

Biting down on crime

Forensic dentistry, virtually nonexistent 15 years ago, is becoming an increasingly valuable tool. In 1971, for instance, the American Academy of Forensic Sciences established an odontology section that today has nearly 150 members. The American Board of Forensic Odontology, incorporated in 1976, now has 42 board-certified dentists. Last month, in a highly publicized murder trial in Florida, a dentist testified that the bite marks on the victim's body had been made by a set of teeth that included a chipped front tooth. He identified the teeth as those of the defendant. And now, William L. Farrell, a dentist in Redding, Calif., reports in the July *JOURNAL OF THE AMERICAN DENTAL ASSOCIATION*, that he and four other forensic dentists used their specialty to help identify four victims of a large industrial fire.

First they obtained the victims' dental histories and X-rays. In one case, this meant locating a dentist who had extracted one of the victims' teeth 25 years earlier. Then they resectioned the jaws of the victims and compared the teeth with the victims' dental histories and X-rays. An unexpected bit of evidence helped them identify one of the victims. A pickle seed was stuck in one of his teeth, and when the dentists checked with his widow, they learned that he had eaten pickles the night before the fire.

Air scrubbing and human health

Does cleaning up air pollution really help human health? Yes, according to a report by Dale L. Morse of the Center for Disease Control in Atlanta and his colleagues in the Aug. 24/31 *JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*.

In 1972 more than half of the children living near a lead-emitting ore smeltery in El Paso, Tex., had dangerously high levels of lead in their blood, Morse and his co-workers found. Engineering improvements subsequently reduced lead emissions from the smeltery, so Morse and his team checked to see whether the improvements had significantly reduced lead in the blood of children living near the smeltery. They found that this was the case. In an accompanying *JAMA* editorial, Theodore C. Doege, *AMA* director of environmental, public and occupational health, points out that these studies "give hope of progress with environmental problems...."

Birdsong and sex hormones

A bird may be born with a song in its heart, but it has to learn how to sing that song. And in many species the learning must be accomplished during a critical period. Song-learning further depends on a bird's ability to hear itself practice and compare its own song with either a song model inherent in its brain or with a song model in the environment that is like that of its own species (*SN*: 8/7/76, p. 93).

As if birdsong learning isn't elegant enough, sex hormones also enter the picture and help explain why female songbirds usually don't sing. Brain centers involved in birdsong learning absorb male sex hormones and, according to a report in the Aug. 17 *SCIENCE*, one of the reasons female birds don't usually sing is because the regions of their brains that would ordinarily be involved in birdsong learning absorb less male sex hormone than do the same regions in male songbirds.

Arthur P. Arnold and Albert Saltiel of the University of California in Los Angeles injected the male sex hormone testosterone into castrated male and female adult finches, then examined nerve cells in the brains of the birds to see whether the cells had taken up the hormone. They found fewer testosterone-concentrating cells in the brains of the females than in the brains of the males in two brain regions known to be involved in birdsong.

Veni, vidi, studui — in China

Fifty American scholars — among them anthropologists, historians, astronomers, economists, agronomists and linguists — will arrive soon in the People's Republic of China as exchange students. They will begin a year of studies at universities in Beijing, Nanjing and Hopei at the beginning of September. The group, organized by the Committee on Scholarly Communication with the People's Republic of China, at the National Academy of Sciences, will be joining 11 U.S. researchers already in China, according to CSCPRC's Gwen Merrill. There will be 22 graduate students who have had at least three years of training in Chinese and who will study the language further. The rest are researchers and doctoral candidates, such as Clifford P. Stoll of the University of Arizona, who will peer at the rings of Uranus from the Purple Mountain Observatory at Nanjing; seismologist Francis T. Wu of the State University of New York at Binghamton, who will research earthquakes at the State Seismological Bureau in Beijing; and Kang Chao of the University of Wisconsin, who will delve into traditional China's land tenure system at the Institute of Economics at Hopei. Merrill says CSCPRC is planning a similar program for the 1980-1981 academic year. The program is in response to a Chinese-initiated proposal for scientific exchange with the United States, made last year, and is drawing an enthusiastic response from the academic communities here and in China.

Knowledge and power in global R&D

Global research and development is a \$150 billion enterprise, tapping the resources of about three million scientists and engineers. Military research takes up almost a quarter of those funds (\$35 billion) and the scientific manpower of more than half a million scientists, says a new report from the Washington-based Worldwatch Institute. Military research spending is three times the amount spent on developing energy technologies or on space exploration and technology, and is more than one and a half times the amount spent on basic research, the report says. Military, space and basic research account for almost half the global R&D.

Scientists in academia: 1978

Slowly but surely scientists and engineers are regaining a foothold in academia. According to a recent National Science Foundation report, the number of scientists and engineers at U.S. universities and colleges has increased 3 percent in 1978, to a total of 306,000. Research scientists are being hired faster than science teachers; there was a 5 percent increase in scientists hired for research and development, compared with a 1 percent increase in teachers. The majority of these non-faculty personnel are in the physical and biological sciences, the report says.

Women scientists may take some comfort in knowing that the number of women employed as full-time scientists and engineers has increased 5 percent, more than twice the rate for men. The employment growth rate for women engineers was the highest, at 19 percent; but the report adds that only one out of 40, or 2.5 percent, of the engineers employed in academia is female. This faster growth rate for women has been the pattern since 1974. But traditionally, few of these women have been placed in "tenure track positions," the NSF study notes.

Of the top 20 universities and colleges, Cornell University hired the most full-time scientists and engineers during 1978, increasing their faculty by 11.8 percent. Next came Stanford University, with a 6.1 percent increase, and Harvard University and the University of Pittsburgh, both with a 3.0 percent increase.