

Meeting 19 • 12 March 2013 • Tuesday
 Week 9: Societies & outlooks

Version:
 3/12/13

pictures of the week



Humboldt showing Indians how to use a sextant



Cargueros (native porters)

thought-bite of the week:

"Gold dug out from the ground has, in the people's eyes, a special lure unrelated to the diligent farmer harvesting a fertile land under a gentle climate."

(Humboldt, "Personal Narrative", from *Jaguars and Electric Eels*, ed. & trans. Wilson, p. 24)

mini-text of the week (start):

"...What an odd experience it was to find ourselves in these vast solitudes with a man who believed he was European, with all the vain pretensions, hereditary prejudices and mistakes of civilization, but whose only roof was a tree."

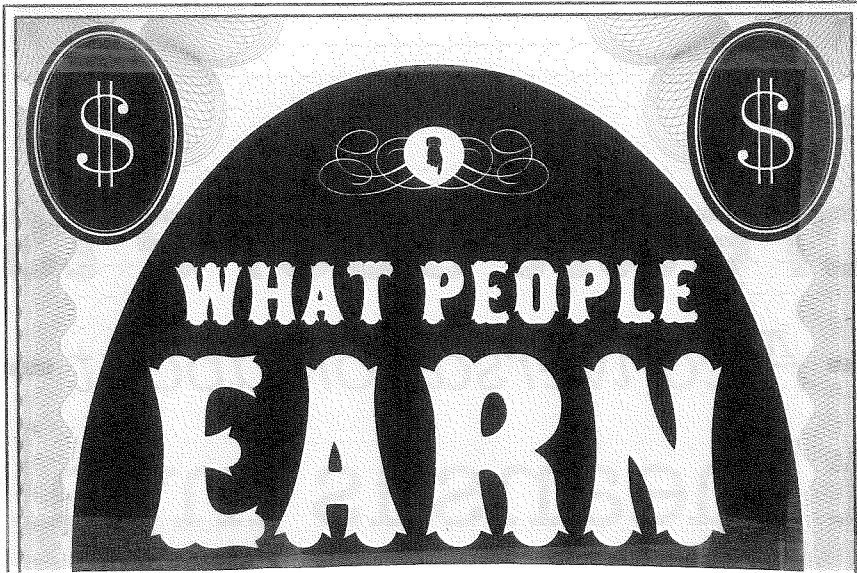
Humboldt, "Personal Narrative", from *Jaguars and Electric Eels*, ed. & trans. Wilson, pp. 70-71 (read more)

Topics for today

(05')	Mini-text of the week: what does "civilization" mean to you? what did it mean to Humboldt? Did he "go native"? More about H and his Prussian aristocratic society.
(10')	Contact of cultures, "clash of civilizations": 1) The "carguero" incident (pretty good way to gauge your performance in the course): What did H do and think? Describe equivalent encounters with yourself in the place of H: what would you do? 2) Are human beings (individuals / groups) "hardwired" to be hostile or friendly to new groups they encounter?
(30')	Group project presentations <i>survey: public speaking</i>
(10')	a reading selection as preparation for the final exam - shorter, but of the same kind
(01')	Species description assignment: chief virtue – you went out and got the science (and social science); chief flaw – many of you didn't "process" it, but rather just delivered it without considering your audience
	IF TIME:
(15')	The past interprets the further past: John Wesley Powell tries to apply Humboldt's research methods and "everything is connected" to the American West - and fails.
(15')	Still more about acquiring and judging data and knowledge. 1) Small groups: Where do you get your citizen information, opinions, conclusions, solutions, and how do you check it out? If you are into "think globally, act locally", where do you get your local info (neighborhood, city, county, state)? What "signs" are there that your sources are reliable? 2) Still more advice about "educated citizen" reading; example (with free samples: <i>New York Review of Books</i>)

(5') Announcements, Checkups & Previews:

- 1) one focus of "interpreting the past" to the present during the rest of the course: land and water allocation (the great survey expeditions) and use in the American West, including Oregon, and how Humboldt played an important role in that;
- 2) presentation of group projects (1/2 hour on T and R); suggestions for things to cover:
 - a) title/summary;
 - b) audience;
 - c) intended outcome for that audience;
 - d) notable feature (gimmick?);
 - e) whine / shine
- 3) news about the Humboldt Canoe SINQ event;



St. Patrick's Day
ZUMBA

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FOR THE U.S. ARMY
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\$19 MIL. (EST.)
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JOSHUA MCCULLOUGH, 36
HAWAII, HI
BOTANICAL PHOTOGRAPHER
\$37,000

"My holy grail is finding a rare plant in its native environment."

could go in reforming America and how long it could keep itself unspotted in the world.

