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FIRST WORD

THE MIND OF GOD

"If the heavens above can be measured"

By Paul Davies

Throughout history there has been a dream that mankind would one day come to know the reason for the existence of the universe. Some believed that this ultimate knowledge could be attained through mystical revelation. Others supposed that rational reasoning would provide the key. In the modern era, science has been seen as the natural route to this compelling goal. Recently an increasing number of scientists have asked whether an ultimate explanation for the physical world is possible and if so, what form this explanation might take.

All science proceeds on the assumption that the universe is rational and therefore can be understood by systematic investigation and human reasoning. The success of the scientific enterprise is eloquent testimony to the power of this assumption. But in fact we have absolutely no right to expect that the workings of nature will reflect human rationality in its deepest principles. Our mental facul-

ties have evolved in accordance with biological selection for their survival value. It is hard to see how the ability to do science relates to survival "in the jungle".

When Sir Isaac Newton first formulated the laws of mechanics and gravitation, he believed that he was uncovering the handwork of a rational God who had created an ordered universe by imposing eternal mathematical laws. Scientists came to regard the laws of physics as thoughts in the mind of God. Because they believed that Man was made in God's image, it was no surprise that Man's own rational inquiry could reveal God's rational handwork. But in modern times the thread link has been severed, and the laws of physics are treated as "free-floating", although they retain the divine attributes of being eternal, absolute, and universal.

We do not know where these free-floating laws come from: what supports them, or why they have the form they do. The fact that we can come to know the laws suggests to me that our existence in the universe as conscious organisms is not merely an incidental quirk of fate, but is fundamental to the workings of nature. In other words, our own existence is intimately related to the existence of the universe, with its particular laws and structures. That is not to say that *homo sapiens* as such is preordained, only that the emergence of mind from matter somewhere and somehow is written into the laws of the universe in a basic way.

No evidence for this cosmic connection is more compelling than the role of mathematics in nature. The astronomer Sir James Hopwood Jeans once proclaimed that "God is a pure mathematician!" He was referring to the fact that the fundamental

laws of physics seem to be expressible in compact mathematical form. Mathematical physics reaches its most developed and elegant manifestation in the atomic and subatomic realm and in gravitational theory. Many physicists believe we will soon be able to write down a unified theory of all the forces and particles of nature. They strive for a succinct, all-embracing mathematical scheme from which a description of all physical processes will flow.

Whether or not this is an achievable goal, it is clear that mathematics is a key that has unlocked the secrets of the universe. Yet mathematics is a product of the human mind. How strange that something created by the higher processes of the brain—the most developed and complex system known to science—should find such ready application at the deepest and most primitive level of physical reality. Why should biological evolution select for mathematical prowess when the most spectacular applications of mathematics are to things like atoms and black holes, which have no possible connection with biological competition?

The fact that science works, that we human beings are privy to the hidden principles on which the universe runs, seems to me to be a fact of profound significance. It would have been easy for biological evolution to produce organisms that were intelligent but nevertheless unable to crack the mathematical code in which the laws of nature are encrypted. Whatever meaningless Darwinian accidents may have contributed to *homo sapiens* characteristics, the existence of our rational minds can be no incidental trivium. I am convinced it is the inevitable consequence of a world structured by mathematical self-consistency. **DD**

Paul Davies is Professor of Mathematical Physics at the University of Adelaide. His latest book *The Mind of God* will be published by Simon & Schuster in February.





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FORUM

THE CHALLENGES OF SCIENCE FICTION

H.G. Wells brought a high degree of social consciousness to his science fiction. Where has his example gone?

Herbert George Wells got science fiction just about right. He should have, after all, almost single-handedly invented modern science fiction, creating or refining most of its major themes, setting a standard that has been approached all too rarely and equalled almost never.

Good science fiction, H.G. Wells realized, requires strong characters, careful plotting, dy-

namic prose. Above all, effective SF must have at its heart a concept that scares (that excites and enhances our understanding of the world we live in, the challenges we face). SF must meet all of the requirements imposed upon any work of fiction and support a conceptual framework that lifts it beyond the here-and-now.

Think of what Wells gave us: time travel (*The Time Machine*), interplanetary invasion (*The War Of*

his Times. Actively involved in politics and the quest for social reforms, Wells brought to his fiction the same engagement with issues that he brought to his nonfiction. He cared about the rights of human beings, the necessity of education, the triumph of ideas over brute force.

Wells's "scientific romances" were as much "thought experiments" as stories. He possessed a mind willing to explore an idea to its absolute limits, however painful. The Wellsonian approach remains vital. As thought-experiment, SF gives readers an opportunity to step outside their own world, to see it reflected through a literary lens that is perhaps distorting but whose distortions are the deliberate work of serious artists and thinkers.

Dozens of writers have risen to the Wellsonian challenge and made it their own; some, indeed, have lifted science fiction to higher literary and intellectual planes than even Wells achieved.

But one need only visit a bookstore to see that there are dozens, if not hundreds, of other writers whose SF is little more than alternative television—safe, silly, sappy space adventures in which all turns out well because so little is ever really at risk.

That's a shame. We live in a world re-invented by science over the decades of the dangerous and dirty century. Science fiction, better than any other art form, has wrestled with the risks inherent to our age, shown us the possible consequences of our actions, made us aware of the dangers underlying some of our advances. It is this ability, exemplified by Wells and enhanced by the best of those who have followed him, that makes science fiction—real science fiction—the dominant and most important literary form of our time.—Keith Farnell



The best of the distant worlds explored in science fiction have something to say about our own world, our own problems and challenges.

The Worlds, invisibility (The Invisible Man), an early approach to biological engineering (The Island Of Doctor Moreau), and on and on. In each case, Wells offered strong adventure coupled with great imagination; he holds readers captive by storytelling power alone.

But there was another ingredient to his work, one missing from too much of today's science fiction: social commentary and political insight.

Wells, for all his soaring imagination, was very much a man of

TOOLS

TOOLS FOR THE TWENTY-FIRST CENTURY.

Medieval art, rational lycism, new history, and a visual encyclopedia

By Sandy Fritz

THE DISCOVERERS

Boxed, illustrated edition
Daniel Boorstin, Henry Abrams
Company, 1991, \$75

PLUSES: A great work of history, now grossly illustrated
MINUSES: Almost too beautiful to use

VERDICT: Boorstin's best book made better

Daniel Boorstin understands history, the history of ideas, and how to write about them for general readers. In the years since its original publication, *The Discoverers* has reached hundreds of thousands of readers, illuminating for them the grand scope and interplay of ideas throughout human history. He captures the drama, and the loneliness of the discoverer, the person who reaches outward for new knowledge and insight.



Now the book itself is illuminated with gorgeous illustrations, beautifully bound and boxed in a two-volume format that is as readable as it is attractive. A great gift, especially if you're giving it to yourself.

tion and genuine respect. Greek and Roman societies framed their philosophical views in geometric patterns, and so did the Celts. Rational lycism is an odd concept, but as Celtic art demonstrates, it works.

THE RANDOM HOUSE CHILDREN'S ENCYCLOPEDIA

Random House, 1991, \$60

PLUSES: An art-driven reference book for everybody

MINUSES: Not exactly an impulse buy

VERDICT: Solid

Why should kids get all the good stuff? Ignore the title of this first-rate, 600-plus-page, colorful encyclopedia: It's an ideal gift for anyone who prizes visual information over words.

Our assistant fiction editor, a Yale graduate in Medieval History,

THE BOOK OF KELLS

Reproduction, Henry Abrams Company, 1991, \$18,000

PLUSES: A masterpiece of calligraphy

MINUSES: that costs \$18,000

VERDICT: Worth every penny

Henry VIII reassured the power of his royal family by ravishing Britain's monasteries. This move destroyed lots of priceless, ancient treasures—with one notable exception.



tion: *The Book of Kells*. An Irish monk took it before the king's agents arrived.

Detailed, head-swimming artwork lessons the pages of this limited reproduction. You could buy a car for \$18,000, or you could buy *The Book of Kells*. The car's value will depreciate. The book will do the exact opposite.

CELTIC DESIGN: A BEGINNER'S MANUAL

Arden Meehan, Thames & Hudson, 1991, \$14.95

PLUSES: Beckons the mind to think in alien ways

MINUSES: Can cause dizziness

VERDICT: Ruignites a nearly extinct art form

This book is a remarkable primer on the subtle geometry underpinning *The Book of Kells* and other Celtic artwork. Scanning the text produces brandylike intoxication.



nos, cheered at the two-page entry under "Castles" that featured a cutaway diagram of a fortress. "Look! You can even see prisoners chained to the dungeon walls!" He followed the Fred Out More suggestions to entries on the Crusades, knights, the Middle Ages, and Normans. Science, politics, and world cultures checked out equally well. ☐

THE ENERGY-EFFICIENT BRAIN

PET scans reveal how the brain delegates mental tasks

By Steve Nadis

A PET scan, like that below, would most likely have revealed that the late jazz legend Miles Davis drew on the



analytical left hemisphere of our brain when listening to music, rather than the more emotional right hemisphere.



the brain's fuel is metabolized. On the scan, the brain's most active regions are lit up like the proverbial light bulb over the head of a cartoon character.

Besides its usefulness as a clinical tool, PET is shedding light on two great mysteries—thinking and learning. PET scans reveal that different parts of the brain are involved in thinking about, performing, or learning a task. Prior training can exert a direct bearing on which brain areas are activated. For example, UCLA investigators scanned subjects' brains while they listened to sequences of mu-

sical notes. Trained musicians used their left hemispheres, musically naive people their right hemispheres. The two groups, Phelps explains, were doing fundamentally different things. The nonmusical people just listened, while the musicians actively analyzed notes and chord changes.

Different parts of the brain come into play as a person becomes more proficient at doing something. UCLA neurologist John Mazziotta scanned people as they performed the most routine task imaginable—signing their names. He saw very little activity in the motor cortex but noticed a sizable response in the basal ganglia, located beneath the cortex and responsible for integrating motor activity. When people were asked to write their names with their nondominant hand, however, cortex—but not subcortical—structures lit up. After repeating the awkward task many times, the brain transferred supervision of the name signing from the cortex back to the basal ganglia. This, in essence, is learning, Mazziotta theorizes. As we master a task, the total brain area we draw on starts to shrink. Responsibility for the action, moreover, shifts from regions where conscious supervision is required to more automatic regions. The less automatic structures are then free to take on new challenges, he speculates.

Richard Haier, a psychologist at the University of California at Irvine, has made similar findings. He scanned the brains of volunteers playing the video game *Tetris*. After four to eight weeks of practice, the players became increasingly adept and activity in their cortical regions decreased. The arrangement of the adept's brain activity is "more energy efficient," Haier argues.

Mazziotta also studied patients

with Huntington's disease who have suffered degeneration in the basal ganglia. When they were asked to sign their names, the scan showed the response confined to the motor cortex. Unlike normal subjects, the Huntington's patients totally focused on writing their signature. Habitual tasks are routinely transferred from the cortex to deep structures where they run largely on their own, Mazziotta hypothesizes. "If you injure these structures the cortex will take over, but the action is no longer automated."

Children learning to write illustrate this migration of tasks beautifully. While trying to control a pencil, they may also move their lips, tongue, and feet. Eventually, they unconsciously train their motor system to eliminate these unnecessary movements. The PET may be recording this process. Instead of many dim areas flashing on and off like Christmas bulbs, one focused region of the brain lights up like a beacon.

Phelps's research has convinced him that we should put more emphasis on teaching young children: "We've focused on higher education," he says, "but if you look at PET studies and realize that final wiring of the brain is being determined between two and ten, you see how critical early education is. If a person learns a language at age seven and another at 17, only the first is native. It's hardwired. You can think in that language without having to translate," Phelps says. On the downside, children from disadvantaged backgrounds may have picked up undesirable traits like cheating and stealing early in life. "Their brains were formed during the time those things were learned," he says. "It's no wonder that years later we find it so hard to change that behavior." **OC**

FUNDS

FUTURES/OPTIONS:

Investment tips for the 1990s and beyond

Marvin Cetron

Investing has never been easy, but the game will get even more complicated between now and the year 2000. The go-go days of the Eighties are gone; in the future, only careful players will make out in Wall Street.

For many of us, low-risk investing has always meant mutual funds. They are still a good way to get the long-term profits of stock ownership without the short-term headaches, but be careful to choose the fund that is right for you. Look for funds that specialize in the growth industries of the early twenty-first century.

The first industry to look at is health care. Medicine costs \$770 billion worth of business these days and will grow rapidly as the American population ages. Four medical trends could offer Wall Street profits:

- By 2000, nearly all hospitals will be taken over by only 20 rich, fast-growing conglomerates.
- A new ambulatory-care clinic will open every day at least through 1995. By 2000, such clinics will capture one-fourth of the market for primary care. Chain operators could be among the most profitable businesses to invest in.
- And generic drugs will replace many costly brand-name products in the 1990s, and by the year 2000, 53 percent of all drugs will be generic. Sales will soar to \$25 billion by 1997.

Biotechnology should be another fertile field for investment. Already the market for biogenetically engineered medical products totals \$1 billion annually—this for an industry barely ten years old. In the 1990s, companies will market gene-spliced crop plants that can tolerate heat, cold, and salt and that are much more disease resistant; bacteria that "eat" crude oil spills and toxic waste; and non-polluting industrial processes modeled on the workings of the cell.

Biotech is still speculative. Steer clear of overvalued stocks.

What do magnetically levitated trains, the Aerospace Plane, and twenty-first-century microchips have in common? They all depend on advanced materials now under development. Among these are superconductors, high-strength/high-temperature ceramics, and heat-dissipating, super-hard diamond films. Companies that bring these products to market will reap enormous profits late in the decade.

It has taken more than 200 years to pollute this continent.



cleaning up the mess will take less time but for more money. Asbestos-removal firms alone will take in \$65 billion by the end of the decade, and remediation services may do nearly as well. Seek out companies that develop new recycling methods and nonpolluting alternatives for hazardous materials such as PCBs.

For the very long run, look at fusion power. The breakthroughs that harness the power of the sun now seem only a few years off. To speed progress, the U.S., Europe, and the Commonwealth of Independent States (formerly the Soviet Union) will set up a joint research program by 1995. Compa-

nies will grow rich by selling everything from scientific equipment to lunch-cart sandwiches.

Several promising mutual funds specialize in European high-tech joint ventures. As Europe becomes a single continental economy it will build some of the world's most profitable markets. Electronics, aerospace, chemicals, and pharmaceuticals are the industries to watch. Stick to Western Europe, however.

Finally, think about real estate. Then let someone else buy it. The tax changes of 1986 halved the amount of income that can be sheltered in a home or vacation cottage. That is one reason real estate prices have slumped. Another is the down payments banks now require for a mortgage. Few young people can save that kind of money, so there is less demand for starter homes. Older families, unable to sell their houses, renovate rather than move.

The end of the Reagan boom has been hard on commercial real estate prices. It will be two to three years before companies grow to occupy all the office space built in the 1980s. And computer networks, FAX machines, car phones, and satellite data transmission have freed businesses from the cities. Today, companies are moving to suburbs and "peripheries," one step farther from expensive, crime-ridden urban centers. They may never use those big-city offices at all.

If you have your heart set on buying property, look for it in small towns. REOCs—real estate owned by the lender—can still be a bargain if you buy in the south or southwest, where the economy will rebound first and strongest once the current recession ends. Or find a real-estate investment trust (REIT) that has learned the lesson and shuns the cities like any sensible ex-New Yorker. **DD**

The highest of high-tech businesses will remain disappointing. But if someone, say, single or high-performance alloys made in space, invest in the products—not the technology.

THE GREAT TREASURE HUNT

The following descriptions and values in the 1992 Great Treasure Hunt correspond to the numbered photos on these pages.

1) NEC Tracer LS-404 Convertible, including sporty aluminum wheels, option. Value: \$12,935. 2) Honda Nighthawk 750 Motorcycle. Value: \$4,199. 3) Leading Edge Computer package including color VGA monitor, 100MB hard drive and built-in Bend/Release Fax modem. Value: \$2,359. 4) Philips CDH-4 Disc-A whole new way of looking at TV. The Proportion Machine (TM) 11 x CD-Interactive television and tuner. Value: \$2,300. 5) Creative Labs Multimedia Upgrade Kit consists of the Sound Blaster Pro card, an internal CD-ROM drive, 5 CD and 13 exciting Multimedia software titles. Value: \$2,142. 6) Pioneer CDD-M45 Universal CD Changer and PC-700 Compact Disc Car Phone for the car. The cellular phone weighs only 10.1 ounces and the CD player has multi-play capability. Value: \$2,100. 7) American Airlines round-trip air fare for two to Paris, France from any U.S. gateway city. Value: \$2,000. 8) RCA 35-inch Home Theatre TV with Power-Port capability, zoom and pan feature, and sound Retrieval System. Value: \$2,000. 9) Lifecycle Model 5000R The Recumbent Lifecycle Aerobic Trainer makes exercise easier with a semi-reclining position that helps burn more calories with less exertion. Value: \$1,995. 10) Jansu Mini Stereo. Full-featured mini component surround sound A/V shelf system, which includes three Karaoke modes, allowing users to replace the vocal on their favorite music and sing along. Value: \$1,699. 11) NEC CD Gallery A complete CD-ROM system that adds exciting new capabilities to a PC or Macintosh. Display pictures and illustrations, listen to live audio and experience motion graphics. Includes 7 popular interactive CD-ROM software programs. Value: \$1,500. 12) Screen-Panoramic Series 70 bicycle with Tange Ultra-Lite 38mm rake fork for smoother, more stable handling on any terrain. Value: \$1,274. 13) (2) Konica Aibong 35mm Camera as Aibe and hampers featuring the world's first moving frame auto focusing system, plus 30 rolls of Konica Super GRI Color Print Film. Total Value: \$1,182. 14) (2) CITIZEN IPN 48 Notebook Printers: The world's smallest laser-quality printer at 215x and packed with accessories such as a NiCad battery, AC adapter/charger and carrying case. The perfect tool for the portable computer user. Total Value: \$1,099. 15) Hamilton Deluxe Chronometer II watch (\$750) with 17 jewel self-winding mechanical movement and a Hamilton Waltham watch with a slim form case and unusual hinged lugs that make it one of the most comfortable watches ever designed (\$286). Total Value: \$1,045. 16) Fujitsu DEX 40 FAX Machine features an automatic color, built-in answering machine interface, and a full featured handset. Value: \$999.



The 1992 Great Treasure Hunt is on... and it's easy to enter. When you find the solution, simply mail it to the address shown below, or using a touchtone phone, call 1-800-884-HUNT (\$1.50 for the first minute, \$1.00 for each additional minute). Your solution will be recorded automatically. Here's how to find the correct answer.

