Cookstoves to Air Conditioners: 
Improving Energy Efficiency in Mexican Homes

By Yvonne Pacheco Tevis

Three University of California, Berkeley graduate students want to save Mexico energy. Their method: Improving fuel efficiency in Mexico’s approximately fifteen million residences, which consume over twenty percent of the nation’s energy supply. But Mexico is a diverse nation. Those 15 million homes have been constructed in the desert, the coast, the mountains, and the humid jungle; in places urban, rural, and somewhere in between; and their inhabitants range from the very rich to the destitute. No single national strategy of energy efficiency could possibly apply to every house and family.

At UC Berkeley’s Energy and Resources Group, the three students, Omar Masera, Odón de Buen, and Rafael Friedmann, had been conducting individual research projects on energy use in Mexico’s residential sector. They combined forces through a 1990 UC MEXUS Development Grant awarded to their adviser, Mark Christensen, for an analysis of energy use in Mexican homes by region, type of fuel, and kind of appliance.

Omar Masera, currently writing his doctoral dissertation, studied rural households where the biggest demand for energy chiefly entails wood for cooking over three-stone fires or wood stoves, and sometimes, for the wealthier rural resident, liquefied petroleum gas.

Odón de Buen, who received his master’s degree this past May, took on the hot, desert north where air conditioning drains the region’s electricity supply.

And Rafael Friedmann, pursuing his Ph.D., covered the remaining 60 to 70 percent of urban households, in which lights, refrigerators, and televisions comprise the three major uses for electricity.

Masera, de Buen, and Friedmann anticipate a tremendous future demand in Mexico for energy (whether wood, gas, or electricity), an increase in the residential sector, in fact, of 260 percent by the year 2025. First, the population is growing rapidly, from 48.2 million people in 1970 to 81.1 million in 1990. At the same time, the number of households in Mexico has grown more rapidly even than the population because average family size has dropped. Second, Mexico’s increasingly urban population includes many former rural residents who have relocated from country to city in search of jobs and a better life. Once there they encounter a variety of (See Energy, page 5)
Guest Editorial
By Andrea Kaus

The Conversation of Conservation

"When you see it through their eyes, then fences get in the way of the landscape, some of them with the wire halfway down and all. But when I see it through different eyes, I see another man's dream." (tanner talking about a Nature Conservancy site)

Environmental conservation is a term to which we each attach a set of concepts and actions based on our own view of the natural environment. Each of us looks at the world through a different pair of eyes and pulls out of the continuum of reality that which our past experiences and future expectations allow us to accept. We see the world first in the mental context of how we learned about it and explored it in relationship to ourselves. Yet at some point, individual perceptions must overlap within a group of people if there is to be any common understanding of a situation or any consensus about appropriate behavior. Language often is cited as the outstanding example of collective representation. We all learn and practice speech individually, but the concept we each hold of our own language is consistent enough in both syntax and connotation that we can understand others who speak the same basic language. A global language for conservation based in English words and Western concepts has been developed by the international scientific community. Even among conservation scientists, however, the connotations of conservation language are not consistent, though we use a common set of words. Terms such as "ecosystem," "wilderness," "nature," "biodiversity," "biological heritage," "local participation," and "sustainable" generally are used to define and promote environmental policy. But the concepts attached to even the first term alone—conservation—differ widely from "hands-off" to "wise-use" to "restoration" of the land.

In the scientific field of environmental conservation, we seem to have great difficulty in reaching any sort of consensus about how a protected area of land should be used. Yet we are not really such a quagmire. It is the problem in part is that we fail to allow the many meanings of the words we use so easily.

Debate over conservation terminology is not an aesthetic argument. When environmental policies are formed from conservation concepts, their implementation affects not only the land, but also the people who depend on the land for a living. Residents of an area targeted for conservation have their own perceptions of their surrounding environment, formed from their personal experiences and cultural beliefs and expressed in their own language. These perceptions rarely are present in the common Western concept of nature and wilderness on which natural resource management decisions typically are based. We need to incorporate into policy the points and circumstances where concepts about a given environment and resource use overlap between conservationists and local people.

We have very few examples of how such a process might work. On a local scale, a small corner of the Chihuahuan Desert known as the Bosque del Apache provides insight into the interaction between conservationists and local people. This is the "core" of the Bosque del Apache Bioreserve, officially founded in 1977 for the protection of an endangered species of desert tortoise, Gopherus flavomarginatus. The cooperation of the local people with the researchers from the Instituto de Ecologia has resulted in a population increase of this endemic tortoise within the Reserve.

Why did the local people accept the researchers? They say it was for "convivencia," the willingness of the initial residents to communicate and work side by side with them, to accept their help and advice, and to include their concerns in the decision-making process. It was a matter of trust. In turn, the researchers have provided a window to another world outside that arid basin. In this way the local people have been given a vision of the importance and value of their resources and efforts in a wider context. The result is a rough overlap of perceptions of the environment from the meeting of the two lifeways and cultures, which is partially embodied in a shared form of dialogue. There has not always been a clear connection between the ranchers and researchers in the Mapimí Reserve. The local people initially did not understand the intentions of the researchers, and they adopted a "wait-and-see" attitude. They would hold up their end of the bargain (not to eat tortoises) if the researchers did not interfere with their cattle ranching or threaten their livelihood.

In addition, the researchers brought strange customs and languages with them. Nearly all were from the city, some were from other countries (France, Spain, Argentina, the United States, Russia), and all were academicians. The field stations where they stay is located away from other human settlements. A local fellow working there nearly ten years ago was asked by tourists what the researchers did there in the middle of nowhere. He replied that they studied the flora and fauna. When further questioned as to what that meant, he responded, "I don't know, but that's what they say they do." Local people in the rural areas of Mexico do not necessarily have a well-defined concept of ecology, environment, or conservation, but the environment is the basis of their subsistence. Their own words and actions tell us how they know their world. One Mapimí rancher, for example, described the ways in which he and his family would use the range land from the effects of drought and overgrazing and how they were protecting the wildlife from poachers as well. When the research turned in his saddle, viewing the range stretching away from him into the distance, and said, "¡Qué hay cordero, ¿verdad?" (You've got to care for it, don't you?) The same man was later part of a group which, when asked the meaning of the word "conversación," replied, "¿Qué ser?" (What is that mean?)

In fact, the relationships between the people of Mapimí and the surrounding natural environment often form a well-developed field of local knowledge, separate from that of western science and built from the ground or "grass' up, not from the desk down. For example, the local perception of campo (field), as presented in a verbal description, is a better representation of reality than the academic researcher's description of the field's "of his or her fieldwork, because it includes and explains the interaction between the social and natural environment by involving the observer. The contrast between the residents' and the researchers' view of the environment is illustrated further by the different concerns researchers and local people have when considering species. The local people themselves consider the species most important according to pastures, properties, fence lines, water sources, prominent hills, dominant vegetation, or past history. To

Andrea Kaus received her Ph.D. in anthropology from the University of California, Riverside last January. This essay was written in 1990 for her dissertation, "Mapimí Bioreserve," partially funded by a UC MEXUS dissertation research grant. "I was just out of the field when I wrote this piece," she said, "and still trying to reconcile what I had learned in Mapimí with larger issues in conservation. Now it is good to be reminded that conservation research surprised by the magnitude of the problems and the sheer number of scientific designations and locally-nominated species for various locations on the Reserve. For the local people, the researchers are "foreigners." For the locals, who are "inhabitants" to pastures, properties, fence lines, water sources, prominent hills, dominant vegetation, or past history. To

The amusement of the local people, the researchers call the area usually dry but sometimes flooded bottomland "playa, or 'beach.' More descriptive names are given by the residents to particular parts of the bottom land: the sotol (sotol) or "hog wash," the cienaga (cienega; vegetation), Los Cactus (for a mesquite thicket and water source where two cats were once seen), and a special pit for marking a particular pet. Jumping the property fence line, the area referred to as El Alto (the high place), which reflects the perspective of someone looking upward from the drainage channel (La Vega) at the bottom of the Bosque.

The ranchers and researchers are static in comparison to that of the local people. While the researchers refer to the region as 'desert' or 'semi-arid," depending on the classification system used, the local perception and denotation may change from year to year, season to season, month to month. In 1989, after two years of drought, the local people said the area was a "desierto por cloro" (a desert for sure). However, after a month and a half of daily rains in the summer of 1990, the range was covered with well-grassed "Una pradera" (a prairie), the locals said.