That "better era of the Republic," the age of Jefferson and Franklin, had given the nation a method of disposing of public lands that had been revolutionary when it was first devised. Its greatest virtue was its seeming simplicity. It was made for newcomers like the Powell family on the recently settled prairie of southern Wisconsin, unfamiliar with the plants and animals, soils, creeks, and climate. They could identify their property lines quickly. Everything else they must learn slowly, by experience.

After nearly a decade of traipsing over the western landscape, Powell was convinced that Jefferson's scheme needed to be reinvented. In a statement to the House Committee on Public Lands on 23 March 1878, he summed up his case:

The present system of parceling the public lands into townships and sections, arranged systematically in reference to certain meridians and parallels of latitude, and the method of measuring these parcels and determining their position so that they can be readily identified and described, were devised more than eighty years ago for the great valley of the Mississippi. The country in which they were originally adopted was comparatively low, level, and wooded; and the methods of survey were adapted to these conditions. The lands themselves were, as a great body, continuously valuable for agricultural purposes. There were no mountain or desert wastes, and the system of parceling and the method for surveying, then employed, were well suited to the peculiar conditions of that region; but the lands for which the system of parceling and method of surveying were originally intended have mostly been surveyed. In the great mountain region, which is more than four-tenths of the whole United States, exclusive of Alaska, new conditions obtain, which seem to demand some modification of the system of parceling and surveying.¹⁰

The basic insight he had gained was that the West was not "continuously valuable" for agriculture. Its lands were too heterogeneous, a quality that made them interesting to the scientist but difficult for the settler. How to devise for that huge region a more adaptive land system — and keep it simple and easy to understand — was the challenge.

Compared to Thomas Jefferson, Powell witnessed first-hand the western land's capabilities and the trials of trying to live there. But like all observers his data had to be fitted into his values. Jefferson had sought an America that was secular, rational, friendly to farmers, and individualistic. Powell agreed with all of that except the last term. In place of "individualistic" he put "cooperative."

From the beginning Powell was attentive to the practical implications of his survey work, though he was never much interested in practical military problems, as Wheeler was, or the contributions the West could make to mining corporations and the industrial economy, as King was. Powell studied the land with the eyes of a farmer. Any farmer wanted to know which acres were good for cropping or pasturing livestock or providing fuel and fencing. Such practicalities suggested the need for land classification. The GLO surveyors had often noted on their field maps where woodlands or wetlands lay, but they mainly had in mind the plotting of sections and townships rather than classification. Powell's survey, once the topographic outlines had been established, began to distinguish what the capabilities of the land might be.

Pressure from the Secretary of the Interior's office to make the scientific surveys more useful to the public confirmed Powell in this inclination. From 1874 on it became boiler-plate instruction that Hayden and Powell indicate on their maps "the areas of grass, timber, and mineral lands, and such other portions of the country surveyed as may be susceptible of cultivation by means of irrigation."¹¹ In effect, land classification had become an objective of government science. Hayden claimed that his *Atlas of Colorado*, covering an area of over one hundred thousand square miles, "shows with remarkable clearness, by means of colors, the agricultural and pastoral lands, the pine and other forests, the barren lands, and those above timberline — all the valuable mineral deposits, as coal, silver, and gold."¹² But how that broad-gauged information helped a settler know where to locate a farm or mine was not so clear. Powell wanted to go beyond the instructions to coordinate the laws of land disposal and settlement with a scheme of classification.

