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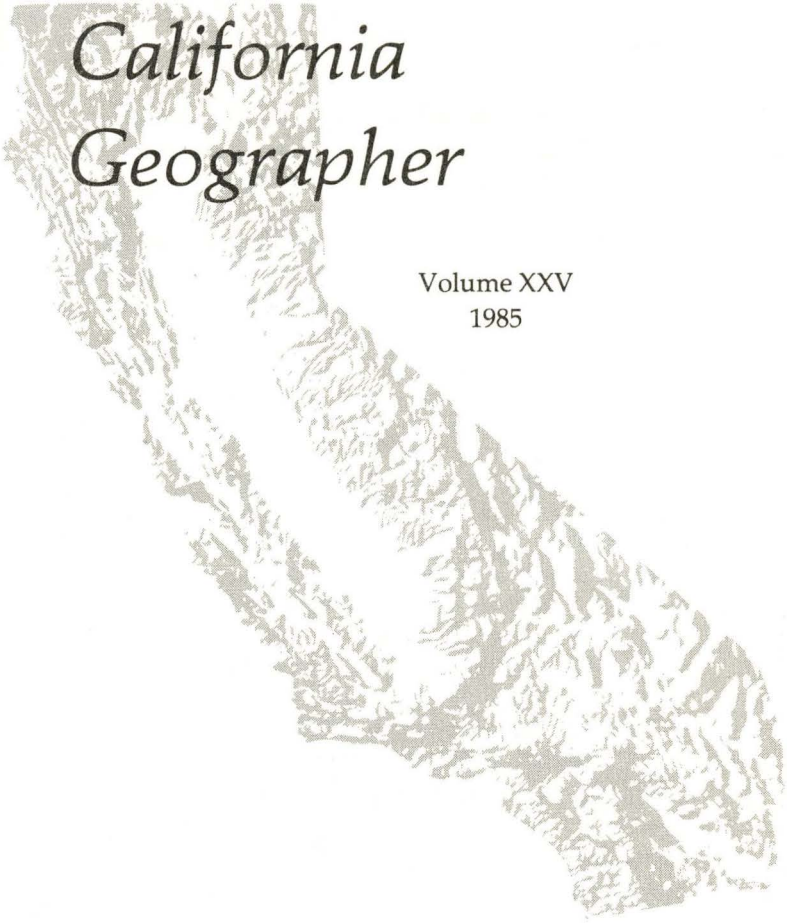

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CALIFORNIA GEOGRAPHICAL SOCIETY
Volume XXV, 1985

CARL O. SAUER: NASCENT HUMAN GEOGRAPHER AT NORTHWESTERN

*Martin S. Kenzer**

Carl Ortwin Sauer (1889-1975) ranks as one of America's leading and most influential geographers. His concern with culture history and material culture, as two related explanatory devices for man-land studies, helped eradicate a generation of geographical thinking imbued with physiographic *cycles* and environmental *influences.* As the foremost progenitor of both cultural and historical geography on this continent, Sauer and his "school" at the University of California Berkeley, engendered some of the best known and most scholarly students of American academic geography of the past fifty years. That there is considerable interest in Sauer's intellectual development is both understandable and well justified.[1] The purpose of this brief research note is to call attention to an important period of Sauer's life which is virtually unknown to most geographers.

While many will readily recall that Sauer's Ph.D. was earned in geography at the University of Chicago, few will remember that he spent the first year of his graduate studies (1908-1909) at Northwestern University as a prospective

**Dr. Kenzer, currently Assistant Professor of Geography at the University of Southern Mississippi, Hattiesburg, produced this article while associated with the Department of Geography at McMaster University in Hamilton, Ontario, Canada.*

petrographer in the Geology Department. This single year in Evanston, Illinois, was a turning point for Sauer's education; and, although neither Sauer nor anyone else at the time could have known it, the circumstances that drove Sauer to Chicago and the concomitant switch to geography would result in a lasting impact on the young scholar's newly chosen vocation.

When Sauer graduated with an A.B. as well as a B.S. from his now-defunct Missouri alma mater—Central Wesleyan College (C.W.C.)—his aim was to matriculate at Northwestern as a petrography student.[2] Unfortunately, the record regarding what Sauer planned to do with a petrography degree is unclear. Because he was so fascinated with the geological reports he had read at C.W.C., it is possible that he was interested in conducting survey work for the government.[3] Since his father was a college professor, however, and given that Sauer himself had teaching experience at Central Wesleyan, it is also possible that he considered a career as an instructor of geology. He certainly had great admiration for his geology instructor at C.W.C.—Professor John H. Frick (1845-1927)—and occasionally Sauer would return to this Methodist college and lecture in Frick's geology class.[4] Whatever the source of Sauer's actual motivation, it is a fact that he enrolled at Northwestern with the intent of becoming a petrologist.[5]

A document from C.W.C. archives attests to Sauer's early course work at, and impressions of, Northwestern. The document is a letter written by Sauer during his first month of graduate school in Evanston. It originally was addressed to Professor Frick and then published in the *Central Wesleyan Star*[6]—a combined journal, newspaper, and alumni information sheet. Beyond calling attention to the young scholar's temperament during this period, the letter is important for several related reasons. The remainder of this article consists of a discussion of those reasons, followed by the letter itself reprinted in full.

The most obvious value of Sauer's letter is, indeed, the letter itself. The mere fact that Sauer took the time to write to Frick and detail his then-current state of affairs, tells us something about the relationship between the two men. In the opening paragraph of his letter, we note that Sauer refers to himself as one of Frick's "disciples." Elsewhere, I have called attention to Frick's influence on Sauer, and this letter certainly lends insight into Sauer's "intellectual debt" to his former geology professor.[7]

A second obvious but nonetheless important aspect of this document is Sauer's enumeration of his course work and kindred thoughts at the time. He notes that his physiography course is little more than "an extended advanced course in physical geography and detailed study of the features of various parts of this country." In light of this comment, it is perhaps instructive to recall Sauer's 1924 statement which carefully distinguishes between physiography and physical geography, where he argues that the latter must account for the "natural region" with precise attention paid to process and the interrelation of humans and their physical environment.[8] Further, the letter is important in that it confirms Sauer's later recollection that he attended Northwestern with a petrography degree in mind.[9]

Third, the letter reveals Sauer's vacillating evaluation of his baccalaureate training at Central Wesleyan vis-a-vis his more recent encounter with graduate work at Northwestern. At the outset he explains that his alma mater was well recognized "in the eyes of the teachers" at Northwestern, and that his coursework from C.W.C. was "fully accepted without question or investigation." Yet, by the close of the short letter, there is apparent uncertainty in Sauer's mind, and his opinion of the German-Methodist institution seems to waver. Thus he instructs Frick what the professor might do better to prepare future students for similar graduate work.

The 1908 letter to Frick is important for an understanding of Sauer's evolving intellectual development. Because Sauer indicates the courses he is taking as well as their respective instructors, those concerned with determining who may have been influential in the young man's view of himself and his career cannot ignore the six professors he cites in this letter. By the same token, the letter provides further evidence that one of these individuals (Decker) was instrumental in helping Sauer decide to transfer to the University of Chicago and turn his attention toward geography.[10]

This archival document is of particular relevance for anyone familiar with Sauer and his almost fanatical predilection for fieldwork. It is well known that field observations were fundamental to Sauer's mature view of geography.[11] We know, that as a student of Frick's, Sauer was required to attend field trips as an undergraduate.[12] Further, it is readily apparent that a good percentage of his tenure as a Ph.D. student at Chicago was spent in the field collecting data.[13] From this early letter to Frick, we discover that the tradition went unbroken during his year at Northwestern. "They place much emphasis upon field-trips," wrote Sauer. "Even First Year [sic] geologists" he elaborates, "are required to go on short excursions *almost every Saturday . . .*" (emphasis added). It is not difficult to understand why, for the remainder of his life, Sauer had such a high regard for fieldwork. His childhood, adolescence, and graduate school days were suffused with experiences requiring first-hand field observations.

A final note of importance in Sauer's letter is the last sentence of the concluding paragraph: "I wish you could teach a full year of geology at C.W.C. [and] *also make physical geography a freshman or sophomore study of a full year and put them through it hard*" (emphasis added). Sauer enrolled at Northwestern as a geology student and yet, within the first month of his studies, he was writing home convinced of the value of physical geography. Why would a student whose

chief study was petrography find such immediate interest in geography? The answer lies, I believe, in Sauer's already growing recognition of his relative isolation in a career devoted to petrographic research. Petrography was preoccupied with the local, immediate, descriptive conditions of rocks and minerals. There was little or no desire to understand their importance from a wider perspective.[14] Geography, on the other hand, forced students out of the laboratory and into contact with a dynamic natural environment. In contrast to petrography, a geographic study was field-oriented, where both your research *and* your analysis focused not on minerals or crystals, but on the landscape and the larger picture—the surface of the earth. Years later, Sauer recounted this rising awareness:

> I worked at petrography for a year and I learned that you did not look at the country or the beds of the rock, you looked in thin sections. They were interesting, they made very interesting patterns when you turned the stage. I knew well before the year was advanced that if that was geology that was not my dish.[15]

This concern for the large picture was, of course, something terribly important to Sauer. Rarely one to dwell on details, he was forever concerned with synthesis and the whole.[16]

Though he may not have realized it at the time, petrography's lack of concern for man was also a probable factor in Sauer's leaning toward geography. This neglect of the human component undoubtedly contributed to his decision to terminate his work in the Chemistry Department after that first term at Northwestern. In a letter written less than two months after the one reprinted below to Frick, Sauer explains to his brother and sister-in-law that "I like my work first rate, all but Chemistry. Well, I'm going to quit that and take up topographic mapping the second semester, and then I'll be satisfied."[17] As did geography, topographic mapping allowed Sauer to examine the world not through a microscope, but from a panoramic perspective. Petrography

and chemistry consequently would fall by the wayside as they were both too concerned with analysis and minutia. Moreover, petrography was completely devoid of human action; geography allowed Sauer not only to focus broadly, but also to accommodate his interest in the broader picture *and* living things.

As an independent discipline, geography did not exist at Northwestern until 1945.[18] In Sauer's era, the university offered only two semester-length courses in geography, and both were supplementary to a degree in geology.[19] Thus, given Sauer's interest in and growing awareness of the big picture, it was only logical that he look elsewhere. One of his instructors, showing sagacious foresight, suggested that Sauer drop geology and consider working with Rollin D. Salisbury (1858-1922) at the University of Chicago, in the oldest graduate department of geography in North America.[20] When the school year was over, Sauer acted on his confidant's advice and made the decision to move across town and become a student of human geography at Chicago.

There was no way for Sauer to have known it at the time, but his drift away from geology and Northwestern would be of monumental importance to geography. His practical interests in field mapping[21] and his concerns with methodologic issues[22] eventually altered the course of academic geography on this continent. Sauer became a geographer and, though he never lost sight of his training in the earth sciences, the bulk of his subsequent work was concerned with humans and their use of the landscape—the larger picture.

With this short preface in mind, there follows a copy of Sauer's complete letter to Professor Frick. It was written on October 26, 1908 (two months prior to Sauer's nineteenth birthday), and published in the November, 1908, issue of the *Central Wesleyan Star*. The letter is virtually unedited. I have merely added several words (in brackets) and two foot-

notes to provide the reader with a few necessary facts. It is possible, however, that the letter may have been edited before it was printed in the *Star*.

****

My Dear Professor:

Now that I know what I am doing, I thought you might be interested in hearing about the progress of one of your disciples. In general terms, my school work and I seem to agree very well, my teachers are very kind and helpful and I hope to do well enough to maintain, at least partially, the high standard which Central Wesleyan College holds, and deserves too, in the eyes of the teachers here. All my work was fully accepted without question or investigation. Most students have a hard time in getting their credits from other schools recognized. The teachers did not ask me to produce a thing.

The following comprises my work:

Physiography, taught by Decker [Charles Elijah Decker, 1868-1958] until a Dr. Mansfield [George Rogers Mansfield, 1875-1947] from Harvard comes, really an extended advanced course in physical geography and detailed study of the features of various parts of this country.[23]

Assaying taught by Coghill [William Hawes Coghill, b. 1876] a mining engineer, with the practical work performed at the furnace in jumpers and overalls.

Chemistry—qualitative analysis is my largest class, about 40. Our teacher Whittlesey [Theodore Whittlesey] is author of the text book used. Almost all laboratory work as is practically all my work. Thus I have my evenings almost entirely free and this gives me a chance to cary [sic] on supplementary reading.

Mineralogy taught by Coghill. We are working at crystallography now. They have a good collection of minerals but the one at C.W.C. ranks up well with it and your collection of fossils is almost the equal of Northwestern's.

Petrography. This is my chief study and is taught by Prof. Grant [Ulysses Sherman Grant, 1867-1932]. There are only about six of us. We each have a petrographical microscope and devote most of our time to the microscopical study of rocks, in many cases the only sure way of identification.[24] It is about the toughest proposition I ever ran up against and I am in for my hardest work in here mastering the optical properties of the minerals.

This is about the work mapped out for me. My preparation, especially my additional summer's work, is sufficient for me to fall in line and keep up with the rest. They place much emphasis upon field-trips. I was near Michigan City, Ind., on Saturday studying their sand dunes. Next week, we are to go to Southwestern Wisconsin to Platteville and Madison. Next spring we are to spend two weeks in the Lake Superior region. Even First Year geologists are required to go on short excursions almost every Saturday, one trip of a full day (one hundred miles) and a trip of two days' length to the Devil's Lake country. Each first year student must also make a rock collection of 25 specimens, etc. I wish you could teach a full year of geology at C.W.C. [and] also make physical geography a freshman or sophomore study of a full year and put them through it hard.

I am your devoted scholar and friend.

Carl Sauer.

ACKNOWLEDGMENTS

I am grateful to Odessa Ofstad for her permission to reproduce Sauer's letter from the Central Wesleyan College Archives (see footnote 6 below). I would also like to thank Elizabeth Sauer FitzSimmons for permission to peruse and quote from her father's private correspondence. Finally, I wish to express appreciation to Patrick M. Quinn, Northwestern University Archivist, for his helpful comments and his generous cooperation in this research.

NOTES

1. Recent attempts to ground Sauer's work in varying research traditions include the following: William W. Speth, "Carl Ortwin Sauer on Destructive Exploitation," *Biological Conservation*, Vol. 11, No. 2 (1977), pp. 145-160; Michael Williams, " 'The Apple of My Eye': Carl Sauer and Historical Geography," *Journal of Historical Geography*, Vol. 9, No. 1 (1983), pp. 1-28; Earl W. Kersten, "Sauer and 'Geographic Influences'," *Yearbook of the Association of Pacific Coast Geographers*, Vol. 44 (1982), pp. 47-73; Martin S. Kenzer, "Milieu and the 'Intellectual Landscape': Carl O. Sauer's Undergraduate Heritage," *Annals of the Association of American Geographers*, Vol. 75, No. 2 (1985), pp. 258-270; J. Nicholas Entrikin, "Carl O. Sauer, Philosopher in Spite of Himself," *Geographical Review*, Vol. 74, No. 4 (1984), pp. 387-408; James S. Duncan, "The Superorganic in American Cultural Geography,"

Annals of the Association of American Geographers, Vol. 70, No. 2 (1980), pp. 181-198; William W. Speth, "The Anthropogeographic Theory of Franz Boas," *Anthropos*, Vol. 73, No. 1-2 (1978), pp. 1-31.

