

The City of Tomorrow

By L. Michael Hager

Future cities may increasingly operate through the night in order to create jobs and use energy and facilities more efficiently. In a 24-hour society, midnight commuters could face less traffic, shopkeepers could welcome more customers, and the homeless could “timeshare” affordable housing.

Imagine a world with almost twice the current population. Imagine cities with 40 or 50 million inhabitants. Think of urban strangulation; overwhelmed buses, trains, and highways; lung-choking pollution; ranks of unemployed; alienated families; overstressed individuals; escalating crime; and chronic terrorism.

These images reflect current trends and portray what big city life may well be like only a generation from now.

Over 10 years ago, a U.N. conference on population in Cairo sounded a wakeup call. But even a dramatic drop in the population growth rate will not solve the problem. We need to reduce the birth rate in high-growth countries, to be sure, but we also need to plan for inevitably more crowded conditions in the next century.

Now consider present-day problems that challenge most urban areas around the world. Unemployment, pollution, and job stress already reflect a declining quality of life for most people. Rising crime rates, higher social costs, and government budget deficits are negative byproducts of these ills.

What should be done to stem the growing urban crisis? Taking into account huge budget deficits accumulated by even the richest countries, it is no longer feasible just to “buy a solution.” More creative approaches are wanted. One of them involves time: using the clock as a resource.

Forces emerging at the end of the twentieth century make it worthwhile to reconsider the role of time and its potential use as an economic resource. A new social architecture of time could address a variety of ills, such as the growing threat to the total environment posed by automobiles, the decline in the quality of life as a result of job stress, and the rapid growth of mega cities, with attendant unemployment.

Consider an ordinary city bus. In 1970, it comfortably

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Executive Trivia Question...

What American store sold more first growth Bordeaux Wine (the most sought after wines from France’s Bordeaux region) in 2001?

accommodated 20 to 30 commuters. By 1980, however, the number of riders has expanded to 50 or 60. The city purchased another bus and everyone was satisfied. In 1997, 150 commuters line up for rides. The two buses are no longer sufficient, and even three cannot handle the demand. The city cannot afford to buy additional buses, nor will citizens consent to tax increases. Moreover, budget deficits preclude additional borrowing.

The bus is a metaphor for employment, with each seat representing a 9-to-5 job. In many cities, the number of job seekers grossly exceeds available positions, and neither government nor industry can cope with the rising demand. In large metropolitan areas, transportation and other city services that make daylight work possible are already at or near their limits.

Fortunately, there is a low-cost solution that can greatly increase the number of jobs, protect the environment, and improve the quality of life. The answer lies in thinking the unthinkable about time and organizing ourselves around it. It means treating time as an economic and social resource. In short, we need to promote 24-hour economies with successive work shifts.

The Nonstop City

Human beings are creatures of habit, continuing to follow a dawn-to-dusk workday inherited from an agricultural age. Stroll through Rome, Paris, or any other European capital on a Saturday or Sunday afternoon. Most of the business establishments are closed and - except for the few enterprises catering to tourists - the shops are shuttered. Similarly, during the week virtually everything closes down at the end of daylight hours, if not also during the midday lunchtime. Night work is confined to power plants, hospitals, bakeries, and a handful of round-the-clock factories and pharmacies. In North America, many

businesses, particularly in the service industry, are remaining open later at night and throughout the weekends. Recent articles in *The Economist* have suggested that this difference accounts in part for the substantially lower unemployment rate in the United States. Longer business hours mean more working hours and hence more jobs.

A “nonstop” policy adopted piecemeal by businesses or mandated across the board by municipal governments would essentially drop the distinction between night and day production of goods and services. It would allow all types of economic activity to take place around the clock; three or four work shifts would be possible in place of the single shift that is now the norm. Since workers on different shifts could use the same equipment and workplaces, the potential number of jobs in a city might double or even triple.

As 24-hour employment becomes the norm in large cities, it will inevitably bring with it the same volume and variety of economic activity that we see during the day. Not only shops, banks, and stock exchanges, but also government offices, churches, and schools would never close.

With two-thirds of the work force off-duty at any time of day or night, there would be at any moment less pressure on the supporting services, such as transportation, telephones, streets and highways, buses and trains. Since one-third of the urban population would be active at any hour, places of entertainment such as restaurants, theaters, and movie houses would remain open around the clock.

24-Hour Families and Neighborhoods

An essential element in the nonstop city would be to allow parents and their children to function on the same time schedule. Thus, schools would be operated on a multi-shift

basis, achieving more-efficient use of their physical plants and recreation facilities, while allowing families to manage their activities on the same shift.