He began to study rainfall over the entire West, relying on the Smithsonian Institution for help. When Joseph Henry became director of the Smithsonian in 1846, his first major project was to obtain regular weather reports from a nationwide group of voluntary observers, many of them surgeons or their assistants at western military

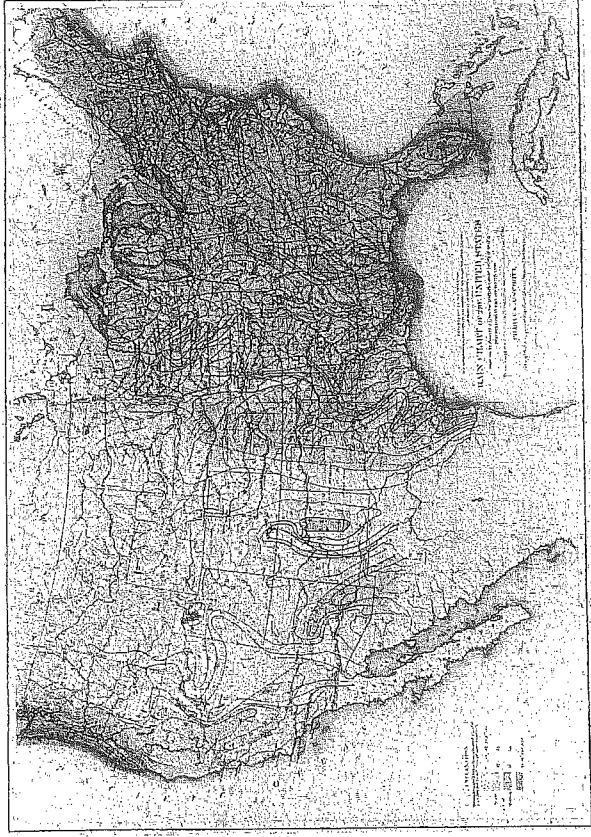
forts. In 1873 the Smithsonian published all of its available rainfall records as a contribution to the study of climatology.

The author of that monograph was the cadaverous-looking Charles Schott, a scientist in the U.S. Coast Survey and member of the National Academy of Sciences. Schott was another of the talented refugees from the aborted 1848 revolution in Germany — trained as a civil engineer at the Technische Hochschule in Karlsruhe before his career was cut short by political upheaval. In America he gained international recognition for his studies in terrestrial magnetism. Along the way he took up the investigation of climate. With Cleve-land Abbe, a mapmaker, he put together a national map of isohyets, or lines connecting points receiving equal rainfall, for a volume in the Census of 1870, the *Statistical Atlas of the United States*. They color-coded the map, using shades of blue to designate areas getting more than twenty inches per annum and white to show those getting less. Most of the West was as white as a sheet of muslin. Their twenty-inch isohyet ran up the Rio Grande and Pecos River and, with a broken line to indicate incomplete data, wobbled northward over the plains toward Minnesota.¹³

The significance of the twenty-inch isohyet was that agricultural crops generally required that amount, or more, of rainfall per year to mature. Imported European crops such as wheat and oats needed that amount, and so did indigenous crops such as beans and corn. If it did not fall as natural precipitation, then the water must be added artificially, as the Indians of the southwestern deserts had been doing for centuries.

Powell's first effort to get financial support from Congress, in 1868, had been endorsed by Secretary Henry for the light his explorations might throw on how to get sufficient water in a dry land. "The professor intends to give special attention to the hydrology of the mountain system in its relation to agriculture." High mountains, Henry explained, trap the vapor floating inland from the Pacific Ocean, depriving the soil of "an essential ingredient of productiveness." But this vapor could be "reclaimed for the uses of the husbandman by a judicious system of irrigation, founded on a critical knowledge of the hydrology and topography of the country."¹⁴

In an April 1874 letter to the House Committee on Public Lands, Powell pointed up the social and economic issues he saw posed by the rainfall data and western topography. The letter called for a new scientific survey under the Department of the Interior "for the purpose of determining the several areas which can . . . be redeemed by



Charles A. Schott, "Rain Chart of the United States." (From J.W. Powell, *Report on the Arid Lands of the United States* [1878].)

irrigation." He warned that two-fifths of the country "has a climate so arid that agriculture cannot be pursued without irrigation." The crux of the problem was not simply that the westerner needed to irrigate but that there was not enough moisture running down from the high mountains to irrigate the entire region. Perhaps a mere 1 to 3 percent of the enormous white space on the map could be "redeemed" through irrigation. Already the smaller streams had been put to use. "The larger streams, which will irrigate somewhat greater areas, can only be managed by cooperative organizations, great capitalists, or by the General or State governments."¹⁵ In other words, the country was facing a different frontier than it had ever faced before, with momentous institutional and technological implications.