2. John Leighly, "Carl Ortwin Sauer, 1889-1975," *Annals of the Association of American Geographers*, Vol. 66, No. 3 (1976), pp. 337-348, especially p. 337.
3. Leighly, p. 337; Kenzer, p. 262.
4. Kenzer, pp. 262-263.
5. I am intentionally using the terms petrography and petrology synonymously, as did Sauer in 1908 (see note 24 below). Petrography was merely one of several approaches to the more scientific, law-seeking petrology. Moreover, in 1908 there was seemingly little difference between the two terms. See F. Y. Loewinson-Lessing, *A Historical Survey of Petrology*, translated by S. I. Tomkeieff (Edinburgh and London: Oliver & Boyd, 1954), pp. 1-9.
6. "A letter," *Central Wesleyan Star*, Vol. 26, No. 2 (1908), pp. 19-20; also see Martin S. Kenzer, "The Central Wesleyan College Archives at Northeast Missouri State University: A Very Special Collection," *Special Collections*, Vol. 2, No. 4 (1985), pp. 13-20.
7. Kenzer, note 1 above, pp. 262-263.
8. Carl O. Sauer, "The Survey Method in Geography and Its Objectives," *Annals of the Association of American Geographers*, Vol. 14, No. 1 (1924), pp. 17-33, especially pp. 21-23.
9. Maynard Weston Dow, "Geographers on Film: The First Interview—Carl O. Sauer Interviewed by Preston E. James," *History of Geography Newsletter*, No. 3 (1983), pp. 8-12, especially p. 8.
10. Dow, p. 8.
11. Robert C. West, *Carl Sauer's Fieldwork in Latin America* (Ann Arbor: University Microfilms International, 1979); Martin S. Kenzer, "Carl Sauer and the Carl Ortwin Sauer Papers," *History of Geography Newsletter*, No. 5 (1985), in press; Carl O. Sauer, "The Education of a Geographer," *Annals of the Association of American Geographers*, Vol. 46, No. 3 (1956), pp. 287-299, especially pp. 295-296; Carl O. Sauer, "Foreword to Historical Geography," *Annals of the Association of American Geographers*, Vol. 31, No. 1 (1941), pp. 1-24, especially pp. 14-17.
12. Kenzer, note 1 above, p. 262.
13. Carl O. Sauer, *The Geography of the Ozark Highland of Missouri*, Bulletin No. 7, The Geographical Society of Chicago (Chicago: University of Chicago Press, 1920), p. ix; Carl O. Sauer, *Geography*

of the Upper Illinois Valley and History of Development, Bulletin No. 27 (Urbana: Illinois State Geological Survey, 1916), p. 11; Carl O. Sauer, "Geography," in *Starved Rock State Park and its Environs* (by C. O. Sauer, G. H. Cady, and H. C. Cowles; Chicago: University of Chicago Press, 1918), pp. 3-83; Carl O. Sauer, "Status and Change in the Rural Midwest—a Retrospect," *Mitteilungen der Österreichischen Geographischen Gesellschaft*, Vol. 105, No. 3 (1963), pp. 357-365, especially pp. 357-368.

14. Loewinson-Lessing, pp. 27-32.
15. Dow, p. 8.
16. Sauer, "Foreword," note 11.
17. Carl O. Sauer to brother and sister-in-law, December 16, 1908, private correspondence in Sauer's daughter's possession.
18. Martin S. Kenzer, "The Formation of an Independent Department of Geography at Northwestern University: A Chapter in the Growth of American Geography Following World War II," *History of Geography Newsletter*, No. 3 (1983), pp. 30-37.
19. These were the two halves of Geology A2 (Physical Geography: Meteorology & Physiography of the Lands). "Annual Catalogue, 1908-1909," *Bulletin of Northwestern University*, Vol. 8, No. 6 (1908), pp. 92-94.
20. William D. Pattison, "Rollin Salisbury and the Establishment of Geography at the University of Chicago," in *The Origins of Academic Geography in the United States* (edited by Brian W. Blouet; Hamden, Conn.: Archon Books, 1981), pp. 151-163, especially p. 151; Preston E. James and Geoffrey J. Martin, *All Possible Worlds: A History of Geographical Ideas* (New York: John Wiley & Sons, 2nd ed., 1981), pp. 310-315.
21. Carl O. Sauer, "Proposal of an Agricultural Survey on a Geographic Basis," *Michigan Academy of Science*, Nineteenth Annual Report, 1917, pp. 79-86; Carl O. Sauer, "A Soil Classification for Michigan," *Michigan Academy of Science*, Twentieth Annual Report, 1918, pp. 83-91; Carl O. Sauer, "Mapping the Utilization of the Land," *Geographical Review*, Vol. 8, No. 1 (1919), pp. 47-54; Carl O. Sauer, "The Problem of Land Classification," *Annals of the Association of American Geographers*, Vol. 11 (1921), pp. 3-16.
22. Wellington D. Jones and Carl O. Sauer, "Outline for Field Work in Geography," *Bulletin of the American Geographical Society*, Vol. 47, No. 7 (1915), pp. 520-525; Sauer, "The Survey Method," note 8; Carl O. Sauer, "The Morphology of Landscape," *University of California Publications in Geography*, Vol. 2, No. 2 (1925), pp. 19-54; Carl O. Sauer, "Recent Developments in Cultural Geography," in

Recent Developments in the Social Sciences (edited by Edward Cary Hayes; Philadelphia and London: J. B. Lippincott, 1927), pp. 154-212; Sauer, ''Foreword,'' note 11.

23. The Northwestern catalogue lists this as a full-year, two-semester course, Geology B2 (Physiographic and Glacial Geology: Physiographic and General Geology of the United States & Glacial Geology). From Sauer's description, however, there seems to have been more geography then geology involved. ''Annual Catalogue,'' note 19, p. 93.
24. Listed in the catalogue as Geology C3 (Petrology) with the same basic description given by Sauer. ''Annual Catalogue,'' note 19, p. 93.

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PUBLIC PARKS AND PRIVATE LANDS

*Elliot G. McIntire**

On March 1, 1872, President Ulysses S. Grant signed legislation setting aside a large area of the Yellowstone region as a national park—the first in the nation, and indeed, the first in the world.[1] In the 114 years since, the idea that large areas might be set aside and preserved for the enjoyment of the people has spread widely, and, of course, has been modified to reflect the varied perceptions of different times and different places.

For most of the last century, national parks in the United States were created to preserve areas of unique or outstanding natural beauty, and simply involved the transfer of portions of the public domain into a different category, initially as individual parks, and, after 1916, as units of the newly created National Park Service, under the Department of the Interior. During the last two decades, however, there has been an increasing emphasis on parks as historical or recreational areas, which are more accessible to the general public than many of the earlier parks. This often requires the acquisition of land which is not part of the public domain. These changes have meant that park ad-

**Dr. McIntire is Professor of Geography at California State University, Northridge.* *The initial version of this paper was presented at the Forty-Fifth Annual Meeting of the Association of Pacific Coast Geographers at Long Beach in June, 1982. The version here reproduced was accepted for publication in September, 1984.*

ministrators are now faced with problems for which earlier experiences failed to prepare them. Since parks in other parts of the world have had to face similar problems for some time, there may well be lessons which can be learned and applied to the newer U.S. parks. This paper, therefore, seeks to do three things: first, briefly examine the concept of National Parks; second, review some of the characteristics of the National Parks of England and Wales; and third, see whether some of these features can be profitably applied to some of the newer U.S. parks, with the Santa Monica Mountain National Recreation Area (SMMNRA) as an example.

The Growth of the National Park Movement

After its initiation in the United States, the concept of National Parks began to diffuse quite rapidly, but was most readily adopted in those countries where western culture was expanding, such as Canada, New Zealand, and Australia, or with strong western influence, such as India and South Africa, and, somewhat later, in East Africa and parts of Central and South America.[2] In contrast, the concept was slow to develop in most Old World countries, largely due to the fact that they contain few large ''natural'' areas, the landscape having been transformed by centuries of human activity.[3] As White has pointed out, there is a fundamental dichotomy between the older, developed countries of Western Europe and the rest of the world in the kinds of pressures placed on rural landscapes. Especially in the New World (plus Australia and New Zealand), there are large areas of low population density, which are effectively unused (or underused) and which can be devoted to single purpose use, such as recreation or nature conservation. In contrast, Western Europe has a densely settled, developed landscape. New land uses, such as recreation or environmental preservation, must be inserted into a pre-existing rural infrastructure, often primarily agricultural.[4] Such con-

trasts have led to fundamental differences in approach to the definition, organization, and management of parklands.

The characteristics of National Parks, as originally created in the United States, were formalized in 1933 in a Convention Relative to the Preservation of Fauna and Flora in their Natural State, and in 1969, with slight modification, were adopted by the Tenth General Assembly of the International Union for the Conservation of Nature and Natural Resources (IUCN) meeting in New Delhi. This resolution called on all governments to reserve the term National Park to areas having certain characteristics, which may be summarized as follows:

(1) relatively large areas, which are
(2) essentially unaltered by human activity, which have
(3) plant, animal species, geomorphic sites, or habitats of specific scientific, educational, and recreative interest, or natural landscapes of great beauty, and
(4) where the national government has taken steps to eliminate exploitation and occupation, and
(5) where visitors are allowed to enter under special conditions for inspirational, educative, cultural and recreational purposes.[5]

While such a definition was clearly met by those areas designated as National Parks in the United States during the late nineteenth and early twentieth centuries, some more recently created park units in this country, and most parks in Europe, fail to meet one or more of these criteria. It is to these units, however, that I wish to devote my attention. First let us examine some trends in parks in the United States.

"The past century has seen a dramatic shift and change in both social needs and values. The frontier is gone, travel is faster and easier, standards of living are unbelievably higher for most, and urbanization is the dominant daily scene for

three-quarters of our people."[6] Consequently, there has been a shift in the societal values to be derived from our parklands. "Open space," a term unheard of in earlier years, because it existed in such abundance, has become one of the major amenities provided by our park system. This shift is reflected in the kinds of parks being created. Beginning early in this century, under the Antiquities Act of 1906, the president was empowered to create National Monuments preserving areas of historic and scientific interest. Furthermore:

> In subsequent years the System gained additions which exhibited significant attributes for higher intensity recreational uses, bringing in areas such as parkways, seashores, lakeshores, and inland water impoundments. While the very earliest interests centered on superlatives and uniqueness as principal criteria for park status, the growing need for pleasant outdoor environments to serve the more direct outdoor recreation needs of a rapidly urbanizing nation focused increasing attention on securing areas to serve that need.[7]

In recognition of the variety of purposes being served, and perhaps mindful of the IUCN's recommendations, such units of the U.S. National Park System have been designated National Seashores, National Recreation Areas, Wild and Scenic Rivers, or National Historic Parks, rather than National Parks. These new units have also forced the development of new management concepts, appropriate to each of the different types of park.[8] Until recently, however, all of these units have shared at least one major feature: they were created by the transfer of already publicly-owned land from one agency to another. Private property has been acquired only when it constituted comparatively small "inholdings" within the public domain. It has been Park Service policy that "all properties falling within the perimeter boundaries established for a national park should be in the public domain," and, if privately owned, should ultimately be acquired by the Park Service.[9]

Although the emphasis in the U.S. Park System has been

on the acquisition of open space as amenity, there has also been a growing concern for increasing the accessibility of such units to the public. In theory, early parks were available to the public. In practice, their limited facilities and remoteness from population centers meant that they benefited primarily a privileged elite, often accommodated in luxury hotels, some of which are still found in several national parks, including Yellowstone, the Grand Canyon, and Yosemite. The spirit of the late twentieth century demands more egalitarian access, which means parks must be located in closer proximity to urban areas. This shift in attitudes has created major problems for the U.S. National Park Service, for few large areas of public domain are left near our cities. As a result, new units of the National Park System are often faced with accommodating themselves to large amounts of privately-owned land around and within the park boundaries. Many Park Service officials seem to have difficulty in adapting to this change in philosophy.[10]

The creation of the Santa Monica Mountains National Recreation Area (SMMNRA) in 1978 illustrates many of the problems linked to such a change, problems which will have to be faced ever more frequently in the future. Located in the midst of the Los Angeles urban area, the Santa Monica Mountains represent a large, comparatively undeveloped region within easy access of some ten million people (Figure 1). As such, the region is a prime candidate for the kind of park demanded. However, nearly all of it was already in private ownership by the time the park unit was created. Clearly, new attitudes and approaches were needed. Some of the basic questions which had to be answered by the U.S. Park Service, the agency charged with creating and administrating the SMMNRA, included:

(1) How much of the area should be acquired by public agencies?
(2) What criteria are appropriate in selecting such areas?

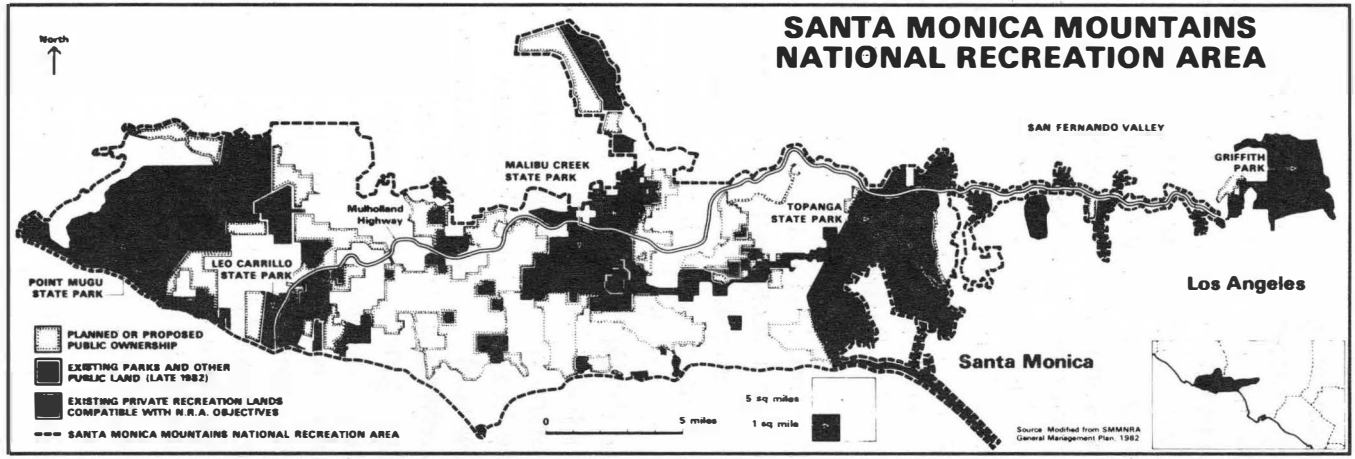
SANTA MONICA MOUNTAINS
NATIONAL RECREATION AREA
North
SAN FERNANDO VALLEY
GRIFFITH PARK
MALIBU CREEK STATE PARK
Mulholland Highway
TOPANGA STATE PARK
LEO CARRILLO STATE PARK
POINT MUGU STATE PARK
Los Angeles
Santa Monica
PLANNED OR PROPOSED PUBLIC OWNERSHIP
EXISTING PARKS AND OTHER PUBLIC LAND (LATE 1982)
EXISTING PRIVATE RECREATION LANDS COMPATIBLE WITH N.R.A. OBJECTIVES
SANTA MONICA MOUNTAINS NATIONAL RECREATION AREA
0
5 miles
5 sq miles
1 sq mile
Source: Modified from SMMNRA General Management Plan, 1982

Figure 1.

(3) What agencies should be involved?
(4) What should the relationship be between the various public agencies (federal, state, and local) involved?
(5) What is the role of private lands within such a park unit?
(6) What degree of management of private lands by public bodies is appropriate?

The process of developing answers to such questions is ongoing, and in many cases no satisfactory response has been found.

National Parks in Great Britain

While such questions, which involve basic park management policies, are new to the U.S. Park System, they have already been dealt with by other systems. With this in mind, a brief examination of the National Park System in Great Britain may be instructive. The National Parks of England and Wales owe their origin to the National Parks and Access to the Countryside Act of 1949,[11] later modified by the Countryside Act of 1968.[12] Between 1951 and 1957 ten areas were designated as National Parks (Table 1 and Figure 2). In spite of efforts to add additional units to the system, no new parks have been created since 1957. It should be emphasized that none of the British parks meet the IUCN definition of a "National Park," since they have been placed in a densely settled, developed landscape. They were created, not as devices for preserving "outstanding and unique natural" features, but rather, to "assure preservation and wise management of rural amenities considerably affected by centuries of human use. The Peak District Park, for example, is a superb example of sound conservation in a heavily industrialized region."[13]

Like the Santa Monica Mountains National Recreation Area, a principal function of the British parks is to insure the availability of open space for a largely urban population.

