

*The
California
Geographer*

Volume XXXIII
1993

Annual Publication of the
CALIFORNIA GEOGRAPHICAL SOCIETY

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TABLE OF CONTENTS

	Page
COMMENTS FROM THE EDITOR	
PACIFIC OCEAN AIR INTERACTIONS: CALIFORNIA SEASONAL AIR TEMPERATURE VERSUS OCEAN TEMPERATURES Gerald P. Hannes and Susan M. Hannes	3
THE OPEN SPACE DILEMMA Chris Mayda	15
HOME WITH A VIEW: CHAPARRAL FIRE HAZARD AND THE SOCIAL GEOGRAPHIES OF RISK AND VULNERABILITY Christine M. Rodrigue	29
IMMIGRANT SIGNATURES ON THE LANDSCAPE: ASIAN AMERICAN COMMUNITIES IN LOS ANGELES James A. Tyner	43
CALIFORNIA'S REDISTRIBUTIVE ROLE IN INTERSTATE MIGRATION, 1935-1990 Scott A. Kirsch	59
❁	
ANNUAL MEETING, C.G.S. APRIL 30-MAY 2, 1993. . . . Shasta Community College, Redding	79
PRESENTATIONS	80

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Submit three copies of manuscripts, type-written and double-spaced. Manuscripts also submitted on disk are preferred, either as an ASCII file, or in most commonly used word processing programs. Manuscripts should conform to the general guidelines published each year in the March issue of the *Annals of the Association of American Geographers*. All photographs, diagrams, and maps should be numbered as figures and must be camera-ready. Graphics should be no more than seven by four and a half inches. Submission of a manuscript without supporting graphical materials will delay the reviewing process.

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Comments From the Editor

When an individual assumes the editorship of a journal it is common practice to insert a brief statement of editorial philosophy, some comments about the new editor's aspirations for the journal, and frequently a brief reflection on its past. I did not include such a statement in the first issue after I took this post, so it may seem a trifle odd to be doing so now, as I move closer to the conclusion of my term.

The immediate cause was the turmoil in journal production caused by the January 17, 1994 earthquake, which struck my home campus particularly hard. Every building on the campus suffered damage, and several were damaged so severely that they may eventually have to be razed.

The first priority was to do everything possible to enable the campus to open, and provide a quality education for the students. Quick action by the University's administration brought in some three hundred and fifty trailers and tents, and the spring 1994 semester started on February 14th, only two weeks late, and just under a month after the quake. Not everything was ready. Many schools and departments (including my own) lacked offices, phones, copy machines, computers, electronic mail, and other adjuncts of contemporary higher education. In spite of the difficulties, CSU Northridge is back, and the creative and innovative responses by faculty and administrators to this emergency may indeed, eventually, make it "Not Just Back, . . . Better!"

The impact on producing this issue of *The California Geographer* was also severe. While files for the articles were with me on the hard drive of a laptop, all of the original manuscripts, correspondence, and originals of maps, diagrams, and photographs were in my now inaccessible office, along with the computer with the page set-up program and the necessary drivers to print out the finished copy. Through the cooperation of an encouragingly large number of friends of geography and of the California Geographical Society, we have been able to pull things together, and get this issue ready for the printer in a surprisingly short time.

This issue, like the last, presents papers on a variety of aspects of the state, both physical and human, as well as an examination of the interplay between history

and geography. I am encouraged by the quality of work being done on this part of the world, and hope that *The California Geographer* can continue to be a mechanism for distributing this work to a wider audience.

egm
Northridge, CA
March 1994



PACIFIC OCEAN AIR INTERACTIONS: CALIFORNIA SEASONAL AIR TEMPERATURES VERSUS OCEAN TEMPERATURES

Gerald P. Hannes and Susan M. Hannes

Over the past several years, numerous articles have been written on ocean-air interactions. A variety of data sets as well as a number of different statistical methods have been used to identify the relationships that exist between the state of the Pacific Ocean sea surface temperature (SST) field and the atmosphere over North America (e.g., Fritz 1982; Yarnal and Diaz 1986; Nicholls 1988; Lau and Nath 1990). For example, Yarnal and Diaz (1986) and Namias and Cayan (1981) have studied the statistical relationships that exist between the Pacific Ocean temperature field and winter precipitation occurrence in the western United States. Namias and Cayan (1981) found that the summer Pacific Ocean temperature anomalies were related to the strength of the fall Aleutian Low pressure system. Likewise, Fritz (1985) and Pyke (1972) have stated that the nature of the Aleutian Low is related to the characteristics of the Pacific Ocean temperatures. Specifically, they related the strength and position of the low to water conditions.

Our study presents an extension of these research projects and examines the relationships between fall, winter, spring, and summer average surface air temperatures in California and fall, winter, spring, and summer average Equatorial and northern Pacific Ocean temperatures. Few ocean-air interaction studies have concentrated solely on the entire state of California (Schonher and Nicholson 1989). However, several researchers have examined the relationships between either coastal California air temperatures or regional precipitation amounts (e.g., Yarnal and Diaz 1986, Namias 1988, Sheeley and Dorman 1979, Hannes 1974). Furthermore, Ropelewski and Halpert (1986) have examined the

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association between North American monthly mean air temperatures and El Niño/Southern Oscillation episodes. This report differs from the previously mentioned research articles in several aspects. The major differences include the time period of analysis, the statistical technique employed, and the individual station locations used in the analysis. This research paper is not restricted to the study of coastal sites, but employs a variety of California weather sampling sites.

Study Area

We selected seven ocean locations to represent the northeastern Pacific Ocean (Table 1). Three areas were chosen to represent the El Niño region along the Equator (Figure 1). Sea level atmospheric pressure data for the Southern Oscillation/El Niño Index (Bigg 1990) for the stations at Darwin (Australia) and Tahiti were included in our study. We used sixteen sites with a diversity of physical characteristics throughout California.

Table 1.
Northern Pacific Ocean Sea Surface Temperature Locations

50° N, 155° W	35° N, 155° W
50° N, 145° W	35° N, 145° W
50° N, 135° W	35° N, 135° W
	35° N, 125° W

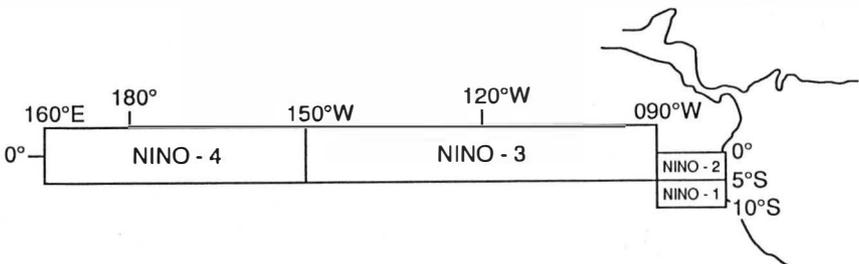


Figure 1. El Niño Areas as Defined by Kousky and Halpert
(*Journal of Climate*, Vol. 4, No. 1, January 1991)

Data and Methods

Nineteen years of data were used (1970-1989). Since data from the Equatorial areas were not available prior to 1970, the length of the time period for our project was limited. We obtained the Equatorial sea surface temperature data and sea level pressure data from Dr. Kousky (refer to *Journal of Climate* 1991, for a description of the data). North Pacific sea surface temperatures were acquired from Mr. J. Goodridge and they represent averages calculated at Scripps Institute of Oceanography for 5° areas of latitude and longitude. The average surface air temperatures were taken from *Climatological Data Annual Summary: California* (NOAA). The values were then averaged by season.

For example summer refers to the average air temperatures for the months of June, July, and August; fall represents September, October, and November. Using a standard computer program, ocean temperatures, air temperatures, and sea level pressures were correlated with one another for each season (Pearson's r). The computer program also calculated the significance level of each association using the Student's t distribution. Caution is suggested in the use of the significance



Figure 2. Correlation Between Spring Ocean Temperatures at 50°N 145°W and Spring California Air Temperatures
 [Significance levels for all Figures:
 * = 0.01; ** = 0.001]



Figure 3. Correlation Between Spring Ocean Temperatures at 35°N 125°W and Spring California Air Temperatures

level when using a large data matrix; some statistical associations may occur by chance alone (Norusis 1986).

Results

The significant correlations will be presented in the following five subsections. The spring data will be given first, followed by the summer data, fall data, winter data, and lastly the significant correlations formed between sea level pressure measured at Tahiti and Darwin and California air temperatures.

Spring California air temperatures vs. spring SSTs. Figures 2 and 3 show the correlations produced between sea surface temperatures at 50°N, 145°W and 35°N, and 125°W and spring California air temperatures. Both figures indicate that Eureka, Ukiah, Fresno, San Diego, and Susanville were significantly correlated with water temperatures at both 50°N 145°W, and 35°N, 125°W. Walsh and Richman (1981) also found that San Diego was significantly correlated with northern Pacific ocean temperatures in all seasons. Furthermore, Eureka, Ukiah, and Fresno have also been significantly correlated with high latitude ocean temperatures sampled at 50°N, 155°W (not shown). None of the California sites during the spring were significantly correlated with water temperatures in the El Niño areas.

Summer California air temperatures vs. summer SSTs. During the northern hemispheric summer, the largest number of California sites were significantly correlated with Equatorial water temperatures in the El Niño areas (Figure 4). Coastal sites of Eureka (positive), Ukiah (negative), and Morro Bay (positive) and interior sites of Susanville (negative) and Bishop (negative) were related to the ocean temperatures sampled off of the coast of South America. Furthermore, Sacramento was significantly correlated (negative) with El Niño areas 3 and 4.

Water temperatures measured at 35°N, 135°W were linked with air temperatures gathered at Sacramento and the interior cities of Alturas and Susanville (Figure 5). This finding differs from Walsh and Richman's study of 1981. They found that the northeast portion of California did not significantly correlate with their northern Pacific ocean temperature anomalies. Their summer period included the months of May, June, and July, whereas our study considers the summer months of June, July, and August. The sea surface temperatures taken at 35°N, 125°W were significantly correlated with air temperatures measured at Eureka, Monterey, and San Diego. Apparently, these coastal air temperatures had been modified by the adjacent water. The coastal cities of San Diego and Los Angeles were strongly related (positively) to water temperatures sampled at 50°N, 155°W. Thus, one can conclude that during the summer season, a complex pattern of correlations existed between California air temperatures,

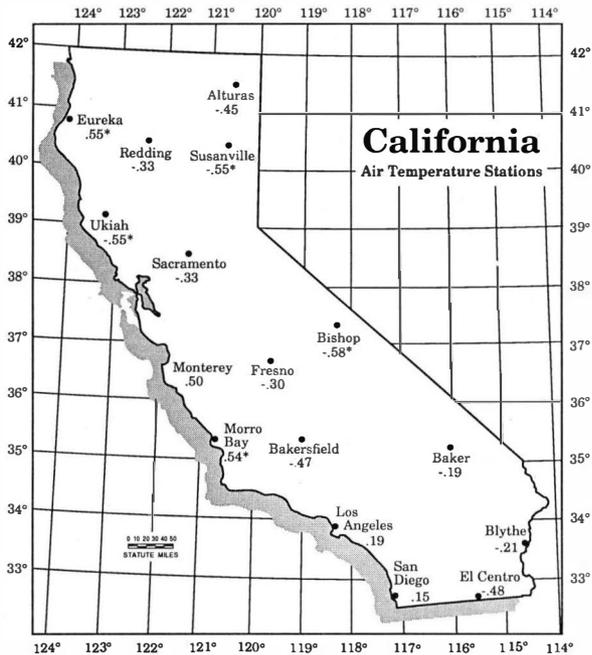


Figure 4. Correlation Between Winter (S.H.) Ocean Temperatures in the El Niño 1 & 2 Area and Summer California Air Temperatures

Figure 4. Correlation Between Winter (S.H.) Ocean Temperatures in the El Niño 1 & 2 Area and Summer California Air Temperatures

especially the coastal cities, and water temperatures sampled along the Equator, in the subtropics, and at high latitudes.

Fall California air temperatures vs. fall SSTs. During the northern hemispheric fall, the coastal sites of Eureka, Monterey, and Los Angeles were strongly related (positively) to ocean temperatures in El Niño area 1 & 2. Eureka and Fresno were found significantly correlated (positively) with water temperatures taken at 50°N, 135°W. An inverse relationship occurred between water temperatures recorded at 35°N, 155°W and the interior cities of Fresno, Bishop, Susanville, and Alturas (Figure 6). Once again, we found that air temperatures sampled at a few sites were strongly associated with ocean temperatures measured at both 35°N and 50°N latitude. This strong correlation agrees with the findings of both Namias (1978) and Hoerling, et al. (1992) that extratropical SST anomalies have important feed-backs with the seasonal climate of the west coast of North America. Namias, et al. (1988) have also shown that certain specific areas of the Pacific Ocean have important effects on the atmospheric flow structure and storm tracks. This is possibly why the water temperatures sampled at both 50°N, 155°W and 50°N, 145°W were not strongly related to California air temperatures but were only associated with the nearby water temperatures sampled at 50°N, 135°W.

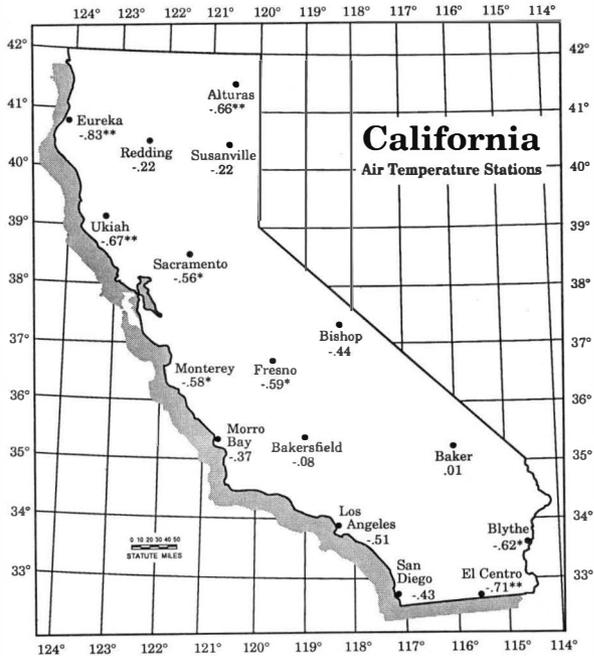


Figure 5. Correlation Between Summer Ocean Temperatures at 35°N 135°W and Summer California Air Temperatures

California winter air temperatures vs. winter SSTs. El Centro, Blythe, Monterey, Ukiah, and Eureka were positively correlated with SSTs collected at 35°N, 125°W (Figure 7) but were negatively correlated with ocean temperatures taken at 35°N, 145°W (Figure 8), and 35°N, 155°W. This interesting situation was probably related to the difference in year-to-year variations among these three ocean locations. From an examination of the raw data, the year-to-year temperature changes sampled at 35°N, 125°W were definitely out of phase with the other two sites. This situation underscores the changeable nature of adjacent pools of water that exist in the ocean.