Powell tried to interest the scientific community in the aridity problem when he addressed the spring 1877 meeting of the National Academy of Sciences in Washington. His address on "The Public Domain," as reported in the *New York Tribune*, was illustrated with colored charts showing the nation divided into two parts — humid and arid. Agricultural settlement had nearly reached its limit in the

German emigrant, trained in forestry in Germany

WASHINGTON, D.C.

On his trip west with the Select Committee, Powell met with the forest commissioner of Colorado on 14 September 1889, assuring him that he would draw up his own forestry bill to present to Congress. Events got in the way, and that bill never appeared. Two months later Powell met the Colorado commissioner, Bernhard Fernow, and other representatives of the American Forestry Association in Secretary Noble's office to talk trees. By his own report Fernow, who was never one to yield the floor easily, was completely silenced, as Powell held forth during the whole meeting, challenging the AFA's science. Fernow came away angry, charging that Powell was a forest vandal and no friend to conservation.³⁰

Then Sargent weighed in with a few editorials accusing "my friend Major Powell" of "criminal incendiarism" in personally setting fire to the mountains and doing little to stop the extermination of forests. "It is a matter of regret," Sargent wrote, "that Major Powell and the admirable young men associated with him are not more vitally interested in the preservation of these important forests. Their indifference gives aid and comfort to the enemies of their own work, and of our national civilization."³¹

The immediate stimulus for that charge was an article Powell had written on the horrifying collapse of the South Fork dam at Johnstown, Pennsylvania. Built for a summer resort community whose members included Andrew Carnegie and Henry Frick, powerful executives of the Pittsburgh steel industry, the poorly constructed dam had given way under heavy rain on 31 May 1889. Sixteen million tons of water smashed down the Conemaugh valley, killing over two thousand people and destroying several towns in its way. The tragedy turned many Americans against building reservoirs, threatening an end to irrigation development in the West. Powell, in one of his most important essays, leaped to technology's defense and opened another rift between himself and the forest conservationists.

He sketched a future in which dams plugged every rivulet, capturing their energy for hydropower and their water for urban supplies and rural irrigation. Masonry dams, earthen dams, thousands and thousands of every kind of dam would allow control over nature—a new hydraulic civilization. "All the highland streams of America will be controlled and utilized, and . . . the floods will be bridled and become the trained servants of man, as wild beasts have been domesticated for his use."³² It was irrational to let one disaster spot that future. No rational person would do away with railroads because of a

single horrible train accident. Civilization was full of danger and risk, but civilization must go forward.

Powell suggested a way to make a water-controlling civilization as efficient and safe as possible. Careful topographic and hydrographic surveys must be made so that engineers could carefully adapt their dams to each site. The South Fork dam had not been constructed with adequate knowledge of its surrounding watershed. "To neglect the essential facts is to be guilty of criminal neglect."

Modern industries are handling the forces of nature on a stupendous scale. The coal-fields of the world are now on fire to work for man; chemical forces, as giant explosives, are used as his servants; the lightnings are harnessed and floods are tamed. Woe to the people who trust these powers to the hands of fools! Then wealth is destroyed, homes are overwhelmed, and loved ones killed.³³

The way to avoid disaster then was to demand more, not less, of human intelligence and engineering.

