

Can Mankind Beat The Clock?

By JEREMY RIFKIN

L.A. Times/Washington Post Service

A BATTLE is brewing over the politics of time. The new temporal confrontation directly parallels the recent controversy between the belief that "bigger is better" and the countervailing idea that "small is beautiful." The emerging conflict pits the notion that "faster is better" against the idea that "slow is humane."

On the "faster-is-better" side is the demand for increased efficiency and performance, a sense of time paced to the artificial tempo of automated electronic machinery and computerized information-processing. On the other side is a vision of life more attuned to the biological and physical rhythms of the natural world. "Slow-is-humane" proponents tend to agree with historian Will Durant: "No man in a hurry is quite civilized." Whereas both time orientations are alluring, in the final analysis they are incompatible.

OUR GREATLY ACCELERATED time orientation has arrived only recently in the history of human development: Napoleon's troops traveled at the same speed as those of Alexander the Great. It is barely 200 years since the steam engine — oblivious to hour or season — began imposing its unnatural rhythm on society. In 1825 the railroad started to regulate the schedule of daily life, abetted by the teletype, telephone and daily newspaper. Natural time was further subverted in 1809 with the introduction of the gaslight in London, extending day into night. Seventy years later came the electric light. Historian Rayner Banham called it "the greatest environmental revolution in human history since the domestication of fire." Today

TIME

we are increasingly using electricity to "colonize" the night with 24 hour public and commercial facilities.

It's ironic that in a culture so committed to saving time we feel increasingly deprived of the very thing we value. Despite our alleged efficiency, we seem to have less time for ourselves and far less time for each other.

And now we are faced with a technology that threatens to accelerate our sense of time beyond anything experienced before: the computer. It works in a time frame in which the nanosecond — a billionth of a second — is the primary measurement. Though it is possible to conceive of an interval that brief, and even to manipulate time at that speed, it is not possible to experience it. Never before has time been organized at a speed beyond the realm of consciousness, and already it is having a profound effect on society.

A 1981 study by the National Institute of Occupational Safety and Health reports that "clerical workers who use computers suffer higher levels of stress than any other occupational group — including air-traffic controllers." Secretaries who once averaged 30,000 keystrokes an hour are now expected to perform 80,000. Brokerage houses count on employees to handle a call every minute and a half. Architects using computer-aided design are asked for productivity increases as high as 1,800 percent, at crippling expense to creativity.

Hundred of thousands of workers now find their jobs routinely monitored to speed up performance. In a recent study of one system — designed so that if the operator does not respond to the data on the screen within 17 seconds, it disappears — medical researchers found that operators exhibit increasing stress as the time approaches for the image to disappear: "From the 11th second they begin to perspire, then the heart rate goes up. Consequently they experience enormous fatigue." Nor are the effects limited to offices. Hundreds of thousands of workers, such as supermarket cashiers operating bar-code readers, find their work-product recorded and their anxiety increased by electronic equipment.

Moreover, we are becoming addicted to ever shorter time intervals between events. "Teachers talk slower than Atari," complains a 9 year old boy, and "sometimes they make me angry. I think, 'Come on, I want to get back to Atari. It tells me things faster than you do.'" The "computer compulsive" personality is becoming familiar. According to Craig Brod, one of the growing number of psychologists specializing in computer-related distress, "those who live with computer workers invariably complain that disputes over time are a major source of friction."

Even human speech has become too slow. Sony, Panasonic and other companies are now marketing variable-speed-control cassette tape recorders equipped with a special "speech-compression" chip. That mechanism speeds up the playback motor while clipping off tiny audio fragments — snipping about 10 milliseconds off each sound. The remaining sounds are electronically stretched, producing a fast-paced narrative without the high pitch that results from playing a normal tape at increased speed. As a result, a 60 minute cassette can be listened to in half an hour. According to industry sources, about a million people now "speed listen," and millions more soon will as the compression chip makes its way into schoolrooms,

offices and homes.

"Nature barely moves at all" in comparison to the computer time world, writes sociologist Jerry Mander. "It takes an extreme degree of calm to perceive things happening in nature, and I suspect we may be producing a generation of people too sped-up to attune themselves to slower natural rhythms."