Some of the researchers, especially those involved in the Reserve management, have recognized the differences between local and academic perceptions. The dialogue between these researchers and a small group (approximately thirty) of local people has developed into a shared language that reflects the histories and landscape views of the groups and the overlap of their interests. In this specific context, the local people accept and use some of the academic terms (such as SPECIES [species], vegetation, estación, flora, fauna, manantio [mammals], etc.) or the scientific names for plants and animals. A popular old corrido (folk ballad) now sometimes is begun with the line, "En las ramas de un verde Prospeo . . ." (In the branches of a green Prosopis . . .), using the scientific name of the mesquite tree.

In conclusion, outside of their context and location (primarily the Reserve's field station), the researchers' terminology is not accepted as appropriate. The ranchers mock and tease these local people who use the scientific language away from the presence of a researcher. They say that these words reflect only the researchers' knowledge, not local knowledge. A gap still exists in Mapimí rancher-researcher conversations, and, more emphatically, in general environmental conservation dialogue. Too often we forget that experience is the best teacher and place emphasis instead on the letters that precede or follow a person's name, on the way that person talks, and on the material he or she writes. In so doing we create a barrier of formally-structured education and language that is both intimidating to

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and disdained by rural populations. A rancher from the Bolaón de Magipi once commented about the researchers with whom he had worked: "We tell them what it is like here, but they write about it differently.

Another rancher, a small-scale cattleman with a sixth grade education, was too polite to impose his thoughts on the researchers and seldom contradicted or contributed to the scientific dialogue in their presence. A time came when he was placed in the unofficial role of teacher for one of the researchers. When asked about drought and flood cycles in the region, he held up his hand to stop the question and pulled out from under the mattress of his bed a master's thesis on the climatological history of the area. "Perhaps this will be of use to you," he said. "I will loan it to you."

"What else have you got under there?" asked the surprised researcher. This is the question we should all be asking. Local people who depend on the land for their lives have a wealth of knowledge and experience stored under their hats. But environmental scientists have not learned how to make the residents of the areas they investigate feel comfortable enough or respected enough to take off their hats, sit down and really talk. Most important, we have not learned how to listen, and then to respond in ways that indicate appreciation for and understanding of a different environmental perspective.

The rancher who wrote and gave the thesis to the rancher understood. The rancher read the thesis because the researcher had become a personal friend, but he treasured the document for much more than the friendship it represented. He offered to loan it not for its charts on temperature or rainfall, but because it contained information and accounts from his grandfather and his grandfather's peers. The book presented a description of the region that rang true to him, yet in a format he felt another researcher would understand. The rancher, in his own teaching, easily recognized and used a combination of perceptions for instruction which most of us who claim to be advocates of grassroots projects, sustainable development, or participatory planning are still fusing at the research design level, at the level of words to which no actions have yet been applied.

This does not mean that all farmers and ranchers are unrecognized conservationists. In the Bolaón de Magipi, the people are noted for their frontier attitude. The ranchers want more cattle, more land and less interference from the government or other people. However, not all their actions and goals are incompatible with those of conservation. Fence lines, an intrusion on Nature to some, may reflect not only a rancher's dreams but sound resource management as well. Recall the fellow who said one had to care for the land. He also pointed out the newly installed fences and a water system on the property, over twenty-six kilometers of pipe and fence put in by hand with borrowed equipment and money. The property had been divided into two pastures, and he and the others with livestock there would move all the cattle and horses into one 7,000 hectare pasture for the rainy season. "We will have the other pasture as a reserve," he explained.

'Reserve': This is one word and concept that the ranchers and researchers share and that existed in their vocabulary long before the establishment of the Magipi Biosphere Reserve. It forms a base from which a shared perspective and common dialogue of appropriate land use can be built. The incentives that drive conservationists or researchers are not necessarily the same as those which motivate rural populations, so invoking people's sense of biological heritage and the intrinsic or scientific value of wilderness or biodiversity is not enough. Yet the concept of a reserve is understood and provides a perceived incentive at the community level, especially when combined with other concepts such as patrimony, inheritance, and guardianship for the next generation of cattle, sons and daughters, or Mexican citizens (in that order). The key to the continued existence and relative success of the Magipi Reserve has been that the word reserva never has represented the exclusion of local inhabitants, but rather the acceptance that they are the resource managers, the ones with the ultimate say.

There always will be researchers who do not know about local lifeways, and local inhabitants of his/her reserve are not all going to become folk academics. The objective of conservation buffer zones of protected areas needs not be a conversion of academics into ranchers and farmers or vice versa, but a workable format for all parties involved. This means including local perceptions and breaking away from the same circle of promotional work—e.g., how to explain the other—in conversations about conservation. It means forming a common language that ties directly to local and regional realities to ensure that all those involved are talking about the same thing. Most of all, it means listening to the way people think about their environment and recognizing, in their words, shared concepts of conservation.

Rural Mexico

Wood is the main residential fuel in Mexico; demand for fuel wood is four to five times greater than for commercial timber, and in rural areas fuel wood supplies more than 80 percent of all energy needs. In the Purépecha Highlands of Michoacán, in the rural village of Churumactaticue, where for his master's thesis Omar Masera conducted an evaluation of cooking stoves, the mostly indigenous residents rely (as does 79 percent of Mexico's rural households) almost entirely on wood for cooking. Nearby supplies of fuel wood are dwindling, though, and locals believe they must travel farther to gather it than they did twenty years ago. The alternative, buying it, is out of the question for many.

The government offers subsidies for another cooking fuel, liquified petroleum gas (LPG) or propane. While an LPG stove provides a fast and smoke-free way to cook, it is too costly a purchase for most rural residents. In addition, LPG supplies to Mexico's 150,000 villages are often unreliable and most likely will become even less dependable if cities turn to LPG for fueling buses. In such a scenario Maesera doubts that supplies would be reserved for villages. "Priorities are given to large cities," he said.

Above all, one cannot make the transition to LPG stoves on an LPG stove. The burners are too small, Masera explains, for the comal, the wide, flat tortilla pan, and they do not get hot enough for making several tortillas at once. Such inadequacy is serious, since the basic diet of the villagers is tortillas and beans. Indeed, those few who own LPG stoves continue to make tortillas over wood fires.

Because culture and tradition hold important sway over human action, Masera believes that a feasible answer to energy efficiency can be found only through the consideration of environmental, health, sociocultural, and technical, in addition to economic, factors. While in the rural sector technology dissemination programs frequently have met with dismal failure, rural towns are not immune to change. Masera says that changes in Churumactaticue have rendered the villagers' traditional means for cooking,
the three-stone fire, less suited to modern life: Perhaps some villagers desire the perceived status of owning an LPG stove. Perhaps they modernize their kitchens, replacing the high ceilings and slotted wood walls of the traditional kitchen with solid brick and cement, which trap smoke from cook fires. Most definitely, they must cope with the shrinking of nearby forests.

For his master's degree research, partially funded by a 1989 UC MEXUS Thesis Grant, Masera sought a solution to decreasing fuel wood supplies that both meets the new requirements of village life and respects the pull of tradition. He compared trade-offs between three-cooking methods in Cherañactzintla—the three-stone fire, the LPG stove, and an improved wood stove called the parangau haerukatari, which means 'stone made of mud and clay' in the Purepecha language.

One of his comparisons involves cost. The purchase price of an LPG stove is more than one month's average wage. The parangau, which can be built by the user, costs little; and the three-stone fire, nothing. To operate, the LPG stove is considerably more expensive than the wood stove (assuming minimal construction costs) or the three-stone fire, provided the family gathers its own wood. If, on the other hand, the family buys fuel wood, an LPG stove actually is slightly less expensive to run than the parangau. (Labor is also a cost: because the three-stone fire burns more wood than the parangau, it requires more time devoted to gathering fuel.) Another comparison examines issues of health. Both the three-stone fire and the parangau release pollutants harmful to the respiratory system, a concern especially pertinent to women because they do the cooking. However, the parangau may greatly improve air quality, as compared to the three-stone fire, if its chimney is installed correctly and the pots are fitted tightly into the stove holes. Free of smoke, the LPG stove would seem more salubrious. On the other hand, in many isolated and somewhat inaccessible regions of rural Mexico, it is difficult to enforce safety standards for installation and use of LPG stoves and propane tanks; Masera suspects the incidence of explosions caused by defective equipment or gas leaks may be high among industrialized nations.

