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**The Private Provision of Frontier Infrastructure:
Toll Roads in California, 1850-1902**

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Abstract: With county and state government unable to effect road improvement, California lawmakers immediately opened the field to private initiative. At least 159 private companies successfully built and operated toll roads in California. Compared to earlier toll roads in the eastern U. S., the California roads were concentrated in ownership and more profit-oriented in operation. Even so, the quest for mere road improvement was often also an important impetus for taking toll road stock. Voluntary association assumed the corporate form to achieve its several goals.

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In his book *State Government and Economic Development: A History of Administrative Policies in California, 1849-1933* (1964), Gerald Nash praises state government in California for responding to the needs of citizens and benevolently guiding improvement. Displaying the same warm glow toward government action as the Commonwealth scholars (Handlin and Handlin 1947, Hartz 1948, Heath 1954), Nash portrays state government as the moving force of progress, the benevolent power that makes it possible for the citizens to achieve order and prosperity. In his preface he says, "a complex economy brought about a great emphasis on semi-coercive and coercive methods, above all, administrative action" (p. viii). In his peroration he says that Californians early learned to formalize "a process which allowed the goals of private individuals and associates to be transformed into public policies" (p. 349). California progressed by grace of the visible hand.

Consider in particular Nash's remarks on highway construction. "To promote construction in the interior the Legislature used its power of incorporation" (p. 45). Indeed, the state incorporated hundreds of toll road companies. When local citizens encountered obstacles to financing transportation projects, "[t]hese obstacles were removed by legislative promotion and regulation of private enterprise" (p. 43). Seeking to put resources into roads, Californians did so "by *resorting* to governmental functions and techniques ... : creation of a legal framework for private enterprise, removal of restrictions, and direct aid ... [P]ublic policies did achieve the desired goals" (p. 62, emphasis added). Again, Nash is handing most of the credit to government, even though it was private initiative, largely unsubsidized by government, that built most of the highways in 19th century California.

Nash's crediting of achievement to government is, in our assessment, somewhat like crediting the umpire for Hank Aaron's 755 home runs. Perhaps there would be no Hank Aarons if there were no umpires, but it is at least equally true that there would be no umpires if there were no Hank Aarons. If there is a sermonic role for scholarship, it would seem that glory is misplaced if given to the umpires. Of course an outstanding umpire -- one showing courage or uncommon wisdom -- deserves special credit, but Nash in fact gives little evidence that the umpire in California history performed outstandingly, or even competently.

Our goal here is, as it were, to tell the story of those who actually hit the home runs: the private individuals who risked their money and expended their time and efforts in the task of building roads. We hope to sort out the institutional factors that made the difference between better and worse conditions. The toll road companies got no financial assistance from government. They did receive eminent domain powers and sometimes land enough for the roadbeds, both of which were of smaller importance than one might think. Nash is fond of saying that the state also gave them corporate powers and a legal framework. But it is hardly a significant act of wisdom or munificence for an umpire to refrain from denying the players their right to play the game. As Robert Hessen (1989) has pointed out, for the most part incorporation is merely *permission* for an organization to do its thing.

Nash's telling of California history illustrates a tendency shared by many scholars, whether historians or economists, to understate the potency of voluntary, nongovernmental action in providing certain goods and services -- infrastructure, dispute resolution, security, education, poor relief, and so on. There are indeed special problems in providing many of these services, yet, as scholars have shown,¹ in many cases nongovernmental forces have succeeded in the task. This paper joins that line of research by documenting the voluntary provision of highways in old California.

Gold and Transport

Under Mexican rule, ranchers and farmers sparsely settled points along the California coast. The United States began its conquest of northern California in 1846 and Mexico ceded California two years later. There were 20,000 people in the territory in 1848 when James

Marshall, in the process of building a sawmill, struck gold. Without ever passing through the stage of territorial government, California became a state in 1850 and by the end of 1852 its population stood at 200,000.

Administrative government was non-existent, and miners had to depend on themselves. For example, they developed their own working customs of law, which later came to be codified in government law.² As for roads, miners and settlers in the earliest days had to suffice with customary trails.

The state government was completely unable to embark on highway building because it lacked administrative machinery and faced tight constitutional limits on state debt. Local road care was in the hands of newly created town and county governments. The general road law of 1850 authorized labor assessment for county residents -- a policy that failed miserably whenever and wherever Americans tried it³ -- but after the State Surveyor General criticized the system in harsh terms, compulsory road work was abolished. In its stead, poll and property taxes were introduced for payment of competitively-let road work contracts.⁴

But even though its worst feature -- compulsory road work -- was abolished, other bad features of traditional local-government road care remained. As with public works of any kind, incentives were weak because the chain of activity did not trace back to a residual claimant. The county supervisors spread their attention over a great many affairs, and the road overseers appointed to manage the road districts were often innocent of engineering principles and functioned as mid-level bureaucrats. Road funds were hard to muster. For the large transient segment of the population, as the Governor put it in 1856 (p. 21), "taxes could neither be levied nor collected, and taxable property of course was rare."

Official documents are peppered with aspersions against the county road-care system. The surveyor of San Joaquin County (1859, 40) lamented that it "is working very badly" and "the money expended is thrown away." The surveyor of Marin County (1862, 20) agreed, pointing out that as long as the present system persists, "there will not be any roads in this county." He declared that the county supervisors "are not very particular who they appoint as viewers, for many times men are appointed who are interested in the lands where the roads are to go through, and ... view out the roads to suit themselves or their friends."

The heaviest and harshest criticism came in the 1890s from state officials seeking to strip away county power and centralize road policy in new state agencies. In 1896 the newly-created Bureau of Highways would look back on four decades of county-government road care. Here's what its first report said:

[The upkeep of important thruways] cannot be expected of a county which will receive no direct benefit and which, as is generally the case, has scarcely sufficient funds (p. 23).

[I]t frequently happens that because his political faith differs from that of the majority of the Board of Supervisors, ... the County Surveyor is utterly ignored, his advice and services are never sought, and his position becomes purely an honorary one (p. 33).

In too many instances the road funds have been regarded as the funds from which to pay political debts, or to be used about election times to further political interests (p. 20).

For nearly half a century, millions and millions of dollars have been expended on our highways ... and the results have been practically *nil* (p. 31).⁵

Through the decades, lawmakers tinkered with the system, but the basic problems persisted: bifurcation of funding and service, no residual claimant, weak incentives, poor accountability, political jobbery, no long-term authority for improvement, divided control over

road segments, inflexible funding, and little entrepreneurship. In contrast to the problem-ridden governmental system, the alternative of a private turnpike company, with responsibility, authority, and financing for the entire route under a board of directors, held out great promise of remedy.

The Toll Road Heritage

To Americans migrating west to California, toll roads were nothing new. In the 1790s Americans began building turnpikes -- toll roads surfaced with gravel or earth -- and over the next half century easterners built more than 600, most with private funds exclusively.⁶ Turnpikes were popular throughout the Middle West and to a lesser extent the South. And while gold fever raged in California, plank road fever swept the nation. Between 1847 and 1853 private initiative built better than 1,000 wooden roads.⁷

It was the usual impetus that pushed Americans to privatize: not ideology but pragmatics. Town, county and state governments were strapped for cash and bad at building roads, and the spirit of regional development and rivalry led all states to release private initiative to the task. Compared to government road care, the turnpike company offered numerous organizational advantages. Turnpikes connected multiple towns or counties, so management transcended local government limitations, and organizers could appeal to prospective contributors along the entire route. Representing the stockholders, turnpike directors oversaw construction and operation to protect the interest of the road and to keep the traveling public and county turnpike inspectors satisfied. The tollkeeper was a vital figure, for he acted as security guard, custodian, handyman, and representative for the company. Most decisive and revolutionary of all, turnpikes charged users. Toll revenues replenished the pool of funds from which to pay out maintenance costs or dividends. Once a turnpike was put on its feet, it could run on its own. This lent a new willingness to undertake road construction.

