

INSIGHTS

Rutgers researchers uncover new knowledge in the sciences and humanities.

Crime and Punishment

RETHINKING THE PENAL SYSTEM

Statistics indicate that America is getting clobbered in the battle against crime and incarceration. The prison population, which was 200,000 in 1980, is now around 2 million. Just as startling are recent reports indicating that one in three African-American males in their 20s are tied into the criminal justice system. "We keep throwing money at incarceration, pretending that building more prisons is going to solve things," says Todd R. Clear, a professor in the School of

Criminal Justice at Rutgers-Newark. "I don't think the average citizen realizes, however, that about 95 percent of the current prison population will be released back into the community."

Since witnessing the Attica Prison rebellion as a graduate student at SUNY at Albany in the 1970s, Clear, the author of *Harm in American Penology* (State University of New York Press, 1994), has

studied alternatives to incarceration. His research indicates that the only successful rehabilitation programs conducted in prisons are those for substance abuse. "Programs based on threats and sanctions do not change behavior," explains Clear. "Programs that focus on new ways to think, teach new skills, and provide links to the community do."

Clear, who has firsthand experience as a counselor in the prison system, also maintains that funds to build and maintain new prisons would be better spent on programs that help offenders create responsible lives once they're released. "We're spending \$25,000 a year per prisoner, but only \$200 to \$500 a year per offender on parole or probation—the ones that need the most attention."

In addition to being underfunded, probation departments have seen a tripling in caseloads over

the last 15 years. Contact between probation officers and clients is minimal. While public agencies can do an effective job if given adequate resources, private agencies are effective alternatives, says Clear. These community-based agencies have the personnel and programs to reduce recidivism by targeting specific offenders, providing a range of services, and holding supervisors accountable for clients' behaviors. "Talbert House, a privately run agency in Hamilton County, Ohio, has more than 100 staffers," says Clear. "They have reduced recidivism rates by as much as 40 percent through programs for offenders who are mentally ill, learning disabled, sexual abusers, child abusers, and substance abusers."

In fact, says Clear, "privatization is going to be the big story in corrections over the next decade." The further the correctional system is removed from government control, the better, he says. "When you tie corrections to civil service and political appointments you get a malaise that can be reduced through privatization." During a recent trip to Australia, Clear studied a case in which three private companies bid against the government to build and maintain a prison. "The government won the bid, but the involvement of the private contractors forced them to compete and keep costs in line."

Privatization and other new approaches are necessary, says Clear, because it's obvious that the current system doesn't work: "What we're doing now on the social-service level is like a crime-production machine."—*Bill Glavin*

Caffeine Connection

STUDYING DRUG CLEARANCE AND PREGNANCY

Findings from a new study on pregnancy and caffeine may alter the way medications are prescribed to pregnant women as well as help explain why women who have been pregnant have lower rates of some cancers. "Pregnancy seems to change the way drugs are cleared from the body for years or forever," says Dr. George Lambert, a neonatologist at Rutgers' Environmental and Occupational Health Sciences Institute. As a result, he says, "a physician may decide that a



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woman who has been pregnant needs more medication because it's cleared more quickly."

Lambert's team, which includes Neil Caporaso of the National Cancer Institute and Erich Horn of Harvard Medical School, studied the metaboliza-



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tion rates of men and women who ingested caffeine. Women who had been pregnant and men cleared caffeine 30 percent more quickly than did women who had never been pregnant. Because 18 of the 19 women who had been pregnant also breastfed their babies, the researchers were unsure whether pregnancy alone affected caffeine clearance or whether breast-feeding was a contributing factor.

Although the triggering event remains unknown, the researchers did show that the activity of an enzyme called cytochrome P4501A2, which is responsible for breaking down caffeine, was higher among the women who had been pregnant. Lambert's team theorizes that the increased P4501A2 activity may destroy such potentially carcinogenic chemicals as dioxin, environmental estrogens, and PCBs. "This may provide a hint for a mechanism that decreases a woman's cancer risk after she becomes pregnant," says Lambert, who is also a professor of pediatrics at UMDNJ. "This study demonstrates the need for further study of women's health issues. Their health is unique when compared with men's."—*Steve Eisenberg*

Space Age

CHARTING A COSMIC CHRONOLOGY

When it comes to the age of the universe, there are two schools of thought among cosmologists: The first—based on the Big Bang theory—estimates that the ever-expanding universe is 8 billion years old. The second—based on the study of star clusters—holds that the universe is at least 16 billion years old. Now, a team of nine U.S. and Canadian scientists that includes

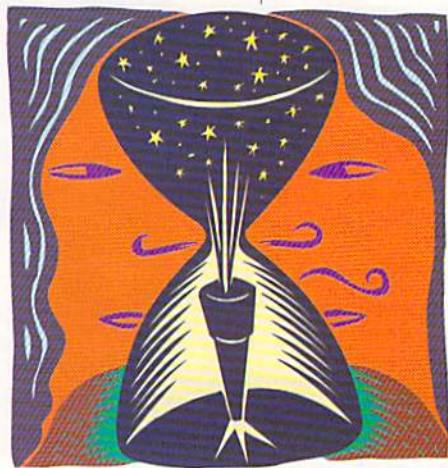
Carlton Pryor, an associate professor of physics and astronomy at Rutgers–New Brunswick, hopes to settle the matter once and for all.

The group will base their calculations of the age of the universe on data collected from the Hubble space telescope, which has revealed to scientists the largest group of "white dwarfs"—about 75—ever found. White dwarfs are dying stars that are slowly cooling and losing their brightness, similar to embers in a campfire. (Our own sun, says Pryor, won't become a white dwarf for another 5 billion years.) Until the discovery of this star group, known as Messier 4, no more than a handful of white dwarfs had been detected in globular, or spherical, star clusters by either ground- or space-based telescopes. "Prior to the Hubble, looking into space was like viewing something in a swimming pool,"

says Pryor. "We're now able to see stars we could not see before."

Using the Hubble data, the team is studying Messier 4. If large numbers of dim stars are present, they may be able to contribute to another hot debate in astronomy: What is the universe made of? Most of the universe's mass—which can be detected by determining its gravitational pull—appears to emit little or no light. Pryor will measure the motions of cluster stars in their orbits and thus the amount of mass in the cluster. "Just as the gravitational pull of the sun keeps the Earth in orbit, the mass of the cluster keeps the stars orbiting within its confines." Once the amount of stellar material in the cluster and its properties are determined, the scientists might find an answer.

They can also begin to zero in on the age of the universe using these dim, and thus dying, stars. "Since Messier 4 is one of the oldest clusters in our galaxy, we can use that to date our galaxy and place important constraints on the age of the universe," Pryor explains. "If you sit in a seat and it's still warm, you know someone was sitting in that seat not too long ago. Similarly, a white dwarf cools at a known rate. If we can find the coolest white dwarfs—the first white dwarfs to form—we can deduce how long they've been cooling and, thus, the age of the cluster."—*Bill Glavin*



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