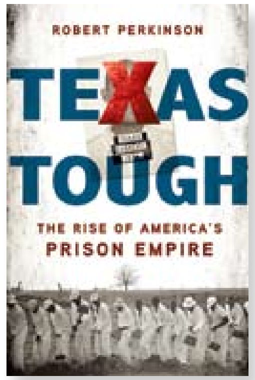
THE TRUTH BEHIND THE GREAT AMERICAN LOCKUP

***Texas Tough* studies the astounding growth of imprisonment in the U.S.**



Prior to 1969, the prison population of the United States was comparable on a per capita basis to that of other industrial democracies. From 1969 to 2007, U.S. imprisonment rates rose from roughly 100 prisoners for every 100,000 people to 500 prisoners for every 100,000 people. The U.S. now has the highest rate of imprisonment of any industrial democracy ever recorded. Much of this buildup his occurred during a period when crime rates declined. Minorities (African-Americans and Latinos) bore the disproportionate brunt of this wave of imprisonment. Why did this happen?

Robert Perkinson set out to unravel this question as a doctoral student in history at Yale University. Perkinson focused on the history of African American prisoners in the Texas state penitentiary system. The Lone Star State has always had one of the biggest prison systems in the country and the highest rates of imprisonment. "Texas was perfect for my purposes because it's a southern prison system that grew more out of slavery than out of the reform movement," explains Perkinson. "But it's a big enough system and a modern enough system that it has some national applicability."

From the research emerged *Texas Tough: The Rise of America's Prison Empire* (Metropolitan Books). The book traces how the Texas prison system (and by extension, the prison system of the South) was used by white politicians and business elites to break the momentum towards racial reconciliation during the Reclamation Era after the Civil War by cracking down on blacks. These prisoners often replaced slave labor for business owners. In the late 1960s the political establishment co-opted race to gain electoral advantage with the emergence of racially charged "law-and-order" politics driven by Richard Nixon as he sought to draw Democratic southern voters to the Republican side. Ever since, politicians on the right and the left have supported increasingly Draconian imprisonment policies.

"This is the first book that tries to tell the whole history of American imprisonment from slavery to the present and tries to make meaningful linkages across long time spans that examine the role of race as a causative factor in mass imprisonment," says Perkinson.

For the book, Perkinson conducted an extensive, multi-year research effort combing the U.S. National Archives and state archives in Texas, using documents from the early 19th century through 2007. He also engaged in novel research practices that gave him unparalleled first-person contributions to the project. "I went on a radio show that prisoners listen to and asked them to write me letters if they were in the Texas system during a certain period of time. It was astounding. Hundreds wrote to me," says Perkinson. Often, these accounts contradicted official prison reports painting a rosier picture of conditions.

In August 2011, Perkinson was awarded the biennial PEN/John Kenneth Galbraith Award for a "distinguished book of general nonfiction possessing notable literary merit and critical perspective." The effects of the trend Perkinson covers are visible today as prison budgets soar while states and localities fire teachers and firemen and slash university budgets. African-American imprisonment has actually reduced the voting power of this group of citizens. Says Perkinson, "The rise in imprisonment has nothing to do with crime and everything to do with how race continues to poison politics 150 years after the Civil War." ✷

Robert Perkinson is an associate professor in the Department of American Studies at the University of Hawai'i. He received his Ph.D. in American Studies from Yale University in 2001. His teaching and research interests include: crime and punishment, race and politics, U.S. social and political history, globalization, terrorism, and foreign policy.

IMAGE CREDITS: METROPOLITAN BOOKS AND ROBERT PERKINSON

GLOBAL WARMING AND REALLY BIG POTATOES

Could a dramatic increase in atmospheric CO_2 fuel tremendous increases in agricultural productivity and fight hunger?

IMAGE CREDIT: BILL HAGOPIAN / JAHREN LABORATORY AT UH

Four small greenhouse for growing sweet potatoes under construction inside a larger greenhouse at the UH Mānoa campus.

The general consensus among scientists holds that global warming and higher levels of atmospheric carbon dioxide (CO_2) will hurt poor nations the most. Hotter temperatures, rising seas, and more extreme weather patterns will impact countries in the tropical and sub-tropical regions where poverty is most concentrated. There may be a silver lining. An emergent thread of research implies that in conditions of dramatically elevated CO_2 farmers may be able to coax two to three times more edible mass from widely cultivated root crops.

This would be dependent on sufficient additions of water and fertilizer, both of which are expensive and may be in short supply in poorer nations. Regardless, the greater efficiency of root crop cultivation could allow these nations to feed themselves with less water and less fertilizer on a lower total acreage. If validated, this finding would defy the conventional wisdom about biological responses and could provide a roadmap to more effective farming practices in a carbon-saturated future.

On campus of the University of Hawai'i at Mānoa (UHM), Hope Jahren is building four super-greenhouses from materials purchased at local hardware stores to answer this critical question and provide the most definitive answer yet about how plants behave when there is three to five times as much CO_2 in ambient air. A professor at UHM's School of Ocean and Earth Science and Technology (SOEST), Jahren is an eclectic and widely published researcher. Her work ranges from profiling the chemical signatures of explosives to characterizing the dietary isotope footprint of fast food to studying the impact of climate change on biological organisms.

Inside a greenhouse as big as a bas-

ECOLOGY

Professor Hope Jahren during family expedition to Isfjord, Norway

ketball court, Jahren and her team are constructing four high-tech 8'x 8' greenhouses where the team will grow sweet potatoes in controlled environments with CO_2 levels ranging from the current atmospheric concentration of 384 parts per billion (ppb) to concentrations 200% to 500% greater - levels projected for hundreds of years from now. While other researchers have studied the impact of moderate elevation of atmospheric CO_2 concentration on plants, to date scientists have not performed experiments examining how plants behave under very high concentrations. “They have definitely thought about this question but the tragedy is they just didn't go high enough,” says Jahren. “They used CO_2 levels that everybody hoped would be the maximum but which we will exceed very soon in the Earth's atmosphere.”

When Jahren and SOEST assistant researcher Brian Schubert grew radishes in smaller indoor greenhouses under conditions simulating atmospheric CO_2 from 384 ppb to conditions extrapolated 300 years out into the future with about five times as much CO_2 in the air. To their great surprise the radishes grew like gangbusters. In the greenhouse with the highest concentrations of CO_2, roots of radishes grew 279% larger than roots of radishes grown at present-day conditions.

In fact, plants may be capable of radical feats that don't jibe at all with conventional assumptions. For example, Jahren points out, that in the fossil records scientists have found evidence of vast forests growing North of the Arctic Circle. This defies logic that the Far North cannot support high levels of plant activity. “For sustained periods - tens of millions of years - forests could live through three months of total darkness,” notes Jahren. “That's something fundamentally different which we don't see today.” While plants don't use that capability any more, whether they could retain it or regain it is not well understood.

In a similar vein, scientists have assumed that the response curve of plants to far greater levels of atmospheric CO_2 would follow a hyperbolic curve that is commonplace in biological organisms. In other words, plants would initially gain benefit from the higher CO_2 levels in the form of faster growth and larger average plant size. But those benefits would level off as the CO_2 levels continue to climb.

What Jahren and her team saw in the radish experiment is that the response curve did not level off. Rather, plants showed a nearly linear response to incrementally higher CO_2 concentrations. “When we went up to concentration levels several times higher than current ambient CO_2, the plant growth did not level off. It just kept going. We were very surprised. Eventually it does level off. You can't grow a radish as big as your house but (the growth) levels off at a much higher level than folks had seen before,” explains Jahren.

Even more intriguing, the bulk of the radish growth came below the surface in the rootstock. The likely reason for this is that radishes under conditions of high ambient CO_2 can more easily produce sugar. Like people, plants use sugar for energy and seek to store it in their body. Unlike humans, plants store sugar as starches. So in response to conditions that facilitated far greater sugar production, radishes poured these resources into their bulbs.

Jahren wants to test her findings further on crops that could truly impact global hunger and encourage humanity to rethink best practices in global agriculture. In the upcoming experiment Jahren's team will grow sweet potatoes, a common food crop that is loaded with vitamin A, a nutrient critical for fighting blindness in the developing world. Using off-the-shelf components such as wood, fans and PVC pipe, Jahren and her team are constructing the 8'x8' greenhouses to maintain positive pressure and accept bleeder feeds of CO_2. A sensitive gas concentration gauge monitored by researchers will allow the team to maintain consistent CO_2 levels inside the greenhouse chambers for extended periods spanning months of time.

> “A wholesale or even incremental shift to root crops could save enormous quantities of water.”
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> HOPE JAHREN, Department of Geology and Geophysics

As plants grow in these conditions Jahren and her team will closely monitor progress and then measure the mass of the potatoes. Should the sweet potatoes grow as quickly and add mass as prominently as the radishes, then Jahren's findings could lead to a massive shift in the way the world grows food and uses water.

Root crops can be less water intensive than surface crops such as rice. In many countries, such as China and India, where rice is the preferred grain, massive water shortages are looming. “A wholesale or even incremental shift to root crops could save enormous quantities of water,” says Jahren. Root crops also require significantly less pesticide application. This translates into reduced use of petrochemicals, diminished release of toxins into the environment, and lower production costs for farmers. Equally important, root crops on the whole are more resistant to diseases than rice, wheat or corn.

As a kicker, root crops are nutritionally far denser than most surface crops and can feed more people per acre of cultivation while providing, in most instances, higher levels of critical amino acids and other nutrients. “I do believe that global warming is something to be concerned about,” says Jahren. “But this could be one bright spot in an otherwise very dark room that we can exploit in order to feed an ever increasing population.” ✸

Hope Jahren is a professor in the Department of Geology and Geophysics, which is part of SOEST at UHM. She has published dozens of papers focused on geochemistry and stable isotopes and has won numerous awards including a Leopold Fellowship, three Fullbright Fellowships and the James B. Macelwane Medal from the American Geophysical Union as well as the Donath Medal from the Geological Society of America, both awarded to promising young researchers. In 2005, she was named by Popular Science magazine as one of the “Brilliant 10” researchers in the world.