Table 1
National Parks in England and Wales

Park	Area (sq. mi.)	Date Established	Population (1971)
Peak District	542	1951	36,708
Lake District	866	1951	44,050
Snowdonia	838	1951	26,272
Dartmoor	365	1951	28,064
Pembrokeshire Coast	225	1952	20,553
North York Moors	553	1952	21,800
Yorkshire Dales	680	1954	18,189
Exmoor	265	1954	10,458
Northumberland	398	1956	3,297
Brecon Beacons	519	1957	29,372
Totals	5,251		238,763

Source: Ann and Malcolm MacEwen, *National Parks: Conservation or Cosmetics?* (London: George Allen and Unwin, 1982), p. 14.

And, like the SMMNRA, they are to a considerable extent in private ownership, and have significant resident populations. Each of these aspects is important, and must be considered in any park management plan.

Something less than one-third of the total area of British National Parks is publicly owned; but there is considerable variation from park to park, ranging from a high of 46 percent in Dartmoor to a low of 2 percent in Yorkshire Dales (Figure 3). There is also great variation in the proportion owned by various public and semi-public agencies. The National Park authorities themselves own only a minute fraction of the total (1.16 percent). The Forestry Commission (roughly equivalent to the U.S. Forest Service) is the largest single landowner within the parks (and in Britain as a

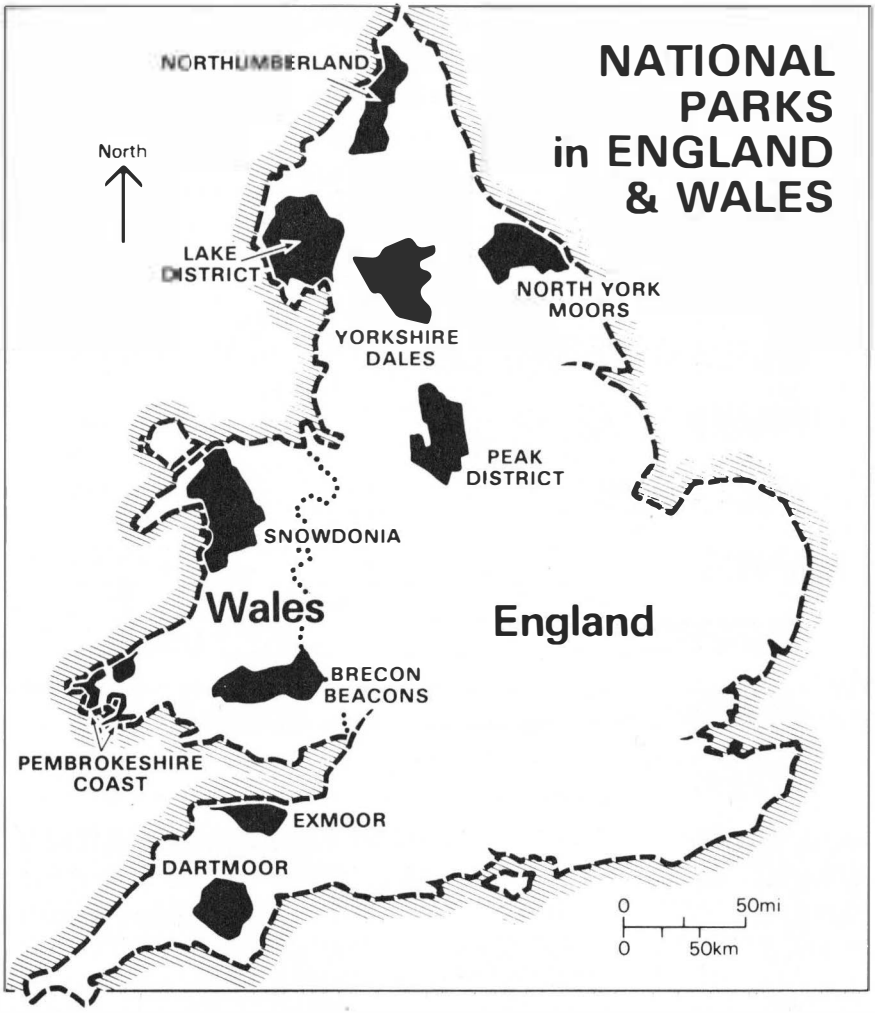

Figure 2.

whole). The Forestry Commission has extensive holdings in Northhumberland, Snowdonia, and North York Moors, but virtually none in several of the other parks. Nearly all of this land is devoted to afforestation schemes, mostly with exotic conifer species such as Norway and Sitka spruce. Less than 5 percent of Forestry Commission plantations are devoted to

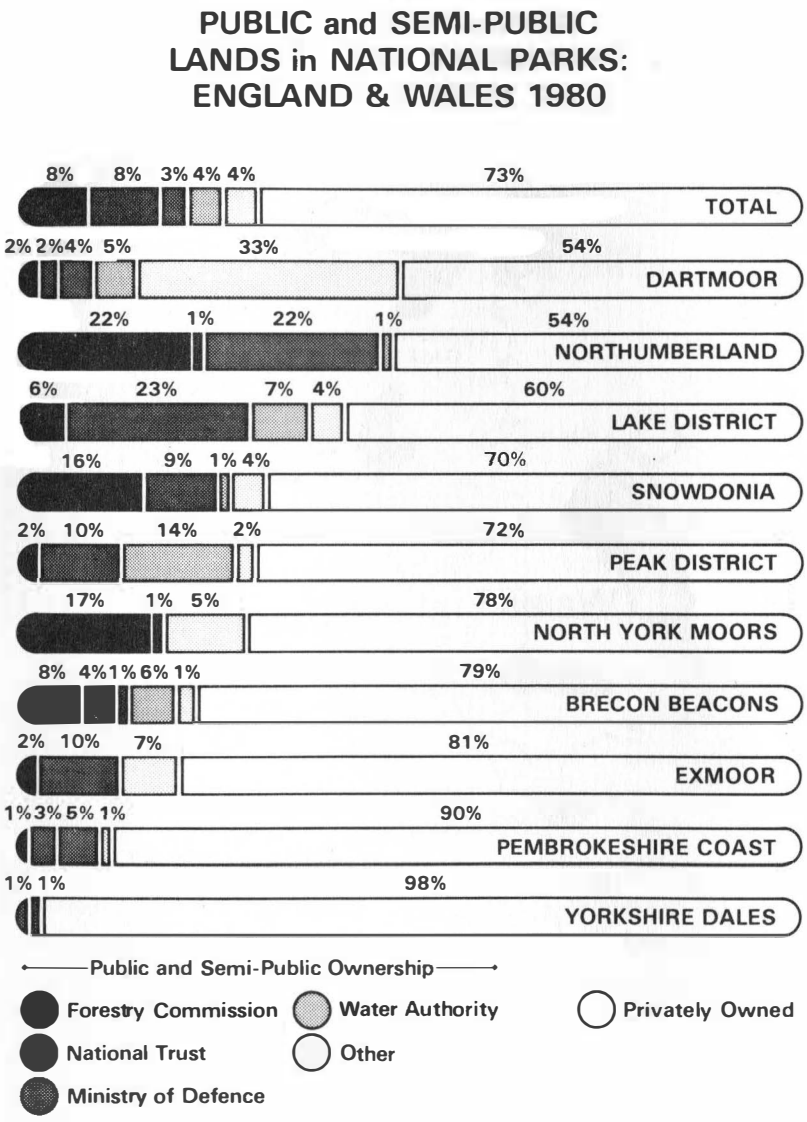
PUBLIC and SEMI-PUBLIC
LANDS in NATIONAL PARKS:
ENGLAND & WALES 1980
8% 8% 3% 4% 4% 73%
TOTAL
2% 2% 4% 5% 33% 54%
DARTMOOR
22% 1% 22% 1% 54%
NORTHUMBERLAND
6% 23% 7% 4% 60%
LAKE DISTRICT
16% 9% 1% 4% 70%
SNOWDONIA
2% 10% 14% 2% 72%
PEAK DISTRICT
17% 1% 5% 78%
NORTH YORK MOORS
8% 4% 1% 6% 1% 79%
BRECON BEACONS
2% 10% 7% 81%
EXMOOR
1% 3% 5% 1% 90%
PEMBROKESHIRE COAST
1% 1% 98%
YORKSHIRE DALES
Public and Semi-Public Ownership
Forestry Commission
National Trust
Ministry of Defence
Water Authority
Other
Privately Owned

Figure 3.

native, broadleaf species.[14] These single-species, even-age stands have generated considerable criticism on aesthetic and ecological grounds. To the Forestry Commission's credit, it has begun in recent years to develop camping, picnic, and other recreational sites within its plantations.[15]

The second largest landowner within the National Parks is the National Trust, with 7.54 percent of the total. In the Lake District, the National Trust is by far the largest landowner with 22.5 percent. The National Trust occupies a unique position in Britain. Although it is a private organization, supported by some 80,000 members, it has special status under Act of Parliament of 1907, which empowers the Trust to preserve "land and buildings of beauty and historic interest for the benefit of the nation." National Trust properties are inalienable, and cannot be sold, given away, or expropriated, even by the government, except by Act of Parliament. Thus, the Trust can provide even more permanent protection than public authorities.[16]

Significant areas of watershed and reservoir sites are held by various regional water authorities. These total nearly 4 percent (3.88) of the National Parks, but again there is great variation. In the Peak District, the Water Authority owns about 14 percent of the total area. Of more importance is the role of the Ministry of Defense, a major landowner in Northumberland National Park (22 percent), and in Dartmoor, where the Ministry owns about 4 percent, but has the use of an additional 12 percent under license from the Duchy of Cornwall. Tank training takes place in part of the Pembrokeshire Coast National Park. This use of parklands for military training dates from well before the establishment of the parks. Such use has been described as "exceedingly damaging" to the parks, and it is obvious that "military training and a national park are discordant, incongruous, and inconsistent."[17] However, there does not seem to be any prospect of resolving this dilemma in the near future. Approximately 4 percent of the area of the National Parks is

owned by various other public or semi-public agencies, including local authorities, the Nature Conservancy Council, the Department of the Environment, the Welsh Office, and the Duchies of Cornwall and Lancaster.[18]

Of major importance is the fact that more than two-thirds of these parks are in private ownership, and any park management plan must take this into account. Most of the park lands are agricultural, much of it devoted to sheep grazing. Since World War II it has been national policy to subsidize this aspect of rural land use, especially within upland areas, where many of the national parks are located; the preservation of these rural landscapes is a major goal of the National Park System.

Approximately a quarter of a million people live within the National Parks, although nearly all are either rural or live in small villages. Only a handful of towns of any size are located within the parks (Table 2). Nevertheless, in addition to the preservation of agricultural lands, park management plans must deal with significant numbers of people and their residences.

British National Parks, then, are very unlike the traditional parks in the United States; but, in their mix of land uses, the variety of public agencies involved, the large number of land owners, both public and private, and the significant modification of the natural landscape, they are quite similar to the SMMNRA. It seems reasonable, therefore, to examine how British park authorities have dealt with various problems to indicate approaches which might prove useful in this country.

Unlike American parks, each British park is governed by a separate park authority, with the national Countryside Commission playing only a limited advisory and coordinating role. Although the terminology and structure varies slightly, each park is administered by a group whose members are appointed either by the Secretary of State (one-third) or by the local county councils (two-thirds). This

Table 2

Towns Within British National Parks

Town	Population	Park
Ambleside	2,600	Lake District
Bakewell	4,200	Peaks District
Bowness	3,500	Lake District
Brecon	6,300	Brecon Beacons
Keswick	5,200	Lake District
Tenby	5,000	Pembrokeshire Coast
Windermere	8,000	Lake District

Source: *Nicholson's Guide to Great Britain,* 1978.

organization scheme is complicated by the fact that several of the parks include parts of more than one county. In some cases the National Park Authorities constitute autonomous local planning bodies, which set their own budgets and can raise revenues through taxes. Their autonomy, however, is limited to certain functions. While they can buy land or make management agreements with landowners, enforce certain zoning restrictions, and provide for recreation as well as the preservation and conservation of historic buildings and areas, for example, they have no control over highways and public transportation or the power to deal with most social and economic issues.[19]

In other cases, the National Park Authority is simply a committee of the county council. If more than one county is involved, the park administration is attached to one of them, usually the one which includes the largest part of the park; and the other counties have representatives of the committee.[20]

As in any organization which must try and meet the needs of a diverse constituency, the success of the national park authorities is mixed. Nonetheless, they have been described as the British organizations "that probably come closest to the ideal of multiple rural land management."[21] All of the national park plans (developed within the last decade) strongly support the concepts of landscape conservation and provision of recreation for the public, and the authorities have moved a long way toward meeting these goals.

One major difficulty for park authorities is to persuade private land owners to manage their lands in accordance with the park's planning objectives. In Britain, agriculture and forestry are generally exempted from planning control; and since these constitute the largest categories of land use within the parks, this is an especially critical area. A major tool has been the management agreement, "whereby a landowner voluntarily enters into a written agreement with the authority to manage his or her land in a particular way."[22] Such agreements range from simple compacts with no financial implications to some which take account of the full opportunity costs of adopting the agreed management plan. Also of major concern is the issue of access to open country. Access agreements with private landowners, similar to the management agreements, have proven a popular mechanism for solving this problem.

Nevertheless, in spite of many successes, it should be noted that where there has been pressure for large-scale development, in many cases "the National Park purpose has been overridden and all the fine plans have proved worth little more than the paper they were written on."[23]

The Santa Monica Mountain National Recreation Area

While the British parks provide a number of successful models which we might wish to emulate in this country, they also illustrate serious problems to be avoided. With this

brief survey in mind, let us return to the U.S. Park System, with the Santa Monica Mountains National Recreation Area (SMMNRA) as representative of the questions to be faced by a changing conception of what constitutes a national park unit.

As in the British parks, the SMMNRA contains a large proportion of privately-owned land (Figure 1). Although not completely accurate, due to the frequent changes involved, Figure 1 illustrates the broad outline of actual and potential public and private landownership within the park boundaries. Even under the most optimistic estimates of land acquisition by public agencies, no more than half of the total area would become publicly owned.[24]

Therefore, management and access agreements must become major aspects of park planning. Although no details are given, this is clearly recognized in the General Management Plan for the recreation area. "The integration of residents and landowners into a concept of private land stewardship is an essential part of the management concept of the recreation area."[25] Of immediate importance is the preparation of a "new land protection plan that includes proposals for fee and less than fee acquisition, *as well as methods to maintain landscapes while continuing private ownership of land*"[26] (emphasis added).

Another similarity between the SMMNRA and the British Parks is the wide variety of public agencies involved. The recreation area falls within the jurisdiction of more than sixty different public agencies, including federal, state, county (two), city governments (four), the park departments of each of these, city and county zoning bodies, the California Coastal Commission, and the United States Navy.

Almost any aspect of resources management is likely to involve several to these agencies, often with conflicting views of how a policy should be carried out. Innumerable examples could be cited, but a single illustration should suf-

fice. Much of the eastern portion of the SMMNRA lies within the boundaries of the City of Los Angeles, where the fire department has a long-standing policy of opposition to the controlled burning of brushlands. The Los Angeles County Fire Department, on the other hand, during the last few years has come to view controlled burning as a valuable weapon to prevent, or at least minimize the effects of, the devastating brush fires so common in Southern California. Similar policy differences can be found between park departments, road departments, water districts, and other public agencies. Add to this the views of the many private landowners within the recreation area boundaries, including home owners and developers, and some measure of the complexity of administering the area becomes apparent.

As the SMMNRA is presently structured, the U.S. Park Service must depend on the voluntary cooperation of these agencies and landowners. One of its major functions is to try to coordinate the activities of each of these bodies as they relate to the recreation area.

British park authorities are better able to regulate land use through their planning and zoning powers, although there have been serious problems there as well. For instance, "It would be reasonable, but mistaken, to assume that the allocation of lands for afforestation proceeds within a policy framework laid down by the national park plans."[27] The Forestry Commission, however, under its mandate to increase forest production, has strongly resisted all attempts to identify areas as suitable or unsuitable for afforestation, on the grounds that it must be free to afforest land that comes on the market, wherever it may be. Similarly, most agricultural practices are specifically excluded from control by British planning authorities.