But the stickiest factor for comparison, and the least quantifiable, is culture. The three-stone fire represents an important spiritual and social force among the Purepechas, for fire is their symbol of life. The stones of the cook fire represent the three major gods of fire, and smoke, the Purepéchas' communication with their deities. The three-stone fire is built in the middle of the kitchen, and the family gathers around it at meal times. How does one calculate the meaning of smoke and fire? Masera asks if one can call health of the body more important than that of the soul. Without fire or smoke and adequate air for making tortillas, the LPG stove signifies the greatest leap from Purepecha tradition.

The goal behind the design of the parangau, developed by Jaime Nava of the Grupo Interdisciplinario de Tecnologa Rurales Apropiadas (GIRA), was not only to improve efficiency and reduce smoke, but to keep the smoke away from the cook, who, in the three-stone fire, has to stand close and lean over the fire. Masera's new design has, in fact, been adopted in many areas of the state of Michoacán, where the economy is based on mining and agriculture. The parangau is simple to build and requires only a fire pit, a few stones, and some clay. The benefits are numerous: the cook can stand up to the fire, saving energy; the smoke is reduced, and the cook can have a more comfortable working environment.

Masera currently is examining three villages in the Purépecha Highlands to understand the dynamics of fuel wood use and how people switch to LPG. Adequate supplies of fuel wood are important in all rural Mexican villages. In fact, Masera worked with the Comisión Nacional de Áreas Protegidas de Energía de Mexico (CONAE) and the U.S. Environmental Protection Agency to conduct a national review of fuel wood use throughout rural Mexico. As a result of this review, the Mexican government has initiated a program to distribute efficient wood-burning cook-stoves throughout rural areas of Michoacán, Oaxaca, and Chiapas.

Masera, who serves as an advisor, states wide units are being organized now and he expects distribution to commence soon. But Masera also emphasizes that developing and distributing an efficient wood-burning stove concerns only one aspect of the fuel wood issue. Other factors, such as an unspoiled, short-term ownership of forestry resources, and reduction in overall demand, also play important parts. It is concerned above all that Mexico's rural (and often poor) sector not be forgotten as price policies are developed to influence technology and fuel use. In Mexico, in spite of being a modern country, has a significant rural sector that relies on fuel wood," he said. He would like to see implementation of forestry policies that recognize rural peoples' traditions and needs and designate wood "for domestic use, and not just commercial use as is done now." After all, change is not as easy as inventing a new technology. There may be the matter of tortillas.

The Desert North

Summer temperatures regularly reach 100 degrees in Mexico's northern border states and the demand for relief, via air conditioning, is high. For example, during the hot months one-third of Mexicali residents turn on compressor-based air conditioners and 60 percent employ evaporative coolers. The 1990 census counted 13.2 million people—16.3 percent of the national total—residing in the northern border states, and the population grows as maquiladora industries draw job seekers to the area. As a result, the region's cities are consuming proportionately more of the country's electricity. In the residential sector electricity is wasted largely through the use of inefficient air conditioners and poorly designed houses.

O'dón de Buen, a research associate with the Lawrence Berkeley Laboratory, selected Mexicali, the biggest energy consumer of the border cities, for a case study of energy efficiency in the north, where an air conditioner can swallow over 20 percent of a household's income. So close to the United States, inhabitants of Mexicali have easy access to relatively cheap appliances. Discards from the United States, some rescued from motel demolitions in Los Angeles, others traded in for more efficient models through utility rebate programs, are trucked to Mexicali and sold to Mexicans who cross the border to shop. As a result, the proportion of Mexicali residents using electric appliances is higher than anywhere else in Mexico.

The logic behind obtaining a used appliance is, of course, the purchase price. Currently, a secondhand air conditioner can cost one-fourth the price of a new unit and is cheaper even than an evaporative cooler. But the discard costs more to run. In fact, its operating cost is twice the purchase amount.

Even assuming they had efficient air conditioners, few homes in Mexicali are equipped to battle the summer temperatures. Many roofs are made of concrete, which traps and retains heat, and only 15 percent have insulation of any kind. Most exterior walls are smooth, even though a rough finish stays cooler. Few yards have more than one tree and many have none. De Buen says building standards related to climate and energy efficiency are essential, but he recognizes the difficulty in applying regulations when a large portion of Mexicali's housing is erect-ed without permits by poor people arriving to work in the maquila factories.

Without a doubt, northern Mexico

Source: Masera, de Buen, and Friedmann from SEIMAP, Comision Nacional de Energía

Energy Use in Mexico, 1970-1989

A house in Mexicali
issues in going to need more electricity. And the pressure is on for Mexico's electric utility, the Comisión Federal de Elec-
tricidad (CFE), to expand. Expansion means more production, and that adds to the already nega-
tive environmental consequences. Cur-
rently, Mexico's electricity is gener-
at ed at fossil-fuel based plants in the town of Tizun in the state of Rosarito. De Buen says it is estimated that for every gigawatt-hour (one billion watts per hour) generated in a fossil fuel plant, 400 tons of carbon dioxide, 11 tons of sulfur dioxide, and 1.7 tons of nitrate oxide are released. Water is another environmental concern. The Rosarito plants are cooled down with seawater from the Pacific Ocean, but any new fossil-fuel based plants built inland would drink thirstily of the desert's underground water supplies. Also, de Buen comments that plants constructed in the state of Sonora would increase the likelihood of oil spills in the Gulf of California, the only habitat of an endangered species, the California gray whale, and the equally threatened totoaba, a big fish illegally pursued for its savoy filter.

De Buen believes it is in the envi-
ronmental interest of the nation and the economic interest of the CFE to satisfy energy demand through greater effi-
ciency rather than through increasing sup-
ply, an expensive option. Indeed, because of insufficient capital for cap-
acity expansion, the CFE has had to find new funding: It has established opportuni-
ties for private sector invest-
ment in the utility, while eliminating electricity subsidies to the poorest con-
sumers in the residential sector.

Persuading consumers to use less electricity is the obvious next step, says de Buen. But persuading consumers to invent new, more efficient air conditioners with modern units is costs that most consumers cannot shoulder. De Buen believes social pressure to offer the pub-
lic better options has been strong among Mexico's professional middle class, that hit hardest by the high price of a cool house. In response, the CFE established and two years ago to

transfer of obsolete units across the border. Furthermore. he says that if the government is concerned about en-
ergy efficiency, it must fund afforable al-
ternatives to discarded units. "It is not only a CFE problem," he said.

De Buen's open plan would include, first, placing strategic indicators for energy effi-
ciency in all new buildings. Second, he says that efficient air conditioners must be produced in Mexico at prices Mexicanans can afford. Finally, he rec-

omends a program to train and em-
ploy "house doctors" who would eval-
uate homes and suggest improvements. Such a program would have to be conducted on a massive scale so that the energy savings would meet or at least offset the costs of train-
ing the experts. In fact, de Buen has submitted his master's thesis to the CFE in the Mexico and the Department of Energy in the United States as a prop-
osal for an extensive house doctor program along the border. De Buen

characterizes the cost of his plan as a choice—whether to infuse money into new plants or new programs.

Lights, Refrigerators, Televisions

Rafael Friedmann has calculated the potential for savings in Mexico's electric-
glutteness—lights, refrigerators, and televisions—which, in 1991, devoured three-quarters of residential elec-
tricity. Friedmann's data provide a general assessment of energy use throughout Mexico, although he ex-
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Taken altogether though, the residential sector is the fastest growing user of electricity in Mexico. Both need and potential for savings are large.

Friedmann, along with Odón de Buen, participated in a 1992 feasibility study for the CFE to succeed and portrayed the flor-
cescent bulbs (one bulb can entail for as much as 30 dollars), it is reasonable to expect that about two fluorescent lights on the average could be placed in each home, preferably in areas where lights are left on the longest.

Assuming that each home uses two fluorescent lamps an average of four hours a day for a year during the hours of greatest demand, or peak load, (7 to 11 p.m.), Friedmann calculates that 3.3 terawatt-hours (7 'era's equals 'thousand billion'), or about 15 percent of total residential electricity use, could be saved in Mexico's residential sectors. Because of a survey, distribution, and the plant operation power requirements, this represents 2.2 gigawatt saved at the power plant, or about 12 percent of Mexico's peak load. Such a reduction in electricity demand can result in fossil fuel savings, important emissions reductions, and other socioenvironment-

benefits.

Building a new power plant to meet a 2.2 gigawatt demand would cost 4.4 billion pesos. By contrast, it would cost 7.5 million dol-
lars to build a factory to produce thirty million fluorescent lamps in five years (two lamps for each of 15 million homes). Friedmann also notes the frustration and delays involved in fi-

transferring the cost of his plan as a choice—whether to invest money into new plants or new programs.