Each of the dozen picture discs displayed inside the perimeter of the diamond shown on this page is a portion of a photo or illustration in an ad in this issue. To solve the "Treasure Hunt," find the ads from which discs were taken, and note the page number for each. If an ad appears on the inside or outside of the front or back cover, count that page number as zero. If there is no page number, sum to the next numbered page, and use that page number. If there is no numbered page between the ad and the end of the magazine, stop at the inside back cover and use zero as your page number. Then add up all twelve page numbers. That is the solution to the "Treasure Hunt" in this issue. Good Luck!

No purchase or phone call required. To enter automatically on a touch tone phone from 9:00 A.M. EST on 2/1/92 through midnight EDT 5/31/92, call 1-900-884-HUNT to give your name, address, telephone number, and the solution to the "Treasure Hunt" as it appears in the February 1992 issue of OMNI Magazine. The cost for the call is \$1.50 for the first minute and \$1.00 per minute thereafter; average call length is estimated to be 2-3 minutes. Call-in grants will receive a \$5.00 discount certificate valid toward the purchase of any two books currently available in the COMPUTE Library. Charges for calls to the above numbers will appear on your telephone bill. Callers must be 18 or older or have a parent's or guardian's permission to place the call. Call as often as you wish; each call is a separate entry. Call-in entry option is void in LA, MN, and where prohibited.

Alternate Entry Method: You may also enter by printing your name, address, phone number, and the solution to the "Treasure Hunt" as it appears in February 1992 issue of OMNI Magazine on a 3" x 5" piece of paper and your entry to "Treasure Hunt," Box 567, Gibbstown, NJ 08027. All entries must be received by 5/31/92. Enter as often as you wish; each entry must be mailed separately.

You may request the solution and complete Official Rules by sending a self-addressed stamped envelope to "Treasure Hunt" Solution, Box 728, Gibbstown, NJ 08027 by 4/30/92, no return postage required for residents of VT and WA.

The 1992 "Treasure Hunt" is sponsored jointly by OMNI Magazine and COMPUTE Magazine, 1980 Broadway New York, NY 10023 (212)496-6100. Winners will be selected by 8/30/92 in random drawings from all qualifying entries received. Drawings

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SEEN
THE PRIZES, FIND
OUT
HOW TO ENTER.**

THE GREAT TREASURE HUNT

**SEE
INSTRUCTIONS
ON
THIS PAGE.**

will be conducted by POWER GROUP INC., an independent judging organization whose decisions are final. Odds determined by number of entries received. Major prize winner will be required to execute and return an affidavit of eligibility and release within 21 days of date on notification letter. Limit one winner per household. Open only to U.S. residents except employees and their families of OMNI Publications International, Ltd., COMPUTE Publishing, Ltd., POWER GROUP INC. their respective subsidiaries or affiliates and advertising agencies. Total prize value: \$40,827. Prizes are not transferable or redeemable for cash. No substitution of prizes except as necessary due to availability. Some prizes will be awarded to winner's parent or guardian if the winner is under 21. Taxes, licensing, transportation, registration, and dealer charges are winner's responsibility. The Prize top must be from the airport nearest the winner's home serviced by American Airlines and must be completed by 8/30/92. Other travel restrictions may apply for names of major prize winners; send a self-addressed stamped envelope to Treasure Hunt Winners, Box 813, Gibbstown, NJ 08027 by 6/30/92.

GIFT PRIZES GUIDE: For information on the products and services in the Great Treasure Hunt, contact these companies: American Airlines, 4333 Armon Carter Blvd., Mail Drop 5375, Fort Worth, TX 76105; American Honda Motor Co., 1919

Tenneco Blvd., Torrance, CA 90501-0746; Cazen America Corporation, 2450 Broadway, Suite 600, Santa Monica, CA 90404-9003; 1-800-4-PRINTERS Futaba Imaging Systems, 36 Apple Ridge Rd., Danbury, CT 06810; 1-800-243-7046, GED, See your local Chevrolet/GEO dealer for more information; Hamilton Watch, 841 Wheeland Ave., Lancaster, PA, 17604; 1-800-234-8485, Konica, 440 Sylvan Ave., Englewood Cliffs, NJ 07632; Leading Edge Products, 117 Randers Rd., Westborough, MA 01581; 1-800-874-2342, Life Fitness, 8901 Jerome Rd., Irving, CA 92718; 1-800-725-3867, NEC Technologies Inc., 1255 Michael Dr., Wood Dale, IL 60191; Philips Consumer Electronics Company, One Philips Dr., Knoxville, TN 37914; 1-800-223-7772, Pioneer Electronics, 2265 East 28th St., Long Beach, CA 90801; 1-800-421-7933, RCA Corporation, 600 N. Sherman Dr., Indianapolis, IN 46201; Sansui Electronics Corporation, 1290 West St. W., Lyndhurst, NJ 07037; Schwinn Bicycle Company, 217 N. Jefferson, Chicago, IL 60661-1111; One, alive Labs, Inc., 2050 Duane Ave., Santa Clara, CA 95054; 408-986-1461, CONTRIBUTORS TO THE CREATIVE MULTIMEDIA UPGRADE KIT, Broderbund Software, 1-800-521-6203; Davidson & Associates, 1-800-545-7677; Dr. T's Music Software, 817-425-1454; HSC Software, 310-392-8441; ICDM Simulations, 1-800-877-ICDM; Interplay Productions, 1-800-969-GAME; Origin, 1-800-969-9939; Passport Design, 1-800-443-3210. **OD**

BOOKS

APRÈS COLUMBUS

Columbus' story pales beside the exploits of Spain's conquistadors

By Sandy Fritz

Forget the upcoming Columbus movies. Let's see films about the really existing explorers, like Cortez and Cabeza de Vaca.

Fipping through the TV channels the other night I sighted on a Columbus special. "Another one?" groaned my wife. I informed her to expect even more coverage of Columbus and his voyage and that both Timothy Dalton and Gerard Depardieu will star in feature-length Columbus movies. I added, "Hollywood has missed the boat. None of conquistadors followed Columbus, and their stories would make far better movies."

It's true, and eyewitness accounts exist that can prove it: Columbus' tale, in his own words (*The Log of Christopher Colum-*

bus and destroy one of the most resplendent cultures that ever flourished in the New World).

HOLLYWOOD ESSENTIALS: A beautiful, mysterious Indian princess who seduces with the Spanish and guides them to Mexico (yes, she sleeps with Cortez), blood-stained priests and human sacrifice and inevitably the heart-wrenching death of Montezuma at the hands of his own people. **A SCENE WE'D LIKE TO SEE:** Diaz describes Montezuma smoking what appears to be reefer and chugging something similar to a chocolate milkshake before heading into his lair for the night.

Lost expeditions always fire the imagination of moviegoers, and one right out of history that would make a first-rate Hollywood epic is *The Journey of Alvar Núñez Cabeza de Vaca* (E. Banderier, translator, AMS Press, 1973, \$30).

SYNOPSIS: A blundering general leads 600 men into Florida; all but four perish. They are enslaved and finally escape, after six years in captivity, walking from Georgia to Mexico City.

HOLLYWOOD ESSENTIALS: Lost, starving men reduced to cannibalism, faith healing by Cabeza de Vaca and his companions, and finally, a miracle trek that leaves peace in its wake.

A SCENE WE'D LIKE TO SEE: Cabeza de Vaca performs heart surgery with a flint knife—and the patient survives!

Of course, not every Spanish expedition ended up as notorious as Cortez's or as lost as Cabeza de Vaca's. One famous failure that would translate well onto the silver screen is *The Journey of Coronado* (George Parker Winship, translator, Fulcrum Publishing, 1980, \$27.95).

SYNOPSIS: An idealistic Coronado marches with 600 men into Arizona to find the fabled Seven

Cities of Cibola. They find instead a cluster of seven shabby towns. After scouring present-day New Mexico, Arizona, Kansas, eastern Colorado, southern Nebraska, Nevada, and parts of Southern California for two years, the army returns home empty-handed.

HOLLYWOOD ESSENTIALS: Coronado is almost killed in a fall from his steed; his rear guard is destroyed; his army is on the verge of mutiny, and he must battle his way home through hostile territory. When he arrives in Mexico City, he is publicly scorned. **A SCENE WE'D LIKE TO SEE:** Coronado's conquistadors "discovering" the Grand Canyon.

Madmen make excellent movie characters. One Spanish adventurer who empty fills that bill: Hernando de Soto. His tale, too long out of print, (*The Discovery of Florida*) ranks among the most chilling of the bunch. Sinister, and newly rich from his exploits in Peru, de Soto drives 600 men on a three-year, nine-state tour of America searching for (of course) gold. Hollywood essentials include mutilation, torture, humans being eaten by dogs, starvation, rape, and obsession that makes *Fatal Attraction* look mild. The story would probably need a horror treatment à la *Friday the 13th*.

There are other tales buried deep within obscure historical journals. Ever hear of a man named De Luna who set up a colony in Georgia with 1,200 settlers? They were reduced to eating their shoes. Or Juan Pardo? His job was to cut a road from South Carolina to Mexico.

So, while enduring the barrage of Columbus hype, consider sending a copy of this article to public broadcasting stations, major television networks, and Hollywood movie houses. Maybe the interest in New World exploration will engender a real movie yet. **DD**



bus, Robert Fulton, translator, International Marine Publishing, 1967, \$22.95), is widely engaging but lackluster. If Hollywood wanted meaty movies, why didn't they read *The Conquest of New Spain* (J. M. Cohen, translator, Penguin Classics, 1963, \$5.95) written by Bernal Diaz, the last surviving member of the Cortez expedition?

SYNOPSIS: The drags of Cuba, led by a stumpy horseman named Cortez, invade Mexico

POLITICAL SCIENCE

ELECTRONIC DEMOCRACY

Nanosecond politics might make government run faster—but better?

By Tom Dworetzky

For years politics took place mostly behind closed doors. Maybe it was better that way. The business of governing can make even the strongest citizen quaky, furious, and sad. After watching yet another extravaganza-gate on TV, I started to think that maybe Groucho Marx had a pretty good point when he once noted that, "Politics is the art of looking for trouble, finding it everywhere, diagnosing it incorrectly and applying the wrong remedy."

With the technology now in place—I began to wonder if there might not be a better way. Couldn't we just throw the bums out, return to a kinder and gentler time, hold electronic town meetings, and vote on matters ourselves? To take the late French General Charles DeGaulle's astute observation, quite possibly in a way he didn't mean, maybe "Politics is too serious to be left to the politicians."

Throwing the bums out is tempting. After all, everyone wants the thrill and gratification of seeing his or her vote immediately have an impact. But would that give us better government—or worse? Some serious implications of such a direct form of democracy are worth examining.

Here's one big concern untouched by the urge to wire everyone into a plebiscite that votes on everything: the so-called democratic fallacy. This assumes that the majority makes the right decisions. Numerous examples demonstrate the erroneous-ness of this belief. Scientific theories, for instance, that are now collecting dust in the ashbin of history were believed by the majority—until one person proved them wrong.

Then there's an even bigger issue: the amount of time it takes to govern. Congressmen and sen-

ators—even the bummeest—spend pretty much full time, along with legions of staff persons trying to sort through the various issues, facts, and studies just to reach the wrong decisions. There's no reason to think any one of us, with less time to spare, is going to do much better. Politics is all about compromise, and really bizarre ones at that. If you vote yes on this corn growers subsidy then I'll vote yes on your handgun legislation. How could polls ever cut the deals the pols put together? Sure some are lousy, but many are the only way to reach agreements between widely differing points of view.

More to the point, most citizens monitor politics and world events the way they pay attention to a ball game on TV in the next room. It's in the background until a big play, then heads turn to catch the replay. Well, picking the replays in politics is the business of a small, dedicated, news-junkie elite—some elected and some self-appointed, like me. Focusing public attention on—and framing—the issues has to do with the way people vote and respond to polls. An instant electronic government would probably be even more susceptible to information manipulation than our present slower representative form.

But we can't turn back the clock. The burgeoning technology of communications is here to stay and will prove a powerful force in national and global politics whether we like it or not.

So what role might technology play? One function could be to provide citizens with more in-depth information on subjects of interest to them personally through interactive electronic newspapers, databases, and news shows. Interaction, judiciously incorporated into the public voting system, might also be used



to ease the logistical problems associated with turning over decision making on major issues directly to the voters.

The one thing, however, that all this instant communication and feedback won't do is make the all-important ingredients for good government—reflection and judgment—more plentiful. These attributes among the citizenry and its representatives—always in short supply—will remain unaffected by the power of fiber optics and computers and television. Technology will only make democracy function faster—not better. Better will remain the province of humans, struggling to make the right choice in the marketplace of spin doctors, tub thumpers, tamers, pollsters, quackmeisters, and—oh yes—pundits of the Fourth Estate. **GD**

What will happen to the democratic form of government if we follow our urge to wire everybody electronically into the plebiscite?

EXPLORATIONS

CONFESSIONS OF A CRYONICIST

Frozen immortality may be worth the price

By Charles Platt

Charles Platt, author of *The Silicon Man*, and one of our finest SF writers, puts his money where his speculative mouth is.

So far in the United States, perhaps one person in a million has made financial arrangements to be frozen after death. And I am one of those people—a crackpot or a visionary, depending on your point of view. I have contracted to spare my remains in liquid nitrogen. Two or three centuries in the future, when medical science is sufficiently advanced, I hope to be brought back to life.

I seem to be the first science or science-fiction author to have taken this step. Visionary? Crackpot? That's a question I'm still trying to answer.

I wasn't especially interested in cryonics before I visited Alcor, a cryonics organization near Riverside, California, in 1987. I went there as a journalist and a skeptic, but the totally dedicated, highly qualified staff turned out to be the most intelligent, resourceful, determined group I had ever met, and they patiently waded my skepticism with facts. For example:

- Human tissue, suitably prepared, can be frozen with negligible damage.
- The fledgling science of nanotechnology offers rational hope for repairing some biological damage that is currently considered irreparable.
- Small human embryos have already been frozen to the temperature of liquid nitrogen and successfully revived.

Cryonics isn't cheap, and Alcor's current minimum fee of \$41,000 is out of reach for most of us. The fee can be covered by a life-insurance policy that makes Alcor the beneficiary. To me, this money wasn't trivial. But facing my own mortality turned



out to be much harder than coming up with the cash to pay \$450 a year for the life insurance premiums and the annual Alcor membership fee.

I always used to tell people that I had no illusions about death, and I accepted the finality of it. Yet it took me almost three years to overcome my psychological resistance to cryonics. Even after I had written a will and obtained life insurance, Alcor's legal documents languished on my desk for many months. I avoided signing them in the same way that I might turn away from the sight of an ugly accident. I imagined myself dead, dunked in a vat of liquid nitrogen. It was too vivid, too personal, too real.

Many people seem to go through this pattern of initial interest in cryonics, followed by reluctance to pursue it. My friends, for instance, were full of eager questions—until I started giving them specific, practical answers. Being turned into a Pop-Tart was fine for theoretical debate—or sick jokes. As an everyday reality, however, it was too disturbing.

Even if the procedure actually worked, there would still be many worrisome unknowns. Resuscitation might be a horribly painful process. Brain damage could occur. I might feel intolerably alienated in an advanced future society, or the society might shun me as a misfit from a primitive past.

Cryonics is the ultimate gesture of defiance. Even if it offers only one chance in a hundred thousand, that chance is worth taking. Death is intolerable, and I am seizing the only available opportunity to transcend it.

My ID bracelet is now engraved with instructions for medical personnel in the event of a serious accident. Alcor is on call 24 hours a day and I have no doubt that if I end up in a hospital bed with declining vital signs, they'll be ready to protect my biological remains.

Visionary? Crackpot? I can't answer that question because I don't think it's currently answerable. Gene splicing and molecular manipulation was spanning tunneling electron microscopes would have seemed impossible a century ago. We simply cannot predict the technical advances that may be made in centuries to come.

The bottom line, however, is simple: If I am buried or cremated in traditional fashion, my mind and body will be destroyed. That is absolutely certain. By contrast, being frozen offers some chance that I may be preserved and restored in the far future. Even if that chance is vanishingly small, it's better than no chance at all.

To obtain more detailed information on cryonics, call Alcor at (800) 387-2228. **DD**

ELECTRONIC UNIVERSE

UPPER CRUST GAMING

Luxury-level interactive entertainment

By Gregg Keizer

When you buy the very best in entertainment, you'd better have deep pockets. Fun doesn't come cheap, not in this electronic universe.

You can assemble a fantastic home entertainment center flush with video, arcade and computer games, if you can pay for the luxury of leading. (Since I'm paying with words here, not dollars, it's easy for me to talk about pushing the budget envelope—you decide what's worth buying.)

For starters, why settle for Nintendo's Toys R Us price and lode-quality? Why not reach for the most expensive game controller around—the Neo Geo (SNK HomeEntertainment), a \$600 videogame box that connects to your TV. Neo Geo throws twice as many colors on the screen as the

Such extravagance calls for a premium video stage. You can opt for a bahemoth projection set, but another route takes you to Matsushita's (Panasonic) new Prism Superlite TV. The 31-inch Prism retails for \$3,800 and features a high-contrast screen that's flatter at the edges than typical screens.

NEC's TurboExpress (\$300) is the most expensive and the best, hand-held videogame machine. Or you can blow several months' pay and take home a state-of-the-future commercial arcade game. Sega's Time Traveler. The \$6,000 machine's claims to fame are its pseudoholographic graphics, built-in laser disc, and stereo sound. Instead of moving cartoon characters on a flat screen, you control tiny actors who seem to stand on a small stage. You can drop a bundle on computer games, too, if you go for broke on a new PC. Equip a 80486 machine with lots of memory, a huge hard disk drive, a big 16-inch Super VGA monitor, stereo sound card, a Tandy CD-ROM drive, and a 9600-bps modem, and you've got a primo computer game system. You'll be able to fly Wing Command or hunt around a multimedia compact disc world for Carmen Sandiego, and play online games while taking flat Price? About \$4,500. Think of it as a long-term investment—it'll be years before you outgrow this computer's home entertainment and educational possibilities. The dream home-entertainment system carries a mythical price tag, if only because it doesn't yet exist. A rack stacked with pricey hard-

were—including a high-end, multimedia PC and a game deck that plays cartridges and CDs—links with a clutch of online entertainment networks and connects to a flat screen hanging on the wall. Pull off the bottom third of the screen (it's actually several smaller screens that combine for a theater-sized mosaic), run a cable to the game rack, and you've got a table-sized electronic game board. A finger touch picks up computerized game pieces; another puts them down. You'll play monster Monopoly, recreate military campaigns, direct sporting events from a Goodyear blimp vantage point, and cavort with your kids in a game of animated Chutes and Ladders. Damn the cost and you guarantee your spot in front of this literal window into the electronic universe. The rest of us? We'll be right behind you.—Gregg Keizer

Genesies of the rich and famous! You can spend as much as you want in the new electronic playground, and you'll get what you play for.



Super Nintendo, features half again as many sound channels as Sega Genesis, and plays games as large as 60 megabytes.