UNTIL THE MODERN ERA, every concept of time acknowledged an intimate relationship between the rhythms of social life and the rhythms of the earth's ecosystems. It is impossible to grasp the full extent of our temporal alienation in the new nanosecond culture without first examining the age-old biological rhythms at the very core of our existence.

Thanks to a relatively new discipline called chronobiology, researchers are discovering that all living things are composed of myriad internal biological clocks entrained to work in coordination with the rhythms of the external physical world.

Chronobiology began inauspiciously in 1906, when a Swiss doctor named Forel, fond of breakfasting on his terrace, observed that bees arrived at his table at precisely the same time each morning — even after he had moved his meal inside. A subsequent series of landmark experiments determined that the temporal precision of bees' nectar-collecting activities remained unchanged even when they were moved to a cellar or salt mine. And when scientists tried to derange the insects' biological clocks by flying them from Paris to New York, the bees continued to perform on schedule according to Paris time.

Nature provides countless examples of biological clocks timed to environmental and planetary rhythms. The Capistrano swallows of California, for example, fly thousands of miles south for the winter, yet return every spring on March 19. They have been a day late only twice in 200 years. The palolo worm reproduces only during the neap tides of the last quarter moon in October and November. Experimenters put a Rocky Mountain ground squirrel in a small windowless room during the summer, provided food and water, and set the temperature at the freezing point. From August to October, the squirrel ate normally and maintained regular body temperature. In October, however, it quit eating and drinking and began to hibernate — just as if it had been outdoors in its natural habitat.

The most important biological rhythms are circadian (from the Latin for "around the day"), and they affect every living thing. Researchers at Johns Hopkins tried to break the 24 hour rhythms of rats by injecting them with drugs, shocking them with electricity, freezing them, stopping their heartbeats, blinding them and even removing whole sections of their brains — all to no avail. The rats continued to follow their 24 hour activity cycle. The more deeply scientists have delved into the circadian rhythms of numerous organisms, the more profoundly imbedded they appear. So basic is this metabolic orientation to all plants and animals, writes psychologist John E. Orme, that "the rhythm is not a property of any particular organ or biological clock. The whole organism, in a sense, is the clock."

As for humans, millions of us have become familiar with the idea of biological clocks as a result of exposure to jet lag and shift work. In both, the body's internal rhythms are jolted out of synchronization by radical temporal changes. So far, science has uncovered only a fraction of the many rhythms that permeate our physiology. But we are learning more every

topless firefighters Saturday night, killing one man and injuring four other people, authorities said. One bomb failed to explode, and a bomb squad removed the device, described as a Thermos bottle with a wick, from Club Michael's in eastern Kansas City, officials said.

Witnesses said a man tossed the bombs about 20 feet into the bar and then fled, Knabe said. Police said they had no suspect.

Infant Girl Stable After Transplant

LOMA LINDA, Calif. (AP) — A 9 day old girl was in critical but stable condition Sunday, one day after doctors replaced her fatally underdeveloped heart with a healthy one.

The infant, identified only as Baby Victoria, received the walnut-sized heart during a five-hour operation Saturday at Loma Linda University Medical Center.

Protesters Mark Nagasaki Bombing

By The Associated Press

More than 200 demonstrators were arrested Sunday at the Nevada Test Site, while at least 150 were taken into custody after they attempted to force a one-day shutdown of the Rocky Flats nuclear weapons plant in Colorado.

A "peace fair" sponsored by the Nashville Peace Alliance in Tennessee and a protest at the Trident submarine base in Bangor, Wash., also were among the scattered demonstrations marking the 42nd anniversary of the atomic bomb attack on Nagasaki, Japan, at the end of World War II.

Minorities Blast AIDS-Ed Efforts

ATLANTA (AP) — Black and Hispanic activists, accusing the federal government of mishandling the battle against AIDS among minorities, on Sunday demanded increased influence into federal AIDS planning and more funding for their own efforts.

Blacks, Hispanics, Asians and native Americans, meeting here for a Centers for Disease Control conference on AIDS and minorities, were sharply critical of CDC efforts to educate minorities about AIDS. A particular source of controversy is \$7 million in new federal funding for minority-AIDS education efforts that was appropriated "without significant input from the black community," said Brandy Moore of the California AIDS Advisory Committee.