The coastal cities of Eureka, Ukiah, and Monterey had their respective winter temperatures significantly correlated with winter water temperatures taken at 50°N, 135°W. This finding agrees with the conclusions of Namias (1978) who showed that Eureka's air temperatures were significantly correlated with the sea surface temperatures measured at 40°N, 125°W. Likewise Granger (1988) concluded that winter northern California coastal climate anomalies had been in phase with extratropical teleconnections. Eureka's winter air temperatures were also strongly associated with water temperatures gathered along the Equator in El Niño area #4. Again, Yarnal and Diaz (1986) indicated that coastal northern California's climate was significantly correlated with both the warm and cold phase of the Southern Oscillation. Thus,

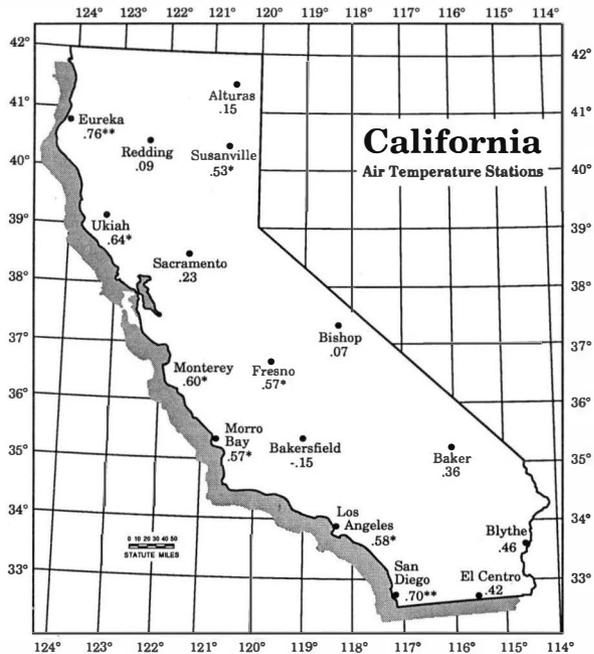


Figure 6. Correlation Between Fall Ocean Temperatures at 35°N 155°W and Fall California Air Temperatures

Eureka's air temperatures response to the tropical water temperature changes likely represents some form of teleconnection.

California air temperatures vs. sea level pressure. The sea level pressure values sampled at both Darwin and Tahiti are used in the calculation of the Southern Oscillation Index (Bigg 1990). This index has been used to predict the onset of El Niño events (Allen, et al. 1991). It was interesting to see if any California sites were sensitive to the components of this important predictive index. Three California locations were significantly correlated to the index components. Darwin was positively correlated during the summer with Eureka, while Ukiah was positively correlated with Darwin during the spring, and negatively correlated during the summer season. Tahiti's sea level pressure was significantly correlated with air temperatures collected at both Los Angeles (summer; negative) and Eureka (winter; negative). Again, this association of Eureka's air temperatures with sea level atmospheric pressure measured at both Tahiti and Darwin supports the research results of Yarnal and Diaz (1986) that the Southern Oscillation does

have an impact on coastal northern California air temperatures. Furthermore, our research substantiates the conclusions drawn by Ropelewski and Halpert (1986) using harmonic analysis of monthly

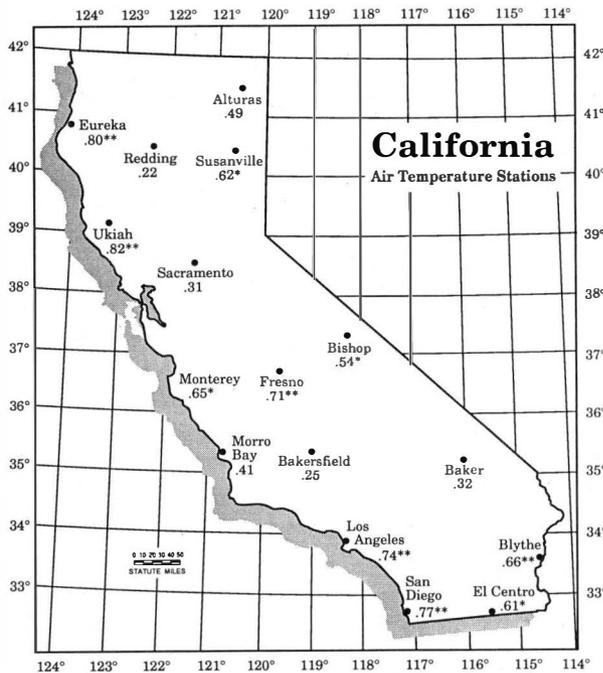


Figure 7. Correlation Between Winter Ocean Temperatures at 35°N 125°W and Winter California Air Temperatures

have an impact on coastal northern California air temperatures. Furthermore, our research substantiates the conclusions drawn by Ropelewski and Halpert (1986) using harmonic analysis of monthly

North American temperatures. They found that North American air temperatures were related to El Niño / Southern Oscillation events but in a complex fashion.

Conclusions

Our research project has shown that seasonal air temperatures recorded throughout California were related to water temperatures sampled along the Equator, the subtropics (30°N) and at high latitudes (50°N). Coastal cities such as Eureka

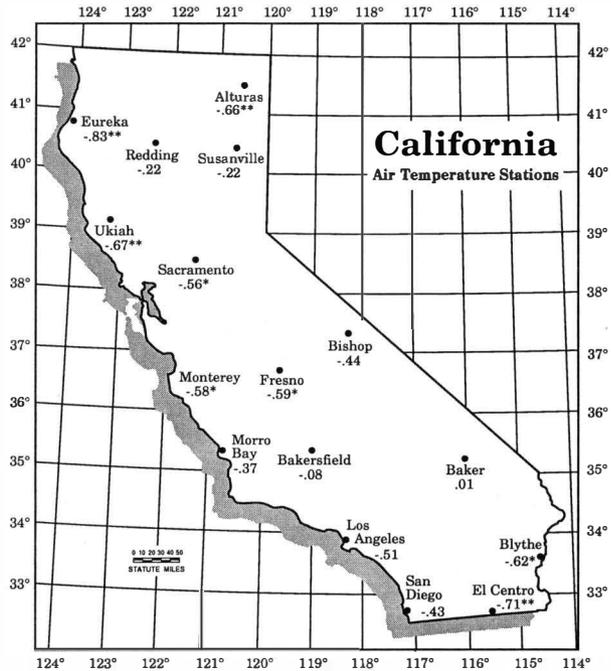


Figure 8. correlation Between Winter Ocean Temperatures at 35°N 145°W and Winter California Air Temperatures

Eureka were significantly correlated to SSTs at the Equator (e.g., Figure 4), the subtropics (e.g., Figure 3), and at high latitudes (e.g., Figure 2). During the spring season, no California cities were significantly correlated to water temperatures taken in the El Niño areas, while during the other three seasons, some California locations had been significantly correlated with the El Niño water temperatures. Possibly more California sites would be sensitive to tropical ocean temperatures if a seasonal lag was used. In Granger's 1988 study using a seasonal lag, coastal sites and water temperature anomalies were interrelated. Lastly, a few California locations were significantly correlated with sea level atmospheric pressure taken at either Tahiti or Darwin. This project also updates the findings of earlier studies such as Walsh and Richman (1981) who covered the period from 1947 to 1977 and Yarnal and Diaz (1986) who used only coastal data from 1933 to 1977. Also this analysis employed more sta-

tions in California that the studies conducted by either Granger (1988) or Walsh and Richman (1981). Ocean temperatures sampled along 35°N latitude recorded more significant correlations with the air temperatures sites than water temperatures taken at either 50°N latitude or along the Equator. This seems logical since the State of California extends in a north-south direction from about 33°N to 42°N latitude. The adjacent ocean and the atmospheric westerlies should influence California's climate to some extent. These basic climatic influences have been described by Bailey (1966) many years ago. Future research should examine a variety of SST lags with California climatic data and employ a denser ocean temperature grid to study the link between California's climate and the ocean. Once this link is established, then possibly climatic forecasts will improve.



Acknowledgements

We would like to thank both Dr. Kousky of the National Climatic Center and Mr. J. Goodridge for the sea surface temperature data and sea level pressure data used in this paper. We would also like to thank Mrs. Kelly Donavan of the CSU Fullerton Media Center for making the diagrams used in this study.

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The Open Space Dilemma

Chris Mayda

Open space
God's country
Garden of Eden
40 acres and a mule
home sweet home
let freedom sing
the right to be me
12 children, 2 survive
ones got palsy, the other's alive
died in the field
Let them eat cake

Closed space
fear of the unknown
fences
protection
frustrated aggression
confusion
rough and ready
stiff upper lip
wit in the city
so many die
it's a pity
The dream...
for the children
Labor for thee team
if you don't make the cream
Hope

Ms. Mayda is a graduate student in geography at California State University, Northridge.

No space
 elevator music with
 individual rights
 equality for the masses
 but
 don't touch me
 or I might . . .
 lost
 a tract house
 Beemer and
 microwave
 There's a computer
 in your future
 your number please
 your number
 alone
 quiet screaming
 at the greyness

Time and space. A continuum.

We never had much time

We gave ourselves too much space

Your number please . . .

572 76 7306-672 0799 I mean 8, I mean . . .

I'm sorry your number does not compute . . . does not compute

57276 7306 672 0798

The seminar was about Frederick Jackson Turner and his idea of the closing of the frontier and its impact on America. It had been 100 years since his seminal speech, and now The Organization of American Historians wanted to see how Turner still, or if he still, influenced the world. One mention was made of the Marlboro man during the seminar. What I did not expect to happen, of course, did. During the question and answer period that followed, almost every question revolved around the Marlboro Man. Why? How did this image of the western man on the range, this myth of reality, come to dominate the attention of the distinguished historians in the audience? Why do we insist on believing in a consumer myth, while ignoring reality? Why do we relish the rugged individual cowboy as space closes in America? Why do we not look to other open spaces, beyond the physical?

Historical Background

America, frontier: words within the same breath. The American frontier was at once all seven wonders of the world. A densely populated Europe found a safety valve for its unwanted, socially, politically and spiritually. In one word, it was America. Its vast expanses of "empty land" awaited the enlightened civilization of Western European thought (native Americans were "primitive" and in need of "cultivation"). And the country grew rapidly, from 3.9 million in 1790, to 62 million in 1890. But still in 1890 the United States had a quarter of the people it has today. Kansas had more people than California.¹ But the American frontier continued to grow and change. Land disappeared under the plow and homes that people built. The free, independent and individual spirit that all this open land engendered made Americans something other than their European predecessors.

America had been built on the myth of never ending land. Manifest destiny was not controlled by fences. Anything was possible in America. And so this announcement of the frontiers closing in the 1890 Census had intellectuals fearing for America:

Up to and including 1880 the country had a frontier of settlement, but at present the unsettled area has been so broken into by isolated bodies of settlement that there can hardly be said to be a frontier line. In the discussion of its extent, its westward movement, etc., it cannot, therefore, any longer have a place in the census reports.

This brief official statement created a career for the historian and geographer Frederick Jackson Turner. Using it as a springboard he delivered a short paper at the Chicago Worlds Fair in 1893. The article, "The Significance of the Frontier in American History," was initially ignored, but eventually would forever change the way American historians viewed the United States and its historical roots. Geographers took note of this and throughout Turner's life he would converse with geographers as Ellen Churchill Semple.

Early theories of American development revolved around the European 'germ' theory, in which the European settler was seen as the shaper of the landscape rather than the American landscape influencing and shaping the European settler. Turner's paper forwarded the idea that Americans were formed by the open space of the frontier.

¹ The 1890 census shows Kansas at 1,428,000 and California with 1,213,398. (1993 World Almanac).

Americans were proud of this idea and embraced it as a tonic during the difficult depression of the 1890s. But the article contained another message that was more difficult to accept, in fact, Americans have not yet accepted it. The physical open spaces of the great American continent were closed.

Prior to the 'frontier thesis' as the theory was soon called, American academics had been on shaky ground in relation to their place in history, when placed against the larger historical backdrop of European academia. History has not fully matured as a recognized profession. Up to the time of Turner's thesis, history had been written from a local viewpoint by amateur, gentlemen historians. The nineteenth century Romantic presented a view of history that was moral and heroic with epic proportions. History was not seen as an interacting continuum, but as a series of tales meant to instill nationalism and pride (Hofstadter 1968).

In the last years of the nineteenth century historians who had been formally trained in history began to appear in American universities. They were middle class men instead of the gentlemen historians of the past. History, previously used only as an introduction to another curriculum such as classical languages, became a subject in itself. The study of history was influenced by the scientific work of Darwin and the evolutionary process. This influenced not only history but anthropology, sociology and geography. Different forms of determinism sprouted from the evolutionary idea. Biology had biologic determinism, geography, environmental determinism and history had its own determinism, historical evolutionism.

Comparative history became important. The fragmentation of the past was used and compared with hopes to understanding the truth of the past and its relevance to the present. Turner was influenced by these new forces when he studied at Johns Hopkins in the 1880s. He then continued his education at the University of Wisconsin.

Turner's generation was the first to work on PhD dissertations in the modern mode of a consummate original work. This was accomplished not by a stream of narrative, but by development of ideas, such as the frontier thesis. Turner's dissertation focused on Wisconsin fur traders. In this work he learned the importance of geography to the fur traders and to history. He emphasized the march of civilization starting with the primitive and advancing with traders, hunters, settlers and urban dwellers.

He applied this line of thinking when he issued the frontier thesis. The frontier had developed from an open space and followed in a similar line of civilization from trappers to cities. What crystallized the idea

was the closing of the final 'frontier' of open space in America as announced by the 1890 census. The traditional definition of the open space frontier, areas with less than two people per square mile, had been surpassed.

Turner saw the American model shattered. The mythical space of the new Atlantis, America, had disappeared into cities and industry. The individual no longer was the center. It was now the group, the democracy of many, and those who sought new life from the one on one with the land were destitute in the coming America that Turner foresaw. Americans would have to change and become something new if they were to survive. They would look to democracy and the government to reform their ideals.² And they would have to face new social problems. Turner was at pains to face the downfall of individualism, for a more common and holistic good, the group (Turner 1920). He believed in individual innovation and believed that it served man's highest destiny, but it could no longer be in a closed space environment. The highest aspiration had to be in getting along with the neighbor, as there was no longer a "safety-valve" frontier for escape.

Turner believed that the three things that the frontier fostered in the pioneer were innovation, individualism and democracy. With the fall of the individual, and the lack of opportunity for innovation with the loss of free open space, he only had democracy to hold onto as his relic of America. He did not want a democracy of de Tocqueville's mediocrity, but instead a democracy that allowed the American to grow beyond the physical expanses of space and conquer new frontiers.

As we turn from the task of the first rough conquest of the continent there lies before us a whole wealth of unexploited resources in the realm of the spirit. Arts and letters, science and better social creation, loyalty and political service to the commonweal, —these and a thousand other directions of activity are open to the men, who formerly under the incentive of attaining distinction amassing extraordinary wealth, saw success only in material display (Turner 1920).

Turner thought and wrote about the loss of the frontier and open space for the rest of his life. In his lectures he spoke of the loss of the individual, who saw government as an evil (Turner 1920). He spoke of democracy whose safeguard was the free lands of the United States

² "He saw the government no longer something outside of him, but the people themselves shaping their own affairs... Legislation is taking the place of the free lands as the means of preserving the ideal of democracy." (Turner 1920, 305).

(Turner 1920). He saw these as the conditions that shaped the underlying fundamental beliefs in America. When free land disappeared all else was threatened and new orders had to replace what was lost. With the Progressive Party beginning to view socialism as an answer, people began to look to the government to protect what they had,³ and rather than evolving from "success only in material display," a myth was born.

The Myth of Open Space in America

Mythology is a story that gives meaning to individual lives on a surreal level. To the archaic societies these stories are true, in a sacred sense. Yet in the positivist English language the word "myth" means fictitious, falsehood, illusion, fantasy: all words discounted by the reality and "truth" of science.

Every culture has its own mythology. We are most aware of the Greek and Roman mythologies of Zeus and Jupiter. But few today look at these stories as having any relevance to actual people. They seem merely pretty stories. But as Bill Moyers said, "Myths are stories of our search through the ages for truth, for meaning, for significance" (Campbell 1987). In America our understanding of ourselves stems from the myth of the open spaces of the frontier. Hence, the popularity of the ubiquitous Marlboro man.