Add a compact disc drive (\$289) to NEC's TurboGrafx-16 (\$300) and you've spent another bundle and gotten yourself a more flexible game machine. Though both Nintendo and Sega have CD players in their futures, only NEC has one ready now. CD titles like *Sherlock Holmes Consulting Detective* and *J.B. Harold Murder Club* add dimension to your home-entertainment experience. You can't beat CD games for speech, video quality, and audio excellence.





CONTINUUM

FORGOTTEN FOUNDERS

Did the Great Law of Peace, the constitution of the Iroquois nation, help shape democracy and federalism?

How do you trace the history of an idea? Before Charles Darwin published *On The Origin of Species* another naturalist, Alfred Russel Wallace, wrote an essay that, according to Darwin, "contained exactly the same theory as mine." Darwin, of course, got the credit. History is filled with similar cases of limited or inaccurate attribution. If the idea is noble or marks some great event, everyone wants the credit and the arguments begin. A case in point: the U.S. Constitution.

Textbooks have long attributed the ideas of the Constitution to Thomas Jefferson, Ben Franklin, and other famous colonial thinkers. But several anthropologists and researchers say our founding fathers included a number of Native Americans. To Jefferson, as well as Franklin, the Indians, particularly the League of the Iroquois, had what the colonists wanted: "accesses free of oppression and class stratification," explains Bruce E. Johansen in his book, *Forgotten Founders: How the American Indian Helped Shape Democracy*. They also had a constitution dating back centuries that embraced the basic ideas of democracy and federalism. Called the Great Law of Peace, the Iroquois constitution gave equal voice to each of the five tribes that were members of the league. It guaranteed freedom of political and religious expression and set up a mechanism for impeachment of top leaders. If the tribes decided that the Great Law should be changed, they could do so through an amendment process. Unlike European political systems, the Iroquois extended political rights to women, who were primarily responsible for electing and impeaching the nation's leaders. And unlike the democracies of ancient Greece, in the Iroquois nation, slavery did not exist.

A number of colonial leaders who devised the United States government met with Indian leaders and wrote about the political processes they witnessed. Franklin in



particular saw the Iroquois system as a model on which to base the Union. British agents were aware of the colonial interest in Native American ideas of freedom and government and reported it to their home offices. The British throne blamed the Indians for the growing unrest in the colonies.

If Native Americans played a role in the founding of this country, why haven't most of us heard about it? There is no simple answer. Some anthropologists and historians are convinced that the framers of the Constitution borrowed ideas from the Iroquois; others argue that there is not enough textual evidence to confirm that theory.

Documented evidence or not, Congress has passed a resolution acknowledging the contribution of

the Iroquois and other tribes on the formation of the Constitution. But perhaps more important than the business of tracing the source for the ideas behind the Constitution are the reasons why most Americans know about the Magna Carta but nothing about the Great Law of Peace. Anthropologist Jack Weatherford, who discusses this in his book *Indian Givers: How the Indians of the Americas Transformed the World*, suggests that our historical amnesia has a great deal to do with slavery. "After the U.S. got its independence and the Constitution was in place," he explains, "southern senators and congressmen immediately began discrediting American democracy away from the Indians, because the Indians had a system in which everyone really was free and there was no slavery."

The Indian model of democracy was replaced by the Greek model, in which slavery was permitted. It was a shift in thinking that rationalized the fate of African Americans and laid the foundation for the displacement and genocide of Native Americans. Perhaps it is time to include the Great Law of Peace in American textbooks.

—Jane Boswell



CONTINUUM

HUNG UP ON SIZE?

After suffering decades of potentially dangerous penis-enlargement gimmicks, disablated men can finally do something about their shortcomings, thanks to a revolutionary liposuction/plant procedure that can instantly double the girth of the male member.

Miami cosmetic surgeon Ricardo Samitier developed the technique, called circumferential autologous penile engorgement. He says he's performed more

than 80 of the 30-minute outpatient operations since 1992 without a complaint. Until this year, however, Samitier didn't charge for the operation.

"Who am I to decide if a patient's penis is large enough?" Samitier says. "This procedure dramatically improves self-esteem."

The procedure involves removing about 100 cubic centimeters of subcutaneous fat from the patient's abdomen and then injecting it beneath the skin around the penis. The surgeon molds the fat into a uniform shape. Intercourse can resume in about two weeks, and complete healing takes two months.

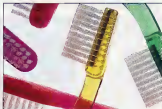
"Some patients have requested ridges and valleys," Samitier adds. "Just about any shape they want, I can give them."

"This is a procedure I would condemn because the risk far outweighs the potential benefits," says Richard Sadove, associate professor of surgery at the University of Kentucky at Lexington and a board-certified member of the American Society of Plastic and Reconstructive Surgeons. "I would remain skeptical of this technique until Dr. Samitier publishes his long-term results in a reputable scientific journal."

"If everybody thought that way, there'd be no progress in medicine," Samitier responds.

—Don Vaughan

A modern Michelangelo: A cosmetic surgeon sculpts penises.



Brushing regularly might keep the dentist away, but not the doctor, if you're sensitive to certain artificial flavorings.

ASTHMA-FLAVORED TOOTHPASTE

Your toothbrush could be a gun pointed at your bronchial tubes. The artificial flavoring in toothpaste triggered asthma attacks—a narrowing of the airways—in a patient under the treatment of two physicians at Kaiser Permanente Medical Center in Santa Clara, California.

The woman came to Bruce Spurlock and Thomas Daley complaining of persistent wheezing and coughing. Asthma medications gave her no relief. However, she later reported that her symptoms subsided when she changed from Crest Tartar Control toothpaste to a gel-based Crest toothpaste. Intrigued, Spurlock and Daley tested the patient's lung function before and after using the toothpastes. They found that she didn't wheeze and could breathe much better after using the gel than after using the paste.

Because the labels listed identical ingredients for the

FOR EACH ONE CARAT DIAMOND, MORE THAN 250 TONS OF ROCK MUST BE MINED

two toothpastes, we asked [Crest manufacturer] Procter and Gamble for a complete breakdown of both the paste and the gel. Spurlock says The gel contained a spice-blend flavoring while the paste was flavored with either spearmint or wintergreen, implicating the latter.

It turned out that the patient had similar difficulty breathing after chewing wintergreen- and peppermint-flavored gum. "I guess just about anything with artificial flavoring could cause similar asthmatic responses," Spurlock says. —Paul McCarthy

"Geography is a region bounded on the north by history, on the south by fiction, on the east by obituary, and on the west by lithium."

—Philip K. Dick



CONTINUUM

IT'S A MIRACLE

In some circles it's wrong to make love if you don't make babies. Now infertility counselor Sue Jennings of the Royal London Hospital in England has begun asking if it's wrong to make babies if you don't make love—over

In a recent letter in the medical journal *The Lancet*, Jennings speculates that some women who are virgins and want children through artificial insemination may be more interested in "sexual relations via high technology" than in having a baby. Jennings presents the case of a single 32-year-old woman who came to her for counseling. The woman had never had intercourse and never intended to, but she still wanted to have a child and considered the associated scientific procedures preferable to sexual relations

IF THE SOLAR SYSTEM WERE SHRUNK TO THE SIZE OF NEW YORK'S MANHATTAN ISLAND, THE NEAREST STAR—ALPHA CENTAURI—WOULD BE 5,500 MILES AWAY, IN JERUSALEM.

Although Jennings has only seen five such women, her letter provoked a spate of articles in the London press and led to the first International Symposium on the Virgin Birth Syndrome. Infertility counselor Michael Humphrey, a psychologist affiliated with the University of London, questions Jennings's high-tech sex hypothesis. "Who would want to have an affair with a syringe?" he asks.

—Paul McCarthy

"A film is a ported fountain of thought."

—Jean Cocteau

NAP TIME'S OVER

When medical pioneers Albert Schweitzer and Eugène Jamot began their work in darkest Africa, they realized the strongest medicine in a physician's bag was early detection of disease. But trypanosomiasis, commonly called African sleeping sickness, eluded efficient diagnosis for 70 years, largely because the trypanosome parasite is hard to detect with any certainty. Now a scientist at a Canadian university has developed a test that detects the presence of the parasite

with 90 percent accuracy.

Transmitted by the tsetse fly, trypanosomiasis infects 50,000 people annually with a progressive fatigue that eventually leads to coma and death if untreated. The test devised by Margaret Liu, studying under Terry Pearson of the University of Victoria in British Columbia, ferrets out the parasites as early as two days after infection. "We test for the parasite's antigen rather than for antibodies, which are already a secondary reaction," Liu explains. Antigens trigger antibodies to combat disease. A crucial turning point occurred when the researchers developed a test that detects the trypanosome antigen inside the tsetse fly.

Pearson and Liu foresee two changes to the test before it can be widely administered. Switching from blood to urine sampling will make the procedure easier to use. In addition, adding a color dipstick system will lower the unit cost below 25 cents, making it feasible for mass distribution. If all goes well, the World Health Organization will fund the administration of the new test throughout Africa.

—George Schmidt



An engineer proposes chilling oil spills with liquid nitrogen.

FREEZE ON OIL SPILLS

Oil spills are notoriously difficult to clean up, as we all know. Many a complex

and exotic solution has been proposed. Part of the problem stems from the fact that oil is a liquid and thus hard to contain when spilled in the ocean. But a scientist at the Langley Research Center in Virginia, which is affiliated with NASA, may have developed a quick and easy way to remove an oil slick: Spray the oil with liquid nitrogen to freeze it into granules and then haul it away.

Liquid nitrogen, which exists at a temperature of -320°F, could also be used to freeze chemical waste and floating garbage while doing little damage to vulnerable marine life,

according to aerospace engineer Daniel R. Snow, who came up with the as yet untested idea. Snow envisions specially designed vessels spraying the liquid nitrogen upward from just below the water's surface. Thus, only the top of the water, where the oil or waste floats, would freeze. Solidifying the toxins in this manner would stop the endless drifting of poisons to other areas.

What happens to the frozen granules of oil? "You can dump them into an old barge, pump the water out, and ship the oil back to the refinery," Snow says.

—Andrew M. Thorpe



CONTINUUM



Reluctant to spray your pet? An upcoming contraceptive vaccine could be safer and cheaper while still preventing unwanted births.

KEEPING RABBITS FROM MULTIPLYING

When the city of Syracuse, New York, was recently overrun with hordes of stray cats, a small biotech company in Houston could hardly be blamed if it greeted the news with glee. That's because Zongon has come up with a product that would have sold briskly in upstate New York—a permanent, patented contraceptive vac-

cine for female housepets.

The Texas company successfully tested the protein-based product on rabbits in studies at Baylor University in which many a rabbit became pregnant according to company president David McWilliams.

Baylor cell biologist Bonnie Dunbar denied the vaccine from a protein in the shell-like coating surrounding the eggs in female pigs' reproductive systems. The

same substance already exists in cats, dogs and rabbits, so when it's injected into them, their immune systems perceive it as an enemy and attack it, damaging their own eggs as well.

We're tinkering the immune system and driving the females into premature menopause, in effect," McWilliams says. The vaccine, which still needs some three years of tests, could one day become an alternative to surgical sterilizations: more than 12 million of which are performed yearly worldwide at a cost of over a billion dollars. Although the vaccine may initially require periodic booster shots, it will probably cost about half as much as surgery.—George Nobbe

HOLY HACKERS

Preachers no longer need crack their brains for a Sabbath sermon, thanks to Reverend John Sharp of Baltimore, Maryland. He's

started Sermonsnap, a computer network that offers sermons on everything from Satan to sainthood, as well as a forum for pulpits in a pickle to consult their brethren on-line. Already several hundred clergy from 14 denominations have signed on at \$9 a month.

We're getting from 40 to 100 people each week—Catholic priests, Presbyterian ministers, Jewish rabbis—who're posting their notes and drafts, and sending commentary back and forth," says Sharp.

The network makes it simple for preachers, especially those in isolated areas, to find advice on new ways to address tough issues, like how to explain contradictions between the Christian and Jewish faiths.

And how do parishioners feel about this high-tech use of collection-plate money? "They love it," Sharp says. "They're hearing fresh stories."—Mark Fischetti

BUG HUMBUGGING

Wine lovers and grape-puce fans with discerning palates may find something missing in 1991 vintages: residual control from pesticides. Scientists at Cornell University have developed a new technique that promises to control grape-berry moths, the most common insect pest in Eastern vineyards, as effectively as chemical insecticides, introduced last spring the new method doesn't harm wildlife. Instead, it simply discourages the moths by

using pheromones, the natural sex attractant of the female moth.

Normally, female moths release tiny amounts of pheromone, creating a trail that males follow to the females in order to mate. Vineyard workers distribute hundreds of dispensers full of the Cornell scientists' synthesized version of the pheromone throughout the area, continuously blanketing the vineyard with the chemical. The multidirectional cloud of pheromone confuses male moths so they can't orient toward

females. The insects fail to mate and thus produce no grape-eating larvae.

"It's an environmentally safe form of insect birth control," says Wendell L. Roelofs, the Cornell biologist who first identified the grape-berry moth pheromone. "The pheromone is about as toxic as cave air." The researchers estimate that the technique could reduce insecticide use in New York vineyards by half, preventing 50 tons of toxic chemicals a year from being sprayed on grapes.

—Ann Jane Tjerney



Here, a charming wine, fruity aroma—and with no bugs.



CONTINUUM

SWEAT AS SUGAR

A good way to find out what's going on inside the body is to analyze what comes out of it—like sweat. Three Minnesota inventors took this idea to heart and came up with a wristwatch-like device to help diabetics monitor their blood-sugar levels without drawing blood for glucose readings.

"We wanted to figure out a way to get inside a person without making a hole," says Walter L. Semberowich, a former senior scientist at Eli Lilly & Company, who developed the idea with

Cantor R. Anderson and William R. Kennedy. They intended to coax human sweat glands to produce glucose levels that mirror the sugar's levels in the blood. However, sweat glands normally secrete up glucose.

GENE RODDENBERRY: AN APPRECIATION

Though Gene and I met only three or four times, we had a warm relationship for more than 20 years. Within minutes of hearing the voice of America report his death, I faxed the *Star Trek* office. "Few men have left a finer legacy. *Enterprise* will be cruising the galaxy for centuries to come."

I am proud to have played a part in treating one of the great icons of our time—as Gene reminded my biographer Neil McAlexander when he made an extremely generous assessment of my contribution. Nor was this the first time. In

1987, he wrote for my 70th birthday celebration volume "Arthur literally made my *Star Trek* idea possible." In 1989, I traveled to Arizona to listen to a Clarke lecture on astrophysics and was persuaded by him to continue my *Star Trek* projects despite the entertainment industry labeling the production as an unbelievable concept and a failure. It was a friendship that deepened into the most significant of my professional life. I deeply regret that as Gene did not reach his own 70th birthday. I never had a chance to reciprocate. There is a sad irony in the fact that he entered The Undiscovered Country just as the movie of that name was about to be released.



At a dark time in human history, *Star Trek* promoted the then unpopular ideals of tolerance for differing cultures and respect for life in all forms—without preaching, and always with a saving sense of humor. We can all rejoice that Gene achieved professional success and world respect. What must have given him even greater satisfaction is that he lived to see so many of his ideals triumphantly accepted.

—Arthur C. Clarke

fore the sweat passed out of the body. The device counters this with a skin patch that delivers placental, a sweat-inducing alkaloid, and both glucose-6-phosphate and fructose-6-phosphate, which temporarily block sugar absorption by the sweat glands.

Treated paper absorbs the sweat and changes color to reflect the glucose level in the sweat. The color changes will be measured by an optical reader hidden inside the wrist device to calculate precise blood-sugar levels. Or they will be when Semberowich and his colleagues perfect their gadgetry, which will take at least two years.

—George Nobile

A BIGGER PIECE OF THE PI

Columbia University mathematicians David and Gregory Chudnovsky kept their desktop supercomputer working overtime for more than a month last year, computing the value of π (the ratio of a circle's circumference to its diameter) to 2.16 billion decimal points. Apart from doubling the previous world record of 1.07 billion decimal points set by the Japanese in 1989, what's the motivation?

Mostly, the Chudnovskys want to see how their huge chain of numbers differs from a purely random sequence or the decimal expansion of the square root of 2, and other infinite series.

"There are no patterns in π ," David explains. "Yet

there appear to be minor deviations from a totally random sequence." Unfortunately, the Chudnovskys may need an even larger database to confirm this possibility.

If the Chudnovskys come up with a statistical test that can distinguish the digits of π from the digits of a the mathematics world would be "completely amazed," according to Bill Gosper of the Symbolics Corporation in Mountain View, California, who briefly held the π record in 1985. Although Gosper can't imagine an application of such a discovery, he admits, "If I come back one century from now and someone tells me 'We've got a use for the Chudnovsky Effect,' I won't be surprised."

—Steve Nadis

The wristwatch-like device measures blood sugar levels.



CONTINUUM

BRING OUT YOUR DEAD

You have a headache, fever, cramps, and trouble concentrating. You think you've probably got the flu or maybe a nasty hangover. Guess again. You could be the latest unsuspecting victim of one of the world's most notorious diseases: bubonic plague.

Although it sounds incredible, the disease that killed almost half of Europe in the fourteenth century is alive and well. More than 160 cases of plague have been

reported in the United States in the last ten years; 23 of them fatal. Most of the victims caught the disease through contact with fleas carried by wild squirrels in the western United States, but animals as varied as antelope and house cats have carried the bubonic plague.

The disease begins with headaches and fever up to a week after the initial infection. The disease then progresses rapidly, inducing vomiting, muscle pain and swelling of the lymph nodes. If left untreated, it can infect the lungs, causing pneumonia

WIRED FOR HEAT

Electrically heated winter underwear sounds like a great idea. Using technology to keep you toasty warm in frigid weather. Putting that idea into practice turns out to be more difficult because various parts of the body react differently to extreme cold. For instance, toes and hands become less flexible. Now that problem may have been solved by Phoenix International Corp., located in Fargo, North Dakota, where temperatures routinely drop to -20°F.

An analog control unit measures resistance in the wires that lead to five thermal zones in the torso, arms, hands, legs, and feet inside what the company calls its power Johns, a \$500 lycra and thermal garment ideal for both the outdoors and frigid industrial environments. As the temperature drops, so does the resistance. A microprocessor calculates the



New electrically heated long Johns won't push whole body

temperature inside the suit from the resistance readings, and the wearer can then adjust warmth in the feet if the toes are too cold, for instance, by turning a control knob.

A 12-volt DC battery powers the heating element, and its 10- to 12-pound weight, while suitable for industrial environments, will have to be scaled down for hunters, farmers, or cross-country skiers, says Phoenix president Kevin L. Brinkheiser, a co-inventor of the suit.—George Nisbete



After wreaking havoc in Europe 600 years ago, the plague has come to America. Fortunately, even the plague succumbs to antibiotics.

plague, which is highly contagious. Antibiotics such as tetracycline and streptomycin have been very effective in treating plague, but death almost certainly results if the disease is not treated within two to four days after symptoms appear.