Trust in man's technology was fainter in Professor Sargent, John Muir, and others in the forest conservation movement. In their eyes the forest was a marvelous creation of nature, not to be destroyed anywhere on the assumption that human intelligence might design a superior environment. Sargent disagreed that a man-made reservoir might serve better than a forest in conserving water. "The splendor of the achievements of inventive and mechanical genius during our own time," he noted, "seems to justify the most daring and audacious expectations for the future, and it is not wonderful that men should imagine that nature imposes no limitations which may not be removed or overcome." Engineers, he observed in another editorial, were too fascinated by dams. They placed too much faith in their own ingenuity, not enough in nature's.³⁴

Conservationists had, from their earliest appearance, rival views on the relative merits of nature and technology. It would be too simple to say that Powell, with his deep love of topography, saw nothing to respect or emulate in nature. Despite his paeans to industrial progress, he too looked to the natural environment as a template for reconstructing American life. Yet Sargent was right to see in Powell a greater faith in human interventions in nature than others in the conservation movement had. What Sargent might have asked, but

Climate research digs deep into past

By **SCOTT LEARN**
THE OREGONIAN

Of late, the discussion of global warming has focused on temperatures in the past 118 years, when standardized record keeping began.

Oregon State University researcher Shaun Marcott and colleagues at OSU and Harvard University went a bit further back: 11,300 years.

Their study, to be published today in the journal *Science*, estimates that temperatures in the past decade are hotter than roughly 75 percent of the temperatures in the current Holocene climate epoch, which began about 11,500 years ago.

If climate models used by the Intergovernmental Panel on Climate Change prove accurate, temperatures in 2100 would exceed previous Holocene temperatures in "all plausible greenhouse gas emission scenarios," the study says.

Critics of prevailing climate change theory say higher past temperatures, well before increased carbon dioxide emissions from industrial societies, show current temperatures and the effects of rising emissions aren't as drastic as portrayed.

But Marcott said global temperatures appear to have flipped from one of the coldest in the Holocene during the first decade of the 20th century to among the

Tribes get first dibs on water

The state's Klamath Basin decision is based on "first-in-time, first-in-right," but the fight won't end

By **SCOTT LEARN**
THE OREGONIAN

After 38 years of work, Oregon regulators decided Thursday that the Klamath Tribes have top claims to water in much of the Klamath Basin, the state's fiercest battleground for water allocations between fish

and farmers.

The decision is still subject to court challenges, likely to extend awarding of water rights certificates for years. But it gives the tribes, strong advocates for salmon and other fish, an immediate upper hand in legal disputes.

"Everybody is going to be behind the tribes because their rights are time immemorial," said Tom Paul, deputy director of Oregon's Water Resources Department.

The Klamath Basin's water wars drew national attention in 2001



Read more about efforts to resolve the Klamath Basin's water disputes at **ORnews/Klamath-basin**

when fish got water during a dry summer and fall instead of farmers. In 2002, with help from Vice President Dick Cheney, farmers got more water, but fish died en masse in the Klamath River.

The state's "adjudication" decision awards tribes senior rights to lake levels in Upper Klamath Lake and to portions of major tributaries above

the lake under the state's "first-in-time, first-in-right" water laws.

A Bureau of Reclamation irrigation project taps the lake to supply roughly 1,400 family farms. Many nonproject farmers tap the tributaries.

In 2010, project irrigators signed a deal with tribes and others, the Klamath Basin Restoration Agreement, in which the tribes agreed to not enforce their water rights in exchange for reliable water supplies for fish.

The agreement, which doesn't include off-project farmers, has run

Please see **KLAMATH**, Page B3

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Big pink display | Flamingos flock to new home



On Wednesday, 21 lesser flamingos waded into the newly remodeled Africa Rainforest aviary at the Oregon Zoo, where they will get accustomed to their new surroundings before the exhibit opens to the public March 23. The all-male flock has been quarantined since arriving from the San Antonio Zoo last month. The birds have not been part of the Washington Park landscape since the early 1950s, when three flamingos were given to the zoo by the Meier & Frank Co.



Watch Gwen Harris of the

Oregon Zoo talk about lesser flamingos and see more photos at **ORnews/**

Less snow, more blizzards. How?

A warmer climate puts more moisture in the air, so when it snows it really snows

By **SETH BORENSTEIN**
THE ASSOCIATED PRESS

WASHINGTON — With scant snowfall and barren ski slopes in parts of the Midwest and Northeast the past couple of years, some scientists have pointed to global warming as the culprit.