In America, myths are relegated to the mere stance of stories, rather than the more spiritual search for origins. Legends of Daniel Boone, Davy Crockett and Johnny Appleseed exist, but as men, mostly ideal macho types that persisted to conquer the frontier. These were men, not Gods, individual trailblazers and conquerors of the earth. But they still represent the birth of the American nation, separate from its European roots.

Unlike the Greek or Roman myths, where Gods and Goddesses were not human, who had no pretensions of humanity, the American myth is flesh and blood, without the supernatural.

³ "The present finds itself engaged in the task of readjusting its old ideals to new conditions and is turning increasingly to government to preserve its traditional democracy. It is not surprising that socialism shows noteworthy gains as elections continue...that the demand for initiative, referendum, and recall is spreading, and that the regions once the center of pioneer democracy exhibit these tendencies in the most marked degree. They are efforts to find substitutes for that former safeguard of democracy, the disappearing free lands. They are the sequence to the extinction of the frontier" (Turner 1914, 321).

As these myths were formed during the seventeenth and eighteenth centuries they were heavily influenced by the thought of that time. A modern myth does not have room for that which cannot be proved in a scientific way. With scientific, enlightened, capitalist thought, myth becomes another type of reality without its mythic proportions. The western man was idealized as the cowboy, Marlboro man, the conqueror, or even the itinerant Applesseed, the rugged individual who spread his wares for profit to the settlers. There is no room for a relationship with the land, as the 'primitive' native had, but only room to conquer it and move on in the evolutionary path of progress, as defined by the capitalist. Other forms of progress, other forms of thought, beyond logical rationalization, were not valid. But still, this myth incorporates the individual man in open space, even as the world closes in.

Closing of Open Space

Open space is a peculiarly American mythic ideal. The lure of the wide expanses of land was much of what formed the European immigrant into the new American man. The first immigrants to America were European in origin and came from a continent that was suffering from population pressures, both agriculturally and socially. The outcasts of the social climate of the times, mostly strict Protestant observers, left Europe searching for freedom in the wild unknown territory that was to become the Americas, part of which became the United States.

America was born in a land that was without history as Europeans defined it. Different from the European continent, the American continents were newly discovered and the history still nascent. There was no room for ancient creation myths, as the settlers were all immigrants. The Europeans who settled here did not respect the myths already in place with the land they settled. Though the American native population had a rich mythic history, the Europeans did not look to become a part of the land they settled but instead to bring what they already had to the new land and transform it into another European culture. They were somewhat successful. The culture in America today is a bastardized model of European culture, but there is a new element, that try as they might the Europeans were unable to suppress. The land had an influence on the settler. The land continued to lure immigrants across its frontiers forming a new culture, influenced by its geography.

Geography provided a sense of meaning to Americans that they did not have with history. The open spaces, the "unconquered" wilderness gave the Americans something that few Europeans had, an opportunity for freedom. The geography, the seemingly unlimited space of the conti-

ment, created a mythical world of the wild west, the frontier, where any man could create a home and keep his cherished beliefs. The western frontier became a myth for America to idealize, even today.

The creation in American myth was the birth of the most glorious capitalism Europeans could have ever dreamed. The difference, though, between the primitive myths and ours was a choice of gods. Previous gods were supernatural humans, but the American god was a reification of its ideal, profit. True to its objective nature, the God of the United States is not a human, or superhuman, but instead, like the super powers of the country, the non-corporeal corporation, the god is a non-corporeal vestige of production and consumption. Unlike the past myths of primal times, man no longer belonged with the earth, the sacred nature was gone, and instead nature was looked at as something that man should dominate. This was accomplished by separating man from his body by the mechanistic view of the world. "Survival of the fittest" Spencer's homily to Darwin's theory, was extended naturally to man's dominion over nature. Man was to be the fittest, over a nature no longer ruled by a supernatural god, but instead a reified god of "natural laws." The machine man had been created to take over for him as master of the universe, his own god, controller. According to these laws the corporeal man was allowed a certain equation of rights, which the land was to provide.

The land that America offered was not there to be blessed, but to bless those who took advantage of it. The land was there to be used. Everyone had the right to "40 acres and a mule." There was space for everyone in America. There was plentiful free land and open space. This was the basis of the American ideal, the American dream. So when the land ran out and the myth that had been reality became unreal, the American people never realized it and continue to search for open space even now as it closes to nothingness. Part of that search today is in drugs (another 'reality'), gangs (territoriality) and delusionary grander utopias (cults). Each of these 'answers' give people what they find they do not have today, the power to have their own open 'space.'

From Open Space to Closed Space, to No Space

The primitive man saw the myth as a true story of the far past that he could never replicate, but only strive for. American man sees the Western cowboy myth as something also true, but something that he can attain. This comes by driving a Jeep, or smoking a Marlboro, or wearing jeans. The individual man can become the 'god' of his myth. The objective scientific American myth has no use for the supernatural, the mysti-

cal, the unattainable. The American myth is here and now, and there is no discipline of waiting for fruition. Grab it while you may for tomorrow might never come. The simple myth gives man a direction, a reason to be, the American myth gives man frustration.

Woman is not as lost. She was never involved in the American traditional myth as man was, so she is able to connect and reenact certain myths, trying to find solace. But the lack of historical tradition has robbed women as it has men, and they search for an elusive mother that never landed in America.

The American myth can only be the consumer world we have created. We will not find our salvation in another culture's mythic tradition. Myth requires an identification by the people: a sacrifice that is communion with the supernatural. Americans identify and sacrifice? This oxymoron provides a clue why the Marlboro man myth lives on. The wild west allows us to be free of the stresses of closed in living. In the open space of the frontier we, as the pioneers, do not have to deal with our neighbors unless we choose to. This freedom vanished in the postmodern world. The open frontier that Americans took for granted is long gone. The geographic expanses, and the freedom of our democracy, allow Americans who have no history, no sense of time, to make up for their deficiencies by squandering the room they found.

Turner was aware of the cost of the loss of the open space myth for the American.⁴ Everything that every person who came to America wanted was jeopardized by the closing of the frontier. Without the expanses of open land, the opportunity that had made America different from Europe evaporated. Now the process was the same. It was more of what Europeans were experiencing back home. Now the only opportunities were in the cities, and the individual physical strength against the open, virgin, space, that had been the boon to the peasant American was no longer central to his success. Now gears shifted, but the American myth, the ideal American of guts and glory, did not.

Though the ideal might have been of strong individual man who conquered the west, the truth was that few had the ability to do so. Only twenty percent of the frontier's settlers remained in their new homes. The landscape was far more than they could handle. The myth did not

⁴ "...the nations won so vast a domain that its resources seemed illimitable and its society seemed able to throw off all its maladies by the very presence of these vast new spaces" (Turner 1920, 304).

"And now, four centuries from the discovery of America, at the end of a hundred yours of life under the Constitution, the frontier has gone, and with its going has closed the first period of American history" (Turner 1920, 28).

match the reality. The idea of free land and opportunity beckoned those who would take a chance; many failed. They went back to their old homes, or to more hospitable surroundings, finding the edge of the envelope, the frontier, too demanding.

But how many have been able to succeed in that garish American way, once the frontier had proved a failure, or when the frontier was no longer an option? The common man is left with a progress he cannot participate in unless on the very profane level of dressing 'like a cowboy', the urban cowboy motif, or 'marking' his territory, as a dog or gang member does, for want of a deeper meaning to his worth than the price of a pack of Marlboros.

This lack of origins in a group of people of various backgrounds has made the American a lost soul without meaning.⁵ Meaning is sought in profit oriented television or movies, in music or even art, but not in the internal story of sharing within the culture. The culture remains segmented, only cemented by a consumer myth of plenty, that is hologrammic in its service to real man.

Reflections on Open Space

Turner voiced what Americans wanted to hear about themselves. American history—nationalism—western history. By the time Turner died 40 years later every major university in the US offered courses in Western American history. None had before Turner. This was a theme people wanted to hear.

But people do not want to hear about closed space. They want the reality of open space. They want it so much they created the mythic cowboy and western to satisfy this need. America's lure was room to roam. The west was the melting pot that made AMERICANS! When it became history, we made it myth, so it would live and sell forever. A myth cannot be physical, tied to the land. It must incorporate all space, be ethereal, so as to survive the times. But as we become more populated, as we become more urban, as the European ethos dissolves with non-European immigrants, our myth is cause for alarm.

We protect our yard with fences. A wild gunslinging America became fenced in, and now America goes wild again with guns, because

⁵ "Thus not only does democracy make every man forget his ancestors, but it hides his descendants, and separates his contemporaries, from him; it throws him back for ever upon himself alone, and threatens in the end to confine him entirely within the solitude of his own heart" (Tocqueville 1961, 120).

there is no room. Americans are defined by space. We are many people living under one roof—held together by laws and lawyers only. The more crowded we get, the more tensions mount, the more we begin to resemble Yugoslavia, German neo-nazis, intolerance. This was what Turner feared. His nightmare was watching as industry changed our only ethos, free land, into a bought and paid for myth. Now we were a people United only to a fiction. And the lack of nationalistic pride today makes the United States of America a misnomer.

Reflections on Closed Space

Turner had grown up in the open space of Wisconsin. He had watched it disappear. In his youth he saw the American Indian before they were institutionalized and dissipated, he saw schooners making their way across the continent and he saw “frontier justice” hanging from a tree.

But in 1893, numbers told him what he already knew. That open space was gone. The world of his youth had changed. I see his thesis as a lament but also as a window to the future. The hope that Americans would grow beyond physical barriers.

Today we each fight to hold on to our own space, we do not have time for the problems of others. “Everyone’s got problems. Deal with it.”

Try talking to your government office if your tax return is late, see what kind of human care and understanding you receive. When you are done call up a school for that personal touch: “Thank you for calling. Please use your touch tone phone for the following information . . . 1 for recorded information, 2 for registration, 3 for insanity” Too many people sharing too little space with too little time.

Turner said America had to change. And change we have, physically, but I question America’s mental condition. Turner wrote: “And now, four centuries from the discovery of America, at the end of a hundred years of life under the Constitution, the frontier has gone, and with its going has closed the first period of American history” (Turner 1893). People like the idea of the frontier, but not the idea of losing it. Did the loss of physical space close us off to any open spaces? Did materialistic Americans assume that closed space meant no space at all, physically, mentally and spiritually? As an individual Turner looked beyond the physical and hoped to lead others there as well.

Reflections on No Space

The conquering of the frontier altered the cultural landscape of man. What had been a multi-hued and individual landscape with surprises and beauty at every valley became national consensus pablum. Rich cultural nations of American natives were wasted in favor of the bland and the same . . . MacDonalds, Carl's Jr., Walmart . . . TV . . . and malls. Once inside any mall you could be in any city in the country. The individual essence of place . . . lost. No place . . . no space.

Our culture, fashion and architecture invade every corner of the earth. The few places our culture has not invaded are being fought over today, as relics in this western museum we've created. But still the popular myth of open land, the range, the wild west, the frontier lives in popular belief. The irony is the stifling myth lives and kills where the new frontiers await birth.

So what is an example of a new frontier? The loss of individual space is closely linked to population questions that Turner faced at the turn of the century. People long for open space even as they continue to add babies, doubling population every thirty years. Up to 1650 the population of the earth doubled every 1500 years. Then it doubled in 200 years. One billion people lived in 1850. Three billion lived in 1950, and today we approach 6 billion people. In less than 30 years we will have 11 billion people on this same earth. How can we honor each person then, when we cannot do it now? The highest birth rates are among the most undeveloped. The highest consumption among the wealthiest and most educated. No one wants to lessen what space they still have. So no one says or does anything. Turner was intimidated by this problem. Only occasionally did he address it publicly.⁶ Few do today. No one said that subduing frontiers would be easy.

⁶ "It is the striking fact that at the end of the generation since 1890, when the Superintendent of the Census reported that the American frontier line could no longer be traced, a whole group of careful and reputable scholars have attempted to demonstrate quantitatively that before the year 2000, so great is the increase in population and so rapid the exhaustion of resources and such the diminishing production of food relative to population, our present standards of life must be abandoned or the birth rate decreased if we are not to feel the pressure of want and even of universal famine and war" (Turner 1924, as related in Wrobel, 1993).

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HOME WITH A VIEW: CHAPARRAL FIRE HAZARD AND THE SOCIAL GEOGRAPHIES OF RISK AND VULNERABILITY

Christine M. Rodrigue

The purpose of this paper is to outline the political and space economy of fire hazard in the chaparral-covered hillsides of California. The tragic Oakland fire briefly focused national attention on the recurrent natural hazard of brushfire on the montane fringes of California urban areas and the Los Angeles fires of Fall, 1993, have set off another brief flurry of reportage. Unlike coverage of the Midwest flooding of 1993 (e.g., Price 1993), however, media analysis never addressed the larger social and environmental context of such brushfires in California. As many geographers have noted, such events are not disasters or natural hazards as things-in-themselves (Alexander 1991; Burton and Kates 1964; Burton, Kates, and White 1978; Wisner 1991). A natural event becomes a natural hazard or disaster only when it interacts with a society arranged in space so as to expose portions of its population or assets to the forces unleashed in that event.

The first section of this paper reviews relevant background concepts in prior hazards work in geography and related disciplines, while the second presents the hypotheses guiding this study. The third section sketches the ecological functions of fire in chaparral and the mechanisms by which chaparral ensures its occurrence. The fourth section addresses cultural and economic factors in Southern California that create the chaparral fire hazard. The last section distinguishes risk and vulnerability and examines processes allocating each across space and social strata.

Natural Hazards in Prior Literature

The classic geographical literature on natural hazards stems from the work of White (1942, 1964), Kates (1962), and Burton and Kates (1964).

Its focus is largely on the following four themes: (1) the distribution of events across space and through time; (2) social and individual vulnerability to natural hazard; (3) perceptions of risk on the part of potential victims; and (4) behavioral responses to perceived or experienced hazard on the part of individuals and agencies.

Tacit in this approach is an individualistic, even atomistic, conception of society. Society and its institutions are depicted as comprised of individuals, who try more or less rationally to optimize their private benefit to cost ratios in their behavior toward potentially hazardous situations (Watts 1983). Much attention is given to individual awareness of hazards, individual choices to live or work in hazardous situations, and individual decisions on mitigating hazards through such actions as taking out flood or earthquake insurance (Blanchard 1993; Cook 1993; Lansana 1993; Palm 1990; Palm and Hidgson 1992; Sorkin 1982).

By the late 1970's, another approach emerged in the work of those geographers doing work on natural hazards in Third World contexts (Liverman 1989; Rivers 1982; Susman, O'Keefe, and Wisner 1983; Watts 1983; Wisner 1991; Wisner et al. 1976). This approach focuses on the structuring of individuals into groupings based on certain common interests, which quite often conflict with the interests of various other classes. Classes are not equal in power, so the dominant classes and groups can impose constraints on the behavioral options of subordinated classes and groups, making them highly vulnerable to the effects of an extreme event.

In the Third World contexts in which this approach evolved, such research has focused on the concept of marginality and its connections with vulnerability (Susman et al. 1983). That is, it is the marginalized, the poor and powerless who are most vulnerable to natural hazards. Such vulnerability expresses social and economic constraints on their abilities to live or work in less hazardous places. For many of the most marginalized in the poorest countries, it is a question of living and working in a hazardous place or not working and living at all. The marginalized members of society, too, have the fewest resources to evade, withstand, or recover from natural hazards (Wisner 1991). Because of the political powerlessness of the marginalized, socio-political mechanisms for assisting the stricken and rebuilding damaged infrastructure will be tardier in poorer areas than in more prosperous ones (Haas, Kates, and Bowden 1977; Rovai 1993; Susman et al. 1983).