In addition to generating a repair fund, however, toll-taking also generated some resentment. Folks weren't used to paying for riding the highway, and it was hardly fair to charge local residents for using a public-trail-cum-turnpike for routine travel. Early opposition to turnpikes sometimes took the form of high-minded charges of betrayal of republican maxims, oppression of the poor, and corporate monopoly. Remember, the turnpike was born in a day when the business corporation was regarded as a quasi-official body, charged with serving the public and acting within narrow limits set out by the legislature (Handlin and Handlin 1945).

More common than general ideological opposition, however, was local remonstrance seeking bargaining power in the terms of regulation. Concessions for local users were in order, and locals voiced their grievances to get what they could, or just to make a noise. The result, as Klein & Majewski (1992) argue for the case of New York in particular, was a turnpike system hamstrung by rigid regulations. Regulations affected toll rates, toll exemptions, toll collection, toll evasion, and road upkeep. The burden of regulation, combined with other factors,⁸ rendered the vast majority of eastern turnpikes unprofitable.⁹

So townspeople were eager for better roads, and private management promised a solution, but incorporation would not return investment. In this situation many communities resorted to what we term here the *community enterprise* model of action. The impetus for taking stock was not dividends but indirect gains from the road: better transportation, higher land values, stimulated commerce, maybe just town pride. These benefits of a good road could not be withheld from those who declined to take turnpike stock, so organizers had to overcome a free rider problem. In hundreds of cases this problem was met by social pressure, civic pride, and the participatory ethic. By a variety of means, communities functioned to induce citizens to make their contributions. As Alexis de Tocqueville well noted, road improvement was but one goal for which community enterprise functioned throughout New England and the Middle Atlantic states. Had de Tocqueville seen California in 1860, he would have had a different story to tell.

Toll Road Building in California

California in the 1850s was not a land of settled communities, men with wives and children meeting in church, at civic functions, and around the town square, small farmers reading the town newspaper and coming together to forge community improvements. California, except for points along the coast, was a frontier marchland. Men -- not women -- poured into the state to hunt their fortune in the gold mines. They lived in mining camps, often in the employ of a mining company. Foreseeing the depletion of minerals, neither the miners nor the merchants who serviced them had mind to lay down roots. And even where farming later developed in the state, it did not take the form of a countryside of small farmers. Society in early California was not one where town meetings, door-to-door solicitations, newspaper campaigns, or other devices of communitarian appeal were likely to effect road building.

Lawmakers in the new state went right to work writing a general law of corporations, including a chapter given over to turnpike and plank road companies.¹⁰ In the lawmaking frenzy, however, they borrowed too heavily from eastern law, where toll road companies faced many rigid regulations specified by the central state body. The 1850 California toll road law, for instance, required that stock subscription of at least \$2,000 per mile be made prior to incorporation. This figure was too high and impeded the formation of companies.¹¹ The law specified construction standards and granted liberal toll exemptions. As for toll rates, it gave the legislature prerogative either to set them itself or to delegate the task to the county court, provided that the rates would not be set to prevent a return of ten percent. Also, it specified that the route of the road be laid out by three commissioners appointed by the county. Finally, the law required that the company file annual business reports to the Surveyor General.

The 1850 law appears to have hindered toll road development, for only two companies organized under it during the next three years. Probably for that reason the legislature issued new laws in 1853 that eased company formation.¹² These laws reduced the subscription requirement from \$2,000 to \$300 per mile, and left the county to set tolls at rates not to prevent a return of 20 percent. They left companies to lay out the route themselves, specifying the county court to intercede in disputes between the company and private landowners. And the new laws shed the requirement of filing annual reports. Although the 1853 laws preserved many restrictions and tightened a few others,¹³ the general effect was to loosen the restraints on entrepreneurial action and delegate regulation to the county level.

In young California, settlement was fresh, roads were unofficial, land was open and abundant, and community custom was incipient. The local objections and negotiations common to toll-road builders back East were scant in California. Although there was no guarantee that county residents and officials would be friendly to a toll road effort, very often they were, and toll-road builders would carry on without much hinderance. After the 1853 law, toll road incorporation took off. We have Articles of Incorporation for 222 companies organized under the general law.

Yet more companies were created by special legislative act. There was controversy over this practice, especially since the State Constitution (Sect. 34, Art. 4) expressly prohibited the creation of corporations by special acts "except for municipal purposes." Despite this clause, the legislature chartered 102 toll road companies before 1870. Individuals sought incorporation by special act to obtain powers different from the general law. For example, a legislative charter might liberate a company from the requisite nine incorporators or the franchise limit of 20 years. Or it might grant the company state lands or terms by which counties could contribute money to the project. Chartering by special act became a sore point with Governors, who increasingly vetoed such acts in the 1860s. After a Senate Judiciary Committee strongly denounced special charters in 1868, an act amending the general toll-road law was fashioned in 1870. It reduced the requisite number of incorporators to three and set franchise duration from 10 to 50 years, depending on construction cost.¹⁴ After the amendment in 1870, creation by special act practically ceased.¹⁵

Our database of toll road companies is further supplemented by approximately 90 companies or individuals we learned of by county records, local histories, and various other sources. Some of these outfits may be companies that filed with the county but failed to forward a copy of their Incorporation papers to the Secretary of State, or they may be companies for which the Incorporation papers have not survived at the state level. Also, it appears that sometimes counties were permitted to authorize toll roads without state incorporation.¹⁶

The progress of toll road incorporation, by all apparent means, is shown in Figure 1. Incorporation activity peaked in the 1860s when gold mining was still strong, and remained substantial until the 1890s, when government policy and public opinion across the country shifted against toll roads.

The geography of toll road incorporation is shown in Figure 2. The incorporation figures were highest for the counties of the Motherlode region of the Sierra Nevada Mountains. Although mining counties accounted for the majority of road incorporations in the period 1853-1875, toll roads were important also in the fertile Sacramento and San Joaquin Valleys, as well as in the desert and the city. Besides serving miners, toll roads served farmers, ranchers, lumber men, and San Francisco suburbanites. Of the 414 incorporations represented in Figure 2, only 159 have been identified as actually constructed.¹⁷ Probably a few score should be added, but are not done justice by surviving records. In all but a couple of cases, toll road companies were financed by private funds exclusively.¹⁸

Toll Road Experiences Compared

The toll road experiences of California and the East were good examples of non-governmental forces at work to provide a service often thought to be the province of government action. But the various toll road experiences differ, and a study of their differences helps us appreciate the different forms that nongovernmental action can take. Here we distinguish the following three toll road experiences:

- (1) The Turnpike Era of the eastern states, 1792-1845; the heart of this experience is in the New England and Middle Atlantic States, where funding was virtually entirely private (except in Pennsylvania¹⁹).
- (2) The Plank Road Boom, 1847 to 1853, notably in New York, Pennsylvania, and the states of the Old Northwest; nationwide more than 10,000 miles of plank roads were built with money from private investors, who put a misguided faith in expert estimates of plank durability.
- (3) The California toll road experience, 1850 to 1902; it seems this was similar to the toll road experiences of Colorado and Nevada, so it might be that California fairly represents the toll road experience of the West in general.²⁰

In comparing these three experiences, we focus on two features. The first is impetus for the individual's decision to subscribe to toll road stock. In the simple case the individual takes stock simply because he thinks it will pay dividends or go up in value. Alternatively, the individual takes stock either because he values the road improvement in question and believes that his contribution will make a difference, or because he wishes to aid a community effort. An individual may wish to aid a community effort for any of the following reasons: motives of sheer generosity, a desire to play the local philanthropist, a desire simply to belong and participate, or a response to social pressures. Whatever the case, we divide the impetus for subscription into

indirect gains (such as community development or psychic benefits of participation) and direct gains (that is, a direct return on toll road stock).