Associated P

Sparkbusters

A volunteer firefighter smiles for the camera during a blaze late Saturday in Raleigh, N.C., that destroyed two multi-unit apartment buildings under construction

Concern Mounts Over Ex

CHARLESTON, W.Va. (AP) — Some 20,000 ambulances under recall because of a faulty fuel system built by Ford Motor Co. are "a time bomb" on the nation's highways, officials say.

In the past three weeks, at least 10 ambulances with the Ford Econoline 350 chassis have burst into flames, including one in West Virginia that was rushing a patient to a hospital.

"That's as close to hell as I want to get," said Roger Cox, an attendant on the ambulance that blew up after everyone got out.

Another 27 ambulances have caught on fire and eight passengers have been burned

in incidents linked to the chassis over the last 18 months, according to the Center for Auto Safety, a Washington lobbying group.

Ford blames the problem in part on modifications it says were made by companies that use the vans or convert the E-350 chassis into ambulances, said company spokesman Chuck Snearly.

Vans and campers built with the E-350 chassis also have been affected. During the last year and a half, 21 of those vehicles have gone up in flames, with nine passengers burned, said Robert Dewey of the Center for Auto Safety.

As a result, the federal Highway Traffic

Baby M's Mother O With Regaining Cu

HACKENSACK, N.J. (AP) — Surrogate mother Mary Beth Whitehead, who separated from her husband last week because of stress from the Baby M case, has gone into hiding and says her life is "totally messed up," according to a report published Sunday.

"I don't know who to trust," she said in a copyright story in The Record of Hackensack.

Mrs. Whitehead told the paper she lives by herself "somewhere in the states" in a rented house and has a job that allows her to work at home. She said she rarely sees friends and shuns books, newspapers and television.

The 30 year old housewife, stripped of her parental rights to a child she agreed to bear under a \$10,000 contract, said she was ob-

essed with reg old girl from W Stern. "Knowi baby back — I just killing me she told the pa

Her attorney that she and rated. Mrs. Wh the March 31 of Court Judge H uphold the con tody of the chil

She blamed reporting abo drinking proble money problem being a public and being port was trying to stand. I guess p stand," she said

LEGAL ADVERTISEMENT

NOTICE OF INTENTION TO REGISTER FICTITIOUS NAME

In compliance with Section 865.09 of Florida Statutes the undersigned will register with the Clerk of the Circuit Court in Volusia County, Florida, upon receipt of proof of publication of this notice, the following fictitious name, to-wit:

Pete's Home Improvement Mobile Home Service

under which the undersigned are engaged in the business of Mobile Home Additions & Repairs, and related activities, at 2015 Jason Rd., Ormond Beach, (Mailing Address: P.O. Box 742, Holly Hill, Fla. 32017), Volusia County, Florida, and that the undersigned are the only persons interested in said business.

Dated at Daytona Beach this 24th day of July, 1987.

will sell to the highest and best bidder for cash at the North front door of the Courthouse in DeLand, Florida, between the legal hours of sale (estimated time of sale 11:00 A.M.) on the 17th day of August, 1987, the following described property, to-wit:

Unit Week(s) in Unit Number(s) 2014 of the Ocean East Resort Club Condominium as recorded in Official Records Book 2316, at Page 1913 in the Public Records of Volusia County, Florida, and all amendments thereto, if any, and the Supplemental Timeshare Declaration for said Condominium as recorded in Official Records Book 2316, at Page 1973, in the Public Records of Volusia County, Florida, and all amendments thereto, if any, together with a remainder over in fee simple absolute, as tenants in common with the owners of all of the unit weeks in the above-described condominium par-

nent Commit MOORE, a fema at approximately al date and plac the State of F Health and, Re for subsequent hereby comman before the Hon ZIANO, Judge of Room 312, Volus East Orange Av Florida, at 10:00 day of SEPTEM either appear at date and at the a written respon to that time. You respond may be the Permanent may permanent as a parent to named in the P Commitment th filed with this C

NATION

International Effort Aims To Solve Ozone Hole Puzzle

MOUNTAIN VIEW, Calif. (AP) — Space agency scientists announced Tuesday an international probe of the mysterious ozone hole over the Antarctic to see whether man-made chemicals, nature or both are destroying the gas vital to life on Earth.