Since the British park authorities are comparatively new bodies, it is, perhaps, to be expected that there should be considerable debate about the scope of their authority and their proper role in British life. The U.S. Park Service, on the

other hand, is considerably older and, in its traditional role, faced little opposition. Even so, the creation of park units like the SMMNRA has presented it with new kinds of problems for which past experience provides few precedents, and the Park Service's role under these conditions has not yet been well defined.

A possible solution which might alleviate some of the difficulties faced by the Park Service would involve the creation of a local park authority, along the lines of existing British park authorities, especially the very successful Peak District Park Board. Independent of other local authorities, and given the planning and zoning authority for the park area, such a body could then effectively control land-use change and development within the park.

The necessity for some such change in the organization of our parks is becoming increasingly clear. Representative Anthony Beilenson (who sponsored the legislation creating the SMMNRA) has proposed new legislation which would give the Park Service veto power over federal assistance for residential and commercial construction in park areas.[28] While far short of the zoning authority required for effective control of land-use change in the park, such powers would certainly have a major impact, because the form of assistance in question includes government-backed home mortgages, federal flood insurance, and grants for roads and sewers. In Beilenson's words, this "would provide for a more consistent federal land-use policy in and around our national parks, ending the costly and senseless situation we are currently experiencing . . . where federal funding is being used at cross purposes."[29] The legislation has not yet been enacted into law, however, and it seems likely to face stiff opposition by both developers and local governments, which will probably see it as an unwarranted intrusion on their authority.

If we as a society can begin to move in this direction, and create governing bodies for our outdoor recreational and

scenic resources that have the powers needed to manage these areas properly, then we will truly be following Theodore Roosevelt's dictum that "The Nation behaves well if it treats the national resources as assets which it must turn over to the next generation increased, and not impaired in value."[30] If we cannot do this, then I fear that the Santa Monica Mountains, as well as all other open spaces in close proximity to our urban areas, will rapidly become nothing more than hilly suburbs, no more natural than city parks.

NOTES

1. The act stated that the area "is hereby reserved and withdrawn from settlement, occupancy, or sale under the laws of the United States, and dedicated and set apart as a public park or pleasuring ground for the benefit and enjoyment of the people . . . The Secretary of the Interior . . . shall provide for the preservation from injury and spoilation, of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition." The requirement that natural wonders be both preserved and made accessible to the public was later incorporated into the legislation creating the National Park Service in 1916, which was mandated to "conserve the scenery and natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." The difficulty of reconciling these two very different goals has created numerous problems for the Park Service.
2. Jean-Paul Harroy, "National Parks: A 100-Year Appraisal," *World National Parks: Progress and Opportunities*, ed. Richard van Osten (Brussels: Hayez, 1972), p. 14.
3. J. G. Nelson, "International Experience with National Parks and Related Reserves: An Introduction," *International Experience with National Parks and Related Reserves* (University of Waterloo: Department of Geography Publication Series No. 12, 1978), p. 10.
4. Paul E. White, "The Rising Rural Interest Rate: A Book Review Essay," *Progress in Human Geography*, Vol. 5, No. 4 (1981), p. 605.
5. Richard van Osten (ed.), *World National Parks: Progress and Opportunities* (Brussels: Hayez, 1972), p. 5.

6. National Parks Centennial Commission, *Preserving a Heritage: Final Report to the President and Congress* (Washington, D.C., 1973), p. 102.
7. Ibid., pp. 96-97.
8. Ibid., p. 98.
9. Ibid., p. 108.
10. For an excellent discussion of these changes, see Ronald A. Foresta, *America's National Parks and Their Keepers* (Washington, D.C.: Resources for the Future, 1984).
11. Ann MacEwen and Malcolm MacEwen, *National Parks: Conservation or Cosmetics?* (London: George Allen and Unwin, 1982), p. 9.
12. Ibid., p. 23.
13. F. Packard, "The Problem of Definitions," in Richard van Osten (ed.), op. cit., p. 65. See also Daniel H. Erlich, "Planning Issues in the Peak District National Park, England," paper presented at the Thirty-Seventh Annual Meeting of the Association of Pacific Coast Geographers, abstract in *Yearbook, Association of Pacific Coast Geographers,* Vol. 37 (1975), p. 115.
14. MacEwen and MacEwen, op. cit., p. 213.
15. Forestry Commission, *Guide Map to Your Forests* (Edinburgh: John Bartholomew and Son, Ltd., 1973).
16. MacEwen and MacEwen, op. cit., pp. 160-161.
17. Lady Sharp, *Dartmoor: A Report into the Continued Use of Dartmoor by the Ministry of Defense for Training Purposes* (London: HMSO, 1977), quoted by MacEwen and MacEwen, op. cit., p. 239.
18. MacEwen and MacEwen, op. cit., pp. 158-159.
19. Ibid., pp. 115-116.
20. Ibid., pp. 117-119.
21. Mark Blacksell and Andrew Gilg, *The Countryside: Planning and Change* (London: George Allen and Unwin, 1981), p. 208.
22. Ibid., p. 209.
23. Ibid., pp. 208-209.
24. The exact proportion cannot be determined, since many agencies are involved. The preliminary land acquisition plan for the park indicated that some 28 percent of the area was to be acquired by the U.S. Park Service at "fee and/or less than fee." Given the reluctance of the federal government to appropriate funds for land acquisition, the final total of Park Service lands will undoubtedly be much lower than the preliminary plan indicates.
25. Santa Monica Mountains National Recreation Area, *General Management Plan* (1982), p. 30.
26. Ibid., p. 100.

27. MacEwen and MacEwen, op. cit., p. 218.
28. ''Beilenson Proposes Park Protection Plan,'' *Los Angeles Times*, July 1, 1982.
29. Ibid.
30. National Parks Centennial Commission, op. cit., pp. 94-95.

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GOING TO THE CITY: A STUDY OF GEOGRAPHIC PAROCHIALISM

*Robert Sommer**

Introduction

When I moved to Northern California two decades ago, I was struck by the tendency of local residents to refer to San Francisco as The City, as though there were no other city in the area. The Lake meant Lake Tahoe, even though there are several other large lakes nearby. A local beauty queen described herself during a news interview as "an Army brat who has lived in several communities, but wants to stay in Sacramento which is close to the Lake and close to the Bay."[1] This type of usage is not unique to California, of course. Even though New York City has five boroughs, the statement by a resident of Brooklyn or Queens, "I'm going to the City," refers to an impending journey to Manhattan. Since there has been little direct investigation of parochial usage of place names, the phenomenon seemed worthy of study. The only attempt that I could locate to assess the parochialism issue directly was the 1973 study by Saarinen[2] who supplied students with a blank sheet of paper and asked them to sketch "the University area." Although it would have been possible to specify more clearly the area to be encompassed in the mapping, the investigator was particularly interested in how the term would be interpreted. Leaving the instructions vague gave the mapping procedure some of the elements of a projective technique.

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Parochialism is an aspect of vernacular geographic thinking, "the product of the spatial perceptions of average people, the shared spontaneous images of territorial reality hovering in the minds of the untutored."[3] Bollnow[4] believes that each person has a "natural place" to which he or she belongs, and this place "can properly be called the zero point of his or her reference system." Shared knowledge of these "natural places" within a community leads to parochial place-naming. Such shorthand descriptions become part of the taken-for-granted spatial context.[5] Tuan[6] includes parochial names in the category of booster images or nicknames, likening the City to such appelations as The Big Apple (New York) or Auto City (Detroit). However, nicknames tend to emphasize particular attributes or products, and thus describe the general in terms of the specific, for example, a city in terms of its major product or landmark,[7] while parochial naming goes in the opposite direction of describing the specific by means of the general. Parochial place names are deliberately abstract and nonimageable. For a newspaper columnist to describe San Francisco as Baghdad by the Bay or Queen City evokes images of opulence, sybaritic living, perhaps decadence. To refer to it as The City carries little sensory content but only the abstract criteria for designating an influential urban area.

Miller,[8] in an attempt to define the boundary line between Southern and Northern California, employed a variety of indicators, including the drainage divide, the break line for truck and telephone rates, air and bus fares, the distribution areas of newspapers and a major regional periodical, and the service area of branches of the state automobile club. An important omission in his analysis is information about the views and perceptions of the state's residents. The fact that outside government entities, in setting rates and service areas, classify a town in one district rather than another does not mean that the local inhabitants share this view. There is some indication that the residents of cities such as

San Luis Obispo see themselves as belonging to a distinct region called Central California. There are also those who believe that the true division of the state is between the cosmopolitan coastal zone and the agricultural interior.[9] An examination of geographic parochialism may provide further information on the issues raised by Miller.

Method

The respondents were students at six universities representing various regions of California. Two universities were located in Northern California (Arcata and Davis), two in Central California (San Luis Obispo and Bakersfield), and two in Southern California (Long Beach and La Jolla). In each case, a psychology instructor, known personally by the writer or contacted by letter, administered the questionnaire to his or her students. Since the technique was brief (requiring five to ten minutes of class time) and pleasant, there was no problem in obtaining cooperation.

A list of eleven commonplace descriptors was used: lake, river, city, downtown, mountains, beach, island, valley, forest, peninsula, and border. The instructions asked each student in the class to take out a sheet of paper and write numbers from one to eleven, one beneath the other. Then the instructor read the following instructions:

> I am going to read you a list of statements about places. If you have a reasonably good idea of the answer, please guess, but if you have no idea, just write "don't know." If you are already in the place described in the question, please write "already there" as your answer.

This was followed by eleven statements, each one involving a separate place descriptor.

1. If I said I was going to the lake, what would be the name of the lake to which I was going?
2. If I said I was going to the river, what would be the name of the river to which I was going?
3. If I said I was going downtown, what would be the

name of the city in which the downtown was located? And so forth.

The task of the students was in each case to identify the place referred to in the generic description. Responses were collected during 1982 in regular class sessions by the instructors, sent to the writer for scoring, and then a summary of the results was mailed back to the instructors to provide feedback.

Most of the responses were scored easily with the exception of those relating to forests and mountains which were relatively unbounded and had multiple place names. Among the terms used to describe forests were the names of specific parks (Prairie Creek Redwoods Park), sections of parks or groves (Avenue of the Giants), or generic terms such as redwoods or national forest. Nothing had been said to the respondents regarding the specificity of their answers, since it was feared that this might create bias. Scoring of responses to *forest* and *mountains* proved so difficult that it seemed best to delete these terms from the analysis.

There were also a few respondents who did not understand the instructions or who gave non-serious replies. These were usually obvious since they involved consecutive non-serious replies by the same individual, for example, river—Amazon, forest—Sherwood, mountains—Everest. In the case of obvious non-cooperation or misunderstanding, the entire response sheet was removed from the analysis. The concurrence of a second researcher was obtained before removing any respondent from the sample.

Results

The degree of consensus regarding parochial naming is indicated by the percentage of responses in each sample interpreting a generic name in the same manner. If every respondent in a region interpreted The Lake as the same place, this would represent complete consensus. On the

other hand, if no one in the region could identify The Lake or each person came up with a separate answer, there would be zero consensus. Between the extremes of total and zero agreement, are varying degrees of consensus. These can result either from different perceptions regarding the importance of a place or from competing pressures among different places that fit the description.

All those locations mentioned by at least 15 percent of any sample are included in Table 1, and the size of the typeface indicates the degree of consensus:

small type	=	15-29 percent consensus
medium type	=	30-49 percent consensus
large type	=	> 49 percent consensus

The Lake. In all samples there was at least one lake that was consensual, although the tendency was stronger in some locations than others. Lake Tahoe comes closest to being a ''state lake'' since it was mentioned by some respondents in all samples, although the frequencies ranged from 29 percent in Davis to 4 percent in Bakersfield.

The River. This had specific meanings within all of the regions. The replies illustrate the major north-south division of the state. For the two northern samples, the dominant replies in Arcata were the Trinity and the Mad Rivers and in Davis the Sacramento and the American Rivers. Farther south, the Colorado and Kern Rivers were dominant. The Colorado was mentioned within all samples midstate or below, but by none of the students in the northern samples.

The City. Figure 1 shows the percentage of students in each sample identifying The City as San Francisco, Los Angeles, or San Diego. In Northern California, The City is San Francisco; but in Central California, there is a split. Although San Luis Obispo and Bakersfield lie in approximately the same latitude, for San Luis Obispo residents, The City is San Francisco; for the Bakersfield group, Los Angeles is The City. Los Angeles is also The City in Long Beach; but when one proceeds south to La Jolla, San Diego

CITY IN WHICH SURVEY WAS UNDERTAKEN*

	Arcata n = 19	Davis n = 53	San Luis Obispo n = 60	Bakersfield n = 77	Long Beach n = 29	La Jolla n = 48
	Trinity Ruth	Berryessa Tahoe	Lopez Laguna	Ming Buena Vista Isabella	Elsinore	Tahoe
	Mad Trinity Eel	Sacramento American	Colorado	Kern	Colorado	Colorado
	San Francisco	San Francisco	San Francisco Los Angeles	Los Angeles Bakersfield	Los Angeles	San Diego Los Angeles
	Eureka Arcata	Davis Sacramento	San Luis Obispo	Bakersfield	Long Beach Los Angeles	San Diego
	Clam Trinidad	Santa Cruz	Avilla	Pismo	Huntington	La Jolla Shores
	Hawaii	Hawaii	Hawaii Catalina	Hawaii	Catalina	Catalina Hawaii
	Central	Central Napa/Sonoma	Central San Fernando	Central San Fernando	San Fernando Death	San Fernando
	Samoa San Francisco	San Francisco	San Francisco Monterey	-----	Palos Verdes Balboa	-----
	US/Mexico CA/OR	US/Mexico	US/Mexico	US/Mexico	US/Mexico	US/Mexico

Table 1. Specific locations mentioned in response to generic place names.
*Includes locations mentioned by at least 15 percent of any sample.

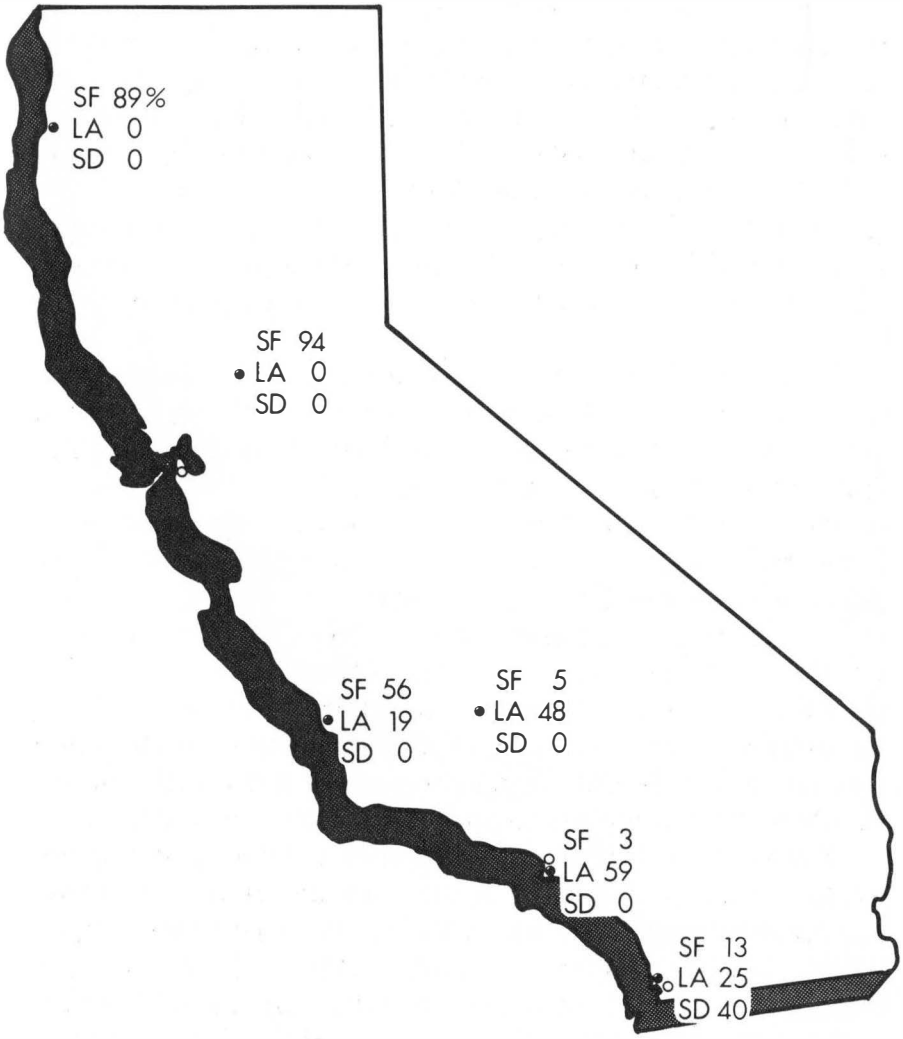

Figure 1. Responses from all samples to "The City."

becomes The City. These results should eliminate the belief that any single urban area is The City for all Californians.