The second feature is the diffusion of stock participation. Here we make the separation between diffuse participation and concentrated participation. For example, more than 40 stockholders is very diffuse, 25 is diffuse, 10 is concentrated, and 5 is very concentrated. Greater stock diffusion makes it less likely that individual investors participate because they believe that their contribution will make a difference in road conditions.

With the two features each divided into two categories, we get a two-by-two typology of road enterprise. The type with the impetus of indirect gain and diffuse stock holdings we have termed the "community enterprise" model, and was dominant in the early turnpike movement. When the impetus is direct gain we term it a "business enterprise" model, and when many investors participate, the "diffuse business enterprise" model. The business enterprise model was much more pronounced in the California experience. Finally, when the impetus is indirect gains but participation is concentrated, it is the "coterie enterprise" model.

In Figure 3 interpretations of the three toll road experiences are expressed in terms of the types of enterprise. The percentage figures shown there are offered with irony: they are not derived from a rigorous criterion. The figure of 65 percent community enterprise for the eastern turnpikes means *not* that 65 percent of those turnpikes were community enterprises, but rather that in a description of the experience as a whole, community enterprise deserves about 65 percent of the emphasis. Any one company will, of course, involve the quest for both indirect and direct gains, and may even exhibit elements of both diffuse and concentrated participation (for example, a company in which two people hold half the stock and thirty others divide the other half equally). There are elements of multiple types of enterprise in every company, and the magnitudes in Figure 3 are meant only to express a learned impression of aggregate proportions. As shown in the Figure, that impression discerns a progression away from the community enterprise model and toward the coterie and business enterprise models.

Let's first consider (in summary fashion, since this paper is supposed to be about California) the eastern Turnpike Era and the Plank Road Boom. Notice that for the turnpikes the direct-gain impetus is given a total percentage of 20, whereas for plank roads it is up to 45. There are numerous indications of a more business-enterprise orientation for the plank road era. For starters, the plank road company arrived fifty years after the turnpike company had, and during those fifty years the private corporation had undergone some of its transformation from quasi-public body to private venture enterprise. One feature of that transformation was freedom of all comers to organize under general laws, as the plank roads were organized, rather than by grace of special acts, as the turnpikes were organized. Furthermore, the terms of organization and operation in the Plank Road Era were more favorable to toll road operators than had been the case in the Turnpike Era.²¹

Other signs of business orientation are seen in the feverish boom pattern of the plank road movement, and in the high rate of completion. Nearly as many plank roads were incorporated in New York and Pennsylvania in the span of five years as turnpikes had been in the previous fifty. And, for New York, whereas only about 40 percent of the turnpikes were actually built, probably 80 percent of the plank roads were. For turnpikes, unprofitability was known early and financing had to overcome the free rider problem of community enterprise. For plank roads, investors often anticipated substantial direct returns. One reason investors were fooled so shamefully is that in the first few years wooden surfacing did serve excellently and made money. News of plank road success spread rapidly, and by early 1850 numerous manuals were touting the excellence *and profitability* of plank roads. In general the promotional literature and local boosterism of the plank road movement paid much more attention to the prospect of direct returns than had the script of the turnpike movement. But by 1852 everyone was learning that plank deterioration set in rapidly and made travel very hazardous. By that time thousands of miles had been initiated.

Although the plank road episode represented a shift toward business enterprise, there was still a large role for the pursuit of indirect gains. The hope of direct profit was nice, but equally nice was that company solvency would mean the long awaited deliverance from bad road conditions. Klein and Majewski (1994) argue that community enterprise continued to play a large role in the plank road movement of New York, and Majewski, Baer, and Klein (1993) argue that plank road investment came especially from towns bypassed by canals and railroads and experiencing relative decline.

When we compare the Plank Road Boom to the California experience, we again see a shift toward business enterprise. Also, a major shift toward stock concentration. We have gathered data for New York's plank roads and California's toll roads from articles of incorporation. These incorporation papers, though incomplete, give data on authorized capital, amount subscribed at the time of filing, stockholders, and road length.

California was a land of bigger roads and bigger money. The panels of Figure 4 show that mean length of the road was 50 percent larger in California, mean par value of stock was 166 percent larger, mean stockholding was 180 percent larger, and mean portion of company held by an individual stockholder was 58 percent larger. Rather than comparing the mean number of stockholders (that is, 36 in New York versus 15 in California), the concentration of stock in California is perhaps better seen by comparing the median number of stockholders: 28 in the New York plank road boom versus eight in California.

Higher par values, larger holdings, and fewer stockholders in California all speak of a step away from community enterprise, in which toll road organizers do what they can to entreat their neighbors to take a little stock. The social history of California -- sparse settlement, frontier living, a transient population -- all argue against community enterprise and in favor of a social and legal tolerance for profit-making. Were the roads themselves profitable? Actually, we hardly have a clue. One reliable historian had this to say: "These various toll roads in Trinity and Shasta Counties like those in many other counties of the State, were constructed with the belief on the part of their builders that they would prove remunerative pieces of property. ... The receipts of the roads were not what their builders had anticipated, and the expense of repairs and maintenance was far beyond what they had calculated."²² Although we know of a few roads that were profitable and a few that were not, we are not able to improve much on this quotation, which comes from a man who lived those times. An M.A. student in history wrote that toll roads were "built and maintained by pioneer businessmen as profit-making ventures."²³

Trinity and Shasta Counties, lately mentioned, were mountainous mining counties (though not in the Sierra Nevadas). One might expect that there would be differences between roads in mining counties and roads in other counties, particularly agricultural counties. We checked the data by dividing the counties into rough categories and in fact did not find substantial differences in par values, mean size of stockholding, or number of stockholders. To our surprise, the agricultural counties showed no more sign of community enterprise than the mining counties. One explanation for this is the large size of land holdings in California compared to New York. The mean farm size in California for the years 1860, 1870, and 1880 remains roughly 4 times that in New York for the year 1850. The number of farms of 1,000 acres or larger in California for the years 1860, 1870, and 1880 increases from 12.5 times to 120 times the number of such farms in New York for the year 1860.²⁴ In other words, California had big players who could take a large stake in a local road project, whether in hopes of dividend payments or just road improvement.

California Examples of the Types of Enterprise

Although the impetus of direct gain was more pronounced in the California toll road experience, the poor condition of roads and the ineffectiveness of government meant that the quest for better roads would also impel toll road efforts. Unlike the early turnpike era in which many members of the community came together to finance a vast improvement, in California big-stakes individuals and organizations would get together in small groups to underwrite a road -- what we call "coterie enterprise."