The rarity of plague is in itself one of its greatest dangers. Both the public and the medical community remain largely unaware of the symptoms and treatment.

"The disease can be cured if treated promptly," says Allan

Serres, chief of the Plague Section of the Bacterial Zoonoses Branch of the National Center for Infectious Diseases in Fort Collins, Colorado. "The important thing is to get people to recognize the disease and get therapy in time."

—Kevin Sall

"There is only one thing that a philosopher can be relied on to do, and that is to contradict other philosophers."

—William James

ASYLUM!

The light of freedom has spread through the Soviet Union over the past two years, illuminating



many formerly darkened corners. No corner was darker than

the world of repressionist psychiatry, as practiced—inflicted might be a better word—by state doctors. The subject of this article, Semyon Gluzman (lower photo) is both a hero of Soviet psychiatry and one of its victims. His horror, faith,



story is one of and triumph.

By Tom Dworetzky

It's killer hot even for New Orleans. I walk slow as I can, but my white shirt's plastered to my back, and the tie damp around my neck, by the time I knock on the door of room 1314 in the towering Hilton at the end of Poydras near the French Quarter. The Ukrainian physician who answers is about my age—mid-forties. About five-eight, 160 pounds, he's got slightly thinning brown hair and gray, absent-mindedly uneven sideburns. He's wearing a yellow short-sleeved shirt and greenish-tan, round-toed shoes with white rubber soles. His name: Semyon Gluzman.

We tumble a handshake at the door and he welcomes me in, speaking quietly in a strong Russian accent. I am in town

to talk to him about his memories of the past two decades—recollections radically different than mine.

Back in the late seventies, I lived in the Quarter. While I drank Hurricanes at Pat O'Brian's and whiled the hot nights away listening to music and dancing at Tipitina's, Gluzman, former psychiatrist and convicted anti-Soviet agitator, was working in a lumber mill near Sibers and eating maggot-laced food. As for the nights, he passed them trying to sleep while Kalashnikov-toting soldiers marched the perimeter of the camp for residents whose he'd already spent years. His crime: speaking out against the common, abusive use of psychiatry to find some political dissidents mentally ill, declare them "incompetent," and lock them up in hospitals and

labor camps for indefinite periods of time.

They say down here that New Orleans is the City that God Forgot. That easy sentiment permeates this town like the sweet smell of honey-suckle. But today, it adds a dimension of irony to Gluzman's own life. Care is something that he cannot forget. He paid a heavy price for his outspoken opposition to the abuse of psychiatry in the USSR. After a decade of prison and internal exile in Siberia, Gluzman—ordinary doctor—is free. But even today, with the Soviet Union in chaos, he is still technically a criminal in his homeland. The struggle weighs on him. I notice its shadow cross his face when he recalls the past.

His story starts even before his birth, with the advent of Soviet psychiatry itself. Doctors of any persuasion can kill you if they screw up, of course. But from the beginning, psychiatrists in the Soviet Union could do something perversely worse. Strip people of their freedom by declaring them mentally incompetent. These poor souls became wards of the state, living in hospitals without hope of trial for periods for years—even forever.

Although it was during Stalin's time that systematic abuse of psychiatry was truly perfected, the most famous case took place more than a century earlier. Back in the early Nineteenth Century, it seems, one Pyotr Chaadayev had the audacity to publish an essay critical of Tsar Nicholas I. (Bad move.) Nicky personally declared the warden of Russia's military insane, sentencing Chaadayev to a year of "free medical care" and house arrest.

It wasn't until the 1930s, however, that Soviet psychiatric abuse took the systematic form we know today. The key creation of Special Psychiatric Hospitals (SPH), the most notorious at the Serbskiy Institute for Forensic Psychiatry on Kropotkin Street in Moscow. Established in 1927, the Institute had been relatively humane—until the rise to power in 1948 of psychiatrist and Party member Daniel Romanovich Lurits. During the course of his 30-year reign, Lurits declared more than 1,000 sane political prisoners mentally ill.

There were some, of course, who opposed this. Gluzman's physician parents among them. "I was seven when Stalin died," recalls Gluzman. "For my family, it was a secret holiday. Every-



Inmate at the Kirov Psychoneurological Asylum gives a nod.

one was crying because father Stalin was dead, but my parents stayed home. They sat at the table and every five minutes would say aloud "Why now? Why not sooner?" They raised me to be antistalinian but warned me to keep it a secret. They were afraid. They didn't want to show me the road to prison."

They did, however, show him the way to medical school. On his second day at the Kiev Medical Institute he met a professor who changed his life. The teacher illuminated the idea of psychiatry for the young Gluzman not as a field of clinical study, but as an ethical pursuit. "He explained to me that a psychiatrist must be very ethical because often our patients are people with no relatives, no money and jobs. We are often the only ones who can be of practical use to these unhappy souls."

Gluzman grew disillusioned with his chosen profession in 1971 after watching a colleague subject a rebellious teenager to injections of sulfones, a sulfur- and oil suspension that renders patients compliant through searing fevers and excruciating pain. The teenager's sulfone treatment lasted for three or four days, raising his temperature above 104 degrees. Whenever the tempera-

ture dropped down to normal, the nurse administered another shot. "The scene," says Gluzman, "was one of torture."

Though not yet a dissident, Gluzman listened to Voice of America and heard reports of psychiatric abuses perpetrated on sane people who spoke against the government. The best documented case of abuse he soon discovered concerned General Pyotr Grigorenko, who had fallen afoul of the powers that be by arguing for human rights in public and participating in anti-Stalinist organizations. Found mentally ill, Grigorenko was committed for compulsory treatment in the SPH in Chernyakhovsk in the Kaliningrad region. The term of his confinement, open-ended.

After a year of research, according to the Geneva Initiative on Psychiatry, Gluzman and a second anonymous author collected findings in an underground study. But Gluzman's elevation from ordinary doctor to official dissident didn't really begin until a crisp spring day in March 1972. A loud banging woke him at 8 a.m. in the bedroom that he shared with his parents in Kiev. He answered the door in his nightshirt. Half-a-dozen big KGB men, well over 200 pounds each, had begun work early that day, and they were starting with him.

They methodically searched the apartment for almost six hours. No matter that his mother was in bed recovering from a serious heart attack, too ill to be moved, they searched the bedclothes all around her. They searched the bookcases and drawers, the racks and crates, while his father, terrified with memories of Stalin's brutal years, and Gluzman, numb with resignation, waited for the inevitable. With foresight, Gluzman had removed all Samadai— forbidden documents, articles, and books such as his treasured copy of Solzhenitsyn's *Cancer Ward*—from the apartment. "I had given them to friends of friends of friends. I knew that my close friends would be watched, maybe have their homes searched, too."

Though the KGB did not yet have the Grigorenko document in their possession, they took Gluzman down to headquarters. "We have some questions," they said.

Gluzman, dressed in a good suit and an overcoat to ward off the morning chill, was led to an office where a KGB

CONTINUED ON PAGE 10



Motorless subs sprout an array of appendages: striped fins, porpoise tails, propellers that sweep back and forth.



Bizarre underwater vehicles (above) designed by engineering students, ocean lovers, a high-school kid, and one dentist.

By Kathleen McAviff

SUBCYCLES

What are these things?

To the uninitiated, it looks like spacecraft from a 1950s science fiction flick have invaded the Howard Johnson's parking lot in Ft. Myers Beach, Florida. There, only a stone's throw from the ocean, stands a cluster of bubble-domed vehicles resembling rocket ships. These alien craft, whose fluorescent colors can only be safely viewed with sunglasses, sprout a bizarre range of appendages: striped fins, wings that flap, porpoise tails, propellers that sweep back and forth, even mechanical frog legs.

Welcome to the second international submarine races: a competition that pits intrepid ocean engineers against each other, a hostile sea, and the limits of the imagination. Contestants must sink to the challenge of maneuvering a motor-

less submarine of their own design twice around a 400-meter oval course 20 feet under the ocean. The rules require that the craft be operated by a pilot and propeller—usually an endurance athlete who pedals or turns a crank. To add to the challenge, the subs are "wet"—that is, the hulls flood with water—so the crew must wage their battle under the waves wearing bulky scuba gear in quarters often snugger than a coffin. Beyond those requirements, almost anything else goes—at least in theory.

In practice, the vehicles glided, kicked, flapped, paddled, wiggled, and, on more than one unplanned occasion, barrel-rolled through the water. The Indianapolis 500 this is not. Subs that achieve speeds greater than four knots, or five miles per hour, are hailed as record-break-

ing fast. Small wonder that this spectator sport has inspired companions to small racing. But that didn't stop enthusiasts from cramming into a sweltering beach tent last June to watch live footage of this underwater spectacle on TV.

While the event may not have attracted speed freaks, it was first-rate entertainment for tech-savvy inventors of every ilk, ocean lovers, and anyone else with an appreciation for the adventurous, the original, and the offbeat. This is not so much a race as a testing ground for new concepts in underwater vehicle designs.

From as far away as Germany and British Columbia, some 50 teams flocked to the Florida competition. They included engineering students from such big name schools as MIT, the U.S. Naval Academy, and Texas A & M as well as the

employees of government shipyards and underwater technology firms. But not everyone fit that profile. Stephen Barton, a freckle-faced high-school student from Spring Hill, Florida, built his sub in the family garage after developing the idea as a science fair project. And Gary McQuade, a dentist undaunted by lack of engineering experience, made his machine in the waiting room of his Manhattan office. (Astonished patients are purported to have slimmered... What the hell is that?)

The smallest subs managed to compress two adult men, air canisters, and control equipment into narrow torpedoes just over ten feet long. The largest subs were bulky fish shapes and whale forms nearly twice that size. The remarkable diversity of inventions also reflected the back-



WHAT ARE THESE ALIEN, YET INGENUOUS CONTRAPTIONS THAT

GLIDE AND KICK, FLAP, PADDLE OR JUST BARREL-ROLL THROUGH THE WATERS WE CALL SEA

grounds—and budgets—of their creators. The most high-tech teams sunk upwards of \$20,000 into the campaign. They used computers and wave tanks to test their designs and harnessed exotic space-age materials for the construction of hulls. On the other end of the scale were funky. Rubo Goldberg contraptions put together on shoestring budgets out of junkyard supplies and other odds and ends. Dentist Gary Ma sourced, for example, built the hull out of a plywood frame across which he stretched Gey-Daglow orange T-shirt fabric coated in fiberglass resin. The Florida Institute of Technology's black-and-white striped *Sea Panther* on the other hand, is a dressed-up sewage pipe. And when the team from U.C. Santa Barbara ran out of wood for the hull of their multihulled *Love Missile*, they substituted with cardboard from boxes confiscated during a midnight raid of the college coffee shop. "It worked great," said team leader Jack Blinn, "and the price was right."

This lack of conformity among entries was exactly what the judges sought to encourage. The competition, organized by the H.A. Perry Foundation and Florida Atlantic University, offers separate \$1,000 prizes for speed, cost-effectiveness, and innovation. But a submarine must score high in all three categories to win the grand prize—a \$5,000 check for best overall performance. (There are 14 other prizes including best safety design, \$200, and best use of composite materials, \$2,000.) This nurturing of creative and practical objectives reflects the foresight of 43-year-old Henry "Hap" Perry, the marine on-thusast whose capital and vision launched the first human-powered submarine race three years ago. "The trim-virate scoring system ensures that there's no restraint on the ideas that come down here," says Perry. "It's not enough to be the fastest guy around the course, ingenuity and an eye for the bottom line count just as much toward the end score."

Perry's insistence that the sub be human-powered is also intended to spur technological progress. Since even the strongest human is no match for a motor, this handicap forces teams to develop sleeker hulls, control planes with reduced drag, and use other innovations to enable the sub to push through the water with less power. The best solution, Perry says, may ultimately find a broad range of applications in remote-operated vehicles for use in ocean exploration and in the maintenance of oil platforms. "A few innovations—namely techniques for bonding new composite materials to metals—

might even be used by the shipping and aeronautics industries," he says.

Perry is not the last person to see exciting potential in this enterprise. The development of human-powered submarines has a long, intriguing history which began in ancient Egypt. The first modern prototype, however, was born of Yankee ingenuity during the American Revolution. In 1775, a Connecticut inventor named David Bushnell built a one-man, pear-shaped sub for the purpose of launching sneak attacks against British warships patrolling New York Harbor. Called *The Turtle*, it was made of 6-inch-thick oak staves held together with iron bands, with the entire vessel coated in tar pitch. A pilot perched on a high seat held a rudder in one hand while cranking a 12-inch screw with the other to propel the vessel through the water. There was enough air in the sub for the operator

● A few innovations may find a broad range of applications in remote-operating vehicles for use in ocean exploration, and in the aeronautics industry. ●

to remain submerged for half an hour. And to regulate its buoyancy, Bushnell designed an ingenious ballast system of pumps that blew water out of the hull for surfacing. In an emergency, a 200-pound lead weight could also be released from the bottom of the sub to increase its buoyancy.

This improbable underwater sub was equipped with 150 pounds of gunpowder, which the operator had the unenviable job of firing with a time fuse to the underside of enemy ships. To Bushnell's credit, his ambitious plan nearly succeeded, being foiled at the last moment by one small obstacle. A wooden screw for attaching the mine could not pierce the reinforced iron hull of a British gunship.

Of course, submersible designs have come a long way since Bushnell's pioneering effort. But testing new-fangled ideas in as unforgiving an environment as the sea is still far from a precise science. For that reason, the Florida competition made safety a top priority. The subs had to pull two buoys

on the surface, carry spare air bottles and regulators, and have quick-release hatches for fast escapes. As a further precaution, crew members clutch "dead-man switches," which automatically release safety beacons should they fall unconscious.

The task of racing a wet sub in scrub gear also raised a host of unprecedented design challenges. For example, what is the best position of the pilot and propulsor for maximum output of power? The optimal shape of the hull? The fastest propulsion method? And will we ever to stay with tried-and-proven technologies or risk everything on a wholly new, untested scheme?

There were almost as many answers to these questions as contestants. In the most common design, the pilot lay belly down in the front while a propulsor in the rear, facing either the seafloor or the surface, pedaled a bicycle drive train that spun a two-bladed prop. Others veered from this convention, placing pilot and propulsor in seated upright positions or lying side by side. One propulsor had the exhausting job of simultaneously cranking both hands and feet.

Even greater permutations were evident in propeller designs. Instead of the standard fixed prop, MIT's *Sea Beaver* had one that served as a rudder by rotating horizontally and vertically. Other teams had two props, which counter-rotated to prevent the sub from rolling, inspired by a jet engine. West Virginia University put its prop inside the hull and cut off the nose cone so a stream of water would rush through. (The pilot gets hit by the inflow jet, though team leader Scott Wenger says, "It feels tame compared to being in the back seat of a convertible.")

The most adventurous subs abandoned props altogether. Alternative propulsion methods ranged from a paddle wheel to a flapping contraption that worked like penguin wings. The *Spirit of Columbus* from Battelle Memorial Institute in Columbus, Ohio, even attempted to mimic the swimming motion of frogs and other web-footed sea creatures. As team leader Brad DeFoes explains, "These animals drag a large surface area through the water to propel themselves forward but then retract the limb with as little drag as possible." The machine thus inspired uses a push-pull linear pedal motion to drive a set of flippers about four and a half feet through the water. Once fully extended, the flippers then snap shut, barely nipping the water as they return to the starting position. In this way, the whimsical vehicle lurched forward at a ponderous 1.5 knots.

And then there was the *Coelacanth*, the brainchild of dentist Masouedeh. In a class of its own, this flamboyant creation virtually defines categorization. It is named after a prehistoric fish, but the hull of the *Coelacanth* looks more like a funky two-car train minus the wheels. The pilot sits in the front compartment behind a Plexiglas windshield. The propeller lies on his stomach in the back compartment, engaging in a strange form of "aquabatics" that resembles cross-country skiing. The two compartments are separated by an articulated passage, and when the propulsor begins "skiering" the machine is supposed to flex in the middle. In response, the "tail"—a 10-foot pole tipped with a triangular fin—should sweep back and forth, whipping the vehicle forward like a fish. At least, that is what is supposed to happen. After wiggling—and jiggling—at the starting gate, the *Coelacanth* sunk to the bottom. "It's a deep-sea fish," Masouedeh says. Last seen, it was dangling at the end of what looked like a giant fish hook from a crane in Howard Johnson's parking lot with a beaming Masouedeh and his crew standing before their trophy.

The *Coelacanth* may not have been fast, but it waged a noble fight under

the circumstances. A British entry, *Submarine Impossible*, never did make it to the competition. And a compact, 110-pound German sub (*Beni*) survived a rough transatlantic flight in the baggage compartment of a plane only to break up on a reef its first day in Florida. Other sub-innagaged buoys, lost propellers, blow hatches, and skyrocketed to the surface like sea-to-air missiles.

Ironically, the most expensive, state-of-the-art designs often fared no better than thrifty, homespun inventions. High hopes and big bucks were riding on the *Rolls Royce* of subs, *Team Effort*, manufactured by Bennett Industries of Cadeville, Tennessee. It had a unique hydrodynamic shape—bullet like—that permitted the sub to slip through the waves with almost no friction. Still more revolutionary was its propeller—a stainless-steel jewel with 12 individually pitch-controlled blades. Functioning like a helicopter rotor, the propeller provided three-dimensional control in all directions. Its designer, 68-year-old Ted Haselton, a retired navy submariner, initially conceived of the propulsion system in the early sixties as a technique for stabilizing fleet ballistic-missile submarines during launch. "If the propeller works," he boasted before the race, "we'll blow everyone else

away." Indeed, with the aid of a slick new polymer that interacts with water to reduce drag, Haselton calculated that *Team Effort* might reach a remarkable 7.4 knots.

Alas, this bold initiative proved a case study in the pitfalls of translating visionary ideas into workable inventions. After bobbing out of the starting gate, *Team Effort's* safety buoy accidentally deployed. And that was not the least of its problems. In subsequent tests, the sub's hydraulic control system developed a slow leak, bringing the gleaming \$20,000 machine creaking to a halt on the seabed.

Still, the judges helped to soften the blow. Even though *Team Effort* didn't live up to its tantalizing promise, they awarded its cutting-edge design the top prize for the most innovative sub.

And the other victors?

Economy was the winning ticket for UCGS's *Love Mease*. It's cardboard-forded hull painted in "cool stripes" did indeed work great, and at the right price. For the unbeatable value of \$700, it walked away with the top award for cost-effectiveness. Marvel's team leader Bash, "The \$1,000 prize was bigger than our budget."

When it came to witfulness of design, simplicity and reliability reigned su-



Life in the Nineties would perplex Emily Post. From the proper protocol for using telephone answering machines to interpersonal politeness with members of other cultures, today's diverse social situations are mixing the importance of manners and sowing the seeds of tomorrow's etiquette. In fact, after years of neglect, the outlook for etiquette is positively bullish. Updated guides are being issued by Letitia Baldridge, Judith Martin, and Elizabeth Post, Emily's granddaughter-in-law and successor. Consultants specializing in business etiquette are working overtime. And we've all experienced a growing awareness of the need for human consideration in our increasingly technological world. But the nature of etiquette has changed. Elizabeth Post notes that "It's been a while since women have worn white gloves to go to the city." On the other hand, not returning phone calls and bombarding your friends with faxes have become marks of rudeness in everyday life. For a rundown of manners in the fast lane of the Nineties, read on.