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Assuming that each home uses two fluorescent lamps an average of four hours a day for a year during the hours of greatest demand, or peak load, (7 to 11 p.m.), Friedmann calculates that 3.3 terawatt-hours (7 'era's equals 'thousand billion'), or about 15 percent of total residential electricity use, could be saved in Mexico's residential sectors. Because of a survey, distribution, and the plant operation power requirements, this represents 2.2 gigawatt saved at the power plant, or about 12 percent of Mexico's peak load. Such a reduction in electricity demand can result in fossil fuel savings, important emissions reductions, and other socioenvironment-

benefits.

Building a new power plant to meet a 2.2 gigawatt demand would cost 4.4 billion pesos. By contrast, it would cost 7.5 million dol-
lars to build a factory to produce thirty million fluorescent lamps in five years (two lamps for each of 15 million homes). Friedmann also notes the frustration and delays involved in fi-

transferring the cost of his plan as a choice—whether to invest money into new plants or new programs.

Lights, Refrigerators, Televisions

Rafael Friedmann has calculated the potential for savings in Mexico's electric-
glutteness—lights, refrigerators, and televisions—which, in 1991, devoured three-quarters of residential elec-
tricity. Friedmann's data provide a general assessment of energy use throughout Mexico, although he ex-
plains that every region has its con-
sumption idiosyncrasies—Mazatlan City, for example, pumping water to roothop tanks, or on the hot and humid coasts, fans and air conditioning.

Taken altogether though, the residential sector is the fastest growing user of electricity in Mexico. Both need and potential for savings are large.

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cescent bulbs (one bulb can entail for as much as 30 dollars), it is reasonable to expect that about two fluorescent lights on the average could be placed in each home, preferably in areas where lights are left on the longest.

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NAFTA and the Binational Academic Community

Because implementation of the North American Free Trade Agreement (NAFTA) will pose new opportunities and challenges for cultural and academic cooperation between Mexico and the United States, the UCR-Mexico Collaborative Research Group, with UC MEXUS sponsorship, organized the conference, Academic and Scientific Dimensions of the North American Free Trade Agreement, to explore what the role of the international academic community should be in a milieu of increased binational trade and exchange. The conference was held April 11, 1993 at the University of California, Riverside. The following are excerpts from some of the conference presentations.

About the Conference

"We organized this conference at UC Riverside to focus public attention on the need to include academic trade in the contemplated scenario of greater interaction that would result from the signing of NAFTA.

"Science—the pursuit of new knowledge and greater understanding of ourselves and the universe—is the main motor driving progress in the civilized world. The increasing complexity and sophistication of our society stems in no small measure from the application of this knowledge. Throughout the world, it is patent clear that a direct correlation exists between prosperity and the support for science and for its academic infrastructure. As the United States, Mexico, and Canada prepare to formalize an agreement on improved commercial trade, there is widespread expectation that this agreement would provide a better footing to help resolve troublesome disparities among the North American countries and to alleviate the social and economic problems that afflict all three. For a true and lasting partnership, it is essential that the development of new knowledge be equally nourished and properly shared.

"The measures that politicians, economists, and industrialists now contemplating to facilitate commercial trade should be accompanied by parallel measures to foster collaboration and cooperation among the academic communities of the North American countries. A robust and lasting basis for free trade needs to include measures to support vastly expanded academic trade among the three North American partners.

"The conference served to highlight the increasing role that the University of California has played in the last decade in promoting cooperation and collaboration between the academic communities of Mexico and the United States. Indeed, UC MEXUS compiles a sizable body of scholars on all nine UC campuses dedicated to this cause. By convening this conference, the UCR-Mexico Collaborative Research and Training Group reaffirmed the commitment of the Riverside campus to improving academic cooperation with Mexico.

—Salomón Barratcchi-Garcia, Director, UCR-Mexico Collaborative Research and Training Group and professor of plant pathology, University of California, Riverside

Investment in Science and Technology

"A positive effect that the North American Free Trade Agreement (NAFTA) already is having in Mexico is a growing awareness in the government and in the private sector of the need to develop science and technology so that they may be used as a platform towards modernization. Evidence of the above is that the involvement by the federal government in these areas has increased in the last years by 40%, while the private sector's investment has gone from 15% to 22.3%. Notwithstanding these efforts, lack of symmetry is one of the core issues to be considered in the new dynamics participating in the Free Trade Agreement. Suffice it to mention one of its dimensions: In 1988, the combined gross domestic product (GDP) of the three countries was 88% from the United States, 9% from Canada, and 3% from Mexico. The GDP per capita is more than $22,000 for Canada and the United States and closer to $2,800 for Mexico.

"In matters pertaining to science and technology, the asymmetry is even greater, according to some parameters such as research expenditures, number of scientists and engineers, total scientific productivity, innovations, and patents. Some data clearly show how serious the situation is regarding investment in science and technology. It must be emphasized that while in the United States this investment is 2.69%
made by the government in scientific and technological research, as a ratio of the total investment in science and technology research, in the United States is 43%, in Canada 46%, and in Mexico 77.7%. That is to say, in Mexico, the participation of the private sector is very limited. From this perspective, Mexico must make significant efforts to strengthen its scientific and technological system, and to increase its international cooperation.

—Guillermo Sobérdia, science advisor to Mexican President Carlos Salinas

A Historical Perspective

"I guess I'm an ivory-tower intellectual because the people I'm most interested in—the ones I like and dislike most intensely and understand most intimately—have been dead for 150 years. Taking the long view of the history of the United States-Mexico relationship, all the urgency, euphoria, and anxiety attached to a single trade agreement seem to exceed its real importance. In 1810 Mexico was the largest and richest political entity in the Western Hemisphere. Less than 200 years later, it is not surprising that NAFTA will link the United States, the richest country with Mexico, supposedly one of the poorest. But Mexico is one of the thirteen most industrialized nations in the world. The per capita income of Mexico is ten times the per capita income of, for example, India. Another cliché often used to compare the two countries is population. By 1910 Mexico had reached a population of 15 million people whereas the United States had grown to about 100 million plus. In fact, until the 1940s when the Mexican population began to grow rapidly. So from the historian's perspective, the great population growth is something very recent and probably only a temporary blip in the overall pattern."

"The United States would do well to expand both its historical and global view of Mexico and to acknowledge the reality of its already strong ties with that country. The economies of Mexico and the United States became integrated in the late 19th century, and there really is no way to separate them now. There is much that we can learn in a two-way exchange with one another, and I don't mean simply the United States' appreciating Mexican folk medicine or quaint customs. Mexico has a long tradition of education and science and today has important scholarly and scientific institutions. The countries can exchange sophisticated academic concepts and studies. NAFTA, if enacted, actually will represent belated governmental recognition of what the people already have put into place. And if NAFTA is not enacted, its absence will hardly be noticed amid the vigorous and lively economic and social exchange of the binational marketplace."

—Jaime E. Rodríguez O., professor of history, University of California, Irvine

Mutual Development

"Americans should remember that much of our own early industrialization, development and development was financed by venture capital from Europe. This occurred in areas as diverse as the castle and citrus industries and the railroads. This same pattern was repeated in the aftermath of World War II, when the United States created markets for its own goods and services through the process of rebuilding Europe and Japan. In many respects, during the period of the Cold War we did not believe that it was in our interest to assist countries in becoming our economic partners. We preferred to have other nations dependent upon us to ensure that they remained within our international political framework. The NAFTA is driven by economic necessity and the failure of our short-sighted and heavy-handed policies of the past."

"NAFTA forces us to work in concert with our trading partners. It is making us rethink our long-held belief that the American way is a zero-sum game, that there must be winners and losers. We Americans are having a hard time with this readjustment; we are not used to thinking about the other guy's perspective. As Carlos Fuentes aptly described the American psyche, 'What the United States does best is to understand itself. What it does worst is to understand others."

"By pooling our scientific and technological resources, perhaps we will be able to help Mexico to avoid the mistakes made by the United States and Canada during their own economic development, such as our own loss of biodiversity, environmental degradation, and lack of effective workforce training programs. At the same time, Mexicans must provide a new and unique perspective for addressing their own environmental problems and rise to the challenge of fostering environmental and sustainable economic growth in a rapidly industrializing economy. No one today believes that the development path followed by the United States is the only one nor is it necessarily the optimal path. Mistakes made in ignorance should no longer be tolerated. We have an awareness of the environmental costs of our own development and we should work with Mexico to help that great nation avoid repeating these same mistakes."