Mining companies were a natural to stake a toll road company. The Plumas Eureka Mining Company took 41 percent of the stock subscription in the Plumas Eureka Turnpike Company, but specified that its shares were "unassessable until the Road is finished."²⁵ The Great Western Quicksilver Mining Company built five of the nine miles of the Ida Clayton Wagon Road, which led to the mine, in exchange for "perpetual right of way, free of toll" for all those connected with the mine.²⁶ Another case is Reed's Turnpike, incorporated in 1865 and built from the Union Copper Mine in Copperopolis. "This toll road was developed by the same Reed [who was company treasurer] who was co-discoverer of the Union Copper Mine, and was built with profits from the sale of that mine."²⁷ Although the impetus for Reed's investment is not clear, one historian notes that "[m]uch of the ore from the mines was hauled over this road."²⁸

Other road projects may not have been staked by mining interests, but certainly were of interest. The Pitt River and Copper City Toll Road Company (1879) was to be constructed a half mile from the Extra Mining Company Mill, and one man held 96 percent of the company.²⁹ The Mineral King Wagon Road (1879) was to terminate in the Mineral King Mining District. Other road companies had names Colfax and Gold Run (1867), Weaverville and Minersville (1863), and the Sonora Creek Mining and Road Company (1854).

Mining companies were not the only sort of venture interested in building roads. According to a 1904 history of San Bernardino County, the Highland Lumber Company built the City Creek Toll Road (1891), and the Arrowhead Reservoir Company built the Arrowhead Toll Road (1891).³⁰ The Yosemite and Mariposa Short Line Stage and Wagon Road Company, owned in equal portions by five individuals, was incorporated in 1886 to build a toll road and "to operate a stage line in connection therewith for the transportation of passengers, mails, and freights."³¹ Elsewhere in California the toll road business was mixed with staging and freighting businesses.³² And in Pasadena thirteen residents received a franchise in 1889 to build a toll road up Mount Wilson, where a photographing telescope from Harvard had been recently installed, and to build a resort hotel on the mountain. In 1891 the company completed the road and in 1904 its first hotel. The toll road operated until 1936, and the route is still called the Mount Wilson Toll Road.³³

These examples only begin to describe an extensive experience of coterie enterprise. A majority of toll roads were built by companies with investors that could be counted on the fingers of two hands. In a great many cases the impetus of indirect benefits surely played a large role. The investors may have been owners of large farms in need of better roads, or simply local well-to-do moved to give something to the community.

A few road companies, particularly from the later years when communities had formed, should probably be put down as examples of community enterprise. For example, 52 individuals took stock in the Bear Valley Wagon Road Company in the city of San Bernardino where all five directors resided. The par value was just one dollar. Two individuals divided 34 percent of the stock, but the third largest shareholder held just three percent, and eight investors contributed just \$50 or less. When the road was completed in 1891 it is very unlikely that residents expected dividend payments.³⁴ Another case is the Loyalton and Sardine Valley Toll Road Company. In 1874 the company was first organized as a business enterprise with a par value of \$100, just five stockholders, and one with 71 percent of the company. This effort failed, and in 1881 the

company was reorganized. The new company issued stock at five dollars a share, and was diffusely held by 31 individuals, presumably residents of Loyalton like the directors.³⁵

In the Highland Springs and Squaw Rock Toll Road Company we see a case of community enterprise with a vital component of concentrated interest. An article in a local newspaper from 1891 reports as follows: John D. Stephens, "the owner of the springs[,] made a proposition to the people of the county that if they would take \$5,000 in stock he would build the road. The people of Big Valley and Kelseyville succeeded in placing \$3,000 of the amount in two days ..." It appears that Stephens promised to match subscriptions one-for-one, for in the articles of incorporation we find that he held \$5,300 in stock while another \$5,300 was divided between another 51 shareholders (42 of which each held exactly \$100).³⁶ This is a case of one wealthy individual with a lot to gain using his interest to leverage the community out of the free rider problem. Sometimes its nice to have a few fat cats in the neighborhood. The twelve-mile road was built later that year.

Despite these examples of the impetus for indirect gains, we are still inclined to say that the impetus for direct gain was foremost. That impetus is quite evident, for example, for the numerous private toll roads that serviced tourism in the Yosemite Valley, many of which operated long before and long after the establishment of the National Park in 1890. But more importantly, for every mining company that kicked in for a toll road, there were numerous independent entrepreneurs seeking profit in toll payment. Consider the case of William S. Lowden, who controlled the Weaverville & Shasta Wagon Road and the Lewiston Toll Road, and at one time had a large interest in the Weaverville & Minersville Toll Road. All of these roads are depicted in the Shasta-Trinity Map of Figure 5. A student of Lowden's toll empire wrote: "Lowden was not a dreamer, desiring to make his fortune by direct working of the gold fields. Instead, he [realized] ... at an early age that a large, sure fortune could be made by providing services for the gold fields" (Cage 1984, 45). Lowden's enterprises enjoyed some flush days, but over forty-two years averaged very modest returns. He also reaped private returns, however, by working as hired contractor for the companies and by providing salaried employment to his mother, his brother, his brother-in-law, and his two sons, who worked as toll-keepers, maintenance men, and company officers. In the days before modern tax law and regulations, the private corporation was remarkably flexible in serving a variety of interests in a variety of ways.

Highways By Nongovernmental Means

Whether the impetus was road improvement, community participation, or company dividends, and whether shareholding was diffuse or concentrated, toll road companies were *voluntary, private* enterprise. In financing they often faced a free-rider problem, but in creation and operation they were flexible, resourceful, and economical to a degree that no contemporary government agency could match. Furthermore, when undertaken as community enterprise, a toll road project gave purpose and pride to the community. Voluntarism invites generosity and inspires feelings of gratitude. Voluntary association develops social capital.

Although no one had much good to say about government road care of the time, many have remarked on the effectiveness of the toll road plan in California. Consider the following remarks from various counties:

From an historian of Trinity County: The Shasta & Yreka Turnpike (depicted in Figure 5) "was the main artery for interstate commerce between California and Oregon. ... [Toll] roads have always made the town of Lewiston a good trading center. ... [Toll] roads are the most striking material monument which the builders of those days have left to show their broad vision, tireless energy, earnest belief, in the future ... of the Golden State."

From an historian of Shasta County: "Where the going was rough the county did not build roads. Private money was spent in most instances..." (see Figure 5).

From an historian of Lake County: "In the early 1890's, all important routes into Lake County were toll roads. ... [T]oll roads provided a very necessary service to the public when the government was in no position to do so."

From an historian of Santa Clara County: People believed that "the most practical way to improve the county roads was to grant franchises for toll companies..."

From an historian of Kern County: "Nearly all the early roads through the mountains were built by private enterprise as toll roads."

From an historian of Santa Barbara County: "The failure of the [public-sector] scheme ... to build a good road through the county had not discouraged the enterprising part of the people. Private enterprises were undertaken."

From San Joaquin County, and an 1887 pamphlet on the county reports that "Stockton is connected with the surrounding country by a system of turnpikes and gravel roads, which are kept in good condition..."

From El Dorado County, a historian of early inns writes: "[A]ltogether there were fifteen or more [toll roads] between Sacramento and the Nevada state line. They paralleled the public roads at varying distances ... and while they were generally a little longer than the latter, their grades were somewhat less steep and they were better maintained."

From Nevada County, the county surveyor reported in 1862 that "[t]he principal thoroughfares through the county are toll roads." A historian of the county reports, "[mining development created a] demand for the construction of roads -- a demand which the county governments could not meet ... Consequently, private enterprise had to be relied upon, with the result that most of the roads and bridges which replaced the former precarious pack trails were constructed and owned by individuals or by turnpike companies, and were operated for profit."³⁷

Some of the toll roads of San Joaquin, El Dorado, Nevada, and numerous other counties are depicted in the map of Figure 6. Of approximately 414 toll roads incorporated or franchised, only 159 have been determined to have been successfully built. We know very little about the others. And of those built, we have been able to locate and map only 69 percent. A complete account would make the toll-road density 30 to 60 percent greater than that shown in Figure 6.