Electronic Etiquette. From his office in Morristown, N.J., James E. Katz, sociologist for Bellcore, the research arm of the major U.S. regional telephone companies, studies the social impact of new communications technologies. On the basis of numerous surveys, he has found that the telephone naturally demystifies status, gender, and age distinctions. It thus allows us "to respond to content, not content to us," in everyday life and equality." On the other hand, telephone rudeness can have a devastating effect. A recent *Rockefeller Institute* study found that when companies lose clients, 68 percent of the time it's due to indifference or negative treatment on the phone. Given the power of good phone etiquette, we suspect you'll heed the dos and don'ts below.

- When answering a telephone call, DO say "hello," then identify yourself and your company. If you're in a meeting, DON'T spend time on the phone. If you want to decline or terminate a call, DO so politely. "You never know when you may need that person," says Wayne Phillips.

lee, director of the Executive Etiquette Company, a Taunton, Massachusetts-based consulting firm. Another DO: Always return calls within 24 hours, if at all possible.

- Letitia Baldridge describes call waiting, the phone company's device for interrupting one call for an important one, as "an invention of the devil." To avoid being invisible to callers, DO deal with each separately before taking another call.

- If you have a telephone beeper that omits an audible tone, DO replace it with a vibrating beeper that won't disturb those around you. "Thank God, new technology is replacing intrusive technology," comments Baldridge.

- If you have a portable cellular phone, DO leave it at home or in your car. DON'T talk on the phone while walking down the street or being in some public setting. "It's rude and inhuman," says Baldridge. Signs of the times: Tony restaurants and theaters in Los Angeles and Miami have begun requesting patrons to check their portable cellular phones at the door.

- With telephone answering machines (now a 43 percent of U.S. households, with a 12-percent chance that you will reach one with your next phone call),

DON'T by the excuse that you hate talking to machines. DO leave a brief message identifying yourself, the purpose of your call, and a telephone number where you can be reached. For outgoing messages on answering machines, DON'T use music or sound effects. DO instruct the caller to leave a message. "This is the modern equivalent of the butler, who makes peaceful domestic life easier by saying, 'Madam is not available, may I tell her who called?'" when Madam is busy taking a kind in her new diadem or nursing a hangover," writes Judith Martin, aka a Miss Manners, in her latest tome, *Guide for the Turn-of-the-Millennium*.

- The corporate version of answering machines, voice mail (the recordings instructing you to push more buttons on the telephone to reach your party or leave a message), is the most recent addition to communications. For those of you with voice mail at work, DO begin by giving the digit (usually 0) that will connect to a human operator. DON'T make callers suffer through long lists of options.

"Some of the leading communications firms have the worst voice mail messages," says Letitia Baldridge. "I always feel like I'm trapped in an echoing chamber, cut off from human contact. How can businesses involved in communications be so bad at communications?"

- Using a fax machine? When you send a fax, DO transmit a cover sheet with your name and number as well as those of your message's intended recipient. DON'T send long documents or junk faxes that consume someone's fax machine and access time. "Fax is very much for business, but not suitable for personal communications," Letitia Baldridge insists. "Nobody likes receiving a slimy piece of fax paper; it's read quickly and thrown away. Paper and pen are still most suitable for personal thoughts. Your message gets read and reread and kept." New technology will soon render many communications etiquette dilemmas obsolete, according to James Katz. For instance, once video displays become standard in telephones, voice mail options will be selected more easily from visual menus.

Also, expect talking machines using artificial intelligence to be more polite than the humans they replace.

Business Manners. During business hours, you're likely to find Executive Etiquette founders Wayne and Linda Phillips on the premises of some corporate office, leading a seminar on the social protocol of business. Depending on business needs, the Phillipses cover such concerns as proper appearance, table manners, and business introductions. Since they began etiquette consulting seven years ago, they've never been busier, says Wayne Phillips. "In an increasingly competitive business environment, good manners can be the difference in making a sale." The competitive advantage of business etiquette is not lost on top management. According to Phillips, a major automaker's CEO recently attended a company social function, where he was appalled at his middle managers' lack of manners—from not knowing how to hold a drink to not knowing how to make conversation. Among the most important of etiquette in and out of the office are recent business school graduates. "A lot of people fresh out of school are thrust into the business

world, with formal dinners and social gatherings," notes Wayne Phillips. "And they're over their heads." To make sure the new business etiquette doesn't pass you by, follow the guidelines below:

- When men and women are involved in business dealings, DO defer to professional rank and DON'T give precedence according to gender. "Women no longer expect to get out of an elevator last or to be automatically introduced first," notes Wayne Phillips.

- When making introductions, DO follow business rank—client, boss, colleague. DO stand for introductions and when clients or executives enter the room. DON'T call clients or business associates by first name, unless they request it. "Never use an honorific when referring to yourself," Phillips adds. "Say, 'I'm John or Jane Jones, not Dr. Jones.'"

- Writing business correspondence is a lost art that must be revived, according to etiquette experts. When drafting a memo or letter, DO use proper forms of address and DON'T misspell anyone's name, especially your boss's. In the near future, of course, technology will come to the rescue with computerized business etiquette programs that flag protocol mistakes in a document and suggest polite alternatives.

- Does the portable office seem intriguing? DO remember that only workaholics feel compelled to do office work in public. Even if you can whip out that note-book-sized computer while waiting for an airplane or table, DON'T.

Domestic Decorum. At her Florida home Elizabeth Post has been updating *Emily Post's Etiquette* for the first time since 1994. Despite eight years of official national policies promoting "family values" and the amassing of wealth, some of the greatest changes in the upcoming eleventh edition of *Emily Post's Etiquette* are due to increases in divorce and remarriage, a decline in formal entertaining, and the surge of women in the work force. "I hope we've reached a plateau with divorce," says Elizabeth Post. "Some of the most intricate etiquette has to do with the seating of divorced parents, families, and children at a second wedding. Fortunately, by the third or fourth marriage, it's usually a smaller wedding." As for socializing, Elizabeth

ARTICLE

Etiquette experts define the twenty-first century arts of faxing, phoning, and travel.

FUTURE Manners

BY STEVE DITLEA



abeth Post says. "Maybe you hire help for the night for a big dinner party in your home," but the reality of smaller living quarters for many families also makes it proper to entertain friends at a restaurant. For a glimpse at the new domestic etiquette, read on:

- Even if you are ignorant of domestic protocol in a specific situation, DO try to observe basic consideration for others—the root of all sensible etiquette. And DON'T be afraid to ask others' preferences or advice.

- Are you acknowledging others' consideration with thank-you notes and phone calls? DO take time to show gratitude for invitations to social gatherings, gracious deeds, or service beyond the call of duty. DON'T use the increasing scarcity of leisure time as an excuse to omit kudos. "Not taking time to say thank you is unpardonable," insists Elizabeth Post.

- When sending invitations, DO specify all the circumstances of the event. "Dress optional"—no one seems to know what that means anymore," observes Baldridge. If you receive an invitation with an RSVP, DON'T forget to respond so your host can plan ahead. Baldridge, whose Washington, D.C. office can be found on embassy row, notes an ominous threat to domestic civ-

ility in the nation's increasing incivility. "The legal profession has made life difficult for etiquette. Suppose one of your children asks the teenager next door into your home," she posits. "If someone breaks a lamp and the teenager gets out, before you know it the parents have called in lawyers and are suing you. It reminds me of something Clere Luze used to say, 'No good deed goes unpunished.'"

International Politeness. In Miami, the International Etiquette School of America began teaching manners to children about six years ago. Soon after, it became an institution of adult learning, as well. According to assistant director Liddy Publiones-Raventos, the school's popular courses on international etiquette teach local protocol to Americans who will be traveling abroad. "As Americans gain greater access to other countries and as businesspeople from abroad come here, etiquette is becoming more universal," Publiones-Raventos says. "But we have to remain respectful of each others' particular ways of greeting people, of eating, dressing, and making conversation." While more Americans are learning others' customs and languages, the image of the ugly American persists. With international business competition heating up, man-

ners could mean the difference between deals and debts. The etiquette of tomorrow will include many cross-cultural dos and don'ts. Below, we list some of them:

- If you are an American in Japan, whether you are there for business or pleasure, DON'T try to shake hands or pat a Japanese on the back, but DO bow (and present your business card) upon being introduced. When eating Japanese-style, DO hold your rice bowl in your left hand and DON'T leave any grains of rice when you've finished or you will be served rice again. "Having grown up in a society where food is routinely thrown out, Americans sometimes don't appreciate how important eating all the food on one's plate can be in other cultures," explains Publiones-Raventos.

- On the other hand, if you are a Japanese visitor in the United States, DON'T automatically assume that Americans are discourtisous, and DO talk less brusquely to strangers on the telephone. When eating American-style, DON'T drink your cocktail throughout the entire meal. Such advice is regularly dispensed by New York-based business manners consultant Sara Gorfinkle, a columnist on American etiquette for Japanese publications. "The Japanese are fascinated by our customs, our holidays, and how we entertain," she explains. One column that recently drew great interest from her Japanese readers described the Jewish holy day of Yom Kippur.

- When you are a foreigner in Europe, DO shake hands firmly and DON'T shy away from a hug or the greeting embrace known as the *abrazo*. If you don't speak the local language, DO converse in English, but DON'T use clichés or colloquialisms that might not be understood abroad. "It's important to understand that Europeans have a different time sense," remarks Publiones-Raventos. "For example, the English are not interested in holding breakfast meetings, while Americans are rather attached to their power breakfasts." Expect the international etiquette of the future to become more streamlined and homogenized as the pace of life speeds up and America's casual manners are increasingly adopted around the world. But don't assume that local propensities will fade away. "There will always be variations in etiquette due to climate and regional differences," Publiones-Raventos predicts. "You can be sure that the *coqueta* will never disappear from Latin countries, no matter how much Anglo-Saxons would like offices to stay open from noon to three in the afternoon." **DO**



FICTION
PAINTINGS BY
CLAYTON
ANDERSON

I know nothing about horses. They are dramatic, nervous, of-
tly beautiful. And they leave me cold. How could something
so big and powerful allow itself to be tamed so completely?

I was walking the dog in the park. It was a gorgeous, first
touch of spring afternoon full of sleep and just awake. I love
forgetting the aromas of a season and then knowing them again
for the first time. The dog was doing nuts. She was off the line,
racing around not knowing where to go first, wanting every-
thing. She's a young thing, silly and loving. The two of us were
enjoying each other's company.

There are two parallel paths in that park—one for pedestri-
ans, the other for horseback riders. The puppy didn't know
what to make of these moving mountains when they dropped
up slowly and went by. But instead of racing after them she
froze, her only sign of life that long white tail whipping back
and forth like a windmill atop a high spind.

We'd walked for half an hour without seeing one. It seemed
she had forgotten their presence in her universe until the sound

THE LIFE OF MY CRIME

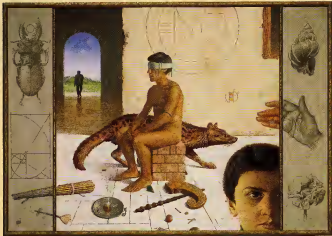
by
JONATHAN
CARROLL



of galloping came from behind us and the poor thing leapt straight up in the air. Landing, she scrunched down close to the ground, as if under attack. That made me laugh out loud and turn to see if the horseman had caught her performance. The galloping slowed and the horse shifted indignantly—why are we stopping? Why are you nitpicking me? Shiny brown, muscles coiling and beaking. Its head was pulled to one side, eyes and teeth flashing white. It took me a moment to recognize the man on board, but when I did, what a shock! Gordon Epstein. One of the

EPSSTEIN
WAS A SNAKE. HIS
ONE GREAT
TALENT WAS AN
ABILITY TO
LIE SUCCESSFULLY

to do well but not superbly and thus challenge or throw them off in any way. He learned the lingo, he played slightly off-center sports—soccer and lacrosse—which enabled him to make the teams. A strong B student, varsity athlete, a hale enough fellow to make people happy to know him. Someone said the world is divided into two kinds of people. The first kind we say "Oh boy!" when they enter a room. The second we say, "Oh shit!" By the end of our sophomore year, most of the school said, "Oh boy!" when Gordon arrived. Yet most of the success resulted



great, preeminent lies I have ever known.

"Henry Rudelstil? What are you doing in Europe?"

"I, Gordon, I'm working on a project near Salzburg. And you?"

Before he answers, let me tell you about Epstein. We met in prep school twenty-five years ago. Some people change as they grow older, while others only become more of who they were at fifteen. Caterpillars versus snakes. Epstein was a snake. His one great talent was an ability to lie successfully. He was a natural liar the way oth-

er kids are natural athletes or intellectuals. But remember, while few of us are really athletic or smart, we all lie. So to be a great liar one must be at the same time more perceptive, witty, sensitive, than those around you. If for no other reason than the danger of being caught, Epstein walked into that school a fifteen-year-old tenth-grade nobody (like the rest of us), eased it out a few months, then made his play. He seduced the movies and shakes with the right amount of praise, back-patting, back-stabbing, and politicking. Teachers liked him because he knew enough

from his intense dishonesty. Study Epstein hard enough and you could see the effort he was making, the frequent looks of concern or fatigue or straight fear way back in his eyes, the smile while he spun his webs and told the tales while keeping back of past ones, which were like dangerous caged animals that without constant checking and feeding broke their restraints and charged.

He wasn't found out until our senior year. By then, however, he was way beyond anyone's grasp. Class president, full scholarship to a good university, a

got on his arm at the spring prom who had flown in from California for the weekend and did nothing but gaze at him with pride and lust.

How Epstein was discovered was a gradual thing. After three years at the same school some of the lies and double crosses were bound to get back to their source. Good people who once believed in him started saying, "Hey, what is this?" and telling others their suspicions. Maybe half our class realized the truth by the time we graduated. Those who didn't defended him strongly enough to make the others keep their anger and grumbles mostly to themselves.

While these years were passing, I floated somewhere near the middle of the class. Gordon had little use for people in the middle so he paid me little mind. He paid me no mind. But I watched him because even then I appreciated a good second act. Although I was probably one of the first to sense what he was doing, I rarely said anything when his name came up because he was no more important to me than I to him.

Throughout high school I was only mine, floating like a goldfish with an occasional flick of my tail. Yet once I entered college and discovered architec-

ture, I quickly became the self-assured, obnoxious success I am in later years, whenever I remembered, I asked about Epstein. Once in a while his name appeared in the alumni journal or over a drink with one classmate or another I happened to run into at an airport or train station. He went to college, graduated, disappeared into the rest of the world. From every indication, he had peaked in high school and simply gone on to live a forgettable life. At different times I heard he was in business, teaching, social work.

Social work? I loved that one. Gordon Epstein was on the planet for himself and forgot the rest. The idea of him trying to ease the life of a poor, pregnant woman or homeless bum was impossible to swallow. I knew that's an unforgiving thing to say and people do change sometimes, but not this man. Forget it.

Three years ago I was in Muzo & Frank's having lunch when I heard a loud laugh from a nearby booth. Looking up, I saw the laugh belonged to none other than Gordon Epstein. Older, naturally, fatter in the face and thinner on top, but definitely G.E.

I knew he wouldn't recognize me, but that was half the fun of standing up

immediately and going over, hand extended. "Gordon Epstein! How're you doing?"

He was with a couple of sea-side looking women and the first expression that crossed his face was resentment—he didn't want anyone hovering in on whatever territory he'd gained with these two. Next, his expression went into cunning bewilderment. He saw who was greeting him, didn't know who it was, didn't want to show that, didn't want to look foolish, didn't want to be too enthusiastic. As in our days of old, if you watched a moment you could see the Gordon Epstein Command Center hard at work.

"Hey, how're you doing?" "Gordon, I'm Harry Radcliffe. Class of '67 at Berk's?"

Although it was plain he still didn't know who I was, just mentioning the name of the place where he'd been took for a little brought me a loving look.

"Harry. God, how are you? Come on and sit down."

We talked for a couple of minutes. The way he behaved reminded me of a sly big dog licking my face. He sounded so grateful to have met up with someone who knew him back then. Look-

ing to him, I realized how lucky I was not to have had a wonderful childhood. Those who do, or those who peak in their early years, have only that remembered joy or strength to tide them over the rest of their lives. Nothing could ever be as good as that time, for them nothing ever is.

Gordon had a job, had had a wife, no children. I didn't want all the information he offered. Once I knew he'd gone on to live a life of quiet desperation I was satisfied. When he asked what I had been up to, I carefully and with the most strategic false modesty possible told him about my own eventful, successful life. When I was finished I felt good. It was stupid to show off in this pointless way, but I did it because he was an annoying ghost from my past and this was the only way I could exorcise it. Also, I fully believe in getting your kicks in when you can.

Only when I was well into fantasizing about my achievements did something strike me deep about what he'd been saying. This man, no matter how unimpressive he appeared, was one of the sneakiest, wheeler-dealers I'd ever known. Unless one understood religious conversion or some other kind of The Light, lying, particularly on as grand

and Byzantine a scale as this guy once worked, doesn't stop. Why was he so openly admitting his failure to me? Especially in front of two women he was clearly trying to impress? Something was up. I could feel deep in my own sneaky heart that Epstein was using me like a preoccupied who's stripped you of all your valuables before you even notice he's tumbled you. The son of a bitch. I wasn't going to stick around. Feeling like a dumb cluck, I nevertheless looked at my watch and groaned. I was late for an appointment. The last glimpse I had of him was of his surprised face as I hurried to get out of the restaurant with at least some of me still intact.

The puppy started barking at his horse. I clipped her back on the leash and held her quivering against my leg. Gordon climbed down and we shook hands.

"Harry, I'm really glad to see you. How long has it been? Christ, so much has happened!"

He was deeply tanned and the lines around his eyes were those of someone older. He was also much thinner than when we'd met in California.

"You look good, Gordon. Like you've

been working out."

Behind us, the horse chuffed loudly and Epstein whirled fully around to look at it. "What? I didn't say anything!" He said to the animal.

"Talking to your horse, Gordon?" I said, very hi-he joking. Turning back to me, his narrowed eyes were all solid dislike and unapologetic.

"To my ghosts, Radcliffe. To my lucky spent ghosts. Come on, let's sit down and I'll tell you a story. You got time for a story?"

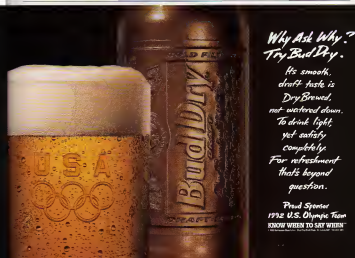
"Sure." He started talking the moment we sat down. He let go of the horse's reins, but the animal never wandered far from our bench. When my dog realized the blemish wasn't interested in her, she lay down under my legs.