This line of argument, however, has largely confined itself to the analysis of natural hazard in Third World contexts, rather than addressing hazard in First World or Second World contexts. This paper attempts

to apply this more structural approach to a First World natural hazard: montane suburban brushfire.

Hypotheses

From the structural approach comes an expectation that poor, marginalized people should prove more vulnerable to hazard. From the classical approach comes an expectation that wealthier individuals with a high degree of autonomy over their options in life seek to optimize their personal benefits to costs ratios in choosing to live in a hazardous area. These expectations are evaluated around fire companies 99 and 39 in and near the Santa Monica Mountains area of the City of Los Angeles (Figure 1) by examining the physical nature of the hazard, the demographics of those exposed to it, and the societal mitigations of that hazard.

Chaparral: A Fire-Dependent Vegetation

Chaparral is a scrub vegetation comprised of broadleaf evergreen shrubs between 1 and 4 meters high. It typically occupies the steepest slopes and most skeletal soils in the mountainous areas of California below roughly 2,000 meters in Southern California and 1,000 meters in Northern California. The leaves are sclerophyllous and aromatic and resist decay upon falling from the shrubs. As the plants age, the ratio between dead wood and active stems and twigs increases. The accumulation of fuel within the plants and below the plants sets the stage for brushfire (Minnich 1988; Schoenherr 1992; Vankat 1979). The chaparral not only is adapted to tolerate fire, but many of its species are actually dependent on fire for reproduction and renewal (Vankat 1979).

The steady accumulation of fuel is the mechanism by which chaparral creates a condition on which it depends. As a result of this accumulation, the longer the period since a fire, the greater both the probability and the magnitude of the next fire. In such a fire-dependent vegetation system, residential construction and occupation necessarily expose certain people to the destructive potential of a natural event, which is thereby transformed into a natural hazard or even outright disaster (Biswell 1974; Cooper 1922; Minnich 1988).

Human Occupation of the Chaparral-covered Hillsides

Few details are definitively known about human use of the chaparral-covered hillsides of Southern California before the arrival of

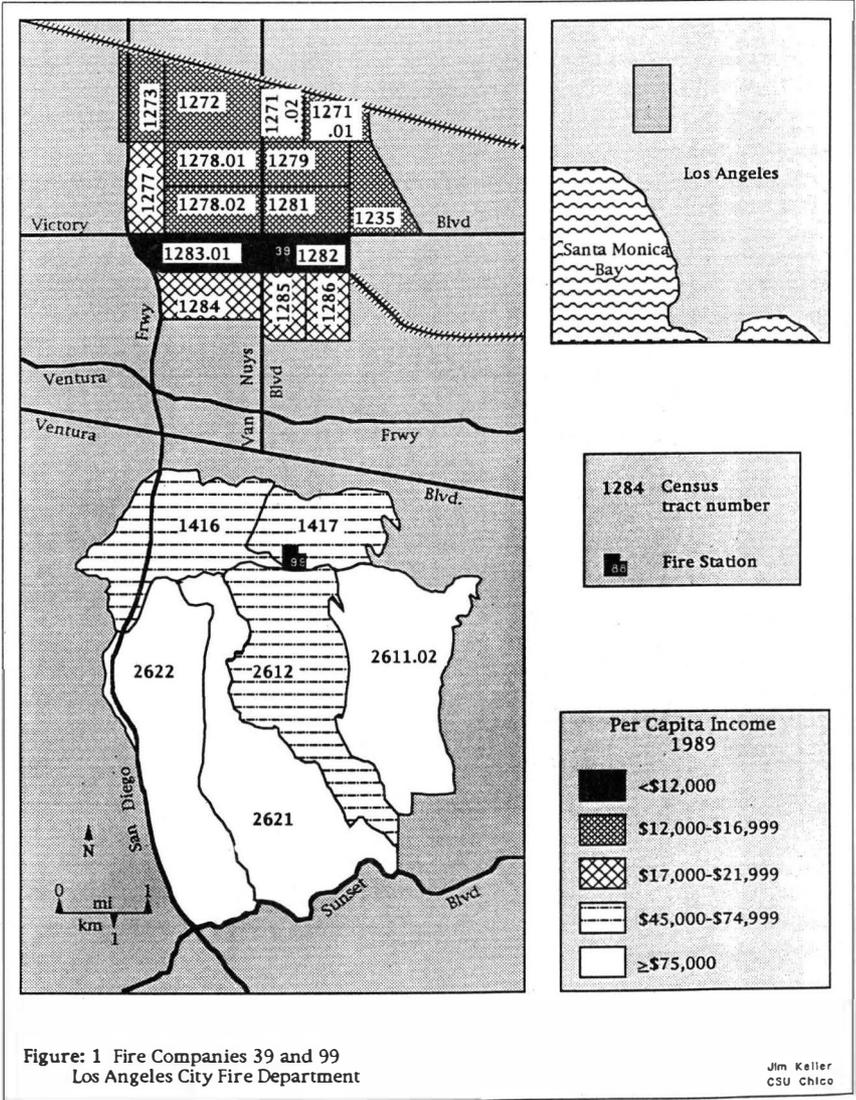


Figure 1 Fire Companies 39 and 99 Los Angeles City Fire Department

Jim Keller CSU Chico

Anglo-Americans in the wake of the Gold Rush in Northern California. Native American base camps and more permanent settlements tended to avoid these mountainsides, though they were exploited for hunting. A number of the early Spanish explorers noted the extent of smoke and fires in those mountains. They commented that certain Native American groups set the hillsides on fire to aid them in a hunt or to encourage soft, nutritious new growth, both for favored game species and for their own direct consumption (Aschmann 1959; Heizer and Elsasser 1980; Kroeber 1925; Minnich 1988; Stewart 1951).

The Spaniards and then Mexicans who took Alta California did not settle on the chaparral-covered hillsides; in both Spanish and Mexican writings, the hills are conspicuous in their absence from stated concerns. There is some evidence that they may in fact have set the mountains on fire themselves, continuing the indigenous practice, but for the purpose of increasing cattle forage (Minnich 1988).

Southern California was very much a backwater for the Anglo-Americans who took over California from Mexico as a result of the Mexican-American war of 1846-48. The Anglo-American presence in Southern California increased in the 1860's, but the drought of 1862-64 put an end to the success of the local cattle industry in securing the gold of the miners. Land values plummeted, and San Francisco-based speculators took the ruined ranchos with Comstock Lode or Central Pacific Railroad wealth. The huckstering of Southern California's balmy climate began in earnest. By the 1920's, real-estate promotions were encouraging the Anglo-American cultural fondness for "homes with a view," and the *nouveaux riches* of the movie colony were beginning to turn the chaparral-covered hillsides into chic addresses (Banham 1976; Davis 1991; Hornbeck 1980; Lavender 1987).

For whatever reason, hillside residence is highly valued by Anglo-Americans and other Americans who have enculturated or acculturated into the dominant culture's ideas (Gillard 1980). In the ensuing competition for suitable building sites and dwellings, the value of such homes and lots is bid up out of reach of households of modest means. This can be illustrated by an examination of the characteristics of two representative areas of Los Angeles, one in the hillside area and the other on the valley floor. The Census tracts within the service area of Fire Company 99 in the Santa Monica Mountains have an average 1989 per capita income of \$76,688, as opposed to the \$13,873 average per capita income in the Census tracts around Fire Company 39 in a nearby flat portion of the San Fernando Valley (Table 1). A similar pattern is seen (if less adequately, due to Census classificatory limitations in the L.A. area) in the median values of owner-occupied housing units between the two areas.

All tracts around Company 99 in the mountains report medians in the topmost Census category of more than \$500,000. The median of median home values in the tracts around Company 39 is \$231,000 (Los Angeles City Fire Department 1990; U.S. Bureau of the Census 1990).

It is the well-to-do, then, who have the resources to act on the cultural preference for hillside residence (Aschmann 1959). Given this and the fire-dependency of chaparral, chaparral fire becomes a natural hazard in the Los Angeles political economy. Oddly enough, it would appear that it is the wealthy and powerful who are at greatest risk to chaparral fires.

The Social Geography of Risk and Vulnerability

Prior work on hazards dealing with the structuration of vulnerability assumes that the risk of hazard falls overwhelmingly on the poor and marginalized of a society. Yet, in this instance, there appears a seeming counterinstance: it is the richer and more powerful who live in a hazardous zone. Susman et al. write that "Vulnerability is the degree to which different classes in society are differentially at risk, both in terms of the probability of occurrence of an extreme physical event and the degree to which the community absorbs the effects of extreme physical events and helps different classes to recover.... And poor people are generally more vulnerable than rich ones" (1983). In order to address more fully the concepts raised by structural hazards theory in the context of Los Angeles fire hazard, it is necessary to differentiate between risk and vulnerability, which have generally been conflated in this literature.

Risk is actual and direct exposure to the destructive aspects of a natural event: in this case, losing one's home, assets, mementos, and, quite possibly, one's life, health, or loved ones in a chaparral fire gone structural. Vulnerability could usefully be defined as low capacity to evade, withstand, or recover from a disastrous event through personal resources or societal mechanisms of risk mitigation. The first is a statistical concept; the second is a social, economic, political, and, sometimes, a cultural one. The wealthy households in the Santa Monicas indeed are at risk to chaparral fire, but they are scarcely vulnerable, due to the many chaparral fire hazard mitigations available in contemporary California society.

At the household level, obviously, households with per capita incomes in excess of \$76,000 have personal resources to learn of oncoming fire and evacuate themselves and many of their possessions from the path of wildfires moving into the suburban fringe. At a more broadly socialized level, fire insurance is a critical mitigation for chaparral fire

FIRE COMPANY 39 (Van Nuys)

Tract #	Persons	Per Capita Income (\$)	Total Income (\$)	Median Home Values (\$)
1235.00	6839	12388	84721532	269900
1271.01	5977	13783	82380991	231000
1271.02	4031	13490	54378190	225800
1272.00	8152	13263	108119976	201600
1273.00	4280	13161	56329080	207200
1277.00	4836	17508	84668688	282300
1278.01	5657	14791	83672687	208200
1278.02	6344	12953	82173832	240800
1279.00	7631	13028	99416668	235900
1281.00	6231	14952	93165912	227500
1282.00	7049	10972	77341628	229900
1283.01	8349	9060	75641940	182000
1284.00	3880	17713	68726440	237200
1285.00	3512	20573	72252376	241000
1286.00	5223	18704	97690992	285500
Sums	87991		1220680932	
Mean		13873		231000

FIRE COMPANY 99 (Sherman Oaks)

Tract #	Persons	Per capita Incomes (\$)	Total Income (\$)	Median Home Values (\$)
1416.00	3978	50353	200304234	>500000
1417.00	2607	85197		>500000
2611.02	4165	88620	369102300	>500000
2612.00	4228	58938	249189864	>500000
2621.00	3576	106249		>500000
2622.00	3833	77269	296172077	>500000
Sums	22387		1716823478	
Mean per capita Income		76688		

Table 1. Per capita incomes and median owner-occupied home values in the census tracts served by fire companies 39 and 99

there. This increase in utility and in the benefits to cost ratio can actually raise the exchange value of a parcel or home in the hills. The increase in home and lot prices thus encourages even denser land use, in this case, in the chaparral. Increased residential density, in its turn, simply magnifies the number of people and assets at risk to chaparral fire and the magnitude of societal vulnerability through insurance and governmental fire fighting services.

Conclusion

The literature on environmental perception and behavioral geography leads to analyses of individual and household evaluation of utility benefits and hazard costs. Consideration of chaparral fire hazard in the Santa Monica Mountains suggests that the benefits of an amenity view are privatized, while the private hazard costs to the household are reduced by the socialization of fire hazard mitigations. Household benefits seem higher than household costs, thus encouraging action on environmentally dysfunctional landscape values if households have the resources to act on them.

Hazard literature developed in Third World contexts argues that, within a society characterized by polarization in wealth and power, it is the poor and marginalized who are vulnerable to natural hazards. It is they who are most likely to have to live or work in hazard-prone areas, and it is they who are least able to bear the losses of a hazard and the costs of recovery (Liverman 1990; Susman et al. 1983; Watts 1983; Wisner 1991; Wisner et al. 1976). A desultory look at the Santa Monica Mountains case suggests that the wealthier and more powerful voluntarily place themselves in a highly hazard-prone environment. They are better able to recover from the hazard through wealth and insurance and through the socialization of attempts to reduce the fire hazard and control outbreaks of fire. The well-off are thus not as vulnerable to the hazard as the event risk they incur in their residential choices would lead one to expect. Vulnerability is thus diffused spatially and socially among the larger taxpaying public, and an implicit opportunity cost is the corollary reduction in overall tax funds for other governmental functions and purposes (such as, perhaps, health, education, and welfare functions that would benefit people on the opposite end of the social spectrum). Such diffusion of vulnerability costs thus amounts to a hidden and government-mediated upward income transfer in the service of environmentally inappropriate cultural values.

Further work in this area needs to address the following areas. First, empirical work is needed to evaluate the social geography of vulnerabil-

ity in the fire insurance industry. Do the rates charged to property owners accurately reflect the underlying geography of event risk? If not, what is the geography of under- and overpayment in fire insurance rates? Complicating analysis is an "apples and oranges" issue implicit in comparing fire insurance rates in richer and poorer neighborhoods. That is, while chaparral fire hazard poses an additional voluntary risk to customary fire insurance provision, there may be a countering involuntary additional risk among lower income people. That is, poorer people typically must live in lower quality dwelling units and in older units. Condition of building is inversely related to fire incidence (Munson and Oates 1983). There may be a greater level of fire hazard due to aging electrical wiring and undercapacity. Too, it may be impossible to compare such rates in any case, due to the reluctance of insurance companies to provide fire insurance in poorer neighborhoods (Syron 1983). Even if these complications are not insuperable, the comparative geographies of event risk and insurance rates may obscure the voluntaristic component of hazard exposure in this case.

Second, the actual geography of chaparral fire itself is surprisingly poorly documented. No fire fighting agency keeps detailed records of the exact spatial extent of a fire (Cook 1993). Fire agency data typically break emergency incidents down by such categories as numbers of structure fires, non-structure fires, and fire rescues. The categories used are not particularly helpful for the needed analysis. A structure fire covers such varied fire types as homes lost in a chaparral fire, apartments destroyed due to a smoker in one of them falling asleep, or a warehouse burning in circumstances suggestive of arson. Non-structure fires could take in a chaparral fire confined to a wildfire classification or a burning car on the Harbor Freeway. The cost of fire loss is normally aggregated, not broken out by type and location (Los Angeles City Fire Department 1990).

Third, other applications of a structural approach to natural hazards in the First World are needed to determine its usefulness in hazard situations here. Can a structural analysis be applied directly from Third World contexts to a variety of natural hazards in North America? or does it need modifications along the lines presented in this paper in order to address hazards outside the suburban hillsides of California? Two studies currently in progress are applying structural approaches to the earthquake hazard in the north coast of California and to fire hazard in rural northern California.

An investigation of emergency relief, media coverage, and disaster recovery efforts following the California North Coast earthquakes of 1992 focuses on the communities of Ferndale and Rio Dell. Ferndale is a

more "upscale" community, which has attracted much media attention to the damage done to its restored Victorian homes. Reconstruction and recovery are further along than in Rio Dell, an old blue-collar Italian community, which had been experiencing job loss and in-migration by welfare recipients trying to stretch their meager incomes (Rovai 1993). In this case, as in many Third World situations, risk and vulnerability can safely be conflated.