—George E. Brown, Jr., member of the United States Congress and chair of the House Committee on Science, Space and Technology

Environmental Policy

"In environmental and ecological negotiations, solutions are usually based more on perceptions than good science. I recently participated in two scientific forums in which environmental themes that touch Mexico, Canada, and the United States, and that illustrate this point, were discussed: In the case of the tuna/dolphin issue, scientific and technical information that shows how changes in fishery techniques have greatly reduced dolphin mortality is not enough to convince environmentalists that dolphin species in the Eastern Pacific no longer are threatened by tuna netting. In the case of the endangered vaquita, a peculiar..."
of the northern Gulf of California, the scarce information available is not enough to convince some scientists of the urgent need for protective measures. Finally, in the case of the monarch butterfly, scientific evidence from climatologists who now hold the predators at the December 1995. It was sustained in critically small numbers for the following two decades until its present resurgence, thought to have begun in the early 1990s. The recovery in the Pacific is reflected in the relatively small, but real, upturns in catches after 1989. In the Pacific, sardine populations are currently found in two regions along the coast. A northern stock, or subpopulation, ranges from around Monterey, California, to the southern end of the Baja California. The southern stock overlapped the northern around Punta Baja and extends south near to Cabo San Lucas. Past studies have shown significant migration and genetic exchange between the two stocks, and the distribution of the northern sub-population makes it a transboundary resource subject to fishing pressure by both the United States and Mexico.

Concerned that the initial phase of recovery of the sardine population might be so fragile as to be jeopardized by the combined catches and separate fisheries management policies of the two governments, we convened a binational meeting to explore the issues. With funding from UC MEXUS and California Sea Grant, the three-day conference was convened in May at Rosarito Beach, on the Pacific coast 10 km south of the U.S.-Mexican border. Although the overarching purpose of the meeting was cross-border communication, a parallel goal was an enhanced exchange of information among each country’s industries, scientists, and fisheries administrators. The group set out to learn the needs and concerns of each industry, to review all that is known and supposed by the scientists, and to consider the possibilities for closer binational cooperation to improve understanding of the behavior of the population. We hope that the open communication developed through the workshop may eventually lead to a cooperative research program for insuring the success of the sardine recovery.

Marine resource management, however, is not simply a matter of conservation. In addition to the impacts of commercial exploitation, there is a large natural variability in the sardine stocks both in the California Current and the Gulf. We therefore began the workshop with discussion and analyses of the nature of the variability in

With the return of the sardines, the United States and Mexico face the question of whether a repetition of the history shown by the graph below can be avoided. The heaviest line plots the peak month's sardine catches off the west coast of North America, centered mainly off California, but which extended at various times from Vancouver, British Columbia to Bahia Magdalena in Baja California Sur. The catch records reflect the interplay between the fishing effort (size and efficiency of the fleet) and the amount of fish available to be caught (size of the population). The plus is mate seasonality to the history of great expectations and broken dreams which have haunted the Pacific sardine fishery. In the 1930s, the sardine fishermen of California were harvesting yearly averages of around 600,000 tons, supporting over 100 canning and processing plants. By 1955, only one plant had survived, turning to a mix of other species. Now, the increase in catches in the Pacific coincides with a troubling abrupt decline in the Gulf. The last year shown on the graph is 1992, which yielded catches of only 0.430 tons to the Gulf and 42,500 tons in the Pacific.
The efficient combination of the purse-seine net shown here and sophisticated techniques to locate schools over large areas of the coastal oceans not only nullifies the sardine's schooling adaptation, evolved as a defense against predators, but makes it possible to maintain high yields from declining stocks. With these modern methods, overexploitation is not detected easily until it is irreversible.

The sardine population during the late 1940s, appropriate management practices might have prevented the nearly total depletion of the northern sardine stock. It is possible that a much reduced biomass of 200 to 500 thousand tons of sardines could have been conserved from the original estimated population size of over four million tons in the 1930s. If this had occurred, the return to favorable environmental conditions for the sardine population which began in the 1970s could have engendered an earlier and stronger recovery—at the current rate of population growth, possibly reaching more than one million tons by now.

While our predecessors may not have understood the profound effect of the level of natural variability and the resulting vulnerability of marine resources, we now have little excuse for poor management decisions. Both hindsight and the benefit of forty years of experience and knowledge gained from the California Cooperative Oceanic Fisheries Investigations (CalCOFI) sampling program, one of the most comprehensive and intense oceanographic fisheries research efforts on the planet, should inform our actions. CalCOFI scientists have been surveying the ocean habitat off California since the early 1950s and worked off Baja California through the 1970s. CalCOFI is a cooperative program within the United States composed of the National Marine Fisheries Service, California Fish and Game, and UC's Scripps Institution of Oceanography. It has been a primary vehicle for the exchange of fishery research and information between U.S. and Mexican scientists. The meeting achieved agreement on one very important and urgent action which requires bilateral collaboration: The need for a comprehensive survey in the waters off the Californias, from north of Point Concepcion to Cabo San Lucas, to provide a realistic estimate of the current population's current biomass. Planning now has begun by the Comité Técnico para Investigación de los Pelágicos Menores and CalCOFI scientists to carry out the survey as a cooperative venture on Mexican and U.S. vessels in 1994 or 1995.

At the meeting, representatives from the industries of both countries provided a clear expression of their concerns and the assistance they need from scientists and managers. Moreover, they expressed a great willingness to collaborate in order to bring the industry into a healthy and sustainable balance with the resource. One fisherman from Monterey underscored the importance of management. He had gone to sea at age 15 in 1941 and clearly remembered those times of abundant catches and thriving factories. Anyone who had predicted the collapse and bankruptcy of the entire industry then, he said, "would have been called crazy." Now a major step has been taken with the formation of a grassroots network of scientists, managers, and industry representatives who are willing to work together to shepherd the sardine recovery so that both Mexico and the United States emerge as long-term winners and beneficiaries of an important resource.

UC MEXUS Announces Grants for 1993

Faculty Grants

UC MEXUS is pleased to announce 23 grants for 1993 totalling over $216,000 for support of faculty research, development of collaborative research programs, institutional conferences, creative activities, and Chicano/a studies. Listed below are principal investigators, home campuses, primary collaborators, and project titles.

Mario Barrera - Berkeley, America Tropical.

Joseph A. Boitano - Santa Barbara, Chicano Cultural Arts in the California Ethnic and Multicultural Archives: A Processing Project.


Roberto R. Calderon - Riverside, La Generacion Fandangos, 1870-1900: The Mexican Mutual Aid Movement in Texas.

Manuel Luis Carlos - Santa Barbara (Sergio Quijada, Universidad Autonoma de Queretaro). International Agroindustry and Mexican Epistolary Communities: A Comparative Ethnographic Case Study.

Lucia A. Catananzare - San Diego, Occupational Segregation of Latino Workers and Wages.

Arthur L. Craighill - Davis (Sheri Zeidenberg-Cherr, Davis; and Elvira Gonzalez de Mejia and Gustavo Puira Aboyta, Universidad Autonoma de Queretaro). Contribution of Lead-Glazed Ceramics to Dietary Intake of Lead.

Alain de Janvry - Berkeley (Elisabeth Sadoulet, Berkeley and Raul Garcia, Centro de Investigaciones en Desarrollo Economico). Epide Reform, Rural Development in Mexico, and Implications for California.

Ricardo DeLeon and Betty Olson - Irvine. Impact of Industrialization on Groundwater Quality Along the United States-Mexico Border in El Paso County, Texas.


J. Edward Taylor - Davis (Antonio Ynez-Nande, El Colegio de Mexico). NAFTA, Economic Liberalization, and Mexico’s Small-Farm Sector.


James W.值es - Riverside (Robert Bye, Universidad Autonoma de Mexico). Pollination Biology of Wild and Domesticated Common Beans in Mexico and California.

(See Grants, page 18)
Carlos Morton Named UC MEXUS Interim Director

Carlos Morton, associate professor of theatre at the University of California, Riverside since 1990, is interim director of UC MEXUS, replacing Rodolfo Ruibal as of July 1, 1993. Morton holds the Ph.D. in drama from the University of Texas, Austin and was a Fulbright lecturer at the Universidad Nacional Autonoma de Mexico prior to his appointment at UC Riverside. His professional playwriting experience includes working with the San Francisco Mime Troupe, the New York Shakespeare Festival, the Denver Center Theatre, and the Puerto Rican Traveling Company. Several of his plays, including The Miser of Mexico and The Many Deaths of Danny Rosales, have been performed at UC campuses. In addition, he has arranged theatrical events such as On the Border/Between Bridges that bring Mexican and Latino playwrights to UCR to perform their works.

