

In his reports, Dickerson expressed an interest in the development of Nebraska along the route of his road. He observed:

Indian corn, small grains, and vegetables, are being cultivated successfully as far west as Shell Creek [a short distance west of Omaha], and would undoubtedly succeed in other portions of the valley. A luxuriant growth of nutritious grass prevails throughout the Platte country, which will afford good
grazing during the summer and allow the husbandman to provide a supply of hay for winter uses.

This portion of the Territory is fast settling up with an industrious and enterprising class of pioneers. Pre-emption claims have already been located on all the timbered lands along the water courses as far west as the Loup Fork, above which the Indian title has not been extinguished. But the scarcity of timber, stone, and coal, and the remoteness of the country from a market other than home consumption will operate against its ever becoming thickly settled. 46

On the return trip the engineer was particularly observant of stream crossings to determine the nature and extent of bridge building required. The Platte, seldom confined to one channel, was too shallow for a ferry at Fort Kearny and reportedly too difficult to bridge. Opposite the fort the stream had several channels, varying in width from 30 to 300 yards, and the shifting quicksand bottom even prevented the permanent location of a ford. The Wood, near its junction with the Platte, where the road next crossed a stream, had a hard surface of gravel, and, in the opinion of Dickerson, some slight grading would prepare an excellent ford during the season of 1857.

Prairie and Boovis creeks between the Wood and the Loup fork might be bridged to advantage but the engineer was convinced the Indians would not allow them to stand long. The grass and tall weeds along the creeks were burnt annually and Dickerson feared a prairie fire would consume the bridges once the timbers were allowed to season. He recommended a less expensive project by building corduroy flush with the beds of the streams and fastening the logs down so they would not be washed away by frehsets. The Loup fork was 1,056 feet wide at the ferry and he proposed to confine the channel by pilings to improve the ford, but bridging at any reasonable cost was impracticable.

At the Elkhorn, a stream about 200 feet wide, a bridge would be constructed and an embankment thrown up at its western approach for three-quarters of a mile. This was the most extensive of the six bridges to be built between the Elkhorn and the Missouri, varying in length from 50 to 200 feet. 47

Lieutenant Dickerson completed his season's survey on August 14, stored his instruments and public property at Fort Leavenworth and dismissed his party. In the winter months a contract for the bridges was made with Matthew J. Ragan who went immediately to Omaha.

47. The streams bridged were the Omaha branch, the two Papillon creeks, Rawhide creek, Shell creek and the Elkhorn.
intending to build some of the smaller structures before spring. Dickerson recommended that the $4,500 remaining after the contract payment be used to hire a laboring party to improve the western sector of the road under an army engineer in the season of 1857. The congressional appropriation had made what Dickerson termed, "a good wagon road for the greater part of the year." To render it passable at all seasons he urged the War Department to request another $25,000 from congress.48

Captain Beckwith, who replaced Dickerson during the spring of 1857, supervised the actual bridge constructions at the eastern end of the road and, with a party of laborers, built small bridges over Monroe and Prairie creeks west of the Loup crossing. Deep trenches were dug alongside each of these as a fire guard. Although this road was again reported as satisfactory in the dry season, it remained impassable along portions of the Platte after the freshets of spring. In the months of April, May and June the majority of emigrants using the north side of the Platte as a route to the west coast were delayed at the outset of their journey.

The $25,000 request that Dickerson recommended had been considered by the congress but no appropriation was granted.49 Beckwith renewed the request for additional funds with the War Department at the season's close, and suggested the bridging of the Loup fork which he considered still the most difficult place on the road:

. . . where it is most practicable to cross it with a ferry boat, one day the boat grounds, the next, in the middle of the stream; compelling the discharge of loads into wagons, brought there across channels from the opposite shore.
. . . And as it is impracticable for wagons or teams to stand still, even a short time, anywhere in the river, without miring in the quicksands, the difficulties and labors and losses by emigrants, are very great. . . .50

Experience on the Elkhorn indicated that piles driven 25 or 30 feet into the ground would be necessary to form the foundation work of any permanent bridge on the Loup. Cottonwood for the piles could be found nearby, but hard timber for the superstructure.

48. The information for this account of Dickerson's work as a road surveyor has been obtained from his reports to the bureau dated July 20, August 13 and December 15, 1856. Only the last of these has been published in the "Report of the Chief Topographical Engineer, 1857," loc. cit., pp. 555-582. Two maps were forwarded to the bureau with the following titles: "Map showing survey made for a Territorial Road from a point on the Missouri River opposite Council Bluffs, Iowa (Omaha, Nebraska) showing located road and line of reconnaissance" and "Map and Profile of a survey made for a Territorial Road from a point on the Missouri River (Omaha), opposite Council Bluffs to Fort Kearney, Nebraska Territory." Both are available in the division of cartographic records, The National Archives.


would have to be brought 80 miles overland from the Missouri. The estimated cost was $85,000.