The Fountain Fire east of Redding in 1992 may prove directly analogous to hazards in Third World contexts. The study area is socio-economically markedly different from urban coastal California, being significantly poorer and more reliant on the extraction and export of primary raw materials (e.g., forest products, farm goods, and water) than the rest of the state. In many ways, the North State exists in a condition of dependency on (and some resentment of) the urban core of the California coast, of which it is a hinterland. This relatively underdeveloped area appears thus far to satisfy the expectations of the structural model concerning the social and spatial distribution of hazard risk and vulnerability in a more straightforward way than in the Los Angeles chaparral case (Carrothers 1993).

A fourth line of work is needed in the area of policy, both for governmental planning agencies and for the insurance industry. Both the equity and efficiency of fire-fighting resources are compromised by a hazard in which there is a strongly voluntaristic component to risk exposure. At this late date in the settlement of the suburban hillsides, what kinds of strategies can local or state government bring to bear on this problem in an era of fiscal strain, anti-tax sentiment, and well-funded homeowners' associations? The insurance industry finds its practices under acute scrutiny in many areas, from health care to automobile insurance. Can the industry afford not to examine the geographies of risk, insurance rates, and insurance availability and its possible subsidy of voluntary risk-taking by the well-heeled?

A master's project is now underway to address this issue in the case of the Laguna Beach fire of 1993 (Herman n.d.). Perhaps this and the other Southern California fires of 1993 have underscored the need for a critical look at the social and spatial allocations of fire costs and view amenities in the hillside suburbs and exurbs throughout California.

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IMMIGRANT SIGNATURES ON THE LANDSCAPE: ASIAN AMERICAN COMMUNITIES IN LOS ANGELES

James A. Tyner

In recent decades, major cities in the United States have undergone rapid and dramatic shifts in their ethnic compositions (Roseman 1991). These shifts have largely resulted from changes in international migration policies since the second World War and have been augmented by global economic restructuring. In microcosm, Los Angeles reflects these structural changes in the reorganization of capital and labor (Soja, Morales, and Wolff 1983; Sassen 1988); tied directly into this process has been an enormous influx of immigrants into Los Angeles, primarily from countries along the Pacific Rim (Soja, Morales, and Wolff 1983, 219).

Considerable research has addressed the history and spatial distribution of ethnic groups (Bouvier and Gardner 1986; Turner and Allen 1991). Studies employing various indexes of segregation and dissimilarity have provided insights into the distribution and concentration of ethnic groups in relation to one another (Harries 1971; Van Arsdol and Schuerman 1971; Garcia 1985; Langberg and Farley 1985; White 1986; Turner and Allen 1991) while other studies have examined neighborhood change or ethnic shifts in general (Van Arsdol and Schuerman 1971; Garcia 1985; Warf 1990; Denton and Massey 1991). However, very little research has addressed the physical appearance—the “visibility” of ethnic communities (Arreola 1984, 1988) particularly Asian American communities.

This paper compares and contrasts the visibility of selected Asian American communities¹ in the Los Angeles area (Figure 1) through the use of photographs. Whereas the visibility of an ethnic community may

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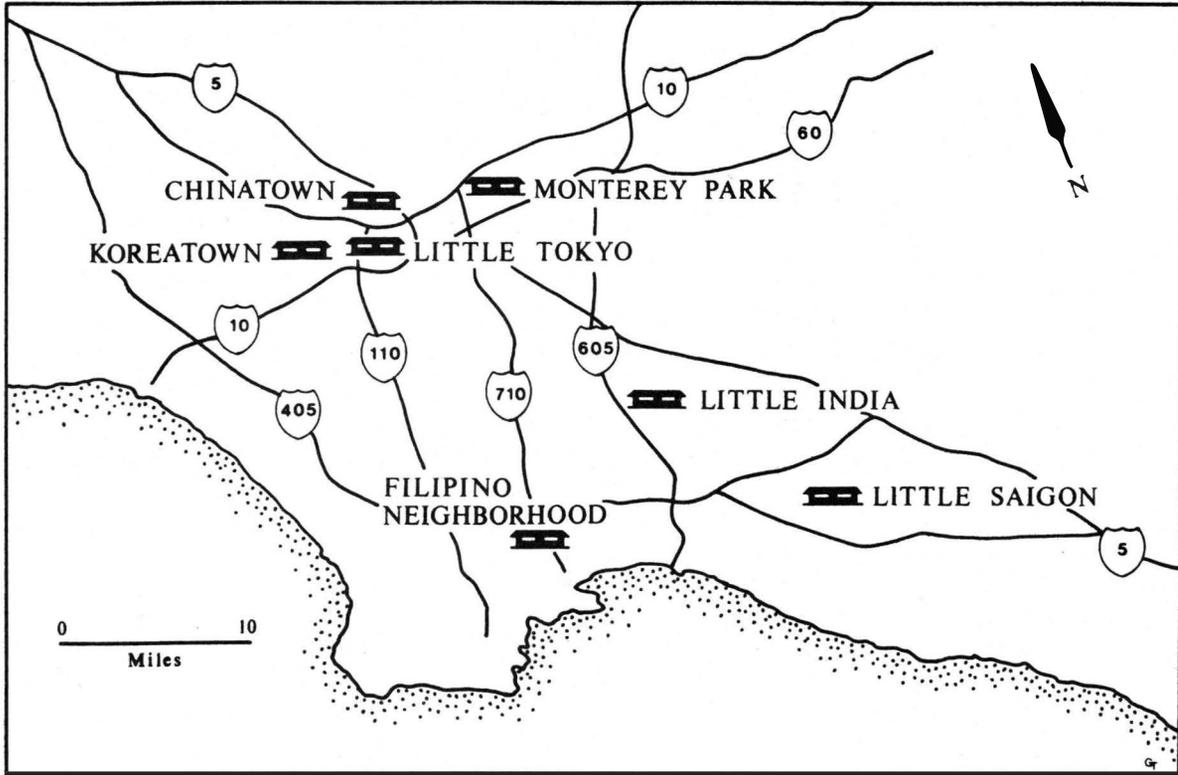


Figure 1. Selected Asian American communities in the Los Angeles metropolitan region

be revealed in a variety of ways, I specifically focus on the spatial form of business concentration, signage, and building style.

Spatial Form

The spatial form of a community is partially a reflection of historical developments, and partially a matter of initial location—either in an urban core or suburban area. In particular, some ethnic communities, as reflected by business activities, tend to either (1) develop in a linear fashion, (2) or remain fairly dispersed. This distinction is, in fact, a continuum. Linear patterns take many subforms, depending on whether stores are side-by-side, at every major intersection, or are so far apart that they are dispersed. Furthermore, business activities may con-



Figure 2. Little Tokyo has maintained a well-defined core around 1st and San Pedro Street in Los Angeles

¹ The scope and purpose of this study preclude an in-depth discussion on the history of Asian American community formation in Los Angeles, or the history of Asian immigration. However, the reader is encouraged to consult the following sources: Mason and McKinstry 1969; Allen 1977; Desbarats and Holland 1983; Desbarats 1985; Holley 1985; Bouvier and Gardner 1986; Peters and Chen 1987; Light and Bonacich 1988; Hata and Hata 1990; Pearlstone 1990; Chan 1991; Allen and Turner 1992; Hing 1993.

centrate on one or two major thoroughfares with little activity away from these main avenues—a strong linear development—or concentrate in a nodal fashion.

Some communities, such as *Chinatown* and *Little Tokyo* are highly concentrated. These older communities have evolved near the urban core of downtown Los Angeles; thus growth has been constrained and both *Chinatown* and *Little Tokyo* have maintained well-defined cores around their pre-World War II locations. Businesses in *Chinatown* and *Little Tokyo* are side-by-side, thus intensifying the visual appearance of concentration (Figure 2). *Koreatown*, on the other hand, is also highly concentrated in southwest Los Angeles, but exhibits strong linear development along Olympic Boulevard. Businesses are scattered along the thoroughfares, interspersed with other ethnic businesses (Figure 3).



Figure 3. Shopping malls in Koreatown are often integrated with other ethnic businesses. Note the Salvadorian bank

Filipinos represent the second largest Asian American population in the Los Angeles area, yet their communities are relatively invisible owing to a dispersal of both population and businesses (Allen 1977; Peterson 1989). The West Los Angeles concentration of Filipinos has no distinctive core, and businesses are scattered throughout the area, mostly as isolated buildings or as mini-malls on corner lots (Figure 4). The Filipino community in West Long Beach, however, reveals the be-



Figure 4. Filipino businesses in West Los Angeles are dispersed. They are most common as mini-malls on corner lots



Figure 5. Filipino businesses in West Long Beach have developed predominantly in a linear fashion along Santa Fe Boulevard. Note the dominance of English-language signs

ginnings of a strong linear development. Filipino businesses are seen along Santa Fe Boulevard at most of the major intersections, as well as side-by-side (Figure 5).

By contrast, the Vietnamese, with a population 65 percent less than that of Filipinos, are heavily concentrated in *Little Saigon*, and thus are more visible. *Little Saigon* is perhaps most known for two dominant malls, Asian Village and the Asian Garden Mall, on either side of Bolsa Avenue in Orange County (Figure 6). Additionally, other Vietnamese businesses are scattered throughout the area, providing evidence of a growing, dynamic community.



Figure 6. Little Saigon is characterized by many large shopping malls, such as the Asian Garden Mall

Asian Indians, likewise, have a considerably smaller population than Filipinos, yet are more densely concentrated in Artesia, thus more visible. The spatial form of *Little India* is similar to the Philippine community in West Long Beach in that the former is also a strip development, with the majority of Asian Indian businesses concentrating along Pioneer Boulevard (Figure 7). Other communities that are not confined to more urban cores have been able to expand more readily, appearing as massive, sprawling communities on the landscape. The Chinese community of Monterey Park, for example, has rapidly spread throughout the San Gabriel Valley.



Figure 7. Asian Indian businesses in Artesia have developed in a linear fashion along Pioneer Boulevard. Signage is generally English

Signage

Signs on businesses may be used as an indicator of ethnic identity. However, from the ethnic community's perspective, this practice is not necessarily to draw attention to the community, but rather as a practical consideration.

Signs in some Asian American communities, such as Monterey Park, Koreatown, and Little Saigon, are bilingual (Figure 8). Those in other communities—such as Little India and the two Filipino communities—tend to be predominantly English (Figure 5 and 7). In these latter communities, signs often proclaim ethnic identities in their names (e.g. Philippine Cuisine or Indian Foods). Bilingualism tends to be greatest for peoples who have migrated most recently and/or who use English in their homelands less extensively.

Other signs in ethnic communities are in fact used explicitly to draw attention to the community. Some Asian American communities in Los Angeles have district signs posted on freeways and streets proclaiming their identities, such as *Little Saigon*, *Little Tokyo*, and *Chinatown* (Figure 9). The designation of ethnic communities is seen as a confirmation of an ethnic group's identity, and often the process of defining an area is a



Figure 8. Signage on businesses in Koreatown, Little Saigon, and Monterey Park (pictured here) are often bi-lingual



Figure 9. Many ethnic groups have officially defined their communities through signage



Figure 10. Often the architecture of restaurants, shopping malls, and gas stations represent stereotypes of the ethnic group



Figure 11. When rebuilt in the 1930s, Chinatown was modelled after the best cities in China

long and arduous task. In response to repeated requests from the Koreatown Development Association, the City of Los Angeles proclaimed the Olympic Boulevard neighborhood "*Koreatown*" in 1980, posting signs on major streets and freeways (Light 1985). Filipinos, on the other hand, have tried unsuccessfully to designate their communities in both Los Angeles and Long Beach. The bid in Los Angeles, tentatively named *Filipino Town*, was hampered by internal divisions among Filipino community leaders. In the case of Long Beach, district signs are not allowed; unofficially, however, the area has been designated as *Filipino Neighborhood* (see Hillburg 1992).

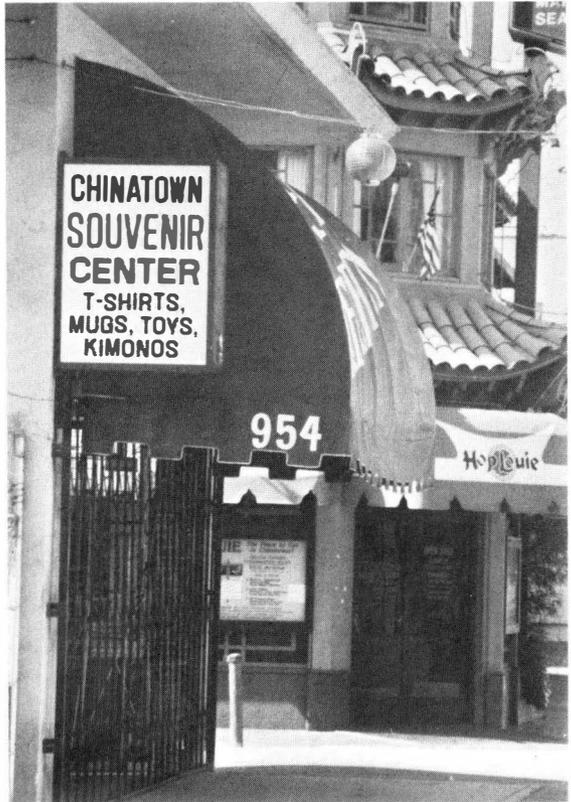


Figure 12. Both Little Tokyo and Chinatown (pictured here) reflect shifts toward tourism

Building Styles

The architecture of restaurants and shopping malls often represent stereotypes of ethnic groups, such as Nipa Huts for Filipino establishments and pagoda-styled gas stations and buildings in *Chinatown* and Monterey Park (Figure 10).

However, this practice appears to be atypical; most Asian American communities are not built as stereotypes, nor are they built as tourist centers. According to Lui (1948), when *Chinatown* was rebuilt in the late

1930s, the community was patterned after the style prevailing in the best cities of China (Figure 11). Most buildings were, and are, two-stories in height, and many are topped with ornate, pagoda-style roofs. However, *Chinatown*, as well as *Little Tokyo*, have recognized the growing importance of tourism and gradually, these communities have cultivated the expected image of tourists; the visible appearance of these communities reflects this shift to tourism (Figure 12). As yet, no other Asian American communities in the Los Angeles area have catered so heavily to tourism.

Some communities have introduced new building structures to meet their needs, while others have occupied existing structures. Filipinos and Asian Indians, for example, have only minimally altered the physical infrastructure of the landscape (Figure 13). In *Little India*, the appearance of many buildings have changed little, despite the fact that by 1988, some two dozen businesses were owned or managed by Asian Indians (Hata and Hata 1990). Indeed, along Pioneer Boulevard, with the exception of new signs, the one- and two-story buildings look much they way they did when they were rebuilt after the 1933 Long Beach earthquake (Churm 1986).

Communities in Monterey Park, *Little Saigon*, and *Koreatown*, on the



Figure 13. Businesses in Little India have generally occupied existing structures. As a result, the outer appearance of the area has changed little, with the exception of signage

other hand, reflect newer structures [Figure 14]. Many of these are multi-storied shopping centers in contrast to the much smaller corner-lot shopping malls of other ethnic communities. These malls often have



Figure 14. Businesses in Monterey Park, Little Saigon, and Koreatown (pictured here) often reflect newer structures. These tend to be large shopping malls

elaborate entryways, particularly in Little Saigon (Figure 15). This latter practice is noticeably absent from Philippine and Asian Indian shopping centers.

Conclusions

Ethnic communities are signatures on the city, a script of the socio-spatial evolution of urban areas. And with continued immigration, as well as spatial and social mobility, this script is constantly being written and rewritten.