With more people (especially the young) employed, there would be reduced claims for unemployment compensation and, at the same time, an expanding tax base for city governments. Incomes generated by increased jobs would give rise to increased consumption demands to support the availability of around-the-clock goods and services. And with more people productively employed, neighborhoods alive during hours of darkness, and increased lighting, we would expect to see less crime in the streets.

What might be called the “social architecture of time” assumes an essential tradeoff between time and space. Vacation home “timesharing” and workplace “hot-desking” are productive examples of such tradeoffs. In the case of timesharing, vacationers purchase seaside condominiums in specified timeshare modules. Hot-desking allows employees on different shifts to use the same office, desk, and computer, saving their employers building rental and equipment costs.

The Nighttime Society

While current images of the “graveyard shift” make the idea of night work unattractive (if not downright appalling) to us now, the use of holograms and creative lighting to simulate daylight conditions could soon make after-dark employment as tolerable (and illuminated) as day work. The adverse health effects associated with swing-shift work could probably be avoided in a nonstop city because regular employment within a particular time zone would not disturb circadian biorhythms.

Architects of nonstop cities would have considerable flexibility in determining how the shifts are

allocated. Employment times could be staggered so that, in most locations around the world for most of the year, no single shift would take place entirely in the hours of darkness. For example, a three-shift working schedule could be divided as follows:

Shift 1: 2:00 a.m. to 10:00 a.m.

Shift 2: 10:00 a.m. to 6:00 p.m.

Shift 3: 6:00 p.m. to 2:00 a.m.

With an entire community operating on a nonstop basis, there would be considerable incentive for neighborhoods and families to improve the sleeping, eating, and recreating conditions at any hour of the day. One aggravation of present shift work is certainly the hostile environment in which the night worker operates: breakfasting while others are having supper, receiving telephone calls and visitors during one's sleeping hours, and having to cope with family members on daytime schedules.

In mega cities today, there is usually a fierce competition for housing, leading to high prices. The less fortunate crowd into parental apartments, live far from their jobs, or accept substandard housing - shacks or making do on the street. With nonstop cities, the poor can timeshare housing space with roommates or extended family members. Instead of competing for sleeping, cooking, and bathing facilities, the different occupants within a household can select different work shifts, thereby reducing by one-third the pressure on household facilities at any one time.

Other Time Options

How else might we rethink our concept of time in order to solve problems such as pollution, unemployment, urban congestion, and job stress? One possibility is to add an extra day to the weekend, maintaining the five-day workweek.

Universally established by international convention, an eight-day week would reduce environmental damage in large cities, since it would

give more time to dissipate the air pollution created during workdays. It would also improve the quality of human life everywhere by affording regular three-day breaks from stressful jobs and giving parents more time with their children.

Strategically placed between Saturday and Sunday, the new day could be designated "Earthday" particularly appropriate since all the other days of the week were originally named after planets visible to the naked eye. Green organizations could use the day to mobilize popular participation in environment saving activities, such as recycling, tree planting, and having a car-and-truck-free day.

With three-day weekends regularly at their disposal, everyone would have more time to enjoy the arts, hobbies, sports, and the environment. And they would be more refreshed and more productive during the workweek.

Another "timely" innovation would be global time, a universal time arbitrarily established and maintained on the Internet. In a world increasingly operating in cyberspace, business transactions take place around the clock and around the globe. But whose clock? Global time would provide a single reference point for all the world. It would be easier to use than Greenwich Mean Time, which requires separate computations for each application.

What Needs to Be Done?

Policy makers should begin planning for a more-populated world and, particularly, for the organization of mega cities that may reach 30 to 50 million people in the next century. It is in those places that 24-hour economies can help the most to create new jobs, reduce urban crime, and build a stronger tax base.

To achieve the 24-hour economy, cities, states, and national governments need to eliminate "blue laws" and other restrictions that prohibit

companies and stores from remaining open beyond the usual daylight hours or a specified number of hours per week. Beyond that, the same governments should find ways to promote nonstop economic activity through tax policy, subsidies, rewards for experimentation, and other techniques.

One possibility is to create a 24-hour economy zone as a demonstration or pilot project. This initiative could be taken by a large institution, such as a major university, which would reap immediate financial benefit by suddenly tripling its student population (and revenues) at less than twice the cost. A pilot project would afford an opportunity to measure job creation, environmental impact, and quality-of-life factors.