Grants

(continued from page 17)

Patricia Zavella - Santa Cruz. Comparative Perspectives on Recurring Poverty and Household Formation.

Dissertation Grants

Nearly $35,000 was awarded to eight UC graduate students who have passed the doctoral qualifying exams and are conducting their dissertation research. Listed below are grant recipients, home campuses, faculty advisors, and project titles.


Christoph Lehmann - Riverside. (Isabel Montalvo). Cycle and Sequence Stratigraphic Analysis of Middle Cretaceous Platform Carbonates, Northeast Mexico.


Announcements

Sánchez Appointed to Institute of Medicine Committee and to San Francisco Foundation

The Institute of Medicine of the National Academy of Sciences has appointed David J. Sánchez, assistant vice chancellor of academic affairs and professor of family and community medicine, UC San Francisco, and member of the UC MEXUS Advisory Committee, to its Committee on Increasing Minority Participation in the Health Professions. Sánchez also has been named a member of the board of trustees of the San Francisco Foundation, which has been in operation since 1948 and distributes more than $20 million a year for a variety of purposes.

Shaken to Advise Congress on Multinational Firms and Technology

The U.S. Office of Technology Assessment has appointed Harley Shaiken, associate professor of communication, UC San Diego, to serve on two panels to advise Congress on multinational firms and technology.

Chavez Receives National Cancer Institute Grant

Leo Chavez, associate professor of anthropology, UC Irvine, received a $1.5 million grant from the National Cancer Institute for his project, "Cancer Control among Hispanic Women." Chavez also received the Margaret Mead Award for 1992-93 from the American Anthropological Society and the Society for Applied Anthropology.

Rivera Library Obtains Field Notes on Chinantec Indians

Arthur Rabin, professor of family medicine at UC Irvine, has chosen the Special Collections Department of the Tomás Rivera Library at UC Riverside to house his field notes on the Chinantec Indians of Oaxaca, Mexico. The notes encompass 40 years of study by Rabin and Carole E. Brown, professor of psychiatry and biobehavioral sciences, UC Los Angeles, of the customs, medicines, superstitions, language, history, economy, and political structure of the Chinantec. In addition, Sarah Cline, professor of history at UC Santa Barbara, has donated to the Rivera Library the field notes, journals, maps, and drafts of publications of the late Dr. Howard Cline (former director of the Hispanic Research Collection at the Library of Congress) and Mary W. Cline. Included in the collection are published materials on the Chinantec and their neighbors, photographs, and a short film of a native ceremony.

Award for Teaching Minority Children

Ronald Gallimore, professor of psychology and biobehavioral sciences, UC Los Angeles and Roland Tharp, professor of education and psychology, UC Santa Cruz, won the Grawemeyer Award from the University of Louisville for developing techniques to teach minority children. The $150,000 award is one of the largest in education.

Cortés Named to Association of American Colleges Panel

The Association of American Colleges named Carlos Cortés, professor of history, UC Riverside, to its National Panel on American Commitments: Diversity, Democracy, and Liberal Learning Project.

Guadalajara Book Fair

The VII Guadalajara International Book Fair will take place November 27 - December 5, 1993 at the Guadalajara convention center in Guadalajara, Mexico. This year's theme is "Book, Video and Communication." More than 67,000 titles will be exhibited by 600 publishers from 26 countries. For further information contact FIL '93, Av. Francia #1747, Col. Modera, AP 39-130, C3 44100, Guadalajara, Jalisco. Tel: (3) 610-0374, 610-0279 or 610-0292. Fax: (3) 610-0339 or 612-2841.

Calls for Papers

World Borderlands: History, Culture, Art, and Image

The Pacific Coast Branch of the American Historical Association invites proposals for its 87th annual meeting, World Borderlands: History, Culture, Art, and Image, to be held August 11 -14, 1994 at California State University, Fullerton. Papers are invited in the..
Dissertation Fellowships in Latin America

Fellowships are offered for doctoral dissertation research in the social sciences and the humanities. Recipients are expected to devote nine to eighteen months to field research in the country or countries relevant to their proposals. While abroad, fellows are expected to affiliate with an appropriate institution. Full-time students enrolled in U.S. doctoral programs are eligible. They must have completed all Ph.D. requirements, except dissertation, before going into the field. The application deadline is November 1, 1993.

Prospective applicants should write to request application forms, explaining their eligibility, before August 1, 1993:

Social Science Research Council, 605 Third Ave., New York, N.Y. 10016.
Tel: (212) 661-0280.

Latin America Advanced Research Grants

Grants are offered for research by social scientists and humanists on all aspects of the societies and cultures of Latin America or the Caribbean. Support is available for periods of two to twelve months. It is expected that grantees will devote all or a major part of their time during the grant period to research. Scholars who hold the Ph.D. or an equivalent degree and are U.S. citizens or have been resident in the U.S. for at least three consecutive years at the time of application are eligible. The application deadline is December 1, 1993. Prospective applicants should write to request application forms, explaining their eligibility, before August 1, 1993:

Social Science Research Council, 605 Third Ave., New York, N.Y. 10016.
Tel: (212) 661-0280.

Fulbright Awards for Lecturing and Research in Latin America

Fulbright Awards in Latin America are available for U.S. citizens with a Ph.D. or the terminal degree in their discipline, college or university teaching experience, and interest in the subject matter. Application deadline is August 1, 1993. For further information contact Council for International Exchange of Scholars, 3007 Tilden Street, N.W., Suite 518, Washington D.C. 20008-3009.

NSF Grants for Collaborative Research with Mexico

NSF has a formal bilateral agreement with CONACYT of Mexico. Proposals for collaborative work require a parallel proposal from the foreign investigator to CONACYT. Joint proposal is normally required before the U.S. proposal can be funded by NSF.

Proposals in the following areas are encouraged:

1. projects to link national electronic networks, to promote the use of existing networks, and to develop scientific data bases;
2. projects to catalyze links between groups of investigators working in U.S. research centers with similar groups in other countries (in the U.S. such centers may include existing NSF-supported science and technology centers, engineering research centers, and industry-university research centers);
3. science and technology policy studies pertinent to the region, including the management and evaluation of research activities.

Proposals are due May 1 and November 1. For more information contact Division of International Programs, National Science Foundation, Washington, D.C. 20550.
Tel: (202) 352-5749.

Funds for Field Research

The University of California Research Expedition Program (UREP) provides funds and field assistance to UC researchers worldwide. Support is provided by selected members of the public who subsidize the research costs through their tax-deductible donations and continue to receive the opportunity to spend one week as short-term field assistants. UREP funds can be used for short- or long-term field research, as seed money for new research, to extend continuing projects, to supplement other grants, and to support graduate students or additional staff. Faculty or staff searching for UC campus are encouraged to apply for full or partial funding. Graduate students may apply as independent field directors with the sponsorship of a faculty advisor or may receive full or partial funding as assistants to a faculty member. Proposal deadlines are October 1, 1993 for projects June 1, 1994 and April 1, 1994 for projects November 1994 - May 1995. For more information contact University Research Expedition Program, 23K DO6, University of California, Berkeley, CA 94720. Tel: (510) 642-6556.

Fulbright Scholar-in-Residence Competition

U.S. colleges and universities are invited to submit proposals for a Fulbright grant to host visiting scholars for one or both terms of the 1994-95 academic year under the Scholar-in-Residence Program. Preference is given to proposals in the humanities or social sciences, although other fields focusing on international issues will be considered. The application deadline is November 1, 1993. For guidelines and proposal forms write to Scholar-in-Residence Program, Council for International Exchange of Scholars, 3007 Tilden Street, N.W., Suite 518, Washington, D.C. 20008-3009.
Review
By David G. Sweet

This is a valuable addition to the short shelf of high school and college division college Spanish textbooks which can make a genuinely positive contribution to the critical work of preparing North American students, of whatever ethnic background, for life and citizenship in the southwestern United States—a society in which Mexican immigrants and their descendants will soon form the majority of the population. Professors Menton and Herrera-Sobek have assembled a wide-ranging selection of highly accessible and informative texts by nineteenth- and twentieth-century Mexican authors (some of them familiar classics, others gathered from more out-of-the-way places), and they have presented these texts in such a way as to provide a meaningful presentation of Mexican history and a sampler of authentic historical experiences, situations, and attitudes of the Mexican people. The texts chosen should enable the thoughtful student reader to develop a good sense of the elegance, humor, imagination, and passion central to understanding real-life Mexican issues with which the better Mexican authors have been directing themselves to Mexican audiences since all of the United States were east of the Mississippi. At the same time, they should help the student of Spanish build vocabulary (especially a vocabulary of Mexicanisms), polish grammatical usage and (one may hope) confirm a commitment to keeping his or her knowledge of the Spanish language well-aimed and sharpened as the valuable tool it will be for life and work in this part of the world during the twenty-first century.