The intent of this paper is to highlight a few of the similarities and differences between Asian American communities in the Los Angeles metropolitan area—to combat the tendency of viewing Asians as a homogenous group. This study has examined three aspects of community visibility—spatial form, signage, and building style—and compared and contrasted these for selected Asian American communities throughout



Figure 15. Shopping centers in Little Saigon often have elaborate entryways. This practice is noticeably absent in Philippine and Asian Indian shopping centers

the Los Angeles region. The purpose is not to provide a history of these communities; rather, the purpose is to identify some heretofore overlooked aspects of ethnic geography. In short, the visual appearance of ethnic communities is equally as important as understanding the spatial distribution of ethnic populations, for it is the observable landscape that forms peoples' impressions of urban areas and their inhabitants.



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CALIFORNIA'S REDISTRIBUTIVE ROLE IN INTERSTATE MIGRATION, 1935-1990

Scott L. Kirsch

California has for long been the primary geographic focus of westward migration across the United States. In recent decades, while California has continued to attract the greatest number of interstate migrants, the state has also emerged as the country's leading redistributor of population. From 1985 to 1990, nearly 2 million interstate migrants moved to California, and during the same period over 1.8 million interstate migrants left California for other states (U.S. Department of Commerce 1993). For the third consecutive decade, California not only attracted the greatest number of interstate migrants, it was also the most common state of origin for United States internal migration. In the process of California's interstate population exchange, clear geographic patterns have developed: California has gained population from the Northeastern and Midwestern states of the traditional industrial core, and lost population to the states of the peripheral West, most notably to Washington and Oregon (Kirsch 1991). Meanwhile, California now attracts more international migrants than any other state (Muller and Espenshade 1985), and with immigration as the largest component of California's population growth, larger than both interstate migration and natural increase, the state's population reached 29.8 million in 1990 (U.S. Department of Commerce 1993). Bearing in mind these trends in migration flow and population growth, an analysis of California's role as a population redistributor is a crucial step towards understanding the movement and distribution of population in the United States.

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Background

The westward movement of people across the United States has persisted from frontier days to the present. In the past this westward flow has been accelerated by events such as the Gold Rush and the Dust Bowl migration during the Great Depression, and more recently by the movement of capital to California during the post-World War II defense and high-tech booms. It has been augmented in recent decades by the deconcentration of the Northeastern and Midwestern industrial core which has been associated with the transition to post-industrialism in this country. Migratory patterns of the 1960 and 1970s represent a significant turnaround in the core-periphery relationships, as the Western and Southern peripheral regions have grown largely at the expense of the traditional core (Plane 1984a).

These developments have been the focus of a substantial body of literature in migration research. Some of the major historic trends in internal migration which have been significantly altered during this period include the decline and in some cases reversals of the traditional rural to urban migration (Roseman 1982), the change to net in-migration to the South, i.e. the Sunbelt (Watkins and Perry 1991), and the return migration of Blacks to the South (Johnson and Roseman 1990). These turnarounds have been attributed to deconcentrating trends in population distribution in this country (Vining 1977; Vining 1982).

Large scale net in-migration to California must also be considered an important historic trend in internal migration. This assertion is justified by the sheer number of migrants, which contributed to making California the most populous state in the country by 1964. During the 1960s and 1970s California's role in the process of internal migration experienced a major transformation which persisted through the 1980s; once the country's greatest receiver of interstate migration, California is now its most active redistributor of population.

The concept of redistribution has been pursued primarily at the urban level by Roseman (1977) and Roseman and McHugh (1982). Morrison (1977) looked at Los Angeles, San Diego, and San Francisco as attractors of interstate migration acting to redistribute population throughout the state, while Plane and Isserman (1983) developed the idea of states and areas as regional redistributors of population. Morrill (1988) identified California's redistributive role in interstate migration through the analysis of common systems of net exchange between states. Assessing the patterns of population interchange, Morrill (1988) observed:

... No state exhibited randomness in geographic patterns of net gains or losses; most states were net receivers from a distinct geographic set of states and net distributors to a different set of states.

This study traces the development of California's present role as a population redistributor, and describes the geographic patterns of this interstate population exchange.

The demographic effectiveness of migration, a simple ratio of net migration to total migration, has been utilized to show the extent to which in- and out-migration affect population change (Plane 1984a; Gallaway and Vedder 1985; Morrill 1988). The use of net migration rates and models has been criticized for obscuring regularities in age profiles of migration, as well as for focusing on a nonexistent category of individuals, "net migrants" (Rogers 1990). Still, demographic effectiveness of migration rates, especially when used over a series of time periods, have been valuable measures in shedding light on migration trends; demographic effectiveness provides a generalized picture of the ongoing process of population redistribution.

In the case of California, the dramatic reduction of the total interstate demographic effectiveness rates, despite continued high volumes of migrants to California, illustrate the state's changing role in the process of United States internal migration, while variations in the demographic effectiveness rates between California and specific states isolate the distinct regional patterns associated with California's emergent redistributive role. This is shown through an examination of the interstate population flows between California and the forty-nine other states, as well as California's total interstate migration for the periods 1935-40, 1955-60, 1965-70, 1975-80, and 1985-90,¹ with an emphasis on recent trends. Data are derived from the United States decennial censuses from the question regarding state of residence [five years earlier] (U.S. Department of Commerce 1946; 1963; 1973; 1983; 1993).

The influx of population to California has been part of the uniquely rapid development of the state, and cannot be attributed solely to economic push or pull factors. Perceived economic benefits, social freedoms, and environmental preferences all contribute to the migrant's decision to move, and where to move. Mobility itself has come to be ac-

¹Due to the circumstances of World War II, the 1950 census asked for the respondent's state of residence in 1949 instead of 1945; consequently the data are not comparable to the other time periods.

cepted as a social and economic freedom in this country (Lewis 1979), and for many the move to California embodied the anticipated freedoms and benefits of a new life. Vance (1972) discussed the role of the "search for the ideal" as a historic factor in American migration, and identified California as the modern locus of this ideal. Recent trends of out-migration from California to its surrounding states, particularly northward to Oregon and Washington, suggest a shift in the geography of the ideal. California's redistributive position is the subject of speculation in the final section of the paper in relation to the broader context of deconcentrating trends in the United States.

Methodology

Demographic Effectiveness of Migration to California. Demographic effectiveness of migration is the ratio of net migration to total migration for region j , multiplied by 100

$$E_j = 100 N_j / T_j \quad (1)$$

where net migration is equal to the difference between gross in- and gross out-migration

$$N_j = I_j - O_j \quad (2)$$

and total migration equals the sum of gross in- and out-migration

$$T_j = I_j + O_j \quad (3)$$

E_j necessarily falls between -100 and 100, with negative values produced when out-migration exceeds in-migration. Most previous studies have used the method to find the demographic effectiveness for each state's total interstate migration flows with all of the other states collectively. In keeping with the focus on California's role in interstate migration in this paper, the use of demographic effectiveness differs from that of previous studies. E_{ij} represents the demographic effectiveness of migration to California (j) for each other state (i) separately (Plane 1984a). The demographic effectiveness rates for California's total interstate migration, that is, its interaction with all other states combined, were also calculated for each of the time periods discussed, and are presented below in Table 1. The results of these direct state to state effectiveness

rates are mapped for each time period (Figures 1 through 5). Demographic effectiveness ratings for the District of Columbia have been included with the state of Maryland in this analysis to ease mapping.

The Development of California as a Population Redistributor, 1935-90

As shown in Table 1, California's in-migration has persisted at consistently high volumes from 1935 to 1990. Out-migration has risen dramatically during the same period, reducing total demographic effectiveness rates to relatively insignificant levels since 1975, indicating that internal migration is playing only a small role in terms of California's population growth. Of course, the magnitude of California's interstate migrant flows does significantly change the composition of the state's population, so while the demographic variables of the migrants are not the focus of this study, gross migration figures are discussed, along with net migration and demographic effectiveness rates of state to state flows, to emphasize the proportions of internal migration to and from California for each of the time periods listed in Table 1.

1935-1940. From 1935 to 1940, migration to California was a common phenomenon across the country. Experiencing net gains from every state but Virginia, California's overall demographic effectiveness was the highest in the country at 61.1, as relatively few people departed the state

	To California	From California	Net	Def. Eff.
1935-40	1,675,677	211,963	1,463,914	61.1
1955-60	1,938,130	815,926	1,122,204	40.7
1965-70	1,783,534	1,413,542	369,992	11.6
1975-80	1,877,289	1,782,831	94,458	2.6
1985-90	1,978,612	1,801,247	177,365	4.7

Table 1. Demographic Effectiveness of Total Interstate Migration to and from California 1935-1990

at this time. While the effectiveness of migration to California was high across the country, Figure 1 reveals definite patterns of migration at this time. The largest migration streams came from rural states of the Great Plains and the Dust Bowl region, due to the push and pull factors associated with the devastating effects of the Dust Bowl and perceived agricultural opportunities in California. These flows represent the most demographically effective migration of the period, among the most highly focused migration flows in U.S. history. Stein (1973) estimates fully one-third of the decade's interstate migrants came from Oklahoma, Arkansas, Texas, and Missouri, making the now famous trek on U.S. Route 66 aboard overloaded trucks and jalopies. Large, efficient flows also originated from Kansas and Nebraska, while Illinois and New York added large but less efficient population flows to California.

1955-1960. Migration to California during the late 1950s was fueled by the state's post-war defense and high-tech booms. During this period immigration was not as focused as it was from 1935 to 1940, but was strong throughout the country. Eighteen states lost over 20,000 people in their net population exchange with California, with only Nevada gaining a modest 4,000 in net migration from California. Although the state's total demographic effectiveness rate of 40.7 was reduced from the previous period, it remained the highest in the country. While there was considerably more interstate movement in and out of California, the net migration of 1,122,204 was only slightly lower than the corresponding 1935-1940 figure.

Clearly, the origins of the large scale migration to California were moving north and east, primarily from the more urban and industrial states (Figure 2), suggesting that these were the primary source states for the selective defense-boom migration (Rischin 1973).² Illinois and New York each lost approximately 100,000 in net migration to California. Ohio, Michigan and Pennsylvania were also among the biggest net losers to California. The greatest single flow came from Texas (150,458), but was less efficient than the Northeastern and Midwestern flows. Migration from the Great Plains and Dust Bowl regions was still strong, although not as lopsided as it once was. Effectiveness ratios were lowered for these states, gross flows to California were reduced, and we

²The migration of intellectual and scientific talent to California during this period is characterized by Rischin as an extremely selective, highly educated migrant pool perhaps comparable only to the immigration of European scholars to America during the Hitler years.

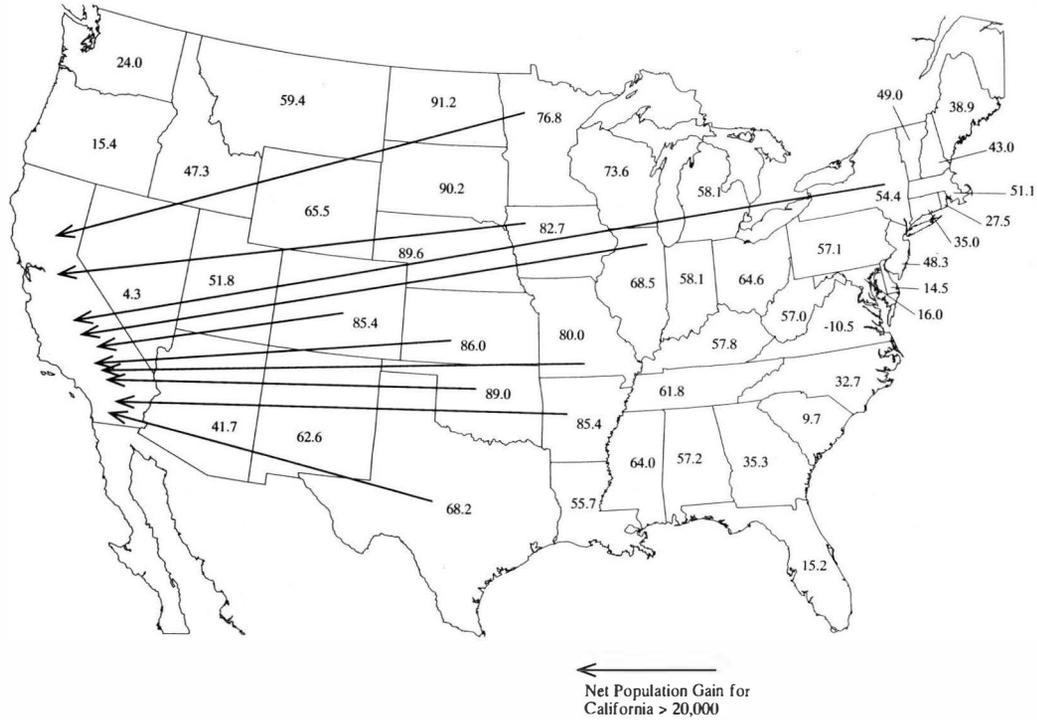


Figure 1. Demographic Effectiveness of Interstate Migration and Large Net Population Exchanges for California, 1935-1940

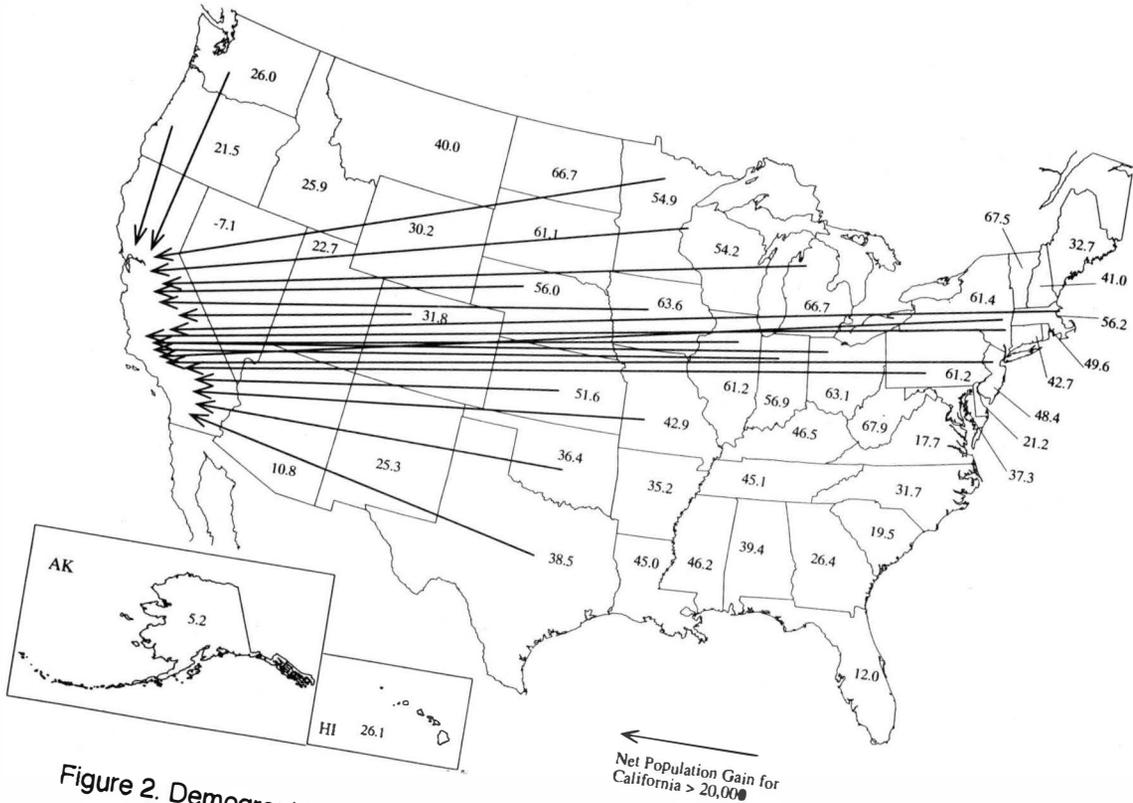


Figure 2. Demographic Effectiveness of Interstate Migration and Large Net Population Exchanges for California, 1955-1960

begin to see signs of a return migration to the Dust Bowl states. Nearly five times as many migrants moved from California to Oklahoma as during 1935 to 1940.