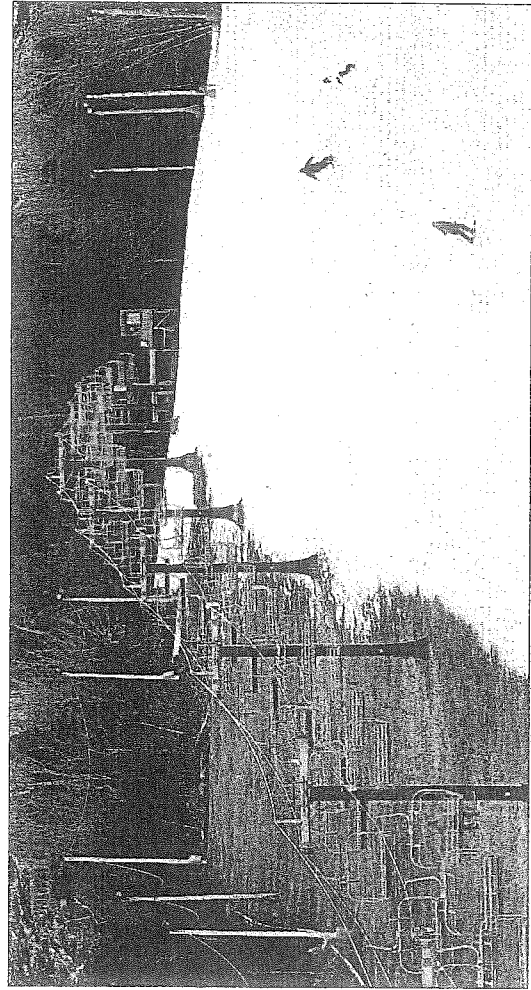
Then when a whopper of a blizzard smacked the Northeast with more than 2 feet of snow in some places this month, some of the same people again blamed global warming.

How can that be? It's been a joke among skeptics, pointing to what seems to be a brazen contradiction.

But the answer lies in atmospheric physics. A warmer atmosphere can hold, and dump, more moisture, snow experts say. And two soon-to-be-published studies demonstrate how there can be more giant blizzards yet less snow overall each year. Projections are that that's likely to continue with man-made global warming.

Consider:

- The United States has been walloped by twice as many of the most extreme snowstorms in the past 50 years than in the previous 60 years, according to an upcoming study on extreme weather by leading federal and university climate scientists. This also fits with a dramatic upward trend in extreme winter precipitation, both rain and snow, in



ROBERT F. BUKATY/THE ASSOCIATED PRESS

Oregonian 19 Feb. 2013 AS

The snow at a Bridgton, Maine, ski run in January is man-made. Despite some big blizzards, overall snowfall in much of the country is way down.

the Northeastern U.S. charted by the National Climatic Data Center.

- Yet the Global Snow Lab at Rutgers University says that spring snow cover in the Northern Hemisphere has shrunk on average by 1 million square miles in the past 45 years.

- And an upcoming study in the Journal of Climate says computer models predict annual global snowfall to shrink by more than a foot in the next 50 years. The study's author said most people live in parts of the U.S. that are likely to see annual snowfall drop between 30 and 70 percent by the end of the century.

Ten climate scientists say the idea of less snow and more blizzards makes sense: A warmer world is likely to decrease the overall amount

of snow falling each year and shrink the snow season. But when it is cold enough for a snowstorm to hit, the slightly warmer air is often carrying more moisture, producing potentially historic blizzards.

Scientists say they are just now getting a better picture of the complex intersection of man-made climate change and extreme snowfall. But when they look at the past few years of less snow overall, punctuated by big storms, they say this is what they expect in the future. "It fits the pattern that we expect to unfold," Oppenheimer said.

The world is warming, so precipitation that would normally fall as snow in the future will probably fall as rain once it gets above the freezing point, said Princeton researcher Sarah Kapnick.