In 1875 the state Commissioners in charge of Yosemite Valley declared that granting toll-road franchises was the best way to get roads into the Valley since "private enterprise would ultimately accomplish all that was necessary and desirable much more economically than could be done by the state."³⁸ When reading an 1862 elaboration of this theme by the Nevada County Surveyor (1863, 121), one almost wonders whether the civil engineer had lately read Adam Smith:

Experience seems to establish the fact, that if we would have good roads in the mountains we must look to private enterprise, rather than public spirit, to construct and manage them. Nothing less than the interest men feel in their own personal investments will induce them to do anything for a public highway. That interest is, however, enlisted by the establishment of toll roads, and probably the result is fully as beneficial to the community as though the county had undertaken their construction and management.

And even Gerald Nash, whom we pilloried at the outset of this paper for slighting voluntary action in an eagerness to glorify state government, notes in passing that "in the twenty years after 1850" private enterprise far outperformed county government in road building.³⁹ A better overall assessment is the one offered by George Petershagen in his Master's Thesis: "the pre-twentieth century road system largely was a product of private initiative under government supervision."⁴⁰

If "the interest men feel in their own personal investments" was such an effective force, why were toll roads abandoned and shut down around the turn of the century -- not just in California, but throughout the country? In California one can cite the rapid expansion of railroads and the depletion of minerals, but the central factor nationwide was the ideological and public-policy shift toward centralized government planning, known as "Progressivism." In the field of road development, this new program expressed itself as "The Good Roads Movement." Its drama was not so much one of public versus private sector, as centralized government agency versus decentralized anything. Public officials engineering the new "system" would scarcely tolerate independently operated toll roads. But the story of Progressivism's final extermination of the private toll road company in America must await another occasion.

A parting thought: The incorporation papers of private companies in the nineteenth century only begin to reveal all the flavors of voluntary association that assumed the corporate legal form to achieve its several goals. The standard script of corporate papers ever suggests to us the impetus of direct gains, but those papers might cloak a real impetus of local improvement. In California, this was often present in the various cases of coterie and community enterprise. Even for coterie or community enterprise, dressed in articles of incorporation, that special ingredient, "the interest men feel in their own personal investments," was still operative. The viability of this fruitful combination -- the impetus of indirect gain in financing and the residual incentive of direct gain in operation -- has been severely undermined by the modern law of "for-profit" and "not-for-profit" corporations.

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Endnotes

1. Here's a short list of historical works that emphasize nongovernmental provision: Beito (1990), Beito and Smith (1990), Benson (1994), Coase (1974), Ellickson (1991), Glenn (1988), Green (1993), Kiesling (1993), Klein (1990), Umbeck (1981), West (1975), and Wright (1992).
2. Umbeck (1981, 132) says on state-of-nature property rights in frontier California: "The emergence of an explicit property-rights contract occurred not once but 500 times. And the length of time in which this took place was not centuries, but days."
3. In a letter of November 30, 1785 to Patrick Henry, then Governor of Virginia, George Washington proposed that, "until the period shall arrive when turnpikes may with propriety be established," the road laws should be reformed to permit monetary taxes to pay for contract work, rather than continue road labor assessments. "[N]egligence under the present system is winked at," and the contract system would be "infinitely less burthensome to the community." Quoted in California Department of Highways 1900, 9. These remarks by Washington are but an early sample of the calumny of the road labor system that would go on throughout the century. The California Surveyor General (1856, 43) says that in some Atlantic States the system has "rendered road-making (so-called) a ridiculous, but not harmless farce."
4. The harsh criticism is found in California Surveyor General's 1854 Report (1855, 5-6). The 1855 law (Chap. 152) introducing monetary taxes did not extend to incorporated cities and towns. In some locales labor taxes seemed to have persisted.
5. The charges against the county system are amplified by Manson 1902, 333-334, 342.
6. Klein 1990, 798.
7. See Majewski, Baer and Klein 1993; Klein and Majewski 1994.
8. The other factors causing unprofitability were rampant toll evasion (which was so severe partly because of regulatory constraints), competition from canals and railroads, and building ahead of development; see Klein and Majewski 1992, 505-506.

9. On turnpike unprofitability as a general condition throughout the eastern states, see Klein 1990, 791-93.
10. Chapter IV of Chapter 128 of *The Statutes of California*, 1850, 359f.
11. For 18 roads that were built, the average amount of stock subscribed at the time of incorporation, per mile, is \$595. For a set of 78 roads that includes both roads built and roads not built, the average stock subscription per mile is \$680. Although these figures can be regarded only as low-ball estimates of average cost per mile, it is plain that the early requirement of \$2,000 per mile was prohibitive.
12. Chaps. 73 (April 22) and 121 (May 12), *Statutes of California*, 1853, 114-115, 169-176.
13. The Act of May 12 increases the minimum number of incorporators from five to nine, and limits the toll-collection franchise to 20 years. Later codes provided for renewal of the franchise provided that the county assents. As for construction standards and toll exemptions, the May 12 Act seems to preserve the terms of the 1850 law, but the language of Sections 18 and 35 is so convoluted one cannot be sure.
14. The 1870 law was not an unqualified blessing to toll road entrepreneurs. It granted counties the right to purchase the road any time after five years from completion, on terms set by a committee half composed of men representing the county. Combined with other county controls, this option gave counties considerable power to take over roads. The 1870 law also specified a procedure for citizens to petition for reductions in toll rates.
15. After 1870 only ten companies were created by special act. In proportional terms, the ratio: (companies created by special act divided by companies created only by articles of incorporation filed under the general law) fell from 0.4 for the years 1850-1869 to 0.1 for the years 1870-1902.
16. *Statutes of California*, Chap. 164, 1862, 162 authorizes El Dorado County to lease the Sacramento and El Dorado Wagon Road. This may have been the warrant for the county to lease the slew of roads that show no record with the state. Chap. 311, 1868, 350 gives Mendocino County the right to charter a "public toll-road." Chap. 628, 1878, 963 authorizes Amador County to declare a portion of a road a toll road (evidently under lease or public operation). Chap. 75,

1883, 299, entitled "An Act to establish a uniform system of county and township governments," authorizes counties to grant licenses and franchises for tolls on roads, bridges, etc. (p. 307).

17. Figure 1 represents 14 fewer incorporations than does Figure 2 because in those cases we do not know the year of incorporation but do know the county.

18. The State Constitution (Sect. 10, Art. 11) prohibits the state from holding shares in any corporation. As for county subsidization of toll road companies, county trails were often granted, and in a few cases counties were permitted by legislative act to contribute funds (e.g., in Plumas County, Chap. 392, *Statutes of California*, 1868, 480).

19. In 1806 the Pennsylvania state government began subsidizing turnpikes by purchasing stock. In 1822 it held about 30 percent of the collective stock of the turnpike companies; see Durrenberger 1931, 55, 102.