1965-1970. The 1965-1970 period marks the emergence of California's redistributive role in interstate migration (Figure 3). Total movement in and out of California actually increased by 443,020, but the net population gain was reduced by 752,212 from the previous decade. Out-migration increased by roughly 75 percent from 1955-60. California's overall demographic effectiveness of migration shrank to 11.6, dropping in rank from first to ninth in the country. In general, net gains were smaller than those of the previous decade. California's largest net gains came from New York and Illinois, with 77,946 and 60,593 respectively.

Significantly, out-migration flows to Oregon and Washington were among the greatest flows in the country, as California experienced net losses of 44,169 and 42,748 to these states. Also of note, California lost in its exchanges with Oklahoma and Arkansas, was near even with Missouri, and saw increasing out-migration to Texas, Kansas, and Nebraska, each of these states being among California's large donors of population from 1935-1940. These figures may be influenced by the return migration of retirement-age Dust Bowl migrants to California, as evidence suggests that the 1930s Dust Bowl migration was being made in reverse (Morrill 1988; Plane 1984a; Roseman 1977; Roseman 1982).

It is important to note that, while net gains in interstate migration were reduced for California from 1965-70, gains in international immigration increased. By 1960 California had surpassed New York as the leading international port of entry state. The 1965 Immigration Act, which took effect in 1968, reinforced California's port of entry role by allowing for the freer entry of Asians into the country (Muller and Espenshade 1985). California surpassed New York to become the most populous state in the country by 1964, and also surpassed New York to become the leading state of origin for interstate migration from 1965-70.

1975-1980. California redistributive role in interstate migration crystallized during the late 1970s, as migration trends which were emerging in the 1960s became well established. The 1975-80 period is characterized by a great deal of movement in the U.S. as a whole (Plane and Isserman 1983), as the number of interstate migrants entering or leaving California reached unprecedented levels. However, with a net migration of just 94,458, California's overall demographic effectiveness of migration was a minuscule 2.6, indicating that the high mobility of the United States

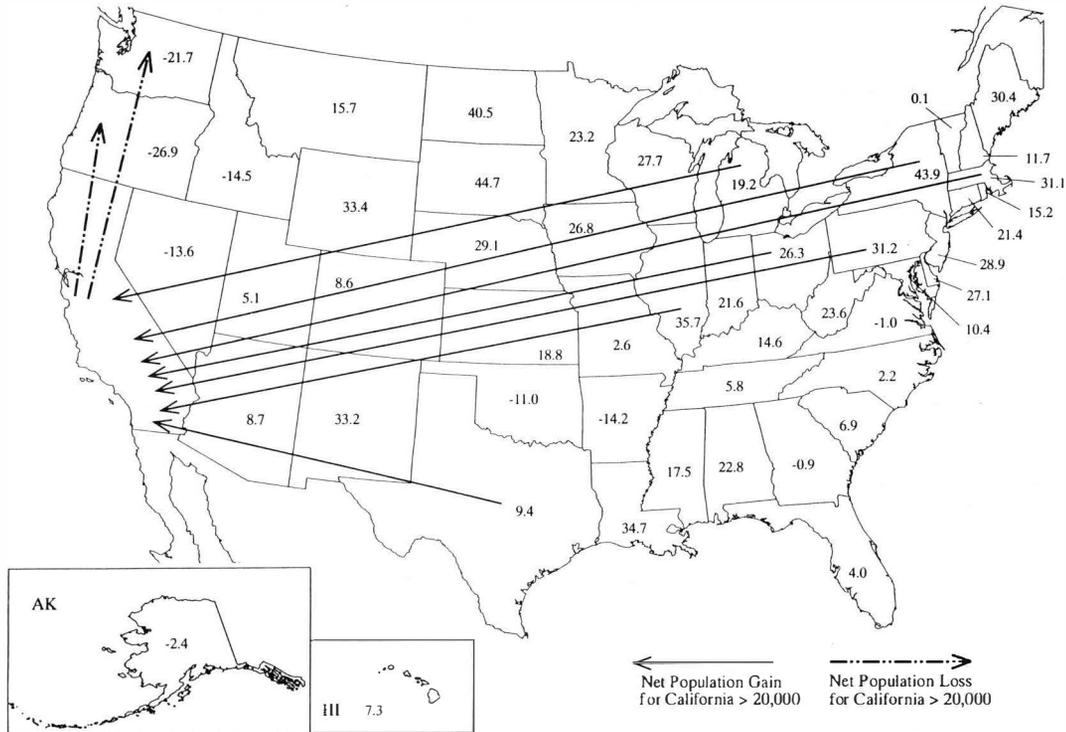


Figure 3. Demographic Effectiveness of Interstate Migration and Large Net Population Exchanges for California, 1965-1970

population during the 1970s did not greatly affect California's total population size.

California attracted large net gains from the Northeastern and Midwestern states of the nation's industrial core, and lost population throughout its own periphery, most dramatically to the Northwestern states (Figure 4). California's unique redistributive role during this period, which could be seen emerging during the previous decade, followed a clear regional bias. In terms of demographic effectiveness of migration, California's relationships with the industrial Northeastern and Midwestern states were very efficient, moving westward into a transitional area through the rural Midwest and Great Plains, and finally we find negative demographic efficiencies everywhere west of the Dakotas. California experienced small to moderate net gains and losses with the states of the South, and efficient net outflows to the former Dust Bowl states of Oklahoma and Arkansas.

Demographic effectiveness rates do not reveal the high volume of movement during the 1975-1980 period. Total migrants from New York was 179,601, for a net gain of 133,461. Conversely, California sent gross flows to Oregon and Washington of 165,157 and 177,466 respectively, and experienced net population losses of 105,818 and 105,054. While only losing 23,297 in net migration with Arizona, the interchange included some 200,713 migrants.

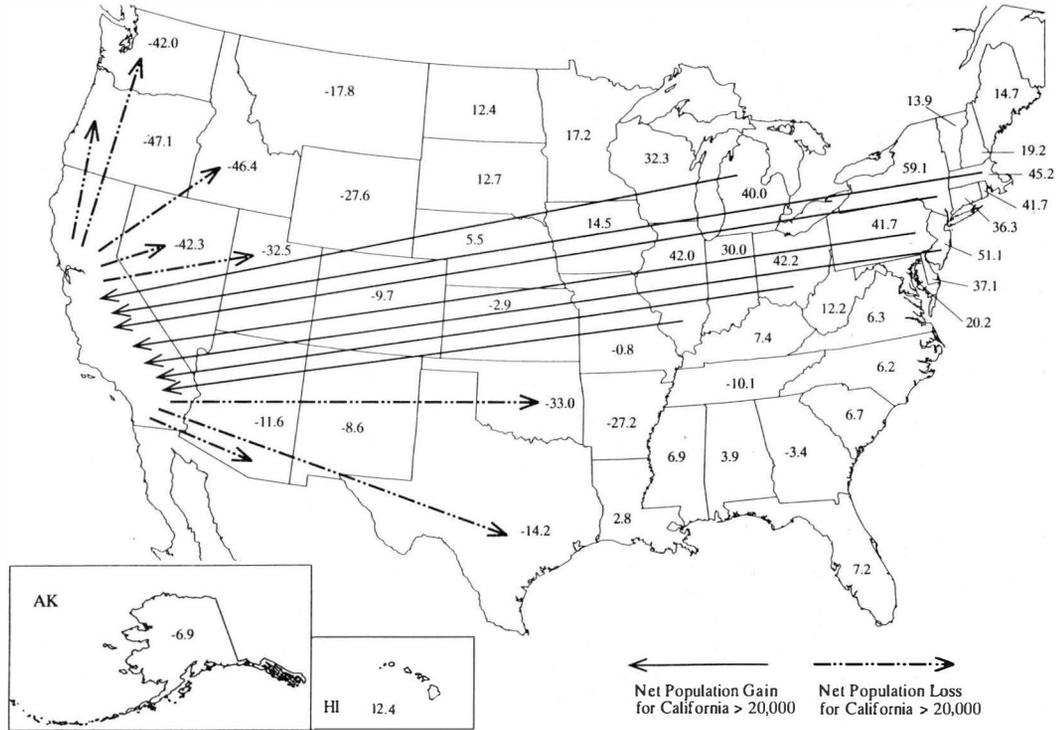
1985-1990. It is clear from the total interstate migration flows presented in Table 1 that California's redistributive role in interstate migration persisted during 1985-90, as the state was again the U.S. leader in both gross in-migration and gross out-migration but experienced relatively little population growth as a result of total interstate migration. The geographic patterns of the population redistribution during this period, illustrated in Figure 5, reveal both continuities and change from the previous decade. Demographic effectiveness and net gains from the populous states of the Northeast and Midwest declined, but net gains persisted throughout the region. Combined net population gains from New York, Illinois, Ohio, and Michigan (California's largest contributors in 1975-80 in terms of net population exchange) were reduced from approximately 300,000 in 1975-80 to 140,000 in 1985-90. Symptomatic of the reduced effectiveness rates, only ten states gained or lost greater than 20,000 in net population exchange with California, as compared to fifteen states the previous decade. While California was again a net population loser to the Northwestern and Southwestern states, net losses were generally lower and negative demographic effectiveness rates were cut approximately in half.

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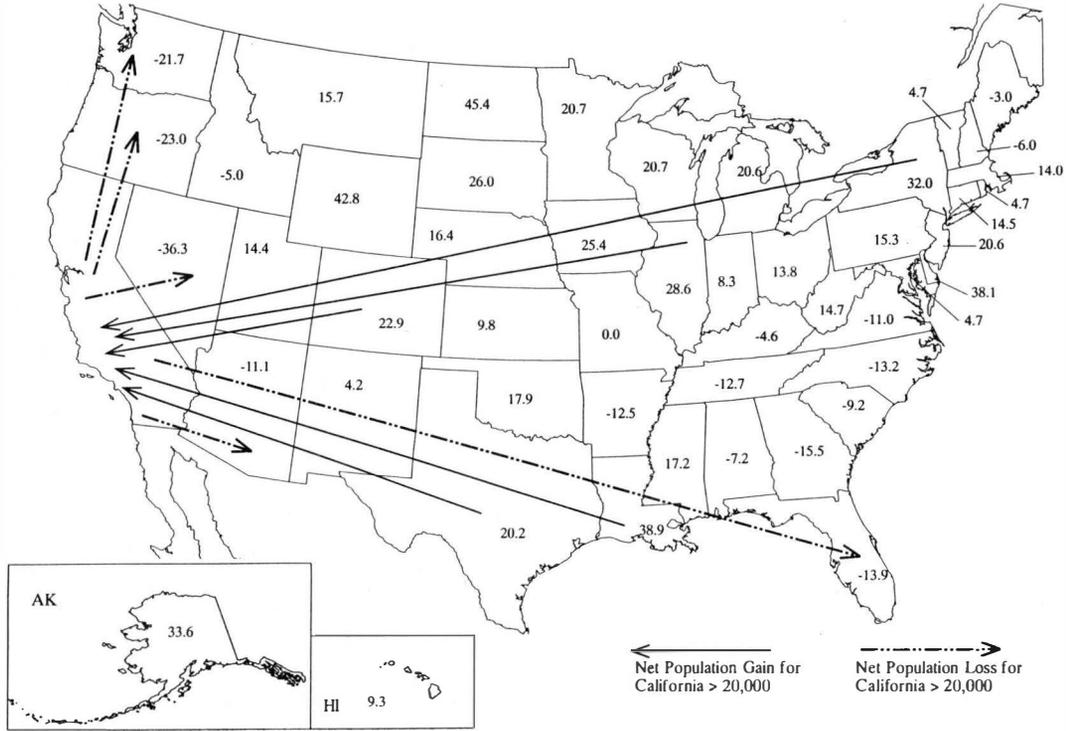


Figure 5. Demographic Effectiveness of Interstate Migration and Large Net Population Exchanges for California, 1985-1990

In the West, California's migration patterns can be divided into three subsystems: the Northwest, the Southwest, and the Rocky Mountain region. In the Northwest, California lost a combined 104,000 migrants in its population exchange with Oregon and Washington, roughly half of what it lost to those states during 1975-80, a change reflected in the demographic effectiveness rates. Still, the 155,000 people moving to Washington was California's largest gross out-migration flow. The demographic effectiveness rate for California's interaction with Idaho was dramatically reduced during the period of relatively even population exchange. In the Southwest, both net losses to and demographic effectiveness rates for interaction with Nevada and Arizona were similar to those of 1975-80. The net population loss of nearly 60,000 to Nevada was California's greatest loss to any state during this period, and the net out-flow of Californians to Nevada was the most effective of any of California's population exchanges from 1985-90, at -36.3. A significant turnaround occurred in California's exchange with the Rocky Mountain states of Colorado, Utah, New Mexico, and Wyoming, as demographic effectiveness changed from negative to positive for California. These changes also were evident in California's interaction with Texas and Alaska, and may be associated with the economic decline of these states following the oil bust of the 1980s (Plane 1991). The reversal from negative to positive demographic effectiveness between Oklahoma and California occurring between 1975-80 and 1985-90 may be influenced by demographic factors; there are fewer Dust Bowl-era migrants left in California to make a return migration to Oklahoma.

The emergence of out-migration trends to the states of the Southeast, particularly along the Atlantic coast from Virginia to Florida, was another major development during this period. This phenomenon marks a significant geographic shift in the patterns of California's out-migration field. Changes in California's geography of population redistribution are largely consistent with national interstate migration trends identified for the 1980s, which include a dominant pattern of bi-coastal population distribution and out-migration from the "energy states" of the Rocky Mountains and West South Central (McHugh and Gober 1992).

Proposed Causes of California's Redistributive Role

The transition to post-industrialism in the U.S. has been characterized by the redistribution of economic functions and the loss of dominance of the traditional core area. While individual decisions to move are the results of complex decision making processes, it is clear that mi-

gration flows are influenced in part by shifts in the location of economic activity (Plane and Isserman 1983). Population movement in the 1960s and especially the 1970s was flowing down the national urban hierarchy, and from the core metropolitan areas to those of the traditional periphery (Plane 1984a).

During the past half century, it can be argued that California has developed as a secondary national core in three principal areas: economics, population, and as a cultural hearth (Kirsch 1991). As California has developed into a secondary core, migration from the traditional core of the Northeast and Midwest has been just a step down the urban hierarchy, shorter as a functional distance than a physical distance (Kirsch 1991).³

With the largest net migration flows to California in recent decades having originated from the traditional core region, the shorter functional distances as well as the reduced friction of distance between the regions due to advances in technology and communications must be taken into consideration. Moreover, the deconcentration of economic and social functions also has a center in California. In light of California's continuous population growth, it would be far fetched to refer to California as deconcentrating. Still, the outward dispersal of population and capital from California indicates the presence of deconcentrating trends (see Plane 1984a).