Nonstop cities are just one way of treating time as an economic resource. It is time for economists and administrators to rethink the concept of time. As we move toward a brave new world on a vastly more crowded planet, the clock is surely ticking.

Two Scenarios of Nonstop Cities Cairo

Ahmed Abdoul leaves his home in Giza to buy a newspaper and have supper. A school bus rumbles by, loaded with happy 10-year-olds returning from a class trip to the art museum. Moviegoers line up at the holo-cinema, where the second installment in the latest Star Wars trilogy is having its premiere.

It is 3 a.m., yet the streets are well lit and teeming with life. All the shops, schools, government offices, and mosques are open. With all the activity of a nonstop city around him, he feels as comfortable and safe as at midday.

Mexico City

Anna Gomez begins her regular 6 p.m. shift as an assembly line worker in a "tortilla factory." At the same time, her husband logs into the post office where he works as a clerk, and the Gomez children begin another

typical “day” at the neighborhood school.

Meanwhile, at the family apartment, Anna’s parents and mother-in-law recline in beds just vacated by the younger family members. When the elder members wake up at 2 a.m., then Anna’s brother and his wife, who just completed their 10 a.m. to 6 p.m.

work shifts and are on their way to church, will be ready to take their places in the sleeping rooms.

Three family units “timeshare” the same apartment while working different shifts in the nonstop city.

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The Human Animal

By Thomas E. Ollerman, Ph.D.

Family Members Stink

People prefer the scent of a stranger to the scent of a family member, says new research. A team at Detroit’s Wayne State University studied 25 families with at least two children between the ages of 6 and 15. Volunteers slept in the same T-shirt three nights, so that it acquired their personal smell. When asked to sniff the T-shirts of other subjects, all volunteers preferred the smells of outsiders to those of family members. Mothers found the scents of their children particularly repellent, while children had the strongest aversion to their fathers’ scents. Also, opposite-sex siblings disliked each other’s scents, although same sex siblings had no such aversion. “Disliking the smell of a close family member may be an evolutionary mechanism that helps prevent incest,” according to lead researcher, **Tiffany Czilli**.

Fearful Asymmetry

Beware of lopsided lovers: People with asymmetrical feet, fingers, and ears are more likely to exhibit romantic jealousy, says new research. Everyone is asymmetrical to some degree, but there are people whose feet or hands or

eyes or ears are less equally matched than others. **Dr. William Brown** of Dalhousie University in Halifax, Nova Scotia was intrigued by previous studies that people with more symmetrical features are healthier, more fertile, and more attractive to the opposite sex. If asymmetrical people are less attractive, he reasoned, they are more likely to be cheated on. If jealousy is a strategy to retain your mate, then the individual more likely to be cheated on is more likely to be jealous. To test his theory, he looked at 25 heterosexual couples. He compared the size of their features, and asked each to fill out a questionnaire assessing their jealousy. The findings showed a strong link between asymmetry and romantic jealousy: The more asymmetrical the lover, the more jealous he or she was. Couldn’t the subjects just have had jealous personalities? No, there was no evidence that they displayed unusual jealousy in nonromantic relationships, including those in the workplace.

Pets Prevent Allergies

Doctors have long advised parents that having a dog or cat around could increase a baby’s risk of developing allergies. “We

found the opposite,” **Dr. Dennis Ownby** of the Medical College of Georgia in Augusta. His research shows that growing up amid a multitude of pets reduced an infant’s risk of developing allergies by about 77 percent. It also reduced the risk of allergies to pollen and molds. If researchers can figure out what substance prevents allergies, it could one day be used as a kind of vaccine against them.

The New Infidelity

The modern workplace poses an enormous threat to monogamous marriages warns a Baltimore psychologist. The long hours men and women spend together at work, battling shared problems, is a recipe for adulterous temptation, according to **Shirley Glass**.

The new infidelity is between people who unwittingly form deep, passionate connections before realizing that they’ve crossed the line from platonic friendship to romantic love. Emotional bonds formed with colleagues, she contends, don’t even need to be sexual to constitute infidelity. “Infidelity is any emotional or sexual intimacy that violates trust,” says Glass. She estimates that 25 percent of wives

and 44 percent of husbands are sexually unfaithful. One problem is that people “believe if they love their spouse and have a good marriage, they don’t have to worry”. But monogamy requires vigilance, she says. Couples should stay alert to temptations, resist flirting, and be completely honest with each other”.