20. On toll roads in Colorado, see Cummins 1952, Kaplan 1975, Ridgway 1932; in Nevada, see Beito 1993.

21. Compared to the regulations of the early Turnpike Era in New York, the regulations of the Plank Road Era were more favorable to the enterprise in the following ways: adjusting for *deflation*, toll rates were higher, tollgates were separated by shorter distances, and fewer local travelers were exempted from payment of tolls; *Laws of New York*, Chap. 210, 1847, 226; Chap. 360, 1848, 480; Chap. 250, 1849, 374; Chap. 71, 1850, 80

22. Bartlett 1940, 205.

23. Petershagen 1991, 1.

24. U. S. Census 1885, 653, 657.

25. Articles of Incorporation, Plumas Eureka Turnpike Road Company, 1878.

26. Articles of Incorporation, Ida Clayton and Great Western Wagon Road Company, 1874; Goss 1958, 90.

27. Articles of Incorporation, Reed's Turnpike, 1865; Mace, 130.
28. Wood, 141.
29. Articles of Incorporation, Pitt River and Copper City Toll Road Company, 1879.
30. Ingersoll 1904, 181.
31. Articles of Incorporation, Yosemite and Mariposa Short Line Stage and Wagon Road Company, 1886.
32. See Colby 1982, 35-36; Petershagen 1991, 41-47.
33. Reid 1895, 397f; Shoop 1962.
34. Articles of Incorporation, Bear Valley Wagon Road Company, 1891; Ingersoll 1904, 181.
35. Articles of Incorporation, Loyalton and Sardine Valley Toll Road Company, 1874, 1881. Whether community enterprise succeeded where business enterprise had failed, we do not know.
36. Articles of Incorporation, Highland Springs and Squaw Rock Toll Road Company, 1891; *Dispatch Democrat*, April 24, 1891, p. 3, c. 3; typed transcript obtained from Mendocino County Historical Society. The road was also authorized to build and operate telegraph and telephone lines.
37. Citations for the preceding indented quotations: Trinity County: Bartlett 1940, 190, 199, 205; Shasta County: Colby 1982, 60; Lake County: Simoons 1953, 364; Santa Clara County: Foote 1888, 121; Kern County: Morgan 1914, 65; Santa Barbara County: Mason 1883, 135; San Joaquin County: *San Joaquin Co.* 1887, 82; El Dorado County: Cross 1954, 207 (Cross cites information in the El Dorado County archives Road book, p. 233, and his impression comports with the more extensive discussion of Greco 1955); Nevada County: Nevada County Surveyor 1863, 121; Hoover, Rensch and Rensch 1962, 120; .

38. California Committee to Manage Yosemite Valley 1876, 12.

39. Nash 1964, 122; see also p. 46.

40. Petershagen 1991, iv.

Figure 1

Annual Toll Road Incorporations in CA
1850-1902

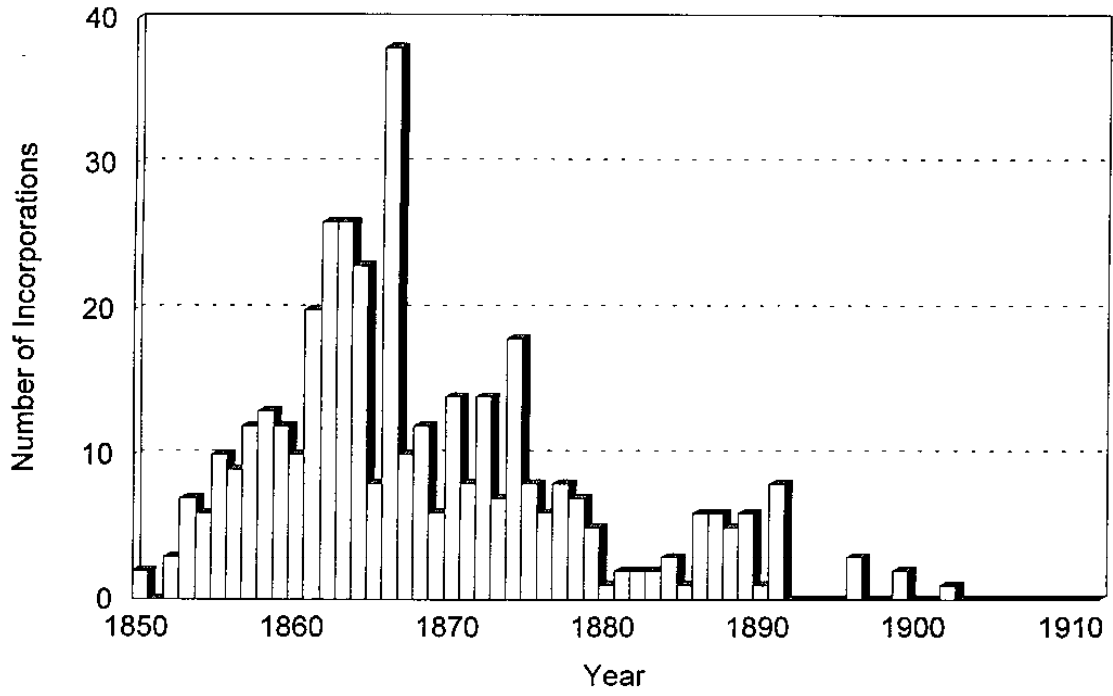


Figure 2

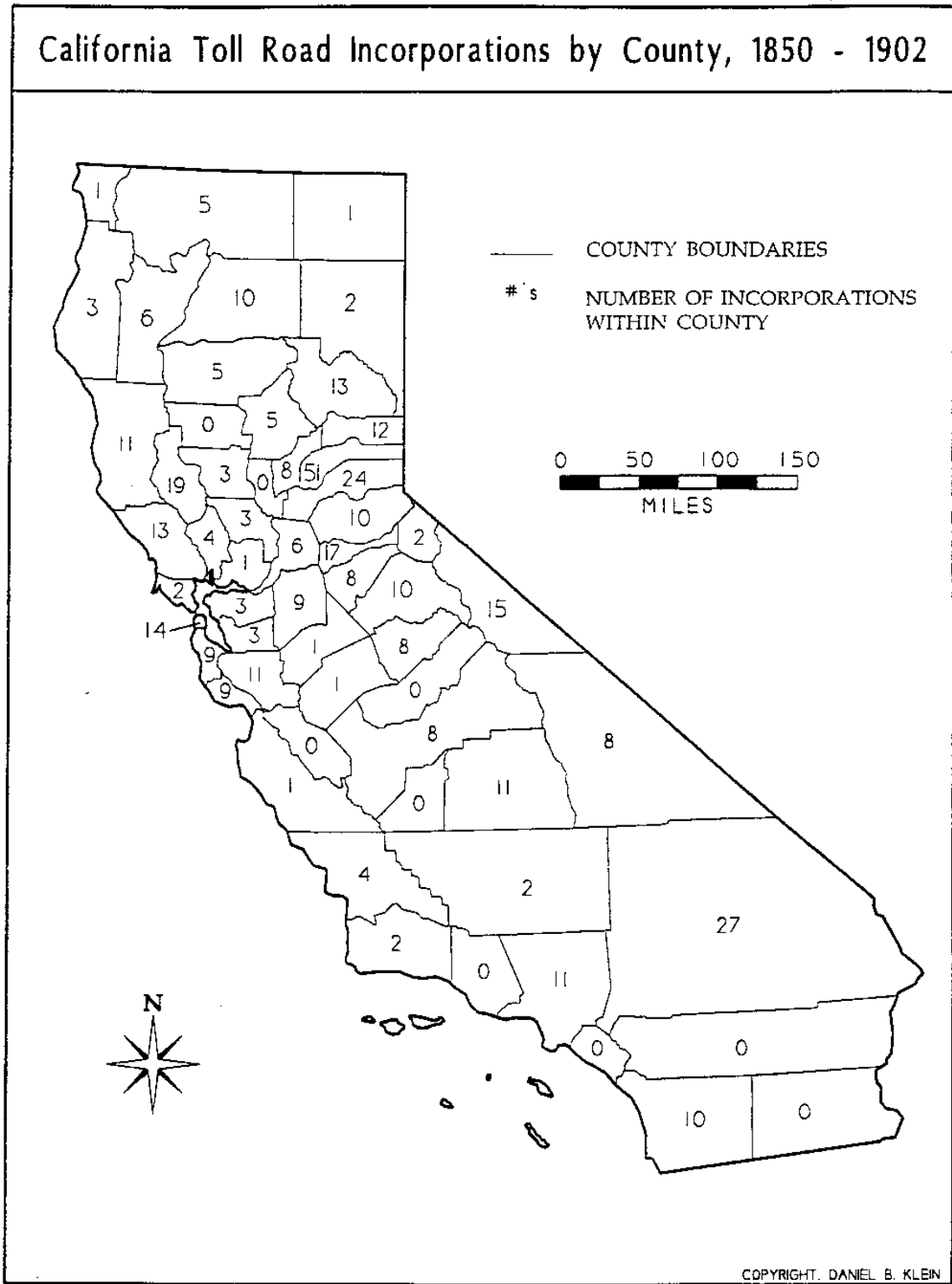


Figure 3

Comparative Interpretations of the
 Eastern Turnpike Era (1797-1845),
 the Plank Road Boom (1847-1853), and
 California's Toll Road Era (1850-1902)