"Do you remember Frederick Spoor?"

"The science whiz? Sort of a weird guy?"

"That's right. He never took baths, but got all A's. The man definitely has brains. Well, around the time you and I last met, I'd just been cornered from my last job. I'd been doing public relations for a big of company in L.A., and I'll tell you, I saved their ass for them. He

If winning
isn't everything,
why doesn't anyone
go for the bronze?



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member that oil tanker that caught fire in Long Beach? The one that leaked 30,000 crude into the harbor? It belonged to Future Oil, my bosses. I worked day and night for those assholes trying to come up with clever ways of convincing the world that a 30,000-gallon oil spill wasn't so bad.

"I did great work for them, Harry but they still fired me the minute the news stopped from page one to the back of the newspaper. They didn't want to be reminded of what they'd done. You know, kill the messenger and all that. It just so happened I was their messenger, but they killed me anyway."

The horse whinnied, but Gordon ignored it. "Spode was my roommate first year at Banks and we got along pretty well, oddly enough. He was okay, just tunnel-visioned. As long as he washed now and then we were fine. Without him, I wouldn't have passed Algebra Two!

Both of us went to Penn and bumped into each other a few times over the years. Nothing special. Then I didn't see him anymore after we graduated.

"After I was fired I was in bad shape. My ex-wife took the house, there wasn't a whole lot of money in the bank, and I didn't have the slightest idea of what to do next.

"There's a yearly reunion of Banks alumni at the Beverly Wilshire Hotel. Nothing big, but you always bump into someone surprising and have a good time. I never saw you there, Harry. Did you know about it? Anyway, in the middle of all my crap, I said what the hell and went. Halfway into a very comfortable drunk, who should put his arm on my shoulder but Fred Spode. Not that I would have recognized him because he looked wonderful—custom-made suit, manicured nails, cologne! In the old days this guy's clothes had no discernible color because they never got washed. Now I see Spode looking like an Italian crooner!

"Turns out he's hit it big with a mineral prospecting business, but he's so big that he's doing hanky-panky deals with governments. The U.S. hasn't spoken to for years. You know, like Libya and South Yemen? But somehow Fred's gotten the government's tacit permission to work in these places and he's making it. I wanted to kill the bastard. Instead I told him a little of my story. A couple of days later he calls up and offers me a job, just like that. I could have died."

"What kind of job?"

"The perfect one—doing public relations for his company. Most people don't know it, but these are things go-

ing on in those places that are very surprising. People working behind the scenes to change the attitudes of their governments so they can start dealing and working with the West again. Not everyone is leaving scientists and engineers. "Death to the infidels!" Spode was right in the middle of this. The more these people moderated their stances toward the West, the more business he'd be getting. What he wanted from me was to go there and have a good look around, then come back and start work on campaigns, very hush-hush, that would make the world think differently about these countries. You know, do promotional films and brochures about the people and their native customs, the beauty of their folklore... Naturally the things would come out under the name of the specific governments, but all of the work would be done by us."

● He'd
lived his way merminly,
merminly,
merminly until the
bottom fell
out and he got into
trouble.
It was disgusting ●

"So where'd you go? How'd you get in, sneak across the borders?"

Gordon checked his knuckles. "If you're needed in these places, you can walk in with a marching band. Do you know how many Americans are working in the Libyan oil fields? Enough to populate a nice-sized midwestern town. Only if you looked in their passports you wouldn't see any Libyan faces because those things get them in trouble.

"No, Harry, going in and out of them is no problem. What you see there is the problem. Or what happens to you after you've seen it.

"For the first months it was great. You worked hard and even though the way they do things over there is enough to send you screaming with frustration, we got a lot done and Fred made life comfortable. Trenchy pay, great connections and accommodations. You felt like you were making headway. You woke up every morning to the sound of a muezzin calling the faithful to prayer, and I guess that's what I liked best. You

woke up in the morning and, lying there in bed, said to yourself, 'I'm in Aleppo' or Mokka, Baghdad. A few months before, I was tossing hamburgers in L.A., and now I was listening to the Arabian Nights out my window. Beautiful. It was a beautiful time for me. I felt like I'd been reborn.

"What do you think of me, Harry?"

The question made me physically recoil. My head jerked like I'd been pinched. It had come out of nowhere, and even more disconcerting was the fact that only a moment before, I'd been thinking, *Why has this guy been so fortunate?* I would have bet a thousand dollars he'd not changed much from when we were in school. Just hearing he'd tried to converse a polluted world that another oil spill was an okay thing was enough to convince me he'd led his way merminly, merminly, merminly until the bottom fell out and he got into trouble. Even then, who should pop up to save him but geek-turned-glamor-boy Fred Spode. It was disgusting and deheartening in one.

"What do I think of you, Gordon? I think you're a dreadful and lucky man."

"Not any more. The lucky part, I mean. I am still dreadful, but even that's changing. Not that it's my doing."

"How do you mean?"

"Now that's part two of my story. As you can tell, I was—you know, Harry, I'm glad you said that just now. It makes me like you more. Are you always so honest?"

"Only with people I don't like."

He laughed and clapped his hands. "You'll feel better when I'm finished. So, where was I? In Paris. One day I was in Paris and got a call from Spode. He wanted me to fly to Tehran and go up north toward the Russian border, where some of our people were. By that time the idea of going to Iran didn't bother me much because I'd already been in some pretty hot places and gotten along fine. So I caught the next flight there, was picked up at the airport and driven over.

"It's nice country, very fertile and green, which is surprising when you think of a country like Iran. I'd been there two days when the earthquake struck."

"My God, Gordon, you were in that one that killed all those people? Like 50,000?"

"Yes, I was. Thank God we were staying in an old house that withstood the whole thing. It happened in the middle of the night and—"

Until then he'd been speaking in a calm voice, almost like that of a documentary film narrator. Suddenly he stopped. I looked over at him and

CONTINUED ON PAGE 17



INTERVIEW

THOMAS ADEOYE LAMBO

A Nigerian psychiatrist employs traditional techniques of so-called "witch doctors": free association, group therapy and behavioral modification

Savages are happy. They laugh and dance and forget their problems in the blink of an eye. Or so said the missionaries who penetrated the interior of Africa. It took an African psychiatrist—the continent's first—to explode this myth.

When Thomas Adeoye Lambo looked into the villages of his native Nigeria, he found plenty of psychotics and schizophrenics. This per capita incidence of mental illness in Africa is, in fact, the same as in New York City. But because Africans treat crazy people as part of everyday life, aberrant behavior had always escaped the notice of West-

ern eyes. Lambo also discovered that African village life with its strong tribal and familial bonds, had therapeutic benefits of its own. Employing what he calls "methodological syncretism," the fusion of Western and traditional ideas, he began incorporating family members and villagers into his patients' psychiatric treatments.

The missionaries made another mistake, dismissing Africa's traditional healers as "witch doctors." They were, Lambo realized, adeptly employing many of the psychiatric techniques he had learned at the University of London, Centuries before

PHOTOGRAPHS BY MIKE MITCHELL

Freud, they invented the "talking cure," free association, group therapy and behavioral modification. They also used an extensive pharmacopoeia of herbal and psychotropic drugs. "Their psychotherapeutic sessions were vastly superior to ours," says Lambo. "They showed we hadn't got it right." Faster, more effective, and costing one-fifth the price of a Western cure. Lambo's village-based model for treating mental illness has been adopted by 60 countries throughout the Third World.

One of more than 30 children fathered by a Yoruba chief with 12 wives, Lambo was born in Abeokuta, Nigeria in 1923. His early missionary schooling included burning African statues and masks on Sunday bonfires. He studied medicine at Birmingham University and went on to advanced degrees at London University's Institute of Psychiatry.

In the first of several famous research projects, Lambo was hired by the Nigerian government to study mental illness and nervous breakdowns among his fellow African students in England. Tossing the wards, he discovered that sick students, in spite of their Ph.D.'s and Savile Row suits, cast their delusions in terms of witchcraft and juju. Lambo already suspected that only an indigenous African psychiatrist could deal with the African psyche.

Returning to Nigeria in 1950, he was appointed director of the Aro Hospital for Nervous Diseases, Africa's first mental hospital. But before it was built, Lambo's British wife, in suggesting he bring his patients in neighboring villages, gave him his first idea for devoting from psychiatric orthodoxy. Colonial administrators looked aghast at his next experiment. Using his own money, Lambo hired a dozen traditional healers to practice alongside clinical staff. For 12 years he filmed and analyzed the "witch doctors" at work.

At the same time, he began studying the psychological effects of mod-

ernization in postcolonial Africa. Depression, anxiety and other neuroses are the price paid for social change. In its malignant form, this anxiety spawns secret societies devoted to ritual murder. In the late 1940s, Lambo invited colleagues from Cornell University to join him in the first comparative study of mental illness in the Third World. Working with control populations in New York City and

Halifax, Nova Scotia, they showed that Africans and Westerners alike suffer from mental illness, although the symptoms will be specific to the culture from which they arise. Their book, *Psychiatric Disorder Among the Kikubas* (now a classic text on African civilization and its discontents)

Lambo became head of the department of psychiatry, dean of the medical school and vice-chancellor of the University of Ibadan. In 1971 he left Africa for Geneva and the WHO, by 1975 emerging as WHO's Deputy Director-General. Now retired and living in Nigeria, he travels the world advising everyone from popes to presidents.

We had missed each other during an earlier rendezvous planned for Geneva, and our second appointment in Washington, D.C., was nearly canceled by a coup attempt. Over six feet tall, open, elegantly dressed, Lambo, at 69, cuts an impressive figure. But he was visibly shaken by this last in a series of bloody burns in Nigerian politics.

—Thomas Bass

Q: What's your opinion of the term "witch doctor?"

A: It's a derogatory term coined by missionaries. When I went to mission school every Sunday we were sent in to the villages to collect all the idols and carved objects that now fetch millions of dollars at Christ's auction house. We'd pile them in the middle of the village and burn them. This was part of our mission to convert the savage to Christianity. But just as there's no one single religion, there's no one single

way to practice medicine. I could call quite a number of modern physicians "witch doctors," such as the ones who do "exploratory" surgery so they can hand you a heavy bill.

Q: What was your family like?

A: Lambo. My father was paramount chief in the ancient town of Abeokuta. But in Africa, especially among the Yoruba, a child has no one single father. Your mother's brother is also your father. Psychodynamically the substitution allows for extended care and a choice of role models. My grandmother gave me her own breast to suckle for years. There was nothing in it, but it kept me quiet! I spent my early years thinking she was my mother. We lived in a large compound, and even today there are people there whose relationships are so ill-defined I can't trace them. My cousin Joseph Lambo is a traditional healer. Even in grade school he was interested in herbalism, which he practiced on all of us.

Q: Does he have magical powers?

A: Lambo. Traditional healers tend to think that everything is supernatural and metaphysical. Africans on the whole still believe this. If my cousin is going to cure you with the leaves of a particular tree, he'll visit the tree early in the morning, chanting incantations and invoking the spirit of the tree. He also uses a great deal of psychotherapy. He looks into the coils of a live to analyze your dreams and makes startling observations. "Did you ever do such and such?" "Why yes! How did you know?" He goes into the patient's home and places fresh objects in the corners to ward off evil spirits. He sacrifices chickens and goats and uses their blood to wash a man's head. These practices and ritual exorcism to the spirits are important to the cure.

Q: Why is this psychotherapy?

A: Lambo. Because I am a psychiatrist and psychiatrists don't do any more than this, even in New York City. In fact, they do less because they have no time for it. Traditional healers spend a lot of time making to their patients, getting medical histories. They hold psychotherapeutic sessions, either jointly or in groups, where they analyze dreams, dances, or perform ritual sacrifices. These healers are not in it for the money. But at the end of the cure, a patient might give one some yams, a couple of chickens, or a goat. Knowledge passes from father to son in a seven-year apprenticeship. No one calls himself a therapist just because he's spent three years getting a bachelor of science degree.

Q: How effective are they?

A: Lambo. At Aro we taped everything

TITLES:
Former head, Department of Psychiatry, Dean of Medical School, and Vice-Chancellor, University of Ibadan, Nigeria, Deputy Director-General, World Health Organization

ON RITUAL SACRIFICE:
I've never prescribed it, but not because I don't believe in it. I don't know how it works, but it does.

ON TRADITIONAL HEALERS:
They spend more time with patients than New York psychiatrists.

MOST FAMOUS TEXT:
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QUOTE:
There is no culture in the world free of neuroses.



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they did for nine years, and found their techniques to be remarkably effective. For both human and scientific reasons, patients coming to the hospital were asked whether they wanted Western or traditional methods. So the two developed along parallel lines like the Chinese system, although the healers never worked at the hospital. In fact the colonial government sent me a letter officially disassociating itself from my work saying, "We have just built the most modern psychiatric hospital in Africa. What are you doing with witch doctors?" If one of your schizophrenics kills someone, His Majesty's Government will take no responsibility."

Omer: Why did you decide to become a psychiatrist?

Lamba: I wanted to be an anthropologist or sociologist, but in those days there were only two recognized disciplines for educated Africans—medicine and law. By the time I returned, things had changed. Africans could study human behavior and social dynamics. The nearest thing to this in medicine is psychiatry, the only medical discipline that looks at the entirety of a human and his or her immediate relations. People had originally told me I was crazy to study psychiatry. "You're a good surgeon. You'll make lots of money. They don't even practice psychiatry in Africa!" Well, today psychiatry in Nigeria is booming, and universities are filled with professors of psychiatry who are my former students.

Aro was the first psychiatric hospital in Africa. There were asylums for locking up the insane, but no treatment whatsoever. All nurses and occupational therapists I hired there had to be Europeans, because it would take years before Africans were trained to assume these positions. People still come to Aro from as far away as Tanzania and Botswana for a degree in psychiatry.

Omer: Why did you decide to lodge some patients in the villages?

Lamba: I wanted to prove that psychotic patients aren't any more violent than normal humans. Their violence is caused by the way you look at them. You expect them to be violent, so before anything, you tie them down.

I'd put one schizophrenic or psychotic in the hospital and one in the village, at random. But I insisted that those going to the village be accompanied by their relatives. The others went into the hospital alone, just like in New York or Chicago. I wanted to prove that the village cure would be faster, better, with fewer relapses. Rehabilitation would be smoother. During psychotherapy, the mother or aunt would sit with us. So when the patient was discharged,

there was no special follow-up to explain what was being done.

Some psychotherapy was planned, some spontaneous. This included talking to normal villagers. Isolating patients by locking them up leads to convulsions and heavy reliance on psychotropic drugs. I billeted patients in the homes of people who showed the greatest tolerance. Even today Africans are tremendously tolerant of what Westerners call "deviant" behavior. Only northern European cultures make clear-cut distinctions between normal and abnormal.

Omer: How did the village health care system work?

Lamba: We paid five shillings a night for each patient and another five for each relative. In addition, the villages were given electricity and piped water to improve hygiene. At first the farmers, fishermen and small traders feared that patients in their homes would endanger

❶ I could call quite a number of modern physicians 'witch doctors'—such as the ones who do 'exploratory' surgery so that they can hand you a heavy bill ❷

their families. It took a year and a half of negotiations to set up the experiment, but finally we got everyone behind the project. During the 12 years I was there, not one incident took place.

Omer: Which system worked better, village or hospital?

Lamba: Unless they chose to be treated by a traditional healer, patients in both villages and hospital had planned therapy, injections of psychotropic drugs, electroshock, and so on. The only difference lay in the social dynamics. Someone in the hospital couldn't talk to anyone but his psychotic neighbor, while those in the villages, after getting their shots of thiorazine, could go sit in the market and talk to anyone they wanted.

The village cure was qualitatively better. Even people who didn't recover totally were more able to function on their own. And the village cure cost one-fifth of a hospital stay. All the psychotics didn't regress to the bottom of the heap, as I saw in the big hospitals in London. People buried away in the

depths of the hospital could no longer put on their socks and shoes. People who maintain social contact don't regress to the infantile stage. Locking up patients for 30 years costs the government a hell of a lot of money.

Omer: Are the villages still functioning?

Lamba: At a low level. People have told me I was only able to do this because Nigeria then was in a preindustrial stage. Once a country is industrialized—people living in nuclear families in city apartments, moving here and there at the whim of their employers—it becomes difficult to be yourself down caring for relatives. Eighty percent of Africa is still rural, but with the next generation it will be detribalized and industrialized. The hypothesis I tested so successfully at Aro may not survive those present developments.

Omer: How have the villages changed?

Lamba: I began before the days of heroin, cocaine, or crack. Today it's a different matter. We can't do anything with the young people on drugs. I couldn't put them in the villages; they'd run the entire social fabric. They're under such tremendous pressure, they'd practically kill to support their habits. Nobody at present has the answer to this problem.

Omer: Are you still treating patients?

Lamba: When I returned from WHO and went back to Africa in 1989, I said I wasn't going to touch anybody, except maybe some colleagues my age. But they bring me their sons and daughters, many of whom are in trouble with drugs, and what am I supposed to do? I send them to Aro, now a research center for treatment in addiction. They break windics, bribe nurses to sell them drugs. Now that Americans and Europeans have become health-conscious about smoking and cholesterol, your cigarettes, and drugs are being dumped in the Third World.

Omer: What are the psychological benefits of ritual sacrifice?

Lamba: I once treated a Cambridge-educated judge who ran his car off the road on his way to court. Only slightly injured, he was badly shaken when I examined him at the University of Ibadan and gave him tranquilizers. A few weeks later he came to see me. "How's your recovery going?" I asked. "Tom, to be perfectly honest," he said, "I think it was a case of jujitsu. I had a vision in which my grandfather told me in order to break the spell I should sacrifice a goat. Not believing in such things, I told my parent to sacrifice the goat. And you know what? Since then I've been as right as rain!"

I've seen hundreds of cases like this. The Nigerian government eff-



ANTIMATTER

UFO UPDATE:

The world's most hated UFO debunker speaks out on his work and the evolution of his views

Getting UFOlogists to agree isn't easy. Ask any ten UFOlogists to name the colleague whose work they most admire and you'll inevitably hear ten different replies.

But ask the same ten UFOlogists to name the expert they most despise. Chances are, they'll all say technical journalist and aerospace writer Philip J. Klass.

Klass, shown at right, has earned this dubious distinction by spending the last 25 years debunking UFOs. During that time he's given literally hundreds of print, radio, and TV interviews; written numerous "setting the record straight" articles on UFO sightings in publications such as *Aviation Week* (where he's a senior editor) and *The Skeptical Inquirer*; and written books with titles like *UFOs: The Public Deceived*.

So it's no wonder that people like Budd Hopkins, author of two books on alien abduction, label Klass "an ideologue, and a fanatic believer that these things cannot happen." It's also no surprise that a popular sales item at UFO conventions is a dart board with Phil Klass's face as the bull's-eye.