The book is divided into eleven sections, the titles of which will give an idea of its scope: the Precolombian Era; the Conquest; the Viceroyalty; the Wars of Independence; Santa Anna’s Anarchy; Juárez & Maximilian; Porfirian Peace; the Revolution; Cardenismo & Revolutionary Change; the Crisis of Modernization; and the Chicanos. The first three of these get rather short shrift (at least from the point of view of a colonial historian): The Mesoamerican civilizations are represented by fragments from the Mayan classic, Popol Vuh, and from Alfeneo Caso on the founding of the city of México-Tenochtitlán and Miguel León-Portilla on the mythic hero, Quetzalcoatl, and the Aztecs’ supreme god, Huitzilopochtli. A sense of the drama of the conquest of 1519-21 is conveyed by chapters from Francisco Cervantes’s gripping narrative, Montezuma, el de la villa de oro, rather than from Cortés or Bernal Díaz. The colonial period itself is barely suggested by selections from Erumillo Abru González’s Cuentos and an amusing anecdote about a peninsular immigrant from Manuel Payno’s El hombre de la situación.

The nineteenth century is represented more fully. There are classic accounts in the historia patria tradition by José Mancisidor on “el grito de Dolores” with which Father Hidalgo launched the independence struggle in 1810, and Juan Díaz Covarrubias on the heroic exploit of the adolescent El Pipila during the rebel siege of Guanajuato. There are juicy tidbits of the bizarreness urban life of José Joaquín Fernández de Lizardi from the same era. Santa Anna’s costly victory at the Alamo is retold from a Mexican point of view by Rafael Muñoz. The era of the triumph of liberalism and the subsequent French intervention is recalled by biographer Héctor Pérez Martínez, novelist Federico Gamboa, playwright Rodolfo Usigli and the anonymous author of a popular song about the monumental victory against the French in the Battle of Puebla, on the Cinco de Mayo of 1863. Rural life under the dictatorship of Porfirio Díaz is evoked by the graphic images of characters López y Fuentes, and provincial small-town life on the eve of the 1910 Revolution is culled in a selection from Agustín Yáñez’s classico, Al filo del agua.

The second half of the book elaborates on themes of the twentieth century. The violent phase of revolutionary struggle is represented by those who have contributed most to “conquering” that period, and in particular the image of Pancho Villa’s role in it, for modern Mexicans and North Americans alike: Mariano Azuela and Martín Luis Guzmán. There is also an extract from López y Fuentes’s Tierra covering the assassination of Zapata, and the full text of the most·sung corrida of the period, “La Adelita,” which celebrates the love of a soldier and a sergeant of the revolutionary army.

The era of revolutionary consolidation and reconstruction is explored from the help of José Revueltas’s scorching view of the Cristeros rebellion in Divorciar la tierra, and José Vasconcelos’s ironic portrait of his unsuccessful presidential campaign in 1929, and of his country’s dependence on the United States, from El proconculuso, the final volume of his Ulises criollo. Juan Rulfó recalls the consequences of the land reform program in “No se ha dado la tierra” from El llano en llamas. The role of the foreign oil companies, the Cárdenas government, and the militant oil workers themselves in the expropriation of 1938 are vividly recapitulated by selections from Mauricio Magdaleno’s play, Pícnic 117, and López y Fuentes’s Mazatlan.

Finally, the rich fields of literary expression on both sides of the U.S.- Mexican border since 1940 are har vested very selectively. Playwright Celestino Gorociza sheds cruel light on the racist classism of the postwar Mexican elite: “Paso del Norte,” another story by Rulfó, conveys the bitter dreams of migration to the United States in a state of subsistence. There is a powerful tale of working-class life and death in Mexico City around 1960 from Carlos Fuentes’s Cuentas de ciegos, and Elena Poniatowska takes the reader back to the terrible student massacre of 1968 in La noche de Tlatelolco. An emblematic selection from Fuentes’s La cabeza de la hiedra then invites the student to think back over the history suggested by the previous selections. Chicanos literature is introduced by an anonymous corrido recounting the misadventures of the nineteenth-century California bandit, Joaquín Murieta. Twentieth-century Mexican experience in the countryside as well as in the cities of the United States is starkly sketched, with an emphasis on alienation, oppression, and the search for identity, in powerful short selections from Tomás Rivera’s... y no se lo traiga la tierra, Rolando Hinojosa’s Ríos City y sus alreded ores, Luis Díaz’s A Decade of Chicano Literature, and Alejandro Morán’s Reto en el paraiso. What one perhaps misses at this point is some stronger sense of the strength and viability of Chicano community life and its immense contribution to the life of the United States.

The apparatus for language pedagogy in this text seems well-conceived and appropriate. There is a fine general vocabulary with English translations of virtually every term that reappears in the selections; there are footnotes on most pages to define the words used only once and provide approximations in English of the many Mexican modernos in the texts. Each selection is followed by some exercises in Spanish which not only invite the student to answer questions about the text and work with grammatical patterns to provide a base but also suggest themes for class discussion.

The book contains a thumbnail sketch of English of the history of the period covered by each section, and a useful timeline in Spanish at the back of the book. A key exclusively (it is surprising to note) on political history, rather than on the social and cultural histories that the texts themselves would invite the student to contemplate. The illustrations are black-and-white reproductions of paintings and photographs by mostly Mexican artists, principally of the hombre liberador. There is, in fact, little if any departure from a conventional revolutionary Mexican officialista view of the country’s history in the conceptualization of this collection (beyond the addition of a selection of Chicano literature at the end); but that in itself may be accounted a virtue, if the purpose is to help being beginning North American students somewhere into the vicinity of a standard educated Mexican’s view of Mexican history, society, and culture.

The overall message is that Mexico is ancient, fascinating, complex, and diverse yet more or less susceptible to understanding, and that it is very much worth knowing about. There is a great deal in the book that Chicanos students will have an easy time ‘relating to’, especially if they are in good communication with their grandparents. Would that every advanced student of school Spanish in this country could spend some time with Saga de México, and that every student who signs up for my Mexican history classes had done so as well !
New Publications

Publications announced below are not distributed by UC MEXUS. They may be ordered directly from their respective publishers or through booksellers.

Changing Boundaries in the Americas: New Perspectives on the U.S.-Mexican, Central American, and South American Borders

Mexico's Regions: Comparative History and Development

The Decline of Community in Zacatancan: Economy, Public Life, and Social Stratification, 1960-1987
By Frank Cancler. Stanford University Press, Stanford, CA 94305. Tel: (415) 723-1593. 1992, 300 pp., cloth, $42.50. Focuses on social changes in a village community of corn farmers dedicated to local ceremonial life.

El proceso de la independencia de México
By Jaime E. Rodriguez O. Instituto de Investigaciones Dr. José María Luis Mora, Plaza Valentín Gómez Farías 12, San Juan, 03730 México, D.F. Fax: (5) 598-5581. 1992, 70 pp., paper, $15.50. Discusses the historical process of independence in Mexico from 1808 to 1821, emphasizing urban and political processes rather than the rural insurgency of Miguel Hidalgo and José María Morelos.

The Uncertain Connection: Free Trade and Mexico-U.S. Migration
By Wayne A. Cornelius and Philip L. Martin. Center for U.S.-Mexican Studies, University of California, San Diego-0510, La Jolla, CA 92093. Tel: (619) 334-4503. 1992, 39 pp., paper, $7.50. Suggests four major reasons why Mexican migration may not increase massively under the North American Free Trade Agreement.

Proliferators of the North: A History of Mexican Industrial Workers in Detroit and the Midwest, 1917-1933
By Zaragosa Vargas. University of California Press, 2120 Berkeley Way, Berkeley, CA 94720. Tel: (415) 642-3477. 1993, 293 pp., cloth, $40.00. Tells the story of over 58,000 Mexican workers, who, between World War I and the Great Depression, journeyed to the U.S. Midwest for work in industry.

The Chicanas Studies Index: Twenty Years of Gender Research, 1971-1991
Edited by Lilllian Castillo-Speed. Chicano Studies Library, Publications Unit, 3404 Dwight Hall, University of California, Berkeley, CA 94720. Tel: (510) 642-3859. 1993, 450 pp., paper, $36. Bibliographic citations for search on Mexican American women in 1,150 journal and book articles, books, dissertations, and working papers. Each citation is listed under up to 24 subject headings.

The Chicanas Journal and Letters of Ralph W. Kirkham
Edited by Robert Ray Miller. Texas A&M University Press, Drawer C, College Station, TX 77843-4354. Tel: (409) 645-1436. 1993, 168 pp., paper, $12.95. An eyewitness account of the U.S. Army's occupation of Toluca, the Mexican Army's return to the National Palace in Mexico City, and daily life and events in Mexico such as bullfights, an earthquake, and holiday celebrations.

New Writing from Mexico
Edited by Regional Gibbons. Tri-Quarterly Books, Northwestern University, 2620 Ridge Avenue, Evanston, IL 60201. Tel: (708) 491-3490. 1992, 448 pp., cloth, $15.00. New short fiction, poetry, and essays by Mexican authors.

Drink Culture: Chicanismo
Edited by José Antonio Bueseciga. Capa Press, P.O. Box 2068, Santa Barbara, CA 93102. Tel: (805) 966-4590. 1993, 145 pp., paper, $10.95. Essays on the Chicanas experience of living within, between, and sometimes outside two cultures.

Peces of the Heart: New Chicano Fiction

Indians and Intruders in Central California, 1769 - 1849
By George Harwood Phillips. University of Oklahoma Press, 1005 ASP Avenue, Norman, OK 73019-0445. Tel: (405) 947-7577. 1993, 307 pp., cloth, $24.95. Biographies of fifteen compositional Nahuatl versers and analyses of their work are followed by their extant poems in Nahuatl and in English.

The Medieval Heritage of Mexico
By Luis Weckmann. Translated by Frances M. López-Morillas. Fordham University Press, 2540 Bluebonnet Avenue, University Box L, Bronx, NY 10458-5172. Tel: (212) 671-2239. 1992, 697 pp., cloth, $35.00. Describes how explorers, administrators, judges, and clergy introduced to the New World a culture that was essentially medieval.

Fifteen Poets of the Aztec World
By Miguel León-Portilla. University of Oklahoma Press, 1005 ASP Avenue, Norman, OK 73019-0445. Tel: (405) 947-7577. 1993, 307 pp., cloth, $24.95. Biographies of fifteen compositional Nahuatl versers and analyses of their work are followed by their extant poems in Nahuatl and in English.

The Successor

Archivo General de la Nación Puts Records on CD-ROM

Mexico's historical archive, the Archivo General de la Nación (AGN), is now offering a compact disk that catalogues the contents of twenty-two of its sections. The first of its kind in the Western Hemisphere, this computerized archive offers vastly improved access to records, allowing the researcher to complete in seconds a search that formerly would have taken months, due largely to the ability to cross-search various sections of the Archive. The data base, Base de Datos ARGENA, contains 170,000 references to documents from New Spain, or the colonial period (1521 to 1821). Each reference provides basic information for locating a document in the Archive. The second edition will add 500,000 more references. Individuals who purchase the first edition will be able to upgrade to the second at a discount.

To operate the disk, the user must have an IBM or IBM-compatible computer, Microsoft operating system (version 3.1 or later), 640 KB memory, 1 MB hard disk space, a monochrome or color monitor, and a CD-ROM drive. To order Base de Datos ARGENA, send a check or money order for $80 (nuevos pesos) 500 made out to Archivo General de la Nación. For shipment within Mexico add $10. For shipment to the United States, add $25, and to Europe, $30. Send to Archivo General de la Nación, AP 1999, México 1, D.F., Mexico. For more information call (5) 789-8800.
Oaxacan Wood Carving: The Magic in the Trees


Portraits from the Age of Exploration

Edited by Roger Schlesinger. University of Illinois Press, 54 East Gregory Drive, Champaign, IL 61820. Tel.: (217) 333-0590. 1993, 150 pp., cloth $24.95. Selections from André Thevet's Les voix pourparlers et viés des hommes illustres, describing the exploits of six famous European explorers and six Native American chiefs.

Implicaciones Juridicas de la Apertura Comercial

By José Juan de Olloqui. Centro de Investigaciones sobre Estados Unidos de América, UNAM. Order from Books from Mexico, P. O. Box 9, Mount Shasta, CA 96067-9905. Tel.: (800) 676-6531. 1991, 42 pp., paper $5.95. Examinations of art, legal development under President Salinas' administration within the framework of the Mexican Constitution, trade in Mexico, and the internationalization of the financial system, among other topics.

Barrio Rhythm: Mexican American Music in Los Angeles

By Steven Loza. University of Illinois Press, 54 E. Gregory Dr., Champaign, IL 61820. Tel.: (217) 333-0590. 1993, 321 pp., cloth $42.50, paper $16.95. In-depth profiles of Mexican American musicians, groups, and entrepreneurs in Southern California from the post-World War II era to the present.

Agricultural Labor Research Symposium June 1991, Proceedings

By Labor Market Information Division, California Employment Development Dept., P.O. Box 262880, Sacramento, CA 95820-0001. Tel.: (916) 262-2221. 1991, 163 pp., paper, no charge. Essays address farm workers, farm labor contractors, and agricultural labor management in California, IRC, California's labor supply and demand, and changes in employer and employee relationships.

Farm Labor Contractors in California

By Labor Market Information Division, California Employment Development Dept., P.O. Box 262880, Sacramento, CA 95820-0001. Tel.: (916) 262-2221. 1992, 114 pp., paper, no charge. Presents the results of surveys of farm labor contractors in the Imperial, Ventura, Monterey, Fresno, and San Joaquin counties.

Journals

Rio Bravo: A Journal of Research and Issues

Edited by Roberto Salinas and Victor Zúñiga. University of Texas, Pan American Center for International Studies, Edinburg, TX 78539. Tel.: (512) 881-5772. Annual subscription, $20.00. A bilingual (Spanish and English), bimonthly journal on U.S.-Mexican issues, especially as they pertain to the border area.

Voices of Mexico

Edited by Hugo B. Margüín. El Centro de Investigaciones sobre Estados Unidos de América, UNAM. Order from Books from Mexico, P. O. Box 9, Mount Shasta, CA 96067-9905. Tel.: (800) 676-6531. Four issues/year. English-language magazine about Mexico for the general public. General sections frequently cover Mexican-American relations, missions, environmental concerns, free trade, and book reviews.

MEDICIAN STUDIES

ESTUDIOS MEXICANOS

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Nicole Girón, Alaminos, diplomatico • Joseph L. Kleeber, Modernization, Economic Crisis, and Electoral Alignment in Mexico • Carlos Morton, Rewriting Southwestern History: A Playwright's Perspective • Mario E. García, Working for the Union • Jennifer H. Rain, Mexican Rural Women's Knowledge of the Environment • Linda Rigon, Envoys of the past over the sea on the Mexican peninsula • Juan Ramírez de la Fuente, Medical Education in Mexico • Review Essay: Scott Cook, Toward a New Paradigm for Anthropology in Mexican Studies

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Illustrations in this Issue

The drawings in this issue are reproduced from Where There Is Life and Struggle: The Art of Rini Templeton, a bilingual (Spanish/English) book published in 1989 by The Real Comet Press. It may be ordered through bookstores or by contacting Inland Book Company, P.O. Box 120261, East Haven, CT 06512. Tel: (800) 243-0138. During her life, Rini Templeton freely made her work available to the many social organizations she supported. In this spirit, the book’s editors invite reproduction of the drawings for nonprofit purposes that improve people’s lives. The UC MEXUS NEWS is pleased to bring the work of Rini Templeton to the attention of its readers.

Once again, we thank Salvador Güereña, director of the California Ethnic and Multicultural Archives of the University of California, Santa Barbara Library, for his assistance in locating the illustrations. We welcome information about collections of drawings in Mexico and the United States that could be featured in the pages of the UC MEXUS NEWS.

Editor’s Note: This edition of the UC MEXUS NEWS highlights the work of University of California graduate students. UC MEXUS has supported a significant amount of graduate research through thesis or dissertation grants directly to students and through support for graduate research assistants included in UC MEXUS grants to UC faculty members. The students whose work is presented here—Andrea Kaus, Odón de Buen, Rafael Friedmann, and Omar Masera—are just a few of the many energetic, thoughtful, and committed graduate researchers with whom UC MEXUS is associated.

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