Her study used new computer models to simulate the

climate in 60 to 100 years as carbon dioxide levels soar. She found large reductions in snowfall throughout much of the world, especially parts of Canada and the Andes Mountains. In the United States, her models predict about a 50 percent or more drop in annual snowfall amounts along a giant swath of the nation from Maine to Texas and the Pacific Northwest and California's Sierra Nevada.

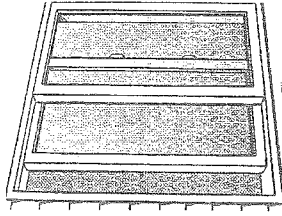
This is especially important out West where large snowcaps are natural reservoirs for a region's water supply, Kapnick said. And already in the Cascades of the Pacific Northwest and in much of California, the amount of snow still around on April 1 is down about 20 percent compared with 80 years ago, said Philip Mote, who heads a climate change institute at Oregon State University.

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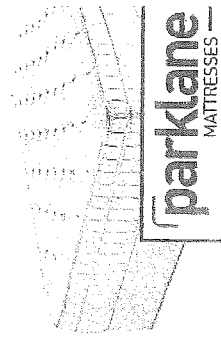
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COUNTERTOPS

Refinishing at Its Finest

Jolene Krawczak, Features editor
jkrawczak@oregonian.com

TRAVEL

Local cartoonist joins snow sculpture team in Japan
Page L4

LIVING & TRAVEL

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Odd creatures great and small Former Hood River nurserywoman Laurel Patrick saves a Mexican ecosystem bird by bird, coatimundi by coatimundi

BY **KATHERINA AUDLEY**
SPECIAL TO THE OREGONIAN

Laurel Patrick was never much of an animal person before she built a house on the beach in Playa Blanca, Mexico, 13 years ago. She certainly didn't aspire to become patron saint to the critters of the region. She only meant to escape Oregon's dreary winters in a tropical paradise by the undulating cyan sea.

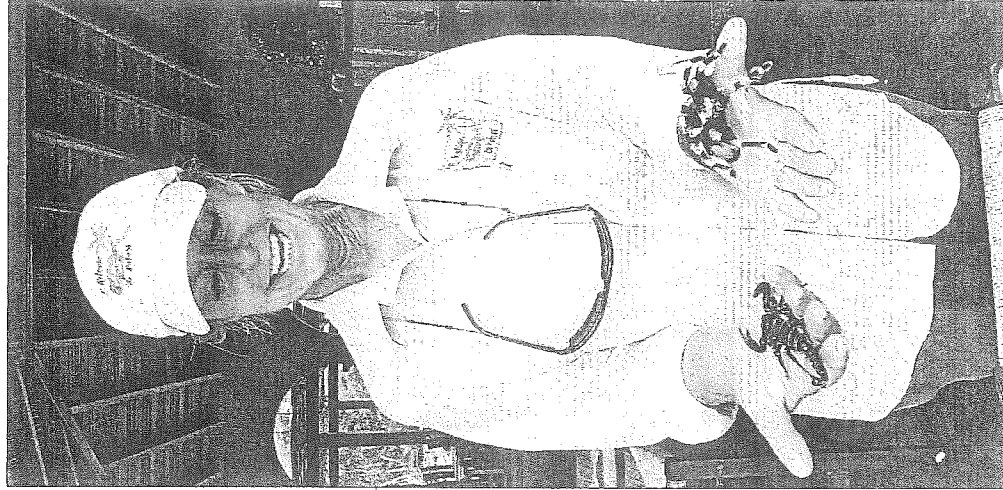
Luckily for the local wildlife, Laurel stinks at sitting on the beach. As the owner of Hood River

Ornamentals tree nursery, she was accustomed to keeping busy and getting her hands dirty. Once she settled in to her new winter home, she quickly grew bored with passing time over cocktails with the other snowbirds and retirees.

"I just wanted something to do ...," she says, "something that filled me with curiosity and pleasure."

It was the parade of parrots and bizarre insects

Please see **REFUGIO**, Page L5



LEFT | Laurel Patrick, founder of El Refugio de Potosi, fearless displays scorpion and tarantula

PHOTO COURTESY OF EL REFUGIO DE POTOSI



TOP
Someone has