But Klass wasn't always a UFO debunker. In fact, in the beginning, he was almost a UFO believer. In 1966, Klass, then a journalist for *Aviation Week*, read a review of *Incident at Exeter* by John G. Fuller. "Fuller theorized," says Klass, "that the glowing balls of fire sighted hovering over high-tension power wires in Exeter, New Hampshire, in September of 1955 were spaceships. The ships were supposedly trying to sabotage the power system, or drawing power from the wires."

Klass remembers being impressed by Fuller's



work. "If you look at my marginal notes," says Klass, "you'll see that by the time I finished the book, I was a UFO believer." But then Klass did some fact-checking.

"Fuller's whole case started to unravel, fact by fact," says Klass. For example, Fuller claimed to have spoken to two engineers at the Exeter power company. Klass learned that the power company

only employed two engineers, and both denied talking to Fuller. Furthermore, "If the ships were drawing power to recharge themselves," asks Klass, "why weren't there any reports of a power loss?" Instead of spaceships, Klass theorized, the fire balls were actually caused by atmospheric phenomena such as ball lightning or coronas.

Today, with almost 100 UFO investigations behind him, Klass doubts that he and the UFO world will ever see eye to eye. Still, Klass seems to take his role as the UFO world's most famous heretic in stride. He's even hung the Philip Klass dart board over his computer.

And though at 72, Klass says he'd love to give up UFOs and spend time on his sailboat with his wife, he instead spends 30 to 40 hours a week conducting UFO investigations, answering calls from the media, and editing his UFO skeptics newsletter.

So why should Klass continue his UFO work? Ironically, a UFOlogist who respects Klass best answers that question. According to Jerry Black, Regional Investigator for the Mutual UFO Network in Clermont County, Ohio, "Because the field is so full of egos and hotshots, we need the checks and balances that a Klass provides."—Allen Salisbury



ANTIMATTER

LAKE ERIE MONSTER

Ever since the turn of the century, people in Huron, Ohio, have reported an enormous black snake-like form swimming in Lake Erie. The ominous black shape may have been a "monster" to some, but to Tom Solberg, owner of a Huron marina,

And the story was picked up by papers from Denver to Tokyo.

Is there really something eerie in Lake Erie? Dr. Herdendorf believes there might be. "People," he says, "really have seen something out there. Whether or not it's supernatural," he adds, "is an interesting question."

A more interesting question may be whether the monster has brought in extra business. According to Carole Drexler of the Huron Chamber of Commerce, it's too soon to say. Solberg remains optimistic: "We just thought," he says, "that if Loch Ness was good for 200 years of tourism, we should get some, too."

—Anita Satchley

THREE MEN AND A GHOST

When *Three Men and a Cray* waddled onto the silver screen in November 1987, nobody seemed to notice anything particularly haunting. In fact, the comedy—starring Tom Selleck, Steve Guttenberg, and Ted Danson as three bachelors confronted with a baby—became one of the season's box office hits. Then, about a year and a half after the film was released on home video, people started talking about *Three Men*

and a Baby—and a ghost.

The scene that has viewers spooked occurs about two thirds of the way through the film, when a young boy, about age 10, appears in an arched window behind a curtain. As the camera pans, the boy seems to move, but soon the boy is gone.

According to rumor, the figure is the apparition of a boy who died in that very apartment. Some versions of the story maintain he jumped out the window. Others hold that he shot himself. All claim it was suicide. When the boy's mother, who rented the apartment to the Hollywood film crew, eventually saw the movie and recognized her son, the story goes, she was so overwrought that she told

her tale to ABC's *20/20*.

"There are a lot of variations, but it's really a Public Relations 101 case study in media sensationalism," says Disney's official spokesperson, Steven Feldstein. Hmm. How about a PR 101 case study in publicity stunts? Feldstein, however, swears that it isn't. In fact, he says, he has no idea how it all started.

So what's the real story? "It's a cardboard prop of Danson's character," says Feldstein. "There was no little boy. We didn't even rent an apartment for that scene. It was shot on a soundstage in Toronto. So obviously there was no mother and no appearance on *20/20*." Nevertheless, Feldstein says that people

it was a fortunate marketing opportunity.

Solberg has recently offered a \$5,000 reward for the unharmed capture of the creature, and asked Ohio State zoologist Charles E. Herdendorf to examine any live specimens. He's also lobbied the Chamber of Commerce to have Huron proclaimed "The National Live Capture Control Center of the Lake Erie Monster."

Sensing a possible tourist bonanza, others soon jumped on Solberg's bandwagon. A local newspaper sponsored a name-the-monster contest, and area businesses added more than \$77,000 in cash and prizes to other rewards. Monster burgers, donuts, caps, and T-shirts went on sale around town, in case



continue to insist they saw this poor, shattered woman talk to Barbara Walters. "It is an interesting story, but Barbara Walters never interviewed anybody about it," adds 2020 spokesperson Lucy Kraus.

Meanwhile, the ghost story is still being told—fueled, perhaps by the image, which does look more like a little boy than a cardboard cut-out of Damon.

—A.J.S. Ray

THIS NEW YORK-BASED ARCHAEOLOGIST OF THE PSYCHE GOES INTO APARTMENTS AND EXCAVATES HER CLIENTS' FEELINGS BEFORE RENOVATING THEIR HOMES

INNER DESIGN

New York-based interior designer Robin Lennon calls herself an "archaeologist of the psyche." Using a blend of psychology and psychic ability, she says, she helps clients find their inner desires along with the perfect wallpaper or antique table for the den.

Lennon excavates her clients' psyches by asking a battery of questions about their family lives and their fantasies. (A favorite fantasy question is, "If you were an angel, how would

VOICES FROM THE SPIRIT

Richard II resents Shakespeare's hatchet job on his reputation, and Joan of Arc thinks modern women should avoid wearing pants.

These are just a few of the revelations to be found in the pages of *Voices From Spirit*, a monthly new letter published by Gerald and Linda Polley of Orlando, Florida.

A typical issue features metaphysical stories, poetry, and articles, as well as a transcript of a spirit interview conducted by the Polleys. Interviewees have included Marie Antoinette, Martin, Crazy Horse, Confucius, and W.C. Fields.

How do the Polleys cope these historical emmerances into "modernizing" to their readers?

Gerald, who issues the



living as a restaurant kitchen helper and writes for other metaphysical magazines, doesn't contact the spirits directly. "I ask my spirit guides to find them," he says, "and see if they're willing to be interviewed."

Once an interview has been arranged, Gerald Polley chooses a quiet secluded place and has his guides summon the spirit in question. Linda transcribes each session in longhand. Often Ger-

ald will "converse with a spirit for several days beforehand, in order to fine-tune the actual interview."

In one earlier interview for occasion, Richard actually requested a session with Polley. It seems he wanted to make up that business deal. (Lying murdered his nephews and heirs to the throne, 13-year-old Edward, Prince of Wales, and his brother, the Duke of York.)

But not every spirit is as cooperative. John Lennon, for example, isn't interested in speaking to Polley. Mr. Lenin has also refused to be interviewed—unless the questions come from a current Russian leader. Gerald Polley has written to the Russian embassy for help in this matter, but to date, he hasn't received an answer.

—Anita Salzberg

your angel house look?")

Not surprisingly, Lennon tends to get clients who are at turning points in their lives. She describes the case of Elle (clients remain anonymous), a divorced woman with grown children who cried after a charming renovation of her Upper West Side apartment. "She didn't feel like she deserved the things,"

says Lennon. Then there was Sylvia, a button-down bank employee who dared to express her sensuality in paint and fabric. In general, Lennon stresses, her clients tend to fall on the conservative end of the New Age bell curve. After all, turning to an interior designer when you feel your identity is cracking apart is really a "conservative choice," es-

pecially when you consider the alternatives.

Charging \$125 an hour for a consultation, Lennon isn't exactly practicing spiritually the way Buddha conceived it. But she does try to free clients from intimidating images of posh designers as "that their homes can be living art, reflecting the true self to the person inside."

—Tracy Cochran

ASYLUM!

CONTINUED FROM PAGE 46

man sat behind a desk. "It was like a novel," Gluzman recalls. For the next five or six hours the KGB officer asked him questions about forbidden documents and antirevolutionary friends. "I was strong," he recalls. "I said I know nobody, I know nothing; it's all a mistake."

Then a second KGB man came in and asked about his correspondence with an American named Ralph Makarov. "That was your first contact," said the KGB man. "That is when we started our file on you."

At first Gluzman was at a loss, but finally he remembered. Seven years earlier, when he was 20, he had been on vacation with friends and they had met a group of touring foreigners. One of these, Makarov, 30, had asked for their addresses so that he could write to them. All of Gluzman's friends had refused—out of fear. "I was ashamed, so I gave him my address," says Gluzman. They had corresponded a few times, and Gluzman had forgotten the incident. The KGB had not.

Lacking sufficient evidence to detain Gluzman further, the frustrated KGB officer finally gave up and told his associate to give the young doctor the pass he would need to leave the building, adding, "Don't worry, we'll pick him up again."

For two months Gluzman went to his job as usual. Then on the gray morning of May twelve, as he stepped out onto the street from his house to go to work, he noticed that something was amiss. But he was already late, so he dismissed the two black cars filled with large men parked on the street and hurried to catch the number 4 trolley to

work. As he waited, one of the KGB agents that had searched his house before came up and put a hand on his shoulder. "Semyon," he said. "We must ask you some questions. It will be very quick, though. Come with us."

"But it's not possible," said Gluzman. "I must go to my job."

"Oh that is no problem," the man responded, "We'll call them and say you'll be 15 minutes late."

He was ushered into the back seat of one of the cars, wedged between two burly men. Five minutes later he was back at KGB headquarters. "I understood," says Gluzman, "that this was the finish of my former life and the beginning of a new one. Looking through the window, I saw a large tree turning green with leaves. 'Maybe' I thought, 'this is the last time I will ever see such a tree again.' A few minutes later he was whisked away to the KGB prison."

He was officially brought to trial the following October. "It was court without court," he remembers. A secret trial, only a main judge and two associate judges—dozen armed soldiers, and his lawyer were present in the courtroom. The woman who was his defense lawyer was of no help. "Oh why did I agree to be your lawyer?" she kept repeating, terrified, to Gluzman.

Gluzman was charged with anti-Soviet agitation and propaganda, but the Gagarin paper was not in evidence—in fact, not even mentioned—at the trial. The KGB knew of its existence but, according to Dr. Robert van Voren of the Geneva Initiative, felt the material would embarrass the authorities.

Instead, the KGB solicited testimony from informers as well as some of Gluzman's friends. Their condemnation was devastating. Gluzman had said there were no human rights in the So-

viet Union, that antisemitism was rampant, that dissidents were sent to political camps, and that suppression of the 1968 Czech rebellion was wrong.

How could his friends testify against him? "They were afraid," he says with quiet sorrow. "They were not bad people. In the end, I am happier than they. One of them, a psychiatrist who was a very close friend, later killed himself when he was drunk."

The verdict at his trial was swift and harsh. He was sentenced to seven years of imprisonment in a labor camp, followed by three years of exile in Siberia.

Once removed from the courtroom, Gluzman was given a few minutes with his elderly parents—the first time they had been able to see him since his jailing seven months earlier. "We are guilty," they whispered to him. "We have brought you to this," referring to their long-held antirevolutionary beliefs. "What could I say," Gluzman recalls. "It was true, of course, that they, along with others, had helped me to think the way I did." But he did not say this to them. It would have been too cruel.

From Kiev, he was sent to a special "political" section of the Perm Labor Camp. From there he was sent to a camp for political prisoners in Mordovia near the Ural mountains—a bleak facility made of shacks encircled by a wire fence. Working in the boiler room, Gluzman stoked the fires to provide heat for the camp. Later he worked in a factory that made pipes, and after that in a sawmill.

But he also continued to read psychiatric literature and fight psychiatric abuse. During his first years in the camp, for instance, he wrote *A Manual on Psychiatry for Dissidents* with coauthor Vladimir Bukovsky, a fellow prisoner and dissident, providing dissidents with enough knowledge of psychiatry to avoid, as much as possible, the diagnosis of insanity.

Gluzman returned to Kiev from his decade of exile in 1982. Not allowed to work as a psychiatrist, he eventually became a pediatrician.

The acute period of Gluzman's long nightmare is finally over, but Soviet psychiatry still faces the paroxysms of its transformation from a tool of the enslavers to a legitimate medical discipline. Today, in the wake of the breakup and democratization of the Soviet Empire, the job remains to be done. More than a decade after Gluzman's release, much of the old guard of Soviet psychiatry remains. Georgi Morozov, the former director of the infamous Sorbaki Institute in Moscow, for instance, still retains the title of the facility's honorary



Inmates walk around the courtyard of the Kirov Psychoneurological Asylum for the mentally ill.

director. Like all personnel at Serbski, he is still accountable to the military as well as the ministry of health. "Among his victims," says Robert van Voren, "are Vladimir Bukovsky and General Pyotr Grigorenko."

These two, along with other noted dissidents, were diagnosed to be of unsound mind by Morozov and committed to psychiatric hospitals for years. Even with the rise of Parastolka and Gluzman, Morozov and other leaders of the psychiatric establishment, notably Morat Vartanyan, director of the All-Union Research Center for Mental Health, and Tatyana Dmitrova, Director of the Serbski, seem reluctant to stray from the old school.

In fact, as late as 1983, Morozov charged that dissidents suffered from "sluggish schizophrenia," in which they entertained "delusional ideas of persecution or delusions that they were great reformers. Such patients can sometimes act the role of so-called pathological prophets and morbidly passionate idealists and exert a certain influence on mentally healthy individuals who, not being specialists, cannot make a correct assessment of the mentality of person's condition." In Morozov's view, these dissidents were suffering from a pathological fixation on human rights,

freedom, justice, and individualism—without any clinical signs of mental illness. It was a handy diagnosis indeed for committing gadflies.

But today, more Soviet psychiatrists than ever before are following Gluzman's lead. Balking at the heavy-handed use of psychiatry for political repression, they are leaving their profession's All Union Society, preferring to set up independent psychiatric associations. Such organizations already exist in the three Baltic countries, Georgia, and the Ukraine.

These days, Gluzman doesn't practice medicine, preferring instead to devote his time and energy to writing, lecturing, and working for human rights. He founded the Ukrainian Independent Psychiatric Association and has, with a committee of independent lawyers and psychiatrists, created a clear body of laws governing psychiatric care and patients' rights.

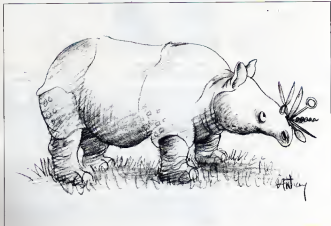
He's got his work cut out for him. With a dearth of funds available, living conditions in the Special Psychiatric Hospitals have yet to improve. According to a 1989 report by a U.S. State Department fact-finding group, these depressing, repressive facilities have "many of the characteristics of psychiatric prisons: Patients are denied basic rights,

are apparently subject to punitive use of medication, and are fearful of retaliation if they complain." Conditions have deteriorated so drastically in the past 12 months that patients are crowded, hungry, and frequently unwashed.

Hoping to transform Soviet psychiatry, Gluzman is currently trying to raise cash for the Russian edition of the *Diagnostic Syndromes Manual*, the bible of modern psychiatry. Right now, the most recent psychiatric text on which 7,500 Soviet psychiatrists rely, is over 30 years old.

Gluzman, standing on stage in New Orleans to stir up sympathy for his cause, looks more like the ordinary doctor he claims to be than the hero others would make him. He is, perhaps, really both. Like the heroes of Hitchcock movies, he is an ordinary man who made a brave decision in an extraordinary time.

His courage seems to have paid off. Since our conversation last year in New Orleans, the totalitarian central government of the USSR has come tumbling down. In the rush to freedom, the secret police seem to be losing their iron grip on the lives of the people. But in the city of Kiev, in Ukraine, Gluzman is busy at last to craft the rebirth of Soviet psychiatry and Soviet law. **DD**



The Artist

© ART CUMINGS

Finally -

My own spot!

And to quote

Old Blue Eyes -

I did it
my way!



Nobody calls
Sinatra old
in front
of me!



The Life

CONTINUED FROM PAGE 49

there were tears sliding down his face.

"Are you okay?"

Half of his face smiled, the other half was all pain. "Okay? Sure I'm okay. I was just thinking about that night. The sounds. Have you ever been in a bad earthquake?"

"That one in L.A. last year."

He nodded. "Then you know I never heard a sound like it. Like troops in a war. And the cracking and groaning, the millions of tons of rock grinding up against itself. Have you ever heard the word *zai-zah*?"

"No."

"Neither did I until the next day. It means earthquake in both Arabic and Persian. According to the Koran, the world will end with an earthquake. A *zai-zah*. At that time, the Earth will give up all of its secrets. All the good and all the evil will be revealed."

"But you know something? People think the end of the world will come with one big bang. A big crash and it'll be all over. They're wrong. It's already begun and they don't know it. But I do because I was there."

"Where, in Iran? I was in an earthquake, too, Gordon, it was bad, but I didn't see Christ rise out of the San Andreas fault."

"You don't know what you saw because maybe it hasn't touched you yet, but it will. Believe me, it will. It'll tell you what happened to me, just as a small example."

"Both you and I know what kind of person I am. I don't need to go into it, do I?"

I shook my head. As far as what kind of person Gordon Epstein was, yes, we sure did know what he was talking about.

"Okay, so I can cut to the chase. Knowing the kind of person I was, imagine that man, that Epstein, next day walking around in this wrecked world as scared and exhilarated as I have ever been. I was alive! I'd survived an earthquake that killed 50,000 people! Can you imagine? I was never so happy in my life. I'd done it again, I'd come through. There were bodies and rubble and screaming and crying, but I was walking on my healthy two legs, safe! Even when the aftershocks came—and there were many of them, believe me—I know I was safe, that nothing would happen to me. You just know you're through it. You made it. Nothing did happen to me until I died."

They came and asked me to help look for survivors. I was still scared, so



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I lied and said I was too sick to do it. There were two men, Radcliffe. Two men about our age. They'd lost everything but were waiting to grieve till after they'd helped as much as they could. They looked at me with nothing in their faces until one of them asked me if I knew about Zabalah. I said no and he told me what I just told you. Nothing else.

A few moments later my tongue turned to stone in my mouth. And know what else? At that instant I knew what it meant. From then on, for the rest of my life, my tongue would turn to stone any time I lied. Like Pinocchio with his nose, only mine happened for maybe ten or fifteen seconds. Then it turned back to normal, and when I lied it carefully no one knew what was happening. Only me, only Pinocchio Epstein with a stone for a tongue in his lying mouth. Zabalah. The Earth will give up its secrets. All good will be revealed. And all evil. Guess who was evil and guess who got caught?

Before I had a chance to swallow that one, he continued.

But I didn't need my evil to be revealed because I'd known it all my life. The Earth was telling me I lied? So what?