California continues to be a large attractor of migrants from the traditional core region while at the same time distributing population throughout its periphery. Of course, anyone who has made a decision to move (and where to move) knows that the components that go into the decision making are not purely economic. It is difficult to evaluate the role of search space, but it is clear that migration decisions are constrained by the search space of the migrant. Individuals build up an awareness space based on information gathered through both mass media and interpersonal relations throughout their lifetimes, without necessary reference to migration, to formulate mental maps (Roseman 1977). The attractiveness of an area is constrained by communications as well as transportation networks (Roseman and McHugh 1982). California's high visibility in the mass media certainly gives it a place in most people's mental maps. For migrants from the core region it is likely

³An analysis of the functional distances of California's interstate migration patterns derived through the use of a singly constrained reverse gravity model is presented and mapped in Kirsch (1991) based on techniques utilized in Plane (1984b).

that California is the most well known destination for a move to the West, due to its high media visibility as well as kinship ties and "beaten path" effects. For those living in California and contemplating a move, the search space may expand to include much of the West. Roseman and McHugh (1982) postulate that the role of individual ties to place in recent migration has favored metropolitan to non-metropolitan areas. This pattern seems to exist at the state level for California's out-migration field. The continued deconcentration of economic functions, aided by technological advances such as fax machines and computer modems, have made it possible for many businesses to locate almost anywhere. While California may still represent the American dream to some interstate migrants, others who have lived in California are taking their dreams elsewhere. Certainly, recent disaster coverage of earthquakes, fires, floods, and the Los Angeles riots of 1992 will do little to enhance California's image for future migrants.

International immigration to California, the largest component of the state's population growth, may also have impacts on California's role in interstate migration. As stated above, California became the leading international port of entry state in 1960, and due in part to the new national immigration policy adopted in 1965, migration to California during the 1970s and 1980s has been increasingly dominated by international immigration from Asia as well as from Mexico and Central America. Although the 1965 Act set limits on the number of immigrants allowed in the U.S. from the western hemisphere, it did not actually reduce the number of Mexican immigrants entering the United States. Muller and Espenshade (1985) maintain that it did serve to make "illegal" many of those future migrants who would have otherwise been legal.

California's role as the nation's leading international port of entry, which can also be seen as a core function, may have contributed to this dispersal of interstate population. This may not be a case of "white flight" in reaction to the internationalization of the state's population, nor are there sufficient data available to substantiate such a claim. There is some evidence indicating that the new wave of unskilled Mexican immigration has led to increased blue collar out-migration from California (Walker et al. 1991; Muller and Espenshade 1985). It seems apparent that immigration, simply as an agent of dramatic population growth, has had an impact on the acceleration of out-migration trends.

California has received wave after wave of migration, both interstate and international, since the days of the Gold Rush. With roughly eighty percent of the population clustered within forty miles of the coast

(Houston 1986), there has been tremendous environmental and social stress on California's urbanized areas. In terms of real estate and cost of living, California's urban centers are among the most expensive in the country. The sale of a house in California may purchase a larger or more attractive house in a peripheral Western state and also support a higher standard of living, or a sum of money to retire on. The lowest demographic effectiveness rate and greatest net loss from 1985-90 was to Nevada, suggesting a scenario of perceived low cost of living benefits. A survey of California's in- and out-migrants would yield useful knowledge concerning the perception associated with the migration trends identified in this paper.

Conclusions and Implications

The history of California is one of continuous and often explosive growth in population and economy. With the state's population reaching 30 million, the question arises as to how much growth California can sustain in the future, and at what costs? Urban sprawl, traffic jams, environmental degradation and pollution are consequences of this growth in California's urban centers. Recent trends of regional net out-migration may also be a consequence of the development of modern California, as well as a symptom that, for some, life in California no longer embodies the geographic ideal which Vance (1972) identified over two decades ago.

The impacts of the dispersal of people from California into the state's periphery have been observed, somewhat ambiguously, in the recent catchphrase, "the Californication" of the West. In the Northwest, bumper stickers commonly expound anti-California rhetoric, while some newspaper columnists in Seattle ". . . build careers fevering about encroaching Californians" (Zukovic 1992, p. 9). While the popular news media of late has been spouting about the out-migration of Californians to the western states (e.g. see Bonfante 1993), the image created has been of a mass exodus of Californians, fleeing Sodom with their carphones and their flashy lifestyles.

This paper reveals the actual patterns of California's interstate migration, which tend not to be as one-sided as the popular images would imply, and to identify the geography of California's redistributive role. I have focused on a measure of net migration to evaluate the impact of total migration on population growth, but there is certainly a great deal more that can be learned from these migration patterns through a demographic analysis of gross migration flows, micro-level analysis of deci-

sions to move, and a study of the social, economic, and political impacts of California's out-migrants on their new places of residence.

It should be evident from the dramatic changes in California's demographic effectiveness of migration that interstate migration patterns are volatile. While California's redistributive role in interstate migration persisted during the 1980s, both net gains and losses occurred at lower levels than the previous decade. These findings are consistent with national trends in which core-to-periphery migration continued during the 1980s, but in a slower fashion (Morrill 1988). It seems likely that California will continue its redistributive role in U.S. internal migration in the 1990s, attracting migrants from the Northeast and Midwest and redistributing population to a distinctly different set of states. From 1985-90, the leading states in terms of attracting population from California were Washington, Oregon, Nevada, and Arizona, but the pattern of negative demographic effectiveness rates along the South Atlantic coast may indicate an important emerging trend.

California has always occupied a unique position in U.S. internal migration. It is still the country's greatest attractor of interstate migrants, but this has been overshadowed by the fact that it is also now the country's leading state of origin for out-migrants. California has developed into a large scale population redistributor. This phenomenon can be expected to continue, with its volume and regional variation dependent on a complex environment of local, regional, national and international influences. It is probable that higher rates of in-migration, immigration, and overall population growth will amplify the volume of out-migration, if the prospect of life in a California megalopolis becomes less attractive. While changes in United States internal migration will be difficult to predict, it seems clear that the migratory patterns associated with California will, as ever, play an important role.



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1993 ANNUAL MEETING

Shasta College, Redding, April 30-May 2

For its 1993 annual meeting, the California Geographical Society traveled farther north than it has for a very long time, to gather on the campus of Shasta Community College, in Redding, California, with the overall theme of "Destinations." The group which put this very successful meeting together was headed by Carol Jean Cox. Many of the paper sessions reflected this theme, with titles such as "International Destinations" and "California Destinations." Following the tradition that a good CGS meeting should begin with good food, the meetings opened on Friday evening with a marvelous Middle Eastern Barbecue dinner held in the Shasta College Amphitheatre, which prepared participants for the stunning and informative presentation entitled "To Claim the High Ground in Central Asia: Environment, Peoples and Politics of the High Pamirs, Tajikistan" by Steve Cuhna of Cosumnes River College. Steve's slides and his recounting of his personal adventures made for a very stimulating evening.

The meetings were bracketed by field trips on Friday and Sunday that presented such inviting choices that many participants were disappointed that they could not take part in all of them.

Saturday evening's Oriental Banquet featured the presentation of a variety of awards, recognizing the contributions of some of those who have actively promoted Geography in California, as well as the winners of the student paper competitions.

The Distinguished Educator award this year went to our opening speaker, **Steve Cunha**, while the Distinguished Service Award was given to CGS's long-time Treasurer, **Emmett Hayes**. Distinguished Teaching Awards were made to **Bonnie Emerson**, **Carol Douglas**, **Donald Floyd**, **Tom O'Brien**, and **Terry Williams**. Certificates of Appreciation were given to **Carol Jean Cox** and **Dave Hedgecock**.

The student paper competition is always a highlight of the evening as we recognize the achievements of those just entering the world of professional geography. In the undergraduate division, third place was awarded to **Jason Jones** (Shasta College) for his paper on McCloud; second place went to **Tamara Woods** (Shasta College) for her paper on Red Bluff, while the first place award was given to **Ken Hirano** (San Jose State) for his paper on which side of the road people drive on.

In the graduate division third place went to a group from Fresno State, **Mark Goodman, Matthew King and Lynn Marchin**, for their presentation on ethnic street gangs. Second place was awarded to **Chris Mayda** (Cal State Northridge) for her paper on Frederick Jackson Turner, while first place was given to **Jennifer Helzer** (CSU, Chico) for her presentation on Hmong and Mien garden landscapes.

In addition to the usual student awards, a Special Recognition Award was made to the group of **Scott Eckman, Christopher Garner, Peggy Meyer, Thomas Sabatino, Kevin Wade, and Bruce Wullschleger** (CSU, Fresno) for their poster session.

The **David W. Lantis Geography Student Scholarship Awards** were also made at the banquet, and the CGS Scholarship Committee found the competition so keen that two awards were made to both undergraduates and graduates. The undergraduate scholarships were made to **Christine Eleana McMichael** and **Tracy L. Jones** (both of San Diego State University). The graduate students so honored were **Stuart Phinn** (San Diego State University) and **Christopher Lukinbeal** (CSU, Hayward).



PRESENTATIONS

DEBORAH ANDERSON, Shasta College, Redding—**A Look at the Cultural Landscape**

JOSEPH P. BEATON and **ROBERT PINCUS**, California State Polytechnic University, Pomona, **Will Somalia Ever Be Whole Again?**

ADRIAN BELTRAN, Shasta College, Vienna—**A Hearth of Diversity**

WILLIAM BOWEN, California State University, Northridge, **The Essential Geography of Educational Attainment in California**

WILLIAM BOWEN, California State University, Northridge, **Mapping Census Data with the Macintosh Computer**

JUDY S. COOPER, San Jose State University, **Preliminary Investigation of the Correlation Between Census Data and Biomass Volume in San Jose, California**

MARSHA DERBY, Shasta College, **The Little City With a Big Past: An Historical Geography of Tehama, California**

JOYCE DONOHO, California State University, Chico, **A General Plan For the Repatriation of Palestine Refugees**

- SCOTT ECKMAN, California State University, Fresno, **Conflict of Human Development on Mountain Regions in the Los Angeles Basin**
- RICHARD EIGENHEER, Sacramento City Schools, **On the Road Again: A Field Excursion into the Central Valley and the Northern Coast Ranges**
- RICHARD ELLEFSEN, San Jose State University, **Geography is Everywhere, Even on Airport Runways**
- LAWRENCE ESTAVILLE, California State University, Fresno, **The Region: A Concept for Teaching Geography**
- KARI FORBES-BOYLE, University of Nebraska, Lincoln, **An Example of Ritual Centers: Bald Rock Mountain**
- BARBARA FREDRICK, RICHARD BARON, NED GREENWOOD, and RICHARD WRIGHT, San Diego State University, **The Red Rock Canyon State Park Database: Perplexing Problems and Promising GPS Solutions**
- CHRISTOPHER GARNER, California State University, Fresno, **Understanding Fire Ecology in the High Sierra**
- MARK GOODMAN, MATTHEW KING and LYNN MARCHIN, California State University, Fresno, **The Geography of Ethnic Street Gangs in Fresno, 1980**
- CARRIE HELTON, California State University, Hayward, **Attitudes of Coffeeshop Customers: A Comparison of Palo Alto and Berkeley**
- JENNIFER HELZER, California State University, Chico, **Cultural Landscapes of Northern California: Ethnic Gardens of the Hmong and Mien**
- DAVID HENDRIKSON, Fresno City College (Ret.), **An Incident at Greenwood Cove**
- KEN HIRANO, San Jose State University, **Right or Left: Which Side of the Road Does the World Drive On?**
- MARCIA HOLSTROM, San Jose State University, **A Center Cannot Exist in a Void: A Progress Report on the Center for Geographic Education at San Jose State University**
- BRAD JENKINS, California State University, Chico, **Recreational Users of the Washout: Are Their Attitudes Environmentally Friendly?**
- JASON JONES, Shasta College, **Railroads to Retirement: The Rural Community of McCloud**
- WAYNE KESSLER, Former Peace Corps Volunteer, **The New Country of Eritrea**
- SANDRA KILCOLLINS, California State University, Chico, **Spatial Distribution of Students in a Year-round School**
- GUY KING, California State University, Chico, **Computer Application Demonstration: IDRISI and MICROCAM—Low-cost GIS, Remote Sensing, and Cartography Softwares**

- EMILY LIEB, CHRISTOPHER GARNER, MICHAEL MOSTER and CAROLYN WHORFF, California State University, Fresno, **Hmong Cultural Traits That Influence Gang Activity**
- CHRISTOPHER LUKINBEAL, California State University, Hayward, **Western Films and the American Culture: Niles, California as the American West**
- LYNN MARCHIN, MARK GOODMAN and MATTHEW KING, California State University, Fresno, **The Geography of Ethnic Street Gangs in Fresno County, 1990**
- KARL S. MASUR, California State University, Chico, **The Effect of Use Patterns on Trail Impact in Chico's Upper Bidwell Park**
- CHRIS MAYDA, California State University, Northridge, **Geography and Frederick Jackson Turner**
- THEODORE MCDOWELL, California State University, San Bernardino, **Wind Hazard Zones in San Bernardino: The City Revises Its Standards**
- KEN MCKROLA, Alpine Land Information Services, **ATLAS[®] GIS and Satellite Imagery**
- PEGGY MEYER, California State University, Fresno, **The Ball Ranch Project—A GIS Project Demonstrating Impact of San Joaquin River-bottom Development on Raptors**
- CRANE MILLER, LIN WU, JOSEPH BATES, MICHAEL CHANCELLIER, BRENT GROMETER, DAEMON HOBBS and JOSEPH BEATON, California State Polytechnic University, Pomona, **Santa Ana Region Wetlands Mapping and GIS Project**
- MICHAEL MOSTER, CHRISTOPHER GARNER, EMILY LIEB and CAROLYN WHORFF, California State University, Fresno, **Geography of Hmong Street Gangs: Auto Theft, 1987-1992**
- RICHARD NEIL, California State University, Northridge, **Ratzel and Taylor: The Lebensraum Controversy**
- ALAN RICE OBSBORN, University of Oregon, **Tourist's Vision, Traveler's Tale: Contrasting Resident and Visitor Sense of Place—A Case Study of Madrid, Spain**
- CLEMENT PADICK, California State University, Los Angeles, **Northern California Imagery in the National Aerial Photography Program (NAPP)**
- PAMELA POSEY and SCOTT HOILAND, Butte Community College, **The County Soil Survey: A Tool to Introduce Students to Rural Land Use Planning**
- PAUL QUIROGA, San Jose State University, Los Gatos, **Conversion from a Small Town to a Bay Area Boutiques**

THOMAS SABATINO, California State University, Fresno, **NASA's Lunar Soil Samples Compared with Terrestrial Counterparts**

CATHERINE SARGEANT, San Jose State University, **Who's on First? Anyone? A Comparative Analysis of Primary and Secondary Streets in Downtown San Jose**

TERRY SHRUM, SUSAN WEAVER and ADRIAN BELTRAN, Shasta College, **Mapmaking Made Easy: Creating Student Maps on MAPMAKER and ATLAS[®]PRO**

RICHARD TAKATA, San Jose State University, **Teaching the Relevance of Geography: A Manager's Perspective**

KEVIN WADE, California State University, Fresno, **Weather Modification in the San Joaquin Watershed**

JOHN WALCOTT, University of Southern California, **Energy and Grain Size: It's Not Always What You Think It Is**

TAMARA WOODS, Shasta College, **Back to the Western Future of Red Bluff**

BRUCE WULLSCHLEGER California State University, Fresno, **Ethnic Maps of Fresno's Population**

PANELS

In addition to papers presented, these meetings featured panel discussions on various topics.

Teaching Ethnic Geography: Issues, Strategy, and Methods

LAWRENCE ESTEVILLE, California State University, Fresno

WILLIAM BOWEN, California State University, Northridge

SUSAN HARDWICK, California State University, Chico

RICHARD HOUGH, San Francisco State University

ROBERT KREGER, Cerritos College

The Status of Geographic Education in California

JERRY WILLIAMS, California State University, Chico/ California Geographical Alliance, North

BRUCE BECHTOL, California State University, Chico

STEVEN CUNHA, Cosumnes River College

DAVE HELGREN, San Jose State University

GAIL HOBBS, Pierce College/ California Geographical Alliance, South