Specially equipped ER-2 planes capable of flying to the edge of space, and four other types of aircraft taking off from the southern tip of Chile, will be part of the \$10 million effort from Aug. 17 to Sept. 29.

"I believe this is probably the most singularly important earth science project in a decade," Robert Watson, program scientist for the National Aeronautics and Space Administration, said at the agency's Ames Research Center.

A few years ago, he said, scientists were "worried that a 5 percent change (in ozone) over the next century could be adverse. Instead of 5 percent, we're looking at 50 percent in only 10 years."

NASA will be joined by at least three other federal science agencies; the Chemical Manufacturers Association; scientists from Harvard, the University of Denver, the University of Washington; and the governments of Argentina, Chile, France, New Zealand and the United Kingdom.

Other countries also are cooperating by allowing aircraft flights over of their territories.

The ER-2, a modified version of the U-2 spy

plane, and a specially equipped and modified DC-8 airliner will make at least 10 passes each through the ozone hole, and .

gather information on winds, pressure and temperatures, and take chemical samples. Other data will be recorded by three more planes and by ground and satellite equipment.

Ozone, a form of oxygen, is essential to life because it limits the amount of ultraviolet rays reaching the Earth's surface.

EDITORIAL PAGE

THE NEWS-JOURNAL

Serving Volusia And Flagler Counties

"Give me the liberty to know, to utter, and to argue freely according to conscience, above all other liberties."

— Milton

Herbert M. Davidson (1895-1985) Editor 1928-1985

Tippen Davidson, Publisher & Co-Editor

Josephine Field Davidson, Co-Editor

A Lever In The Gulf

WASHINGTON — Two events, the new United Nations resolution on the Iran-Iraq war and the American reflagging operation, are combining unexpectedly to produce a glimmer of respite in the Persian Gulf.

The resolution had been widely seen as a lever to press Iran, which, in this stage of the war, is clearly the aggressor and poses demands — the ouster of Iraq's leader — that could be accepted only by a country



Foreign Relations

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year. We now know that regardless of how much liquid we consume at particular times during the day, urine flow follows a circadian rhythm, declining during the night-time. We know that potassium excretion peaks between 10:30 a.m. and 2:30 p.m. We know that the liver processes its glycogen reserves according to a dependable rhythm beginning by late afternoon and ending between 3 and 6 a.m.

Some researchers believe that a correlation exists between an individual's built-in temperature cycle and whether he or she is a "morning" or "night" person. Lawrence Monroe at the University of Chicago found that individuals whose body temperature rises to normal upon waking are apt to be very alert in their early waking hours while those whose temperatures do not rise to normal until well into the day are generally more alert and sensitive to their surroundings as evening approaches.

In addition, performance and achievement levels vary during the day, depending partly on each individual's temperature rhythm. At the National Medical Research Laboratories in Cambridge, England, Robert Wilkinson and Peter Colquhoun found that peak performance on tests correlated with peak body temperature during the day and low performance accompanied the lowest body temperature during the day. (Those temperature cycles, in turn, may influence our perception of duration. Evidence suggests that time seems to move more slowly as temperature decreases, and to speed up dramatically with a fever.)

The growing interest in biological clocks has sparked a host of new concerns within the medical community, not the least of which has been a growing debate over the proper time to administer drugs. A

new field known as chronopharmacology has emerged virtually overnight. Many scientists have come to believe that the time of day a drug is administered may be as critical as the kind of drug being used. At the University of Arkansas, Lawrence E. Sheving injected 300 mice with leukemic cells. He then divided the mice into 12 groups and administered chemotherapy to each group at a different time of day. Over half of the mice that received the treatment at 5 a.m. were cured, whereas only 16 percent of those receiving the same treatment at 8 a.m. survived.

Anger and anxiety can vary considerably during the day. Both emotions require extra doses of adrenaline; and adrenaline, like other biochemical agents, adheres to a changing secretion pattern over a 24 hour cycle. It is likely, then, that the expression of anger and anxiety will be greater or lesser at given periods of the day, irrespective of the object that triggers the emotion.