		IMPETUS FOR SUBSCRIPTION	
		Indirect Gains	Direct Gains
STOCK PARTICIPATION	Diffuse	<u>Community Enterprise</u>	<u>Diffuse Business Enterprise</u>
		65% in Tpk Era 35% in Pk Rd Boom 15% in California	10% in Tpk Era 25% in Pk Rd Boom 5% in California
	Concentrated	<u>Coterie Enterprise</u>	<u>Business Enterprise</u>
		15% in Tpk Era 20% in Pk Rd Boom 30% in California	10% in Tpk Era 20% in Pk Rd Boom 50% in California

Figure 4

Comparison of Means

New York Plank Road Boom
vs.
California Toll Road Experience

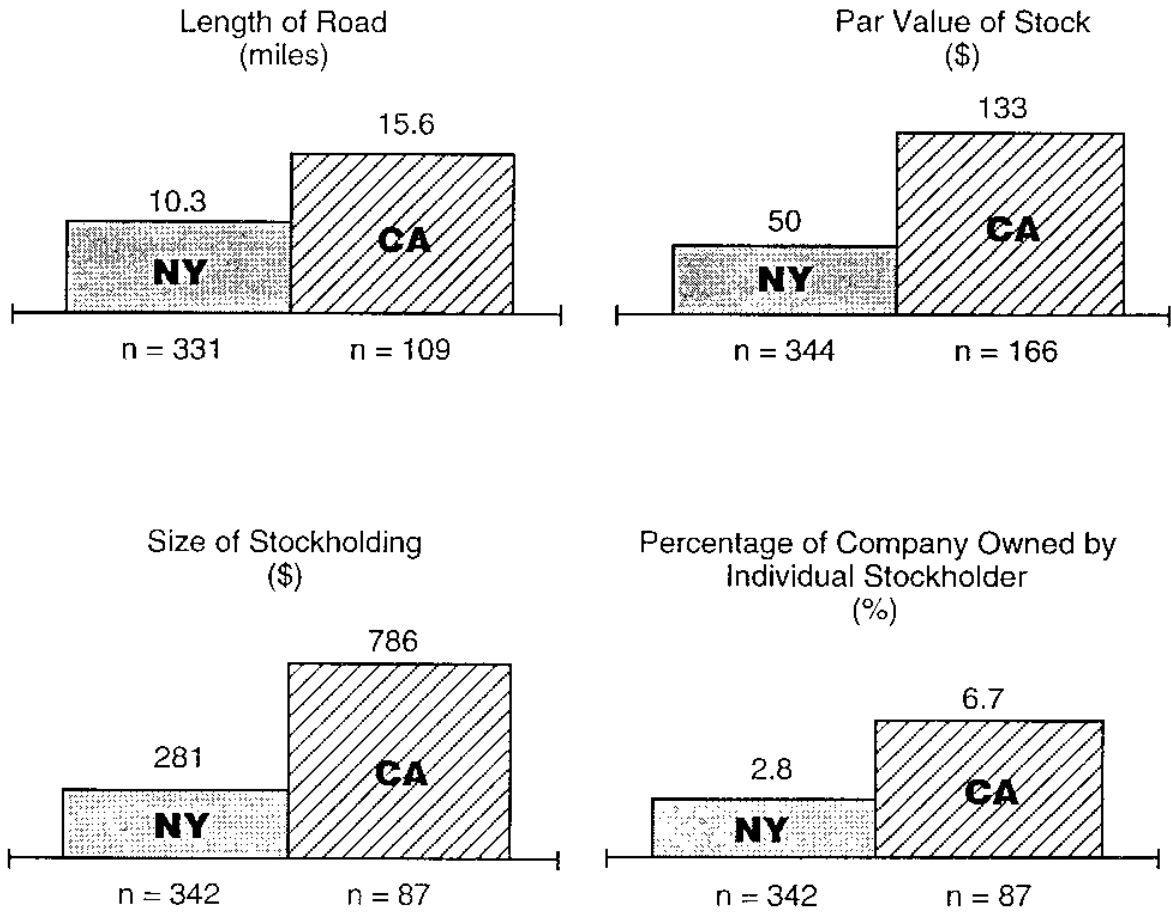


Figure 5

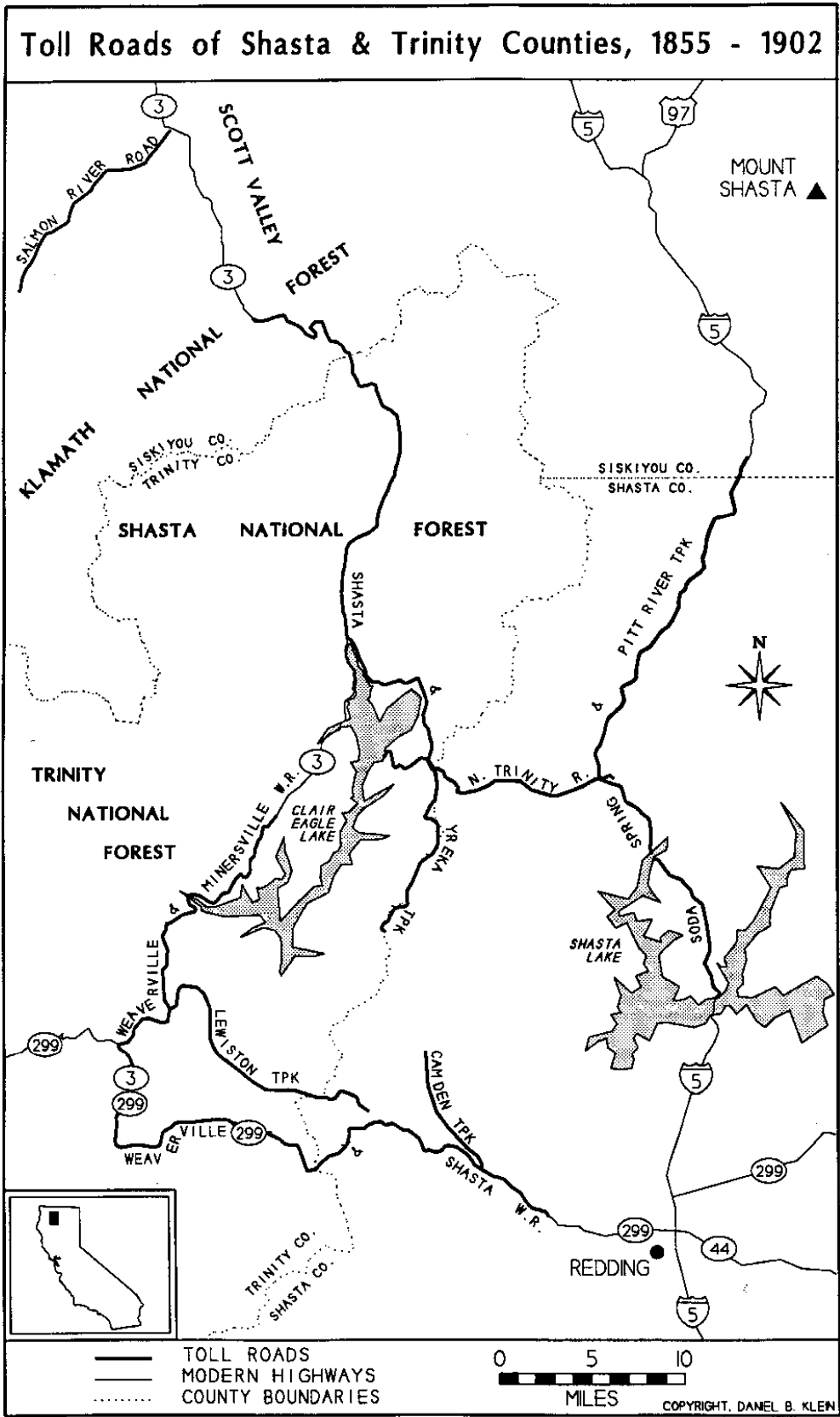
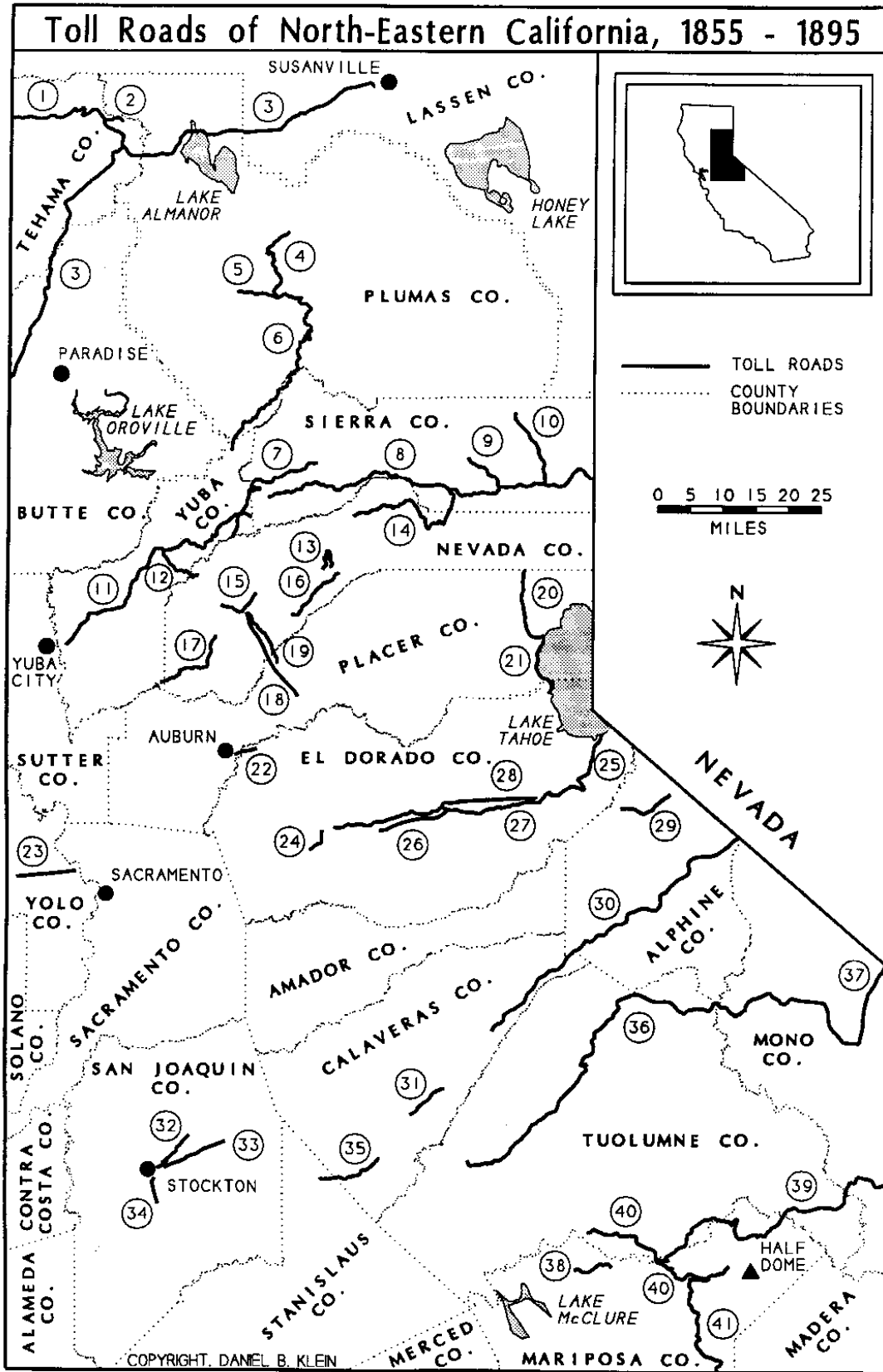


Figure 6



Names of Toll Roads Depicted in the Map of North-Eastern California

- | | |
|---|--|
| ① TEHAMA COUNTY W.R. | ②② H. SMITH TPK |
| ② PAYNES CREEK R. | ②③ YOLO TPK |
| ③ CHICO & HUMBOLDT W.R. | ②④ PLACERVILLE TPK |
| ④ PLUMAS TPK | ②⑤ LAKE TAHOE & PLACERVILLE RD. |