These combined requests, totaling $110,000, repeatedly were included in the annual report of the Secretary of War to the congress but funds were not appropriated. In 1858 Captain Beckwith notified the department that had the appropriation been made in time to complete the contemplated improvements that season, the cost of transporting supplies overland to the Army of Utah could have been greatly reduced. With a bridge across the Loup fork, the fertile lands on that stream and the Platte would be taken up by settlers who could soon furnish subsistence for Fort Kearny at reduced prices. Even these practical considerations failed to influence the congress.

The extensive military road building program of the Thirty-third congress, 1853-1855, during which the appropriations for these three major roads in Kansas and Nebraska were approved, had received a sharp setback when the Thirty-fourth congress convened. Sen. John B. Weller of California presented an elaborate petition in two folio volumes containing 75,000 signatures of residents of his state demanding better transportation facilities. "Our petition to Congress," he read, "is for the immediate construction of a wagon-road between the frontier of the States of Missouri and California, following the general route of the old emigrant road, passing through the valley of the Great Salt Lake, and reaching California at a point on the eastern slope of the Sierra Nevada, where the Carson Valley leaves the mountains..." This petition, with more signers than any previously presented to congress, was accompanied by a memorial from the legislature of California also urging the construction.

Weller introduced a bill early in the session authorizing the Postmaster General to contract for a triweekly mail service from the Mississippi river to California. Since one of his primary purposes had been the construction of a good wagon road, he included a provision allocating $150,000 to the contractor for building and grading

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51. Twenty-five hundred troops under Col. Albert S. Johnston engaged in the so-called "Utah War" to force Mormon recognition of the authority of the federal government were stationed at Fort Bridger during the winter of 1867-1868 and the following summer were in the Salt Lake Basin. A large percentage of the $16,000,000 spent on this military expedition went for the transportation of supplies.

52. The information relative to Beckwith's work on the road is obtained from his reports to the bureau on October 1, November 1, December 1, 1857, and September 27, 1858. The first and last of these have been published in the "Report of the Chief Topographical Engineer" for 1857 and 1858.

53. These two heavy volumes were handsomely bound with hand-tooled leather and the title page (see cut facing p. 49) elaborately engraved with red, blue and gold-leaf lettering. The volumes may be found in the legislative reference division of The National Archives.

a road over which to carry the mail. He complained bitterly against the committee on post office and post roads which had struck from the bill that provision he deemed vital:

I desired to place the construction of the road under mail contractors. They are the best road-makers in the world. They do not go out, as do the topographical engineers, with barometers and other instruments, to determine the altitude of mountains; nor do they care about the botany, mineralogy, or geology of the country; they take no other instruments than the ax, the shovel, the spade, and the pick-ax. Their only object is to locate a road.\textsuperscript{55}

The California senator stormed at the army engineers for their delay:

At the last session of Congress we appropriated $50,000 to construct a road from Fort Riley to Bridger’s Pass. I inquired this morning, whether that road had yet been finished? and, to my astonishment, I received the information, that in a very few days, the parties were going out to commence the work! More than fifteen months have elapsed since Congress made an appropriation to open that road, and the first movement has not yet been made! . . . . Certainly the whole of the last season and this spring ought not to have been lost.\textsuperscript{56}

The Weller oration was the prelude to an extended debate in congress over the government’s road building program. All did not agree with the senator when he said, “These memorialists do not ask you to stretch the Constitution to accommodate them. They ask you to make no works of internal improvements within the limits of a State, but they simply ask you to construct a good wagon road through your own Territories. . . . You have the absolute power to expend every dollar of the national Treasury, if you choose, in making roads through the Territories.”\textsuperscript{57} The southern bloc in the senate urged a military justification for road appropriations and demanded consideration for a southern route to the Pacific.

The upshot of the controversy was the passage of three bills appropriating $550,000 for wagon roads to California. Fifty thousand dollars was allotted for a road from Fort Ridgely in Minnesota territory to the South pass of the Rocky Mountains in Nebraska territory.\textsuperscript{58} The road was to be joined by another coming west from Fort Kearny to the South pass and thence constructed to the eastern boundary of California near Honey Lake. Three hundred thousand dollars was approved for this project.\textsuperscript{59} A southern route to California from a point opposite El Paso on the Rio Grande to Fort

\textsuperscript{55} Ibid., p. 1298.
\textsuperscript{56} Ibid.
\textsuperscript{57} Ibid.
\textsuperscript{58} United States Statutes at Large, v. 11, p. 27.
\textsuperscript{59} Ibid., p. 162.
Yuma at the mouth of the Gila justified another $200,000 of federal funds. In each case the responsibility for construction was transferred to the Secretary of the Interior who was to place all work under civilian contractors.

This congress, like those of the two preceding sessions, continued appropriations for military roads in Minnesota, Oregon and New Mexico. But the army engineers had proved themselves too thorough and too slow, according to congress, in constructing the roads needed for the mails and by the emigrants crossing the plains to the Pacific. Although civilian contractors were to take over the road building program of the federal government in Kansas and Nebraska, the army engineers had been the pioneers.

60. Ibid.