Emotions can also vary with daylight. According to studies at the National Institutes of Mental Health, the brain measures the length of every day and then uses that information to regulate the secretion of specific brain chemicals that affect mood and behavior. During the shorter days of the year, the pineal gland secretes more melatonin, which brings on depression in some subjects. As days lengthen toward spring, the brain produces less. By exposing severely depressed patients to massive doses of artificial light, NIMH scientists were able to shift mood dramatically.

Researchers such as New York psychiatrist Joost Meerloo have begun to suspect that a relationship exists between biological clocks and the statistical fact that most births and deaths occur in the early morning, that the peak number of deaths from arteriosclerosis occur in January, and that most suicides occur in May and June.

We live in two time worlds simultaneously — the biological one we inherit and the social one we learn. Until very recently in human history, the two were closely attuned. But now, the time demands of the modern age are increasingly taxing the biological rhythms of the planet. The growing conflict between those who favor a hyperefficient, simulated-time world and those who advocate a new ecological time vision is setting the stage for an historic struggle. The choice is ours. The time is now.

■ Jeremy Rifkin, head of the Foundation on Economic Trends, is the author of the newly published "Time Wars," from which this article is adapted.

ed States, according to officials from Radio Marti.

Florentino Azpillaga, 40, crossed the border from Czechoslovakia into Austria on June 6, just nine days after the defection of Brig. Gen. Rafael del Pino Diaz, a ranking member of the Cuban Armed Forces Ministry. Del Pino defected aboard a light plane with his family, landing at a Florida naval air station.

Azpillaga's defection first became known publicly Friday night when he was interviewed by Radio Marti, the U.S. government's broadcast operation to Cuba.

President Fidel "Castro's egomania has ruined the country," he said.

Radio Marti officials, insisting on anonymity, said Azpillaga is pre-

service, the intelligence service and, in general, from the Interior Ministry who have been conspiring for the past three years," Azpillaga

Radio Marti officials said Azpillaga is prepared to identify 350 Cuban agents in a number of countries. This would render them useless as intelligence agents.

said.

Azpillaga and his co-conspirators were said to believe the Cuban government was spending a disproportionately large amount of resources on intelligence activities.

The officials said Azpillaga was especially upset about this "waste of resources" at a time when austerity measures were forcing ordinary Cubans to lower their living standards.

Azpillaga's duties were said to have also included deciphering the communications of foreign enemies and learning the whereabouts of

to the revolution.

He has told American officials that his political activism began at age 10 when he ran errands for the rebel movement that eventually deposed the rightist dictatorship in 1959.

A Radio Marti official called Azpillaga a "lifelong, dedicated member" of the revolution who became disillusioned after concluding that Marxism-Leninism was the "religion of Fidelism."

The official said Azpillaga's defection apparently prompted the Cuban government last month to expose 10 agents who claimed to have posed as CIA operatives for years.

The agents said at the time they had evidence their true identities had been detected although they provided no elaboration.

Several members of the group told a news conference in Havana on July 24 the CIA had repeatedly asked them for information for the purpose of carrying out assassination attempts on Castro's life.

In addition to exposing the agents, the Cuban government has been engaged in a campaign on national television to highlight, with the use of hidden cameras, alleged CIA activities in Cuba.

The campaign began on July 6 and now appears to have been an attempt at countering the impact of Azpillaga's defection, which occurred a month earlier.

e Helicopter In Australia

helicopter hovering over the area was hit by gunfire and made an emergency landing on a nearby field, although all aboard were not injured. The helicopter was also hit by gunfire.

The helicopter killed a motorcyclist whose motorcycle was entangled with his. The motorcyclist who stopped her car to aid the motorcyclist was an accident victim, a witness said.

Some shots were fired as the helicopter was being pushed down the street and

others were fired from bushes around a railway station.

A young man said he watched for about two minutes as the gunman fired at traffic from underneath a roadside billboard. The witness said the gunman fired, reloaded and fired again.

It was Australia's bloodiest shooting spree since September 1984, when six men and a girl were killed and more than 30 people wounded in a shootout in Sydney between motorcycle gangs.