| ⑤ QUINCY & SPANISH RANCH W.R. | ②⑥ SOUTH WEBBER TPK |
| ⑥ LA PORTE & QUINCY W.R. | ②⑦ OGILBY'S RD. |
| ⑦ SIERRA TPK | ②⑧ SACRAMENTO & EL DORADO
WAGON RD. (CENTRAL TPK) |
| ⑧ HENNESS PASS TPK | ②⑨ CARSON CANYON T.R. |
| ⑨ TRUCKEE TPK | ③⑩ BIG TREE &
CARSON VALLEY TPK |
| ⑩ LOYALTON & SARDINE
VALLEY T.R. | ③⑪ MURPHY'S & ALTAVILLE TPK |
| ⑪ YUBA TPK | ③⑫ WATERLOO TPK / STOCKTON
& CALAVERAS GRAVEL RD. |
| ⑫ SOUTH BRANCH TPK | ③⑬ STOCKTON & LINDEN TPK |
| ⑬ NEVADA & WASHINGTON TPK
ALPHA & WASHINGTON TPK | ③⑭ FRENCH CAMP TPK |
| ⑭ MEADOW LAKE & BOWMAN TPK | ③⑮ REEDS TPK |
| ⑮ NEVADA &
ROUGH & READY TPK | ③⑯ SONORA & MONO W.R. |
| ⑯ CHALK BLUFF TPK | ③⑰ E. WALKER RIVER T.R. |
| ⑰ DRY CREEK TPK | ③⑱ COULTERVILLE & YOSEMITE TPK |
| ⑱ FOREST HILL &
GRASS VALLEY TPK | ③⑲ TIOGA RD. |
| ⑲ GRASS VALLEY & COLFAX TPK | ④⑰ BIG OAK FLAT &
YOSEMITE TPK |
| ⑳ TRUCKEE & TAHOE TPK | ④⑱ YOSEMITE STAGE & TPK CO. |
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