Fat Shortens Lives

Now we know the price of carrying too much lard at midlife: It cuts about three years off your life. A new study of 3,500 Americans has found that being overweight at 40 reduces life expectancy by that much, even if people lose the weight later in life, Obesity - weighing 20 percent more than one’s ideal body weight can cut even more years off the life span. A woman who is obese at age 40 loses 7.1 years of life, and an obese man loses 5.8 years. “The magnitude of this loss is similar to that associated with smoking,” *Dr. Anna Peters* at the Netherlands Research Unit reports in the *Annals of Internal Medicine*. While smoking is waning in the Western world, “a new fear should be the increasing prevalence of obesity in young adults, which heralds another preventable public health disaster.”

Another study found that an obese 20-year-old man could expect to have his life cut short 13 years while an obese 20-year-old woman would be cut by eight years.

Why do We Dream about Dragons?

Fire breathing dragons have terrorized the collective imagina-

tion of nearly every civilization. Dragon images have shown up on artifacts from Sumeria, Babylonia, China, the Aztecs, and even the Intuits of Alaska, where no reptiles live. Up until the 18th century, most scientists simply assumed that griffins, man-eating sphinxes, and other fierce, winged beasts were once real. The question scholars asked back then, says anthropologist *David E. Jones*, was, “Why don’t we see them anymore?” Jones asks a different question: Why did all these far-flung cultures imagine the same mythological creature? The dragon, Jones says, is a composite of the three kinds of carnivores who terrorized early human ancestors: the pythons, the raptors, and the big cats. The fear of these flesh-eating predators, Jones says, was imprinted deeply in mankind’s collective unconscious, where it was transformed into a single beast with qualities of each - our very worst nightmare.

Did Geniuses have Asperger’s Syndrome??

Isaac Newton was certainly a genius, but he didn’t play well with others. The scientist hardly spoke, became so obsessed with his work that he forgot to eat, and was short tempered with the few friends he had. These traits sounded familiar to autism expert *Simon Baron-Cohen* of Cambridge University. So he and mathematician *Joan James* of Oxford University took a closer look at Newton’s behavior, finding many signs of Asperger’s syndrome, a mild form of autism that doesn’t cause learning disabilities. People with Asperger’s have three

key symptoms: obsessive interests, difficult social relationships, and trouble communicating. That makes Newton a classic case. Albert Einstein showed similar traits; he was a loner as a child, repeated sentences obsessively until he was 7, and was a notoriously confusing lecturer. Autism is hereditary, and many researchers suspect the genes for the disease are linked to those that make people really good at understanding complex systems - like computer programs, math, and music. While researchers concede it’s impossible to diagnose dead people, they hope their findings will help Asperger’s sufferers find areas in which they can excel.

Exhaust Fumes Exhaust Sperm

Sitting too long in traffic could make men sterile. Researchers at the University of Naples found that tollbooth workers, who spend six hours a day sitting in the middle of the road, have damaged sperm. Although their sperm count was normal, their sperm were more feeble than those of men of the same age living in the same area but who weren’t exposed to as much exhaust. Weak sperm have trouble reaching an egg and penetrating it. Tollbooth attendants’ wives also took almost twice as long to get pregnant as the wives of men who didn’t work on the roads. Nitrogen oxides are probably to blame, study leader *Michele De Rosa*. The levels of nitrogen oxide, lead, and sulphur oxide in the air near the booths were higher than legal limits, and attendants had higher blood levels of these pollutants. The more nitrogen oxide men had in their blood, the more damaged

their sperm. “Health authorities should be alert,” say researchers, “to the insidious health effects of environmental pollution.”

Fasting Lengthens Life

Forget what mom told you: Skipping meals might actually be good for you. A new study found that mice that were fed only every other day - but could stuff themselves on the days they did eat - lived longer than mice eating regularly. They had the same health benefits as mice that were put on ultra-low-calorie diets, which have been found to increase the life spans of most animals. The new study suggests, though, that it's not necessarily eating fewer calories that leads to longevity but the fasting process itself. “We think what happens is going without food imposes a mild stress on cells,” researcher **Mark Mattson** of the National Institute on Aging. Cells respond by increasing their ability to cope with severe stress.

“It's sort of analogous to physical effects of exercise on muscle cells.” Researchers plan to test the theory on humans by comparing the health of people who eat normally with that of people who fast for 20 hours and then eat the same amount of food in four hours. If fasting helps humans too, says Mattson, then maybe “skipping meals is not bad for you.”