But the tongue was only the begin-

ning. When I was able to get out of him almost the moment I crossed the border, the tongue stopped and the weather began. When I lied now, the sky grew instantly cloudy and no matter what kind of day it had been, a giant rain cloud came over me, only me, and began to pour down rain. It could be a brilliant sunny day and there I'd be, alone with my terrible little thunderhead over my head, soaking only me for minutes on end.

Gordon—

It made me wonder if God read *Li7 Abner*. Remember the character in the comic strip that happens to? And after that stopped, it was the food I would tell a lie and suddenly I was holding food in my hands—cooked turkeys or green beans, melting ice cream or baked potatoes.

I started to get up but Gordon caught my arm. I pulled but he held fast. "Since I've come here, it's this horse! One day it was there outside the hotel door waiting for me. Do you know what it is? All my lies together as one. Look at it, don't you see how it's too beautiful? Look at the eyes, look at how smart they are. Look at the way it's staring at us. When I'm honest now, it goes away for a while, but I don't know how to be honest. It's not just a ques-

tion of lie or don't lie. Dishonesty gets under your skin like bacteria and then it becomes a virus. It makes its own and they're all different. I never had to be honest, so I honestly don't know how. Sooner or later there is always something new—a cloud, a tongue, a horse. It's so goddamned invidious, too, because sometimes the things that happen are funny, you know? Like suddenly you're holding a corned beef sandwich in the middle of Carmen at the opera? But then a day later you go blind every time you lie. Remember the story of Job? How God tested him with one terrible thing after another? It works the other way, too, believe me. Sometimes he tests the bad men too. But when you never know what it's going to be—good or bad or funny or so fucking fright-ening—Do you know how hard it is not to lie? Even with this!—he threw an arm out toward the horse—near you every minute?

I couldn't resist. "How do I know you're not lying now, Gordon?"

He smiled proudly. "Look at the horse."

I looked back and did. In the animal's mouth was an enormous and very beautiful bouquet of rare flowers, the kind you see at expensive florist shops. I had no idea where it came from. No idea of where it could have come from out there in the middle of that park of pine and chestnut trees, the spring not yet old enough for any real flowers to have come up yet, much less bloomed. **DO**



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SUBCYCLES

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preme. The last two finalists in the race—Florida Atlantic University's FAU-Boat and Subassaurus, sponsored by Benthos, Inc. in North Falmouth, Massachusetts—both opted for elegant, streamlined hulls driven by powerful, two-bladed propellers. What's more, both teams prided themselves on their practical, no-fills designs. "We didn't try to do anything fancy," says FAU team leader Rob Coulson. "Take our ballast system. We just stuck in some foam and lead, and that's it."

Echoing that philosophy, Benthos' Mike Bassett reports that the team had initially "toyed with doing all sorts of things. But my mess with success? Now we're afraid that if we chip the paint off, it won't work."

As submarine races go, this one had a classic finale. Sporting a menacing shark face on its yellow bow, FAU-Boat tore away from the starting gate amid a flurry of bubbles, leaving a slow-to-start Subassaurus a full sub-length behind. Then it was touch and go, but the hometown darling refused to give up its lead. The underwater camera showed

FAU's subcruiser streaming to victory a full 16 seconds ahead of Subassaurus. Okay, so it wasn't exactly a photo finish. Still, history was made in the annals of human-powered submersibles: with the FAU team setting a new world record of 4.7 knots.

As for Subassaurus, a dramatic turn of fate moved it from second place to first. Although it lost the speed trophy to FAU, it walked away with the much-coveted \$5,000 grand prize for best overall performance.

Submarine racing may not yet have the following of the America's Cup, but for a sport dreamed up over a mug of beer five years ago, it's evolving quickly. "The designs have improved immeasurably since the inaugural race," says sponsor Perry. "Back then, we had to hand some people cement blocks just to get their subs under the water."

Another sign that the sport may have a rosy future: The number of entries is growing steadily. There were 18 subs in the first race; by 1993, when the next race is scheduled, Perry anticipates close to 70. And judging from the big plans now being hatched for the upcoming event including a separate competition for robotic subs, the wildest speculations are yet to come.

"It would be neat to make a completely transparent sub out of Lucite," suggests FAU oceanographer Ray McAlister. "Think of the fish you'd see." Another scheme that inspires him is to "wrap a gigantic screw around a long tube-shaped hull. As he emersion, if the outer grooved skin would rotate around the passenger compartment spinning the sub forward through the water like an Archimedes screw."

The kind of talk sets imaginations whirling. Charles Pelt, an artist who creates mechanical sculptures of animals for the zoology department at Duke, speaks of entering a sub modeled after a Kronosaur. "One of those big slippery aquatic reptiles that hung out with the dinosaurs." Not to be upstaged, Massachusetts plans to build a "recyclable" sub out of beer cans that will roll along the seabed like a dune buggy.

An excited young man with a business beat gets another brainstorm. "Why not set up submarine tournaments across the country? We'd build the stadiums around gigantic aquarium tanks and get the networks interested."

With enough imagination, one can almost hear tomorrow's techno fins and spectators cheering.

What are these things? **DO**

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Age _____			
Mental status _____ Have you ever tried any of the following?			
Years of hair loss _____		<input type="checkbox"/> Herpes	
		<input type="checkbox"/> Transplants	
		<input type="checkbox"/> Medically prescribed treatments	
		<input type="checkbox"/> Over the counter lotions	
		<input type="checkbox"/> Vitamins	
		<input type="checkbox"/> Other _____	
Percent of hair loss _____			

ANSWERS TO THE INITIALS QUIZ

EASY

AFL-CIO: American Federation of Labor-Congress of Industrial Organizations

AM/FM: Amplitude modulation/frequency modulation

AAP: Great Atlantic & Pacific Tea Company

ATM: Automated teller machine

Bee Gees: Brothers Gibb

BMW: Bavarian Motor Works

CPR: Cardiopulmonary resuscitation

Fuber: Fouled up beyond all recognition

IRA: Individual retirement account

LCD: Liquid crystal display

LED: Light-emitting diode

3M: Minnesota Mining and Manufacturing

MASH: Mobile army surgical hospital

Modem: Modulation demodulation

OPEC: Organization of Petroleum

Exporting Countries

PVC: Polyvinyl chloride

RCA: Radio Corporation of America

RDA: Recommended daily allowance

ROTC: Reserve Officers Training Corps

SCUBA: Self-contained underwater breathing apparatus

SETI: Search for extraterrestrial intelligence

Snafu: Situation normal—all fouled up (World War II slang)

SFP: Sun protection factor

SRO: Standing room only

SWAK: Sealed with a kiss

SWAT: Special weapons and tactics

UHF: Ultra-high frequency

UNESCO: United Nations Educational, Scientific, and Cultural Organization

UNICEF: United Nations International Children's Emergency Fund

VCR: Videocassette recorder

VHS: Video home system

WAG: Woman's Army Corps

ZIP: Zone improvement plan

HARD

BASIC: Beginner's all-purpose symbolic instruction code

BB: Bell-beeing

CAFÉ: Cooperative for American Relief Everywhere

DEW: Distant early warning



ESPN: Entertainment and Sports Programming Network

Fannie Mae: From FNMA, Federal National Mortgage Association

FICA: Federal Insurance Contributions Act

GIGO: Garbage in, garbage out

4-H: Head, heart, hands, and health

HDL: High-density lipoprotein

HIV: Human immunodeficiency virus

ISBN: International standard book number

LASER: Light amplification by stimulated emission of radiation

MG: Morris Garages

MHV: Multiple independently targetable reentry vehicle

NIMBY: Not in my back yard

OSHA: Occupational Safety and Health Administration

Parlex: Parallax second

PT: Patrol torpedo

PX: Post exchange

Radar: Radio detection and ranging

RAM: Random access memory

RFD: Rural-free delivery

Rh (factor): Rhesus monkey

RSVP: Répondez s'il vous plaît

SAM: Surface-to-air missile

SCTV: Second City Television

SEAL: Sea, air, and land capability

SOP: Standard operating procedure

SOS: This is the trick question. The letters do not stand for words but instead for a Morse code signal that is easy to transmit and recognize: three dots, three dashes, three dots

By convention, SOS signifies "emergency."

VISTA: Volunteers in Service to America, a Great Society agency

VSOP: Very superior old pale, a brandy rating

WAVES: Women accepted for volunteer emergency service

VERY HARD

AWACS: Airborne (or advanced) warning and control system

BASF: Baden Aniline and Soda

Factory

BPOE: Benevolent and Protective

Order of Elks

BVD: Bradley, Voorhes, and Day

CAT: Computerized axial to-

mography

COBOL: Common business-

oriented language

CONELRAD: Control of electro-

magnetic radiations

EPOOT: Experimental Prototype

Community of Tomorrow

Rsk: Fliegerabwehrkanonen (air-

craft defense gun)

GAF: General Aniline and Film

Gestapo: Geheim Staatspolizei

(secret state police)

INRI: Iesus Nazarenus Rex

Iudaeorum (Latin for Jesus of

Nazareth, King of the Jews)

ISO: International Standards

Organization (formerly ASA—speed

designation for film)

JVC: Japan Victor Company

KLM: Koninklijke Luchvaart

Maatschappij (Royal Dutch Airline)

MQ: Microwave Communications

of America, Inc.

MQ: Soviet military aircraft named

after the designers, Mikoyan and

Guravich

M&M: Mars and Murray

MR: Magnetic resonance imaging

Nazi: National socialist

Necoo: New England Confection-

ary Company

Nitrol: Nickel, titanium, and Naval

Ordinance Laboratory

Pakistan: Punjab, Afghan border

states, Kashmir, Sind, and Balu-

chistan

Pap: George Papenkotlau, inven-

tor of the test

pH: pouvoir hydrogène (French

for hydrogen power)

QANTAS: Queensland and North-

ern Territory Aerial Service

RKO: Radio-Kath-Orpheum

Saab: Svenska Aeroplan Ab

Shazam: From the names

Solomon, Hercules, Atlas, Zeus,

Achilles, and Mercury

Soweto: Southwest township

STP: Scientifically treated petrole-

um (can also mean Standard

Temperature and Pressure)

TNT: Trinitrotoluene

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INTERVIEW

CONTINUED FROM PAGE 14

played me to head a team of anthropologists, sociologists, psychologists and other psychiatrists studying mental breakdowns among Nigerian students in England. Despite their M.A.'s and Ph.D.'s, those patients cast their delusions in terms of their African culture. They believed some sort of psychic ray or beam had come from Nigeria, from their mother's uncle or whomever, opposing their wish to become a lawyer or doctor.

Omri: Is human sacrifice still practiced in Africa?

Lambo: I'm told in the markets one can still buy human heads. There's no doubt human sacrifice was practiced as recently as ten years ago. Certain tribes in remote parts may still practice it. Practitioners claim that the oracle or some other voice tells them the blood of a human must be sacrificed, otherwise the community will be wiped out by famine or another malevolent force. Men also kill to enhance their sense of maleness and potency. This resembles being thrown into the bush to fight lions as a test of manhood. If you come back alive, you're a big man.

Omri: Is this a manifestation of the castration complex?

Lambo: No, the castration complex is not a physical state, according to Freud, but a mental attitude. What I'm talking about is actually physical, men making themselves feel important by beholding women and seeking themselves in blood as they chop each other up with knives and cutlasses. This also happens in other parts of the so-called Third World, among the aboriginal tribes in the mountains of Thailand, for example. These practices are not generally talked about, so news of them doesn't surface.

I wrote a paper on a group called the Leopard Men Society of Nigeria, based on original studies done by an African-American, Stuart Cloete. At night the members of this secret society "changed into leopards" and committed ritual murders. They thought they'd be immortalized by sucking the blood of their victims. This was one of several epidemics of violence and mass hysteria in Africa. Something similar transpired with the myth of Mpaka-Fu, which engendered an acute state of castration anxiety that could only be warded off or expelled by tearing out the heart of a young child and offering it to Mpaka-Fu.

Omri: Is ritual murder part of juju?

Lambo: Juju is a term that covers a

hell of a lot of things—you perform juju to marry a girl, put someone in a trance, send a supernatural message to your enemies, or kill someone. You could say the Pope uses juju when he drinks the wine and eats the host. But generally, it refers to putting others under a spell.

Omri: Besides psychotherapy, what other biomedical knowledge is indigenous to Africa?

Lambo: The Masai were suturing blood vessels, removing appendices and practicing other sophisticated surgical techniques long before the British. Without a vest, herbal pharmacopoeia, most of Africa's tribes would long ago have been wiped out.

Omri: Aren't ruthless leaders destroying Africa's future?

Lambo: The political system is the major catastrophe at the moment. How can you influence these sorry bastards who are so inhibited by greed? Those of us committed to the progress of Africa feel lost, like Alice in Wonderland. For years, after every coup, I'd meet with the new Nigerian president. I'd spend hours telling him what's happening. But even when he meant well, the poor man was always surrounded by people who wouldn't let him do the right thing. What over progress he made was soon eclipsed by massive problems in health, agriculture and the economy, which always ended up suffocating under mountains of debt.

Omri: How does mental illness in Africa and New York City differ?

Lambo: In Africa it's pure. If you're dealing with schizophrenia, it's schizophrenia, pure and simple. In the West, it will have multiple, masked manifestations. People in the Yoruba region were found to recover much more quickly and permanently than those in either New York or Nova Scotia. This is because of the tremendous social support the Yoruba receive in the villages. It's not an individual illness, it's a communal illness.

Some colleagues thought the Yoruba tended to get manic without being depressive. I told them that only from their Western perspective did the African look manic. While the European is withdrawn, quiet, a cornered type person, the African is so accessible that he's almost normally manic.

Omri: You've coined the term, "malignant anxiety." What does it mean?

Lambo: It describes the psychic state of people like the Leopard Men, a condition of excruciating, impulsive anxiety, which is action oriented. Once it has seized you in its grip, you have to do something about it—rip out the heart of an animal or kill someone. The phenom-

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enon is similar to running amok in Southeast Asian cultures.

The person becomes deadly unstable and perceives tremendously. When you hold him down and ask, "What's wrong?" he replies, "I don't know. I don't know!" People say the spirits have possessed him. Men in this condition have been brought to me, I've given them sedatives and sent them home after they've slept for two days.

It's much more than being amok. You're not worried about something and can't sleep at night. You have to rush out and do something. The Leopard Men and other secret societies have developed in those parts of Africa being denationalized. When we open up villages to give them hydroelectric power and other modern developments, we are also opening up thousands of years of cultural history. I tell you, I'm disappointed that none of the students I left behind when I went to Geneva has followed up on the psychological effects of denationalization.

Omri: What are these effects?

Lambo: You're on your own. You've lost your social support, your sense of self. You suffer from depersonalization and derealization. You end up walking the streets of Lagos and Ibadan deoriented, sleepless, feeling you don't belong. This is the penalty we pay for progress. It's a lesson we're learning again today in Eastern Europe.

Omri: What do you mean when you say Africans display "herd solidarity"? Lambo: Sometimes whole villages would hire a truck and arrive outside the gates of Aso at 4 a.m. They might have been on the road for days. The patient would be bound in ropes, suffering from schizophrenia or another form of psychosis. But if he were the son of a chief or the chief himself, the whole village had to come in solidarity.

Tribeism is supposed to be a balanced wheel, but in practice it's a locked brake. Herd solidarity provides tremendous social support, but you also have to obey its rules by not marrying outside the tribe and so on. Tribeism is a profoundly conservative influence. It won't vanish, but will be transformed. Now social support mechanisms will take its place. Africa has many valuable things that the Western powers have lost. That's why I shout, "Don't throw the baby out with the bath water! Look to your own culture. Develop models for living from it."

Omri: Is the spirit world of the ancestors still a real force in Africa? Lambo: Tremendously so, and I hope it will go on for a long time. The ancestors support you. You go to their graves when faced with making an im-

portant decision. The mechanism is similar to confession in the Catholic church. If you have nowhere to go, if you are alone in the world, you internalize your guilt, and the only way out is suicide. In Africa, the atmosphere is charged with supernaturalism. Even the man who's gotten his Ph.D. in England can fall back on his culture. When I was in Geneva, someone came into my office and said, "Tom, they're after me. So and so is using juju on me." This man wanted to get the Ministry of Health and the other man didn't want him to. Within three days of becoming Minister, the man was found dead in his chair, maybe because of a heart attack, maybe not. The other was offered the chance to succeed him, but he'd only take the job if the chair was destroyed. In Africa, the gods are still alive.

We have not prepared people for social change. For example, Nigena woke up one day and said it wanted to build a big cement factory in a rural area. No one thought about the young men in the villages who'd have to work there. None was trained to get up at 7 a.m. Time is timeless in Africa. After doing a two-year study financed by the Ford Foundation, I found the young men becoming progressively more confused, depressed, anxious. Absenteeism was climbing sky-high. Building something overnight had caused tremendous psychoneurosis. Very little could be done. I told the government and bwanas in the factory. It's not enough to clear the land and build a factory. You started this operation without giving the slightest thought to training the people who'd have to work in it.

Omm: What model of development would you recommend for Africa?

Lambo: Africa shouldn't compete with the Western world. We should retain our culture and solidarity. We need science and technology to guarantee quality of life, improved educational and health systems. But we should also retain our spiritual dimension. In 1942, when I first went to England, somebody took me to church. There were two of us in the vast pews shivering in the middle of winter. "What kind of utopia is this?" I asked myself.

Omm: Are you pessimistic or optimistic about the future?

Lambo: Africans are resilient and courageous. Like a soccer ball kicked against the wall, they keep coming back at you. European man is fragile, while Africans are more agile, both physically and mentally. This is why we will absolutely survive. But you know there is no culture in the world free of neurosis. **CC**

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GAMES

How well do you know your abbreviations?
Take our quiz and find out.

By Scot Morris

While watching a football game between SMU and Texas A&M on ESPN, I hooked up my new JVC VCR, which has an LED readout display. Then I watched a VHS tape of MPA'SPH, fast-forwarding through commercials for MCI, STP, BMW, and QANTAS.

We hear them every day—those initials, acronyms, and abbreviations that serve as shorthand for various people, products, organizations, and technical terms. Some initial combinations have taken on several meanings. The letters CD, for example, can mean compact disc, certificate of deposit, or civil defense, depending on the context. Many initials immediately call to mind the words they stand for—JFK, FBI, NASA. However, the ones we've collected may sound familiar, but the link between the letters and what they stand for isn't so well known. Do you know what words they represent?

We've separated the initials into three quizzes: easy, hard, and very hard. You can score one, two, or three points, respectively, for fully correct answers. Answers begin on page 92 of this issue.

Easy

One point each
Maximum: 30 points
Hints: The ATM window at your bank doesn't mean Any Time Money. Fubar and snafu are vulgar slang. You'll find STP ratings on tanning lotion. The IRA is

at a bank, not the Irish Republican Army.

AFL-CIO	AMFM
A&P	ATM
Bee Gees	BMW
CPR	FUBAR
IRA	LCD
LED	SM