The Downtown. Responses to this item may be a guide to the autonomy and vitality of the central business district. Students at Humboldt State University were slightly more likely to locate The Downtown in Eureka than in Arcata, which is closer but smaller. With this exception, all the other samples indicated that The Downtown was located in the city in which the survey was taken. However, the margin was reduced in Long Beach, where almost as many people felt that The Downtown was in Los Angeles as in Long Beach.

The Beach. California's long coastline virtually ruled out any consensus on a beach. While each sample had its own favored beach, there was no overlap among the samples. Clam Beach was dominant at Arcata, Santa Cruz Beach at Davis, Avila Beach at San Luis Obispo, Pismo Beach at Bakersfield, Huntington Beach or Long Beach at Long Beach, and La Jolla Shores at La Jolla.

The Island. For respondents in Northern and Central California lacking major coastal islands, The Island was Hawaii. For the two Southern samples, it was Catalina. In all samples there were at least a few people who identified Hawaii as The Island, suggesting some perceived connection between the mainland and the Hawaiian Islands.

The Valley. Interchangeable names created minor problems in scoring this item. Responses mentioning Central, Sacramento, and San Joaquin Valleys were combined into a single Central Valley category. Figure 2 shows the dominance of the Central (Sacramento/San Joaquin) Valley in the north and center of the state, and the San Fernando Valley in the south.

The Peninsula. This term did not seem to have as much commonality among the respondents as did the other place descriptions. At Arcata, The Peninsula was interpreted to be the Samoa Peninsula lying across Arcata Bay, at Davis it was

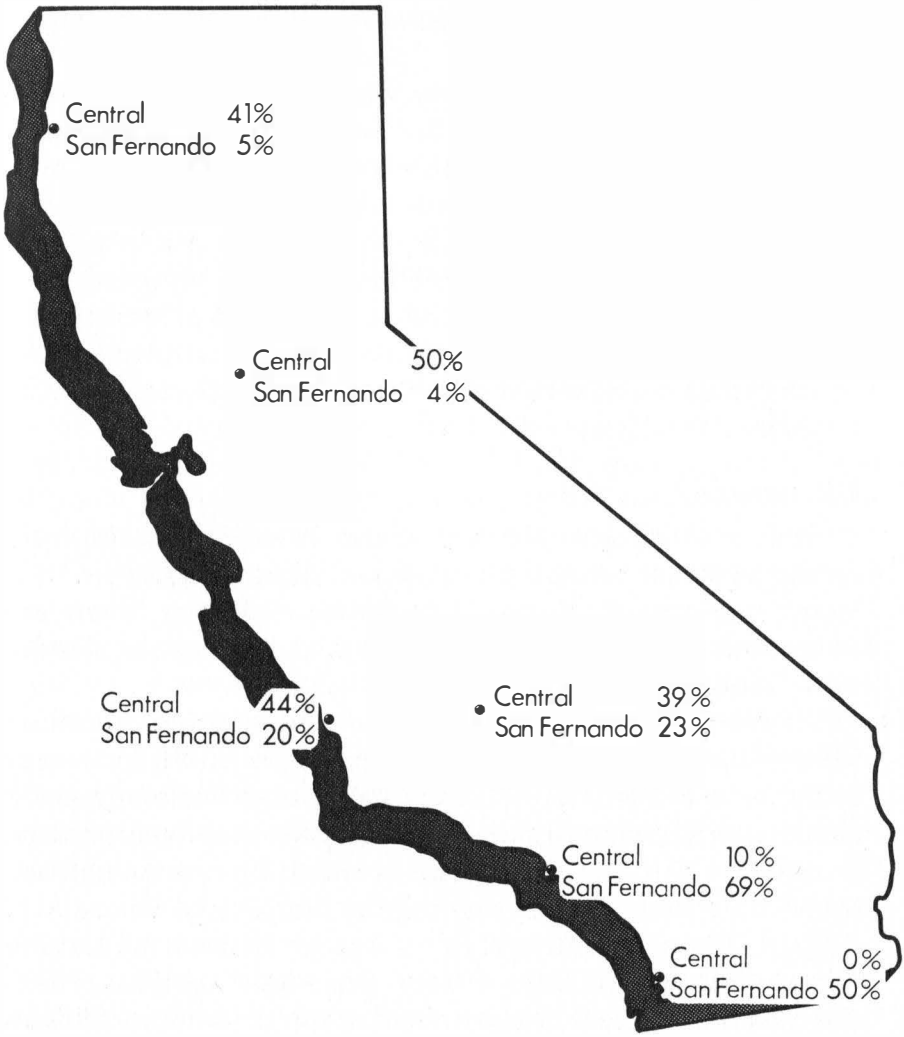

Figure 2. Responses from all samples to "The Valley."

San Francisco or the South Bay Area; in San Luis Obispo there were three competing peninsulas, San Francisco, Monterey, or Palos Verdes; in Bakersfield and in La Jolla, the term had little local reference and was interpreted as

Florida or Baja. At Long Beach, The Peninsula was either Palos Verdes or Balboa.

The Border. Not surprisingly, for students in all portions of California, The Border lies between the United States and Mexico. However, in Humboldt at the far north of the state, there was a secondary border between California and Oregon. It would be interesting to ask this question in locations farther north along the Pacific Coast. My prediction would be that in Oregon, the term would refer to state borders (Washington State to the north or California to the south), and in Washington State it would refer to the Canada-United States border.

Discussion

From a substantive viewpoint, the results reveal the well-recognized north-south division of California qualified by a lesser east-west diagonal cut by the Coast Range. There are three major urban centers in the state, San Francisco in the north, and Los Angeles and San Diego in the south.

These results are largely in accord with the line drawn by Miller[10] dividing Northern from Southern California, except in the case of San Luis Obispo. The present data suggest a closer identification of San Luis Obispo with Northern than Southern California. This issue needs to be researched further. I have no way of explaining the plurality of Sunday *Los Angeles Times* sales over *San Francisco Examiner/Chronicle* sales in San Luis Obispo County reported by Miller.[11] Further study is needed of the mental maps of San Luis Obispo residents along with objective indicators of telephone calls as well as telephone rates, and travel destinations as well as transportation rates.

Having established that there is some consensus regarding parochial place names in California, the task remains of identifying those attributes of places that lend themselves to this type of usage. When there is only a single major example of a geographic landmark nearby, such as Mount Shasta

or San Francisco Bay, then parochial usage of terms like "mountain" or "bay" is easy to explain. On the other hand, when there are numerous examples of a geographic landmark nearby, then parochial usage becomes a more interesting geographic phenomenon. What degree of specialness, familiarity, or popularity is required for a lake or river to become The Lake or The River? The criteria used in the transition from the specific to the parochial may shed further light on some basic issues of environmental cognition.

The technique employed in the present study is most useful for discrete geographic entities with well-defined edges and least useful for unbounded settings such as forests or mountain ranges. It also requires frequent reiteration that the questions refer to present usage by the speaker ("I am going to the lake; I am going to the river," and so forth) rather than to places in the respondent's past experience. This tendency to egocentric interpretation of the questions was exacerbated through the use of college students, many of whom identify more closely with their home towns than with the cities in which they are presently situated. A survey of local residents should minimize the possibility of confusion between home town and present abode.

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CHANGES IN THE SIZE AND LOCATION OF NORTHWESTERN CALIFORNIA'S WOOD PRODUCTS INDUSTRY

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Introduction

The significance of the wood products industry in the economic growth of California can be traced to the discovery of gold at the state's first interior water-powered sawmill in the mid-1800's. This triggered an expansion of the timber and lumber industry in order to meet the construction and energy needs of the mines and mining communities and to build and rebuild the city of San Francisco. Thus, during the latter half of the nineteenth century, wood products were produced to meet local needs. Expansion to a national market awaited the decline of the Great Lakes states' timber supply, the construction of a transcontinental railroad, and the opening of the Panama Canal.[1] Growing demand for western wood products, combined with increased accessibility, and the arrival of steam power, precipitated the construction of large-scale sawmills. Even though some of these original mills are still in operation, the industrial pattern of the California wood products industry has continued to evolve, because of changes in supply, demand, and the introduction of inventions and innovations.

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This study concentrates on the locational arrangement of wood products plants[2] in northwestern California. The study area consists of several regions of California: the north coast, Sacramento area, and northern interior. With a few exceptions,[3] this regional breakdown corresponds with the physical subdivisions identified by the U.S. Forest Service.[4] Each region was further divided into the subregions depicted in Figure 1.[5] Using this geographical area as a case study, the objectives of the research are: (1) to determine what changes in plant size and spatial distribution occurred in the wood products industry between 1966 and 1976 and (2) to project these changes into the future.

Markov chains were used to extrapolate the trends that seemed evident between 1966 and 1976. As the spatial arrangement of an industry evolves, plants concentrate in those areas and size categories with the greatest comparative advantage for the production of the goods in question.[6] In theory, when the average number of plants entering a size category or region in a given time period equals the average number leaving it, a state of equilibrium exists. Implicit in this equilibrium model, however, are assumptions that are not true in the real world. Locational inertia prevents instantaneous adjustment to marginal changes in costs and return.[7] Inertia is often regarded as evidence of some imperfection in the economic system, a delay in making desirable responses to a new equilibrium position.[8] Further, the factors of production are not as mobile as is assumed in location theory,[9] and the assumptions of perfect competition, perfect knowledge, and economic rationality are untenable.

Industrial movement may also take the form of disequilibrating movements. Thus, in a dualistic system, such as that described by Myrdal,[10] disequilibrium is not met by balancing forces, but by a set of cumulative changes which reinforce regional and structural differentials.[11] This differs from the equilibrium model, in which movement of capital

Figure 1. Study Area—California's north coast, Sacramento area, and northern interior.

and labor in response to disparities leads directly to equalization. In the cumulative model, the areas of profitability continue to hold their advantage, at least over the short-run. Over the long-run, the cumulative decisions of the entrepreneurs might approximate a stable state, but the data are not available to predict realistically what the composition and distribution would be if the trends apparent between 1966 and 1976 continued unchecked.

Data

Before the changes in plant size and distribution could be described, it was necessary to compile a comprehensive list of plant and firm names. Several sources were used in gathering information: telephone directories, street directories, directories of forest products industries, state and local industrial directories, local chamber's of commerce professional directories, and personal observation. The eventual list contained the names of 512 plants which were operating in 1966, 1976, or in both years. Those plants that opened after 1966 but closed before 1976 were not identified, because data were not collected for the intervening years.

Many of the sources given above also were used to determine structural and spatial changes[12] in the wood products industry. Where secondary sources fell short, and this was the rule rather than the exception, the needed data were obtained through telephone conversations and personal interviews. Complete information on plant size was obtained for 398 plants. Complete information on the location of plants was obtained on 466 plants. The discrepancy between the spatial and structural informational totals exists because data sources often were not available for plants that closed. Also, several firms refused to release the needed information. Even so, in comparison with previous studies in which Markov chains were used, sufficient data were obtained for using the technique. Mansfield's[13] conclusions were based on several 6 x 6 and 7 x 7 tally matrices all of which

represented fewer than 60 firms; Preston and Bell[14] used 6 x 6 matrices with fewer than 35 firms; and Archer and McGuire's[15] 7 x 7 matrices contained data on 334 firms.

Methodology

Industrial location and relocation are partially stochastic processes,[16] and of the models available, Markov chains seem to be the most suitable for describing and predicting industrial location patterns. If an examination of the arrangement of any industrial establishments were to be made in 1976, it seems reasonable to assume that the pattern is a function of the state in 1975, plus a change component which may be defined as a set of probabilities.[17]

The locational arrangements of an industry, such as the wood products industry, are not dependent upon all previous states, as would be assumed in a classical, deterministic model. But there is some dependency. So a purely random model, in which

> the state of the system at any instant or point in time or space is wholly independent of its state at any other instant or point and is completely specified by the underlying fixed probabilities,[18]

is also inappropriate. Markov chain models occupy an intermediate position between the classical deterministic and purely random models, referred to as a position of partial dependency.[19] This position of partial dependency approximates the processes involved in the differential growth of an industry.[20]

To describe and project changes in the wood products industry, two Markov chains were calculated. In the first chain, each state denotes a subregion; and in the second chain, each state represents a size interval.

Wood Products Firms — Spatial Mobility

The question being asked in this section is: To what extent is the future spatial arrangement of an industry affected

by its present distribution? In order to answer this question, it is necessary to construct a tally matrix, which represents the location transition of all wood products plants in the study area for which data are available (Table 1).

The most striking aspect of the tally matrix is the number of plants in state X, the state in which row elements indicate the number of new plants established, and column elements show the number of existing plants that went out of business.[21] Also included as arrivals are plants that existed outside the study area, but relocated their facilities, established a branch plant, or acquired an existing plant in the study area. Departures included plants that relocated facilities, or, where it was possible to detect, established branch plants outside the study area. In addition, acquired plants were classed as departures.

If departures and arrivals are ignored for the moment, nearly 80 percent of the plants maintained their established location. This is to be expected, for once capital is committed to the physical plant, it is practically immobile, and thus tends to perpetuate the existing industrial location pattern.[22]

The elements off the diagonal indicate the number of plants witnessing a change in state. Even though relocation of fixed capital equipment has occurred, much of the charted mobility resulted from the relocation of financial capital. Examples include the establishment of branch plants or the acquisition of existing plants in another subregion. As the tally matrix (Table 1) clearly reveals, major outflows of capital occurred from the Humboldt-Del Norte subregion and to a lesser extent the Mendocino-Sonoma subregion, while the Shasta subregion was a major recipient of the capital flow.

Distributional changes, therefore, resulted both from the relocation of capital, and a differential arrival-departure rate. For example, forty-three new plants were established, relocated, or acquired in the Sacramento-Westside subregion, while only two existing plants closed and seven

Table 1

Tally Matrix for Wood Products Plants Northwestern California: 1966-1976

FROM:	TO: Subregion	1	2	3	4	5	6	7	X
Sacramento-Westside	1	45	0	1	1	1	1	3	2
Humboldt-Del Norte	2	1	50	6	3	4	3	1	25
Mendocino-Sonoma	3	0	4	38	1	2	0	0	17
Eastside	4	1	0	1	30	3	0	2	8
Shasta	5	1	1	0	0	20	0	0	14
Northern	6	1	1	0	0	4	18	0	14
Sierra	7	0	0	1	0	1	0	32	15
Birth-Deaths	X	39	10	8	12	13	3	9	999

relocated or acquired facilities out of the subregion, a net gain of thirty-four plants. At the other extreme, the Humboldt-Del Norte subregion suffered a net loss of twenty-seven plants. However, the concern is not with the actual distribution of plants, but with the arrangement of the industry. That is, what proportion of all plants are in each subregion?

An analysis of the transition matrix (Table 2) can follow two routes: (1) consider at each stage the total population and predict the fraction of the population which will be in each subregion; and (2) study a single plant, the history of

Table 2

Spatial Probability Matrix for Wood Products Plants Northwestern California: 1966-1976

FROM: TO: Subregion		1	2	3	4	5	6	7	X
Sacramento-Westside	1	.833	.000	.018	.018	.018	.018	.055	.037
Humboldt-Del Norte	2	.011	.538	.065	.032	.043	.032	.011	.269
Mendocino-Sonoma	3	.000	.065	.513	.016	.032	.000	.000	.275
Eastside	4	.022	.000	.022	.667	.068	.000	.044	.178
Shasta	5	.028	.028	.000	.000	.556	.000	.000	.389
Northern	6	.026	.026	.000	.000	.105	.474	.000	.368
Sierra	7	.000	.000	.020	.000	.020	.000	.653	.306
Births-Deaths	X	.037	.009	.007	.011	.012	.003	.008	.914

which is the outcome of a Markov chain with a transition probability matrix such as the one shown in Table 2. Since this section focuses on industrial movement as a form of resource allocation, emphasis is placed on the locational arrangement of the entire industry.

The 1976 distribution of plants is displayed in Table 3. The largest concentration of plants is found in the Sacramento-Westside and Humboldt-Del Norte subregions, while the Northern subregion has a paucity of plants. When equilibrium is reached,[23] the fixed-probability vector (Table

3) shows the population clustering in the Sacramento-Westside subregion, with a slight expansion of the Sierra subregion's population. Conversely, the industry is contracting on the north coast and to a lesser extent in the Northern, Eastside, and Shasta subregions.

To get an indication of the relative stability or fluidity of plant locations, it is useful to examine the matrix of mean first passage times (Table 4). Elements in this matrix repre-

Table 3

Vector of the Present Spatial Distribution of Plants

	Sacramento-Westside	Humboldt-Del Norte	Mendocino-Sonoma	Eastside	Shasta	Northern	Sierra
Actual Number of Firms	88	66	55	47	48	25	47
Fractional Representation	.234	.175	.146	.125	.128	.066	.125

Fixed Probability Vector

	Sacramento-Westside	Humboldt-Del Norte	Mendocino-Sonoma	Eastside	Shasta	Northern	Sierra
Fractional Representation	.471	.060	.084	.102	.114	.030	.138

Table 4

Spatial Matrix of Mean First Passage Times Northwestern California

	State 1	State 2	State 3	State 4	State 5	State 6	State 7	State 8
State 1	6.36	112.99	86.90	82.60	54.37	171.75	45.67	8.73
State 2	32.70	50.14	81.17	81.16	52.41	174.24	60.18	3.80
State 3	33.60	93.08	35.92	83.38	54.06	185.80	62.09	3.67
State 4	32.22	110.53	88.50	29.43	48.46	187.55	54.10	4.87
State 5	31.02	104.65	93.31	86.66	26.32	185.57	60.93	3.03
State 6	31.12	104.74	93.41	86.76	47.48	97.72	61.03	3.13
State 7	33.64	110.65	89.61	87.69	56.79	187.79	21.73	3.28
State 8	30.55	108.95	92.07	84.77	57.49	184.80	59.51	1.50

State 1 = Sacramento-Westside
State 2 = Humboldt-Del Norte
State 3 = Mendocino-Sonoma
State 4 = Eastside
State 5 = Shasta
State 6 = Northern
State 7 = Sierra
State 8 = Births-Deaths

sent the mean number of time periods (in this case ten-year intervals) needed to move from one given state to another for the first time. For example, the mean time to go from the Sacramento-Westside subregion to the Humboldt-Del Norte subregion is nearly 113 decades, while it would take thirty-two decades to go from the Humbolt-Del Norte subregion to the Sacramento-Westside subregion.

Since the variances (Table 5) are large, and the standard deviations would be of the same general (or greater) magnitude as the means, the means cannot be considered to be typical values. Yet a comparison of the relative size is of interest. Plant closures can occur quickly, while generally the inter-subregional movement of capital and births take considerably longer. Therefore, as has been stated previously, once capital is committed to the physical plant it is almost immobile. Further, as would be expected, it takes less time for an average plant to reach an expanding subregion (that is, Sacramento-Westside, Sierra), than to

Table 5

Spatial Matrix of the Variance of First Passage Times
Northwestern California

	State 1	State 2	State 3	State 4	State 5	State 6	State 7	State 8
State 1	.298E+3	.118E+5	.810E+4	.704E+4	.308E+4	.330E+5	.296E+4	.409E+2
State 2	.926E+3	.826E+4	.804E+4	.704E+4	.308E+4	.331E+5	.321E+4	.128E+2
State 3	.926E+3	.115E+5	.509E+4	.705E+4	.310E+4	.331E+5	.321E+4	.109E+2
State 4	.928E+3	.118E+5	.815E+4	.397E+4	.301E+4	.332E+5	.318E+4	.185E+2
State 5	.920E+3	.118E+5	.816E+4	.706E+4	.219E+4	.332E+5	.320E+4	.112E+2
State 6	.921E+3	.118E+5	.816E+4	.706E+4	.301E+4	.259E+5	.320E+4	.115E+2
State 7	.926E+3	.118E+5	.816E+4	.706E+4	.312E+4	.332E+5	.192E+4	.794E+1
State 8	.919E+3	.118E+5	.816E+4	.706E+4	.312E+4	.332E+4	.320E+4	.529E+1

State 1 = Sacramento-Westside
State 2 = Humboldt-Del Norte
State 3 = Mendocino-Sonoma
State 4 = Eastside
State 5 = Shasta
State 6 = Northern
State 7 = Sierra
State 8 = Births-Deaths

reach a subregion whose share of the total plant population is declining (Humboldt-Del Norte, Northern, Mendocino-Sonoma). However, contiguity does not seem to influence the mean first passage times, perhaps because the study area is relatively small. These matrices only show spatial trends. However, changes in the size of plants which together constitute the industry must also be described and projected.

Wood Products Firms — Structural Mobility

A similar approach was used in analyzing changes in the size structure of wood products plants. All plants, for which data were obtained, were partitioned into size intervals. Size was based on the maximum number of people a plant employed in 1966 and 1976, and following the lead of Adelman,[24] interval limits were selected so significant changes could be portrayed.

As the tally matrix shows (Table 6), more than 50 percent of the plants in the smallest size category employed approximately the same number of people in 1966 and 1976. These mainly were family operations. But plants with six to 100 employees experienced significant proportional changes.

This is even more dramatically displayed by the fractions along the main diagonal of the transition matrix (Table 7). Less than a third of the plants in any of these five size categories in 1966 still employed the same number of people in 1976. In most cases the plants either increased employment or went out of business.

In accordance with Collins'[25] hypothesized "lazy J" average cost curve, high-unit costs would favor the decline of small plants. This is reflected in column 0; seventy-nine plants with six to 100 employees closed between 1966 and 1976. However, as Collins also hypothesized: "Because of the incentive of realized cost savings through increased size, they (smaller plants) have a greater probability of a higher proportionate change."[26] As row 2 shows, several of the

Table 6

Structural Tally Matrix for Wood Products Plants Northwestern California: 1966-1976

FROM:	TO: No. of employees	X	1	2	3	4	5	6	7	8
0	X	999	38	12	8	10	5	3	8	1
1-5	1	7	23	6	2	4	2	0	0	0
6-10	2	11	2	7	3	5	0	1	0	0
11-20	3	7	0	3	11	7	5	0	0	0
21-40	4	20	1	0	3	16	10	1	5	0
41-70	5	24	1	2	1	3	12	11	5	4
71-100	6	10	0	0	0	1	5	6	9	0
101-200	7	2	0	1	0	0	2	3	21	7
201-1500	9	0	1	0	0	1	1	0	1	17

smallest plants managed an eight-fold increase in employment, while, though not clearly shown in the matrix, most of the largest plants maintained approximately the same employment level.

The actual proportional distribution of plants is given in Table 8. A comparison with the fixed probability vector reveals that the number of plants in the smallest and largest size intervals increased. The former resulted from an influx of new plants, while the latter reflects the overall concentration of employment in fewer but larger plants; the percentage of plants with over 200 employees nearly doubles.

The matrix of mean first passage times (Table 9) indicates that it will take a relatively long time for employment to concentrate in the largest size category (Column 8), even

Table 7

Structural Probability Matrix for Wood Products Plants Northwestern California: 1966-1976

FROM: No. of employees		TO: X	1	2	3	4	5	6	7	8
0	X	.922	.035	.011	.007	.009	.005	.003	.007	.001
1-5	1	.159	.523	.136	.045	.091	.045	.000	.000	.000
6-10	2	.379	.069	.241	.103	.172	.000	.034	.000	.000
11-20	3	.212	.000	.091	.333	.212	.152	.000	.000	.000
21-40	4	.357	.018	.000	.054	.286	.179	.179	.089	.000
41-70	5	.381	.016	.032	.016	.048	.190	.175	.079	.063
71-100	6	.323	.000	.000	.000	.032	.161	.194	.290	.000
101-200	7	.056	.000	.028	.000	.000	.056	.083	.583	.194
201-1500	8	.000	.048	.000	.000	.048	.048	.000	.048	.809

though the average time needed for the smallest plants to reach the largest size category is only slightly longer than for plants ten to twenty times their size.

In contrast, closures can afflict plants of all sizes quickly (Column 0).[27] Even so, with the exceptions mentioned above, there are no real patterns discernible in the matrix. Generally, it takes plants just about as long to move up one size category as it does to move down one size category.

Summary

The structural and spatial equilibrium states represent extrapolations of the trends which seemed evident between 1966 and 1976. If the industry followed the same evolu-

Table 8

Vector of the Present Structural Distribution of Plants

	1-5	6-10	11-20	21-40	41-70	71-100	101-200	201-1500
Actual Number of Firms	66	31	28	47	42	25	49	29
Fractional Representation	.208	.098	.088	.148	.132	.079	.155	.091

Fixed Probability Vector

	1-5	6-10	11-20	21-40	41-70	71-100	101-200	201-1500
Fractional Representation	.221	.093	.069	.124	.097	.052	.148	.197

tionary path, then major outflows of capital would afflict the Humboldt-Del Norte and to a lesser extent the Mendocino-Sonoma subregions. The Shasta subregion would be a major recipient of this capital flow. The plant population of the north coast would be further depleted by plant closures or acquisitions, involving mainly plants employing fewer than 100 people. Further, an influx of new, mainly very small

Table 9

Structural Matrix of Mean First Passage Times
Northwestern California

	State 1	State 2	State 3	State 4	State 5	State 6	State 7	State 8	State 9
State 1	1.41	30.162	49.06	76.25	39.99	49.50	95.98	70.81	110.35
State 2	4.89	15.62	36.74	67.25	29.81	41.08	90.84	67.53	106.70
State 3	3.67	29.52	37.01	65.54	29.35	43.99	88.82	66.95	106.67
State 4	4.54	32.52	43.98	49.99	26.51	34.35	87.54	64.64	103.32
State 5	4.46	31.75	49.74	72.19	27.68	34.89	84.99	58.56	98.72
State 6	4.94	31.67	48.58	76.22	36.44	34.97	71.92	56.53	91.30
State 7	5.91	32.73	50.38	78.57	37.67	34.74	66.70	43.21	86.95
State 8	9.74	32.84	59.47	79.73	36.52	34.18	70.26	23.43	53.79
State 9	11.26	29.31	51.38	79.09	30.94	32.79	84.75	50.91	17.69

State 1 = 0 employees
State 2 = 1 to 5 employees
State 3 = 6 to 10 employees
State 2 = 11 to 20 employees
State 3 = 21 to 50 employees
State 4 = 51 to 70 employees
State 7 = 71 to 100 employees
State 8 = 101 to 200 employees
State 9 = 201 to 1500 employees

Table 10

Structural Matrix of the Variance of First Passage Times
Northwestern California

	State 1	State 2	State 3	State 4	State 5	State 6	State 7	State 8	State 9
State 1	.491E+1	.891E+3	.229E+4	.564E+4	.142E+4	.214E+4	.855E+4	.470E+4	.113E+5
State 2	.271E+2	.661E+3	.212E+4	.553E+4	.131E+4	.207E+4	.851E+4	.467E+4	.112E+5
State 3	.234E+2	.892E+3	.215E+4	.552E+4	.132E+4	.210E+4	.851E+4	.467E+4	.112E+5
State 4	.302E+2	.895E+3	.227E+4	.496E+4	.125E+4	.194E+4	.847E+4	.464E+4	.112E+5
State 5	.366E+2	.896E+3	.229E+4	.563E+4	.128E+4	.195E+4	.843E+4	.455E+4	.111E+5
State 6	.446E+2	.895E+3	.230E+4	.565E+4	.139E+4	.194E+4	.804E+4	.449E+4	.109E+5
State 7	.545E+2	.895E+3	.230E+$	.565E+4	.139E+4	.191E+4	.776E+4	.398E+4	.107E+5
State 8	.718E+2	.896E+3	.231E+4	.566E+4	.134E+4	.181E+4	.784E+4	.252E+4	.822E+4
State 9	.720E+2	.887E+3	.231E+4	.566E+4	.126E+4	.174E+4	.830E+4	.416E+4	.324E+4

State 1 = 0 employees
State 2 = 1 to 5 employees
State 3 = 6 to 10 employees
State 4 = 11 to 20 employees
State 5 = 21 to 40 employees
State 6 = 41 to 70 employees
State 7 = 71 to 100 employees
State 8 = 101 to 200 employees
State 9 = 201 to 1500 employees

plants (ten employees or fewer), would expand the population of the Sacramento-Westside subregion.

The overall structural trend was for employment to concentrate in fewer but larger plants. In general, plants would step up the size hierarchy, but the mean time needed for small plants to reach the largest category was only slightly longer than for plants of intermediate size. Most new plants originally would locate in the smallest category, while closures generally afflicted plants employing fewer than 100 individuals.

Therefore, the industry in the study area would contract and become more oligopolistic. Its importance to the local economy would decline, even though numerous communities in the study area would continue to be economically dependent upon the wood products industry. Although no solution to the problem will be offered, research such as this can help industry, state, and local planners define the problem. This information also should be of value to those charged with planning the economic future of the area, determining timber sales, establishing environmental policy, and evaluating a plant's prospects for success.

NOTES

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18. L. Collins, *An Introduction to Markov Chain Analysis* (London: Institute of British Geographers, Concepts and Techniques in Modern Geography, No. 1, 1972) p. 7.
19. Collins, op. cit., note 18, p. 7.
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27. Since the variances (Table 10) are very large, the means cannot be considered as typical values. Thus, only the relative sizes of the mean can be compared.

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A SURGE OF HOPE: PUBLIC REACTION TO ARGUMENTS FOR CONSTRUCTION OF NARROW-GAUGE RAILROADS IN CALIFORNIA, 1870-1873

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Two Decades of Improvements

From the onset of the 1849 gold rush until the present day, Californians have been among the most transportation-conscious of Americans. In the twenty-year period from 1849 to 1869, Californians witnessed what can only be described as an impressive array of changes in the provision of transportation services. Indeed, from the early summer of 1849, when virtually no public transportation services were available, until the spring of 1869, when the first transcontinental railroad was completed, an unending succession of internal and external transportation improvements occurred.

Between 1849 and 1850, for example, approximately fifty steamships were put into service on the waters of San Francisco Bay and at various points along the Sacramento and San Joaquin Rivers.[1] The same period saw the inauguration of regularly-scheduled overland transportation by stagecoach,[2] and by the 1860's at least twenty-eight daily

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agricultural and industrial potential of these areas, held Browne, was to make them accessible. Lack of adequate transportation, argued Browne, was costing the southern counties more, in terms of lost potential production and land values, than it would to build railroads, whatever their cost.[9] Browne's calculations were, by the way, all based upon the cost of constructing standard-gauge lines.*

The Stockton *Gazette*, in June of 1870, printed a letter to the editor claiming that California trailed all other states in aiding internal improvements, and especially in aiding its railroad system. Lamenting this situation the writer observed:

> It cannot but be evident to all Californians that we need railroads instead of mule and bull teams for transportation; not a mountain county in the state, to say nothing of the agricultural districts that has not paid more since 1850, millions of dollars more for merchandise by extra freight over and above railroad freight . . . than would cost to thread the state with railroads.[10]

Like Browne, this writer speaks of standard-gauge railroads; and, in effect, declared that even as expensive as they were, it was costing Californians more *not* to build railroads than it would to build them.

The *Mining and Scientific Press* also chose June of 1870 to point out that Santa Cruz County needed a railroad to bring it into more direct communication with the rest of the world. Coasting vessels, steamers, and stages, which then provided the county's links to the rest of the world, suggested the *Press*, were not only slow but also inefficient. The *Press* reporter, however, was a bit more conservative than Browne, for he did not demand railroads whatever their cost; rather, he stressed that citizens:

*Technically, no "standard" gauge existed in Browne's day. In his articles, Browne alludes to the 4 feet 8½ inch gauge used by the Central Pacific Company. It was not until 1886, however, that the 4 feet 8½ inch gauge was formally adopted as the "standard" gauge of the United States.

> . . . should not be taxed to build a railroad for the benefit of capitalists; but themselves should take stock in a joint company, so organized that no advantage can be taken to swell the grasping avarice of pretending benefactors. Railroads are needed; but no country should be despoiled to build them for greeding companies as a means of sapping the very life out of industrial pursuits. Railroads should benefit, not ruin a country; assist, not impoverish it. But until some things change, not much hope remains.[11]

By mid 1870 observations such as these had become commonplace. Whether or not California's 1870 transportation facilities really were inadequate to community needs is irrelevant. The significant fact is that Californians *believed* their transportation facilities were inadequate and sought something better. Clearly, most California residents felt railroads offered the best hope for a solution to their transportaion problems, but in many parts of the state lack of population often made it impossible for local communities either to finance their own railroads or to attract outside capital to build them. Many Californians simply could not agree with Browne's assertion that it cost more *not* to build railroads than to construct them at standard-gauge prices, usually considerably in excess of $40,000 per mile. Often, the only alternative was to invite in the existing Central Pacific monopoly and then pay its exhorbitant rates. For many communities the *Press* reporter's observation, ". . . until some things change, not much hope remains,"[12] seemed all too true. Yet, though the *Press* reporter in question had no way of knowing it, even as he framed his sentences the potential for change was at hand, and hope would be rekindled anew.

A New Idea from the Old World

The basis of change and rekindled hope would come from Wales, where since 1863 Charles Easton Spooner and Robert Fairlie had been experimenting with what we now call the narrow gauge. In the early months of 1870, Fairlie, at an An-

nual Meeting of the British Railway Association, summed up the results of their work in a paper entitled, "The Gauge for the Railways of the Future."[13] Essentially, Fairlie asserted that narrow-gauge railways could provide:

1. A large saving in the cost of initial construction.
2. Improved ratios of paying to non-paying train loads.
3. A significant reduction of wear and tear of permanent way, resulting from the use of light rolling stock.
4. Savings from reduced wear and tear of train wheels, due to reduced weight on each wheel.
5. A large proportionate increase in locomotive power.
6. A proportionate increase in velocity resulting from the light system.
7. Greater economy in working traffic.
8. Comparative increase in capabilities of traffic.[14]

As early as July, 1870, the *Mining and Scientific Press* took note of an early statement by C. E. Spooner to the effect that railroads built to a gauge of 2 feet 6 inches, at half the cost of standard-gauge roads, could handle all envisionable traffic and would last for twenty years.[15] In September, the *Press* reported briefly on a 2 foot 6 inch-gauge industrial railroad in Pennsylvania, but referred the reader to *Van Nostrand's Magazine* for a full account.[16] The narrow-gauge concept first made front page news in California on October 29, 1870, when the *Mining and Scientific Press* devoted four full columns to a summary of Fairlie's previously mentioned paper.[17] A few days later the popular press took notice of the narrow gauge, as the San Francisco *Call* observed:

> The subject of constructing railroads of narrow gauge . . . for the transportation of grain from the interior to the coast has been . . . widely discussed in California of late. It seems . . . these narrow-gauge roads are peculiarly adapted to the physical characteristics of the state, and would, by their cheapness, come into general use if once introduced. It is said they would cost only one-half to three-fifths as much as ordinary railroads, and that the newly developed Fairlie engines give at once great tractile power, a good rate of speed, and perfect evenness of movement.[18]

The *Call* further indicated that the Monterey *Republican* was already urging construction of a narrow-gauge road to the Salinas Valley, where:

> . . . grain products would keep the line in active and profitable employment, and the building of . . . [the line] would prove of inestimable benefit to the country whose resources it would develop.[19]

The *Call* expressed little doubt that in the course of a few years California would have a number of "narrow-gauge railroads penetrating . . . agricultural and mining sections, in which the building of ordinary roads would be highly difficult and expensive."[20]

Private citizens, as well as *Call* editors, evidently envisioned a bright future for the narrow-gauge in California. On November 15, 1870, San Francisco's *Alta California* carried news of a new million-dollar corporation. Said the *Alta*:

> The Narrow Gauge Railroad Company filed a certificate of incorporation in the County Clerk's office yesterday. The objects of the corporation will be to take contracts to construct, equip, and operate narrow-gauge railroads throughout the United States and countries adjacent thereto, and to receive pay therefore in cash, stocks, bonds, lands and properties or securities of any kind as to this corporation may seem fit; also to own, hold or sell same as may be deemed advisable by the company.[21]

Active promotional efforts during the next two years notwithstanding, the Narrow Gauge Railroad Company attained very few of its declared objectives. It is mentioned here mainly as an illustration of the speed with which some individuals sought to capitalize on Fairlie's claims once they were made known to a transportation-hungry public. Four days later, on November 19, the *Alta* printed a detailed summary of Fairlie's assertions and urged that a proposed Stockton and Copperopolis railway adopt the narrow gauge.[22]

On the same day that the *Alta* urged a narrow-gauge Stockton and Copperopolis, the Antioch *Ledger*, while ad-

mitting that a line conforming to Central Pacific's gauge would be preferred, vowed that a narrow-gauge line from Antioch to Banta would be very welcome indeed. The *Ledger* editor's comments pertaining to the benefits that could accrue from a narrow-gauge road would be repeated time and time again in reference to virtually every narrow-gauge project suggested during the next three years. Said the *Ledger:*

> . . . would not the railroad double—yes, quadruple—the value of land for a distance of two miles on each side of it? . . . It is a fact that a railroad from here to Banta's Station would cost hardly more than a macadamized turnpike, and would return a greater percentage on the actual outlay than any other road in the State. No scheme of the kind elsewhere offers so many inducements to the capitalist, none promises so well for the farmer, and nothing else would add so much to the general prosperity of the county.[23]

Though all these assertions could have been true, there is no indication that any entrepreneur ever sought to organize an Antioch to Banta narrow-gauge line and reap the benefits so positively declared. Nonetheless, the claim that land values would double or even quadruple along the line of the route if the road were built is significant; for in the years to come the prospect of increased land value became one of the most commonly used and successful ploys of most narrow-gauge promoters.

Along with the general enthusiasm for the narrow-gauge there was, of course, some doubt and dissent. In late November an article in the San Francisco *Examiner* sharply questioned Fairlie's claims as to the cost and capabilities of narrow-gauge roads, but nonetheless expressed the hope that:

> . . . the people of Monterey and Salinas City will try the experiment of building the first narrow-gauge railroad in the United States. We think that a narrow-gauge road would be only a temporary convenience and would soon be converted into a broad [read standard] gauge, conforming with the

> gauge of the Southern Pacific Railroad with the view of direct connection with it.[24]

Here the Examiner proved a partial prophet, for though a Monterey to Salinas line, as proposed, did not become the first narrow-gauge line in the United States, such a line did become the first narrow-gauge road to operate in California; and it did prove only a temporary expedient. Even as a temporary expedient, however, the *Examiner* could foresee great benefits from the project. Declared the *Examiner:*

> The road will open up to settlement a splendid section of country, attract immigration, and greatly enhance the price of landed property along its line . . . With this railroad built every acre of land in the Salinas Valley will be doubled in value. Monterey, moribund, despite its fine harbor and back country, will reverse its backward course and again assume the direction of prosperity.[25]

Again the claim was made for increased land values, this time not just for acreage along the route of the line itself, but for every acre of land in the entire Salinas Valley.

The *Examiner* might have looked upon the narrow gauge as a temporary expedient, but the *Alta California* definitely did not. In response to a letter inquiring about narrow-gauge oscillation and sleeping cars, the *Alta* vowed that the former was no longer a problem, while the latter would surely be available. The *Alta* then continued by expressing its belief that California was:

> . . . on the brink of a new era in railways—the narrow gauge era—an era of renewed activity, when every village, almost every farm, may have its railway . . . because science, time, and patience, and a thorough series of experiments have succeeded in working out the great problem that to most people seems an impossibility, namely: That a narrow gauge road . . . can, with proper machinery, handle the same amount of freight in the same length of time over the same length of road for less than 50% of cost in running expenses than it can be done over any wider gauge road . . . the saving in the original cost of the road not being taken into consideration.[26]

As 1870 drew to a close, most Californians probably would have agreed that the *Alta*'s concept of a "new era of railways" more accurately depicted the future role of narrow gauges in California than did the *Examiner*'s view that these gauges would be but a "temporary convenience." The state's growing contingent of transporation-hungry farmers, its lumbermen and industrialists, its sparsely settled districts and small, isolated communities suddenly could envision railroads built for thousands instead of millions of dollars.

Lots of Hope, Little Action

Following the initial excitement over narrow gauges during November of 1870, news of the new railway system tailed off in December. However, as the new year dawned, the narrow gauge crept back into the news, and there it stayed, as at least a dozen narrow-gauge lines were proposed and discussed. The great majority of narrow-gauge projects suggested during 1871 seldom progressed beyond the stage of talk. Even so, they are important, for they contain information that enables us to single out many of the functions for which Californians felt narrow gauges might be used.

For example, a proposed Marysville, Grass Valley, and Nevada City line elicited this observation from a February edition of San Francisco's *Call*:

> The Nevadans are in some sort driven to build this road to Marysville, in preference to tapping the Central Pacific [at Colfax], on account of the present high prices of freight. The Central Pacific Company . . . should take the hint before other communities arrive at a conclusion similar to that of . . . Grass Valley and Nevada, and build detached local lines which must greatly damage its trade . . . [27]

A few weeks later a *Call* editorial observed that expensive (that is, standard-gauge) railroads were only practical where extensive business existed, and suggested that the narrow

gauge seemed likely to solve the difficulty of providing rail access to areas with only a limited business.[28] In May the Antioch *Ledger*, speaking of narrow-gauge railroads in general rather than of a particular road, declared that:

> . . . districts where the nature of the territory has hitherto prevented the establishment of rapid means of transportation have now opened to them a sure relief . . . and people of these isolated regions . . . may rest assured that with the advent of the new gauge . . . a new turn of prosperity will dawn upon them.[29]

To the south the Los Angeles *Express* complained not only of that city's isolated position, but also of the advantages being gained by surrounding regions for want of a Los Angeles rail outlet. In response to a suggested narrow-gauge link between San Diego and San Bernardino, the *Express* urged construction of a Los Angeles-San Bernardino line with the observation:

> We have repeatedly urged the necessity of a railroad to San Bernardino, as a means of preventing the diversion of the Owens River trade. It now appears that unless speedy action is taken, we are likely to lose not only the trade of the Owens River, but of San Bernardino and the surrounding country as well.[30]

Los Angeles was not alone in its feeling of isolation. San Francisco's *Bulletin*, in commenting upon the need for a rail outlet from Santa Cruz, which served as the state's southernmost point for the shipment of redwood and lime, noted that the city had:

> . . . suffered of late years from its isolated position . . . during the heavy weather of winter there may be ten days or more when no vessel can touch at that point; and we have known mail facilities to be cut off for an equal length of time, the road over the mountains having been carried away by floods . . .[31]

Thus, it is clear that Californians early saw the narrow gauge as, among other things, a vehicle for (1) circumventing repressive freight rates, (2) providing rail transportation to areas with only a limited business, (3) providing rail service

in areas of adverse territory, (4) preserving existing trade connections, and (5) eliminating the isolation of local communities from the rest of the state.

Narrow-gauge schemes set forth ranged from those of a purely local nature, such as a proposal to link Walnut Creek and Oakland,[32] to rather grandiose developmental projects many hundreds of miles in length, such as a plan to build from San Francisco to San Diego.[33] Early in 1871, a State Supreme Court decision, which, within limits, authorized cities and counties to aid railroad corporations with money or bonds, was hailed as a stimulus to railroad building.[34] Also adding to the generally favorable impression being made by narrow gauges were the initial reports of operations of the first major narrow-gauge line in the United States, the Denver and Rio Grande Railroad.[35] Even the Southern Pacific was reported ready to lay some three-foot track, if it could be done without invalidating the terms of the company's land grant.[36]

Abundant Enthusiasm But No Construction

Yet, despite an abundance of proposals for lines, a favorable court decision, and a notable absence of opposition to the adoption of narrow gauges, no narrow-gauge lines were being built. A few route surveys were undertaken, but that was all. In June, San Francisco's *Alta California* lamented the lack of progress, while observing that:

> . . . If evidence and argument can prove anything, the superior value of narrow gauge railroads for most of the proposed routes in California is conclusively proved . . . yet the public seems to be apathetic on the subject; and . . . movements to push ahead narrow roads . . . have not been promptly undertaken and supported.[37]

The *Alta* went on, however, to express its belief that in the future the railroad would be indispensable to every township and county in which the soil was tilled. Said the *Alta*:

> We are fully confident that not many years will pass before every large farm will have its little railroad for transportation within its own borders, and also a connection with the railroad system of the State.[38]

Toward year's end the *Call* could see no public apathy. Rather, the *Call* asserted that narrow-gauge enterprises were being pushed as rapidly as circumstance would admit, and noted that:

> . . . Everywhere throughout the State—from Humbolt to San Diego—from Siskiyou to San Bernardino—the demand is made—'Give us railroads that we may develop our natural wealth, and secure a natural market for our products!'[39]

Throughout 1872 and 1873 the rapid proliferation of suggestions for narrow-gauge projects continued. Indeed, so numerous did the proposals become that by April of 1874, J. P. Abbott, owner-editor of the Antioch *Ledger*, was led to remark:

> People have gone insane over narrow-gauge railroads. Every county in the State, and almost every village in each, has proposed a narrow-gauge railroad; and to listen to the barroom arguments one would suppose they would all be constructed forthwith.[40]

Though editor Abbott probably exaggerated the situation somewhat, he nonetheless aptly described the mood of the times; for up and down the state, meetings called to discuss the merits of various narrow-gauge schemes had become almost as common as Sunday picnics.

In reviewing the records of various meetings and proposals, it becomes evident that, apart from the ubiquitous opportunity the narrow gauge presented for enhancing real estate values, perhaps the most commonly expressed aim of promoters was to provide a means for resisting existing monopolies, especially the state's railroad monopoly, and securing relief from excessive freight rates.[41] The prevailing attitude toward monopoly is well depicted by a correspondent to the Sacramento *Union* who vows that the absence of a narrow gauge line in his district:

> . . . simply means, in the face of the grain-sack 'ring,' the San Francisco wheat 'ring,' the foreign shipping 'ring,' and the railroad monopoly, that the farmer who threshes a thousand tons of wheat this year is just as poor as when he began to fallow his land for the crop.[42]

Closely allied to the anti-monopoly theme of many proposed roads was the notion that the finished line should be, in effect, a people's railroad. The idea was that farmers should take advantage of the slack season to build their own railroads, that is, to get out with their teams, grade roadbeds, lay ties and track, and thus reduce first construction costs to an absolute minimum. Pushing this line of thought, San Francisco's *Call* declared:

> . . . short lines of narrow-gauge railroad can be built in every county of the State where such improvements are needed, if only the residents of the counties will themselves take the work in hand. In such cases their own labor, and the labor of their teams, may be called into use; and after the roads are completed, the builders will own them, and derive whatever profit may accrue from their construction.[43]

Though this suggestion was in the long run little heeded, much of the grading done on the Monterey and Salinas Valley Railroad, which in 1874 would become the state's first operable narrow-gauge line, was destined to be performed just as here described, by farmers who owned property along the right-of-way.

There can be no doubt that by January of 1874 a majority of Californians were fully convinced that actual construction of narrow-gauge roads would usher in a period of vigorous growth and prosperity. If, however, narrow-gauge railway systems really were:

(a) so inexpensive to construct that they cost only one-half to three-fifths as much as standard-gauge lines, and were, in fact,
(b) well adapted to the physical characteristics of the state,
(c) capable of increasing land values many fold,
(d) good for the general prosperity,

(e) a magnet for immigration,
(f) capable of restoring life to moribund communities,
(g) capable of doing the same work as standard-gauge lines at less that half the running expense,
(h) able to operate profitably even in the most physically adverse territories,
(i) useful for preserving old trade ties,
(j) an excellent medium for developing new trade connections,
(k) able to provide relief from the effects of an isolated position,
(l) ideal for helping to develop natural wealth,
(m) a viable means of preventing the extension of monopoly,

and so on, one cannot but wonder why Californians spent almost four years doing little more than talking about this transportation innovation, rather than setting to and building lines and availing themselves of all these many benefits.

In retrospect, it is evident that the delay was due not to any lack of faith in the narrow-gauge system itself, but rather to a lack of funds with which to implement it. Shortly after completion of the first transcontinental railroad in 1869, California suffered a severe economic depression that endured for the better part of a decade. Curiously, Californians had long believed that a transcontinental connection would virtually assure the proper development of their industry and commerce; and as the line neared completion, residents were filled with confidence that their state was about to "enter a new era of prosperity more brilliant than any known in the past."[44] Unfortunately, the railroad did not bring the anticipated benefits. Californians, it seems had:

> . . . calculated upon too much, and had invested their money on the basis not of realized results, but of extravagant expectations; and when the completion of the road compelled a comparison between results and expectations, it was found that prices of land generally, and especially in suburban

> districts, were far beyond any permanent demand. Everybody wanted to sell, and nobody wanted to buy; and a general and severe panic ensued.[45]

Thus, instead of the expected "era of prosperity," Californians were suddenly faced with an era of intense competition from the East. Local markets were quickly glutted with low-priced goods shipped in by rail;[46] Sacramento, which had taken the lead in building the transcontinental line, shortly found itself declining to a way-station on the route to San Francisco;[47] and even San Francisco itself endured hard times as the new railroad began to haul in large quantities of freight that had formerly come to the state by sea.[48] The panic of 1873 which struck the national economy served only to intensify the depression that had hit California four years earlier.[49] Indeed, in light of the generally unfavorable economic atmosphere of the early 1870's, the initial delay of Californians in implementing narrow-gauge roads is really less surprising than the speed with which some Californians eventually managed to build them.

A Promise Largely Unfulfilled

In the final quarter of the last century, dozens of narrow-gauge railroads would be constructed in California. At various times and in various parts of the state, the narrow gauge would be employed at virtually every task for which a railroad could be utilized. By the early 1890's, when approximately 5 percent of all railroad mileage in the United States was classed as narrow gauge, Californians could claim that almost 16 percent of their trackage was narrow gauge.[50] Even so, it would be difficult to maintain that the narrow gauge ever came close to fulfilling the promise which so many Californians had envisioned for it in the early 1870's.

A relative handful of California's narrow-gauge lines were, at least for a short time, moderately successful. In general, though, whether built to serve as industrial roads

or as common carriers, narrow-gauge lines in California rarely enjoyed either great financial success or a long life. Indeed, the fate of the state's first narrow-gauge line, the Monterey and Salinas Valley Railroad, which went bankrupt after only five years, might be taken as an unhappy symbol of the eventual fate of almost all. In retrospect it is not difficult to find reasons for the general failure of the narrow gauge in California. Though narrow-gauge lines were less expensive to build and operate than standard-gauge lines, they were by no means as inexpensive as their early proponents had claimed. Occasionally a line was built which cost as little as $8,000 to $12,000 per mile: but costs of $20,000 to $40,000 per mile were more common, while significantly higher costs were now and then recorded. Construction costs, however, ultimately proved less of a hindrance to the narrow-gauge cause than did certain aspects of demography, changes in the legal code, and advancing technology.

A majority of California's narrow-gauge lines had at least one terminus in a county with no more than 20,000 and sometimes fewer than 10,000 inhabitants. In such situations attracting enough business to maintain a profitable operation was a constant challenge. Where lack of customers alone did not suffice to cause narrow-gauge entrepreneurs many a headache, the formation of national and state regulatory commissions, such as the Interstate Commerce Commission and the California Railroad Commission, surely did; for as these new agencies gradually curbed many of the more flagrant policies of the major rail carriers, they also eliminated one of the prime motives that had spurred construction of narrow-gauge railroads. I refer, of course, to the kind of extremely hostile feelings which so many of California's 1870 residents held for the Central and Southern Pacific Railroad Companies. Add to all this a whole series of changes and advances in technology which over a twenty-year period served to increase the operational

efficiency of standard-gauge roads. Add in as well an expanded range of technological options, among them the possibility of utilizing electricity as an energy source, and it is hardly surprising that by the turn of the century a majority of California's narrow-gauge lines were simply hanging on rather than expanding.

By virtually any standard of measurement, the narrow-gauge did not prove to be the panacea for the ills of public transportation which Californians of the 1870's so ardently desired. Still, it would be unfair to deem the narrow-gauge a complete failure. Because of the narrow-gauge, some California communities and rural areas that otherwise might never have been served by a railroad (Tomales, on the line of the North Pacific Coast, for example) were able to enjoy the benefits of rail service; and still other communities were served by rail much earlier than might otherwise have been the case (San Luis Obispo, on the line of the Pacific Coast Railroad, and the Owens Valley, traversed by the Carson & Colorado). Indeed, in light of the entrenched position which both the Central and Southern Pacific had already attained in California before the narrow-gauge was put to the test, perhaps it accomplished all that could reasonably have been expected.

NOTES

1. John W. Caughey, *California* (New York: Prentice-Hall, Inc., 1953), p. 347.
2. Caughey, pp. 349-350.
3. Oscar Osburn Winther, *The Transportation Frontier: Trans-Mississippi West, 1965-1890* (New York: Holt, Rinehart and Winston, 1964), p. 82.
4. Titus Fey Cronise, *The Natural Wealth of California* (San Francisco: H. M. Bancroft & Company, 1868), p. 668.
5. Sacramento *Union*, January 7, 1869.
6. Ibid.
7. Article by J. Ross Browne, San Francisco *Call*, February 2, 1870.
8. Ibid.

9. Article by J. Ross Browne, San Francisco *Call*, February 5, 1870.
10. Letter to editor of Stockton *Gazette*, June, 1870.
11. *Mining and Scientific Press*, June 25, 1870.
12. Ibid.
13. Robert F. Fairlie, "The Gauge for the Railways of the Future," *Engineering*, Vol. X (September, 1870), pp. 230-231.
14. Fairlie's arguments are neatly summarized in: C. E. Spooner, *Narrow Gauge Railways* (London: E. & F.N. Spon, 1871), pp. 41-42.
15. *Mining and Scientific Press*, July 9, 1870.
16. *Mining and Scientific Press*, September 10, 1870.
17. *Mining and Scientific Press*, October 29, 1870.
18. San Francisco *Call*, November 13, 1870.
19. Ibid.
20. Ibid.
21. San Francisco *Alta California*, November 15, 1870.
22. San Francisco *Alta California*, November 19, 1870.
23. Antioch *Ledger*, November 19, 1870.
24. Monterey *Republican*, November 24, 1870 (quoting the San Francisco *Examiner*).
25. Ibid.
26. San Francisco *Alta California*, November 27, 1870.
27. San Francisco *Call*, February 12, 1871.
28. San Francisco *Call*, March 21, 1871.
29. Antioch *Ledger*, May 20, 1871.
30. Los Angeles *Express*, as quoted in the San Francisco *Call*, September 24, 1871.
31. San Francisco *Bulletin*, August 15, 1871.
32. Contra Costa *Gazette*, July 22, 1871.
33. San Francisco *Call*, June 28, 1871.
34. San Francisco *Call*, May 14, 1871.
35. San Francisco *Call*, August 24, August 31, and October 26, 1871.
36. San Francisco *Bulletin*, August 15, 1871.
37. San Francisco *Alta California*, June 15, 1871.
38. Ibid.
39. San Francisco *Call*, November 19, 1871
40. Antioch *Ledger*, April 3, 1873.
41. Sacramento *Union*, April 15, July 11, July 19, and August 17, 1872; also San Francisco *Call*, October 13, October 14, November 10, December 10, and December 15, 1872.
42. Sacramento *Union*, July, 11, 1872.
43. San Francisco *Call*, August 1, 1872; see also San Francisco *Call*, May 18, July 23, and November 28, 1872.

44. John S. Hittell, *A History of the City of San Francisco* (San Francisco: A. L. Bancroft & Company, 1878), p. 367.
45. Hittell, pp. 373-374.
46. Walton Bean, *California: An Interpretive History* (New York: McGraw-Hill Book Company, 1968), p. 219.
47. Caughey, p. 327.
48. Hittell, p. 374.
49. Bean, p. 220.
50. *Eleventh Annual Report of the Board of Railroad Commissioners of the State of California* (Sacramento, Calif., 1889), p. 52.

1985 ANNUAL MEETING

Chico, April 26-28

The 1985 Annual Meeting of the California Geographical Society was held in conjunction with the Annual Meeting of the Southwestern Anthropological Association and was hosted by the Geography Department of California State University, Chico. The joint meeting commenced with an Anthropology/Geography Forum, moderated by Dr. G. S. Carp, entitled "The Way Americans Think." The Awards Committee was chaired by David Lantis, while the presentation of awards was handled by C.G.S. President Susan Hardwick. To conclude the annual banquet, Valene L. Smith, President, Northern California Geographical Society, introduced Prefessor John Frazer Hart who spoke on the topic: "The Look of the Land."

PRESENTATIONS

Patricia C. Albers and William R. James, both University of Utah, **Photographic Images of California: A Look at the Picture Postcard.**

Clifton Amsbury, Contra Costa College, **Unemployment as a Cultural Construct.**

Bruce Bechtol, California State University, Chico, **If California Was a Country: Teaching World Geography Through Comparisons.**

Maureen Bell, California State University, Chico, **Railroads in Central Tehama County.**

Thomas D. Best, Covina Travel Center, **Nostalgeography Revisited.**

Michelle Calicura, California State University, Chico, **Ethnic Commercial Business Patterns of Old Sacramento, California.**

Ernest Singer Carter, University of California at Los Angeles, **Why Study Urban America?**

Mark W. Carter, California State University, Chico, **Is Los Molinos Dead?**

Linda Cole, California State University, Chico, **The Hidden(?) Laborers: A Study of Female Mexican Undocumented Workers.**

Steven J. Crouthamel, Palomar College, **California Indians and Geographical Space.**

Stephen F. Cunha, University of California, Davis, **Resources for the Future: High School Students Educate Their Peers.**

Dave Delgado, Soulsbyville, California, **Application of Geography to the Intermediate Grade Curriculum.**

Sherman J. Douglas, University of Southern California, **Coastal Dune Fields in Southern California**

William K. Dreyer, California State University, Chico, **Prehistoric Settlement Patterns in a Portion of the Northwestern Sacramento Valley, California.**

Nancy Evans, State Department of Parks and Recreation, **The Tourism of Indian California: A Neglected Legacy.**

Myron B. Gershenson, San Mateo High School, **The Soft Gold Colonies: Russia's Colonial Endeavors.**

James D. Goodridge, California State University, Chico, **100 Years of Rainfall Records in California.**

Richard L. Haiman, California State University, Chico, **Changing Patterns in the Medical Geography of Southern Mexico.**

Steven R. Herman, Central Intermediate School, Oroville, California, **The Junior High School Geography Program: An Endangered Species.**

Arlene Hetherington, California State University, Chico, **Rural Tourism: A California Model.**

Carol Cameron Kurtz, California State University, Hayward, **The Sikhs of Yuba City, California: Images of an Asian Culture.**

Marie-Renee Lagloire, University of California at Los Angeles, **San Bruno, Baja California Sur.**

Keith Light, California State University, Chico, **Educational Tourism in Morelia, Mexico.**

Juliene G. Lipson, University of California, San Francisco. **Iranian Immigrants: Adjustment and Stress.**

Ella-Marie K. Loeb, California State University, Hayward, **Comparing the Land Use and Soils of Southern California with the Kalahari Basin.**

Kathleen M. May, University of California, San Francisco, **Immigrant Parents' Experiences with the Health Care System.**

Theodore R. McDowell, California State University, San Bernardino, **High Groundwater in Urban San Bernardino: Conflicts of Multi-Agency Basin Management.**

Kevin E. McHugh, University of Southern California, **Place Ties and a Life History View of Migration.**

Moira McInnis, California State University, Chico, **The Decline of a Possible Utopia: Or, How Does the Garden Grow?**

Charles M. Meacham, Upper Lake, California, **Values and Traditions: Examples from the U.S. Forest Service.**

Ralph F. Mueter and Charles F. Urbanowicz, both California State University, Chico, **Overcoming Space and Cultural Isolation: Educational Excellence Through Telecommunications at California State University, Chico.**

James Myers, California State University, Chico, **When the Lawyer Count Exceeds the Salmon Run: New and Continuing Legal Problems of the Hupa and Yurok Indians.**

Jeff Myers, ATAC, NASA High Altitude Missions, **Evaluating Conventional and Unconventional Imagery at NASA-Ames Research Center.**

Ed Myles, California State University, Chico, **A Transparent Overlay of the Public Land Survey System: Component Parts for Use with Large Scale Topographic Maps.**

George N. Nasse, California State University, Fresno, **Italian Involvement in San Joaquin Agriculture.**

Charles Nelson and Gene Martin, both California State University, Chico, **Utilizing Image Resources at NASA-Ames.**

Hal Nelson, Washington Department of Social & Health Services, **Putting Termites to Work: A Prospective on Harvesting Naturally Produced Energy.**

Frank Norris, Skagway, Alaska, **From Wasteland to Leisure Playground: A Geosophy of the California Desert, 1850-1970.**

Karen Olson, California State University, Chico, **Where Did All the People Go: A Small Town Saga.**

Clement Padick. California State University, Los Angeles, **Recent Development in Satellite Imagery of California.**

Mary Pyle Peters, Carmichael, California, **Settling Down in the Delta: European Cultural Patterns in Rural Solano County.**

Steve Peterson, U.S. Army Corps of Engineers, **Paper Mitigation.**

Susan J. Pineo, University of California at Davis, **Expansion and Change in the Sonoma County Wine Industry.**

Mark Radabaugh, Terra Research Associates, **Analysis of Relationships between Local Agency General Plan Policies and Sewage Dumping into the Russian River by the Santa Rosa Regional Sewer District.**

Jaime Raigoza, California State University. Chico, **Hispanics in California.**

Debra Rasmussen, California State University, Chico, **Vietnamese in San Francisco: A Cultural Transformation of the Tenderloin District, 1975-1985.**

Kit Salter, University of California at Los Angeles, **Geographic Themes in California's Model Curriculum Standards.**

Cliff Sojourner and Rosalyn McGillivray, both California State University, Chico, **Transcendental Politics: Voter Consistency in the 1984 Presidential Election.**

Eileen Spencer, California State University, Chico, **Changing Lifestyles: A Study of Undocumented Mexican Women.**

Rodney Steiner, California State University, Long Beach, **Training Geography Students Through Amtrack-Assisted Field Research.**

Jim Switzer, Southwestern College, **The Historical Geography of the Wu Chan.**

Steve Talbot, Oregon State University, **"Sacred Mother Earth": Native Americans and the Land.**

Phillip Tincher, Shasta College, **A Demographic Study of the Enrollment Trends in the Shasta Community College District.**

Margaret E. Trussell, California State University Chico, **"Five Minute Writing" Exercises in Geography Stimulate Critical Thinking Skills.**

Michael Vilhauer, Cosumnes River College, **Controlled Growth in the Sacramento Area.**

Robert N. Wallen, Mendocino College, **An Earthquake that Gave the Redwoods Industry a Good Shake.**

David R. M. White, **Settlement Pattern Implications of Bedrock Milling Implement Analysis: An Example from the Kern River, California.**

David Scofield Wilson, University of California at Davis, **The Sutter Buttes: Landscape as Special Place, Public Image, and Private Reserve.**

Byron Wood, Technicolor Government Services, NASA-Ames, **Use of Remote Sensing to Monitor the Changing Distribution of Wetland Habitat in California's Central Valley.**

SPECIAL SESSIONS

California Geographic Alliance, **What Should Be in a One-Year (9-12) Required Geography Class?**

Charles Nelson and David Fogel, both California State University, Chico, **Working in Remote Sensing: A Non-Programmers Step-by-Step Guide to Processing and Utilizing Landsat Satellite Tapes on the Campus Cyber Mainframe Computer.**