Therapy: Works like a Drug

Many people suffering from psychological disorders believe therapy is a more “natural” way of dealing with depression, anxiety, or obsessive-compulsive disorders than taking psychotropic drugs. But new evidence indicates that

cognitive behavior therapy {CBT} alters the brain in the same way that the common anti-depressants Prozac and Zoloft do. A study by **Dr. Lewis Baxter** at the University of California, Los Angeles shows that Prozac and CBT bring about the same improvement in brain function in patients with obsessive compulsive disorder. Similar results were found in studies of people with depression.

This doesn't mean antidepressants and psychotherapy are actually equivalent says psychiatrist **Richard Friedman**. Therapy is ineffective for (diseases such schizophrenia, where there are structural brain abnormalities. But the cases in which therapy does produce nearly the same brain changes as drugs could prove that “the boundary between mind and brain is entirely artificial.”

Drink Often, Not a Lot

Drinking moderately three or four times a week is one of the best things you can do for your heart, says a new study. It doesn't matter what you drink, as long as you drink it often. “it was a surprise that - almost regardless of other factors associated with drinking - frequency of use seemed to be what reduced the subsequent risk of heart attack,” **Dr. Kenneth Mukamal** of Harvard University Medical School reports in the New England Journal of Medicine. He and colleagues analyzed data from a long-term study of 38,077 male professionals. Those who drank at least three days a week had one-third fewer heart attacks than teetotalers - whether they had half a drink or four drinks. Those who drank only once or twice a week

had only a 16 percent lower risk. Doctors theorize that alcohol inhibits the clogging of arteries, by keeping blood platelets from clumping. “It may be much like people who take aspirin every day,” says Mukamal. “A little bit of alcohol on a regular basis helps keep the platelets from becoming sticky and prevents heart attacks.” Doctors caution that their findings only apply to moderate drinkers, and are not a license to drink heavily.

Higher Learning's Dark Side

Getting a Ph.D. could depress you. Stanford University researchers found that men with advanced degrees are more likely to have mental-health problems. They studied 460 employees in a northern California workplace, 51 percent of whom had a master's or a doctorate, asking questions about mental health, antidepressant use, drinking habits, and how they coped with stress. The most highly educated workers scored lower overall than two-thirds of the county. “The sort of work these people do may be more stressful and demanding,” says researcher **Dr. Cheryl Koopman**. “That could explain the results.” New York psychologist **Dr. Morton Schillinger** has another theory. “People with higher educations are most likely to be psychologically self-aware,” he says. “These people have a higher standard for self-satisfaction.” Women with advanced degrees, however, actually had better mental health. Researchers weren't sure why, and say more research is needed to figure out exactly how higher education impacts mental health.

Male Sweat Soothes Women

Feeling blue? Sniff a sweaty man. A University of Pennsylvania study found that the scent of male perspiration brightened women's moods, relaxed them, and even triggered changes in hormone levels that regulate menstrual cycles. The women in the study had no idea what they were actually sniffing; they were told it was perfume, alcohol, or floor wax. "Much to our surprise, the women reported feeling less tense and more relaxed during exposure to the male extract," Researcher **Charles J. Wysocki** says "This suggests there may be much more going on in social settings like singles bars than meets the eye." His team believes that pheromones - chemicals produced in the blood that affect the reproductive behavior of others - are responsible. Scientists have long known that female pheromones affect other women; women who live together generally menstruate at the same time. But this study is the first to find that male pheromones also change female reproductive behavior.

Who can multitask better – Men or Women?

Call off the debate, said **Azriela Jaffe** in the Lancaster, Pa. "Anecdotal and scientific evidence" proves that women multitask better than men do. Think about your office. Most women can juggle many projects, while most men can handle only one assignment at a time. Though some men learn to scale back their innate single-mindedness, "it doesn't often come easy." These male adapters have learned to

function in workplaces that value flexibility. But "they prefer to go down the list, knock off project A, and then B, and then C, rather than doing ABC all at the same time."

Says who? said **Sue Shellenbarger** in *Career journal, com*. Anecdotal evidence means nothing, and studies suggest that males and females show the same talent for multitasking - except mice. Female rodents edge out male rodents in multitasking their way out of mazes. But in studies on humans, "the two sexes typically come out about the same, on average," said University of Michigan psychology professor **David Meyer**. Moreover, the Federal Aviation Administration reports that performance remains constant between male and female air-traffic controllers, "the top guns of multitasking." The stereotype of female superiority persists because men choose not to multitask at home.

Fat People are Not so Jolly

Santa Claus is the exception and not the rule: Fat people in general are not jolly. University of Texas researchers conducted a long-term study on 1,739 people ages 50 and up living in Alameda County, Calif. Researchers assessed subjects' mental health by asking them about overall happiness, relationship satisfaction, depression, optimism, and whether they felt loved. "The researchers found that, far from being jollier, fat people were more likely to be depressed and pessimistic. "In no case did we observe better mental health among the obese," **Dr. Robert**

Roberts tells the *Annals of Behavioral Medicine*. **Dr. Cary Cooper** of the University of Manchester in the U.K. says that many fat people fake jolliness. "You are fat, you are depressed, and you are trying to cover it up," he says. "That's why fat people are often perceived as jolly." Roberts now wants to find out if depression increases the risk of obesity, and if obesity increases the risk of depression.

No happier Ever After

Marital bliss is a temporary state, say Michigan State University researchers. A honeymoon may perk up some people, but two years after their wedding, couples generally feel exactly as happy as they felt before tying the knot. "People were no more satisfied after marriage than they were prior to marriage," researchers report in the *Journal of Personality and Social Psychology*. The 15-year study of more than 24,000 adults also found that the men and women who were happiest with their single lives reported the smallest improvements from marriage. That's probably because these people tend to be extremely social, with many close friends. "A person like this, with a rich social network, probably has less to gain from the companionship of marriage," says psychologist **Richard Lucas**. Previous studies found that marriage made people happier, but these studies compared married couples with single people of the same age and income. The new study looked at the same people before and after they were married.

Animal Whys?

by Jocelyn Little

- Flies that ate toads were observed in August 1982 near Portal, Arizona. This was the first record of the horsefly genus *Tabanus* eating a vertebrate. The horsefly larvae were trapping spadefoot toads, stinging them, and sucking out their blood and body fluids.
- Several giant South American toads were sent to a university and stored with young, foot-long alligators. One day an alligator was missing, and, sure enough, an X-ray revealed it, whole, curled up, in the belly of a toad.
- Praying mantis' have been known to capture and eat hummingbirds and field mice.
- C. W. Monckton, stranded on the desolate Trobriand Islands, noticed that the only other inhabitants, gangs of rats, were lining up on the shore and dangling their tails in the water. They would wait until a crab bit, and then haul it out and gobble it up.
- Blue tits, a kind of bird, have been stealing milk from English doorways for decades. They lift the bottles, pierce, drill, or twist them open, or simply fling them into the air to get at the milk.

The Idea Incubator

By Frank Helton

How can we make rats cancer-proof?

Scientists have bred an entire colony of cancer-proof mice. During a routine cancer experiment, researchers at Wake Forest University in North Carolina noticed that one lab mouse remained cancer-free, even after several injections of cancer cells. They bred this mouse with ordinary mice to produce 700 animals who were cancer resistant - proving that the resistance was genetic. "The power of this resistance seems to be unlimited," according to biochemist *Zheng Cut*. "You can give them many, many tumor cells and the mice get rid of them." Even more surprising, the mice remained resistant no matter what sort of cancer they were given. Doctors have long known that some people remain cancer free despite heavy exposure to carcinogens, such as cigarette smoke. If scientists figure out how the mice remain resistant, the findings could pave the way for related human gene or drug therapies.

Do fish feel pain?

Avid anglers have long argued that fishing is not a blood sport like fox hunting because fish can't feel pain. To test this assumption, researchers at the Rosin Institute in Scotland conducted several tests on rainbow trout, poking them, injected them with acid and bee venom, and applying heat to their skin. The fish's brain activity, as well as their erratic movements, suggested they were indeed suffering. Fish injected with nasty chemicals took 90 minutes longer to resume feeding, and their breathing increased to the level of a fish swimming at top speed, both indicators of severe physiological stress. They also rocked themselves from side to side, just like stressed mammals do. "These behaviors are not just reflex responses," says researcher *Lynne Sneddon*. Though it's impossible to tell for sure how much pain a creature of another species feels, says *Patrick Bateson* of Cambridge University, the findings are "a good argument to say that fish should be treated carefully."

Executive Trivia Answer...

Costco, a wholesale chain with more than 400 locations nationwide, sold \$503 million dollars worth of wine in 2001.

Thought To Ponder...

Politics is the art of looking for trouble, finding it whether or not it exists, diagnosing it incorrectly, and applying the wrong remedy.

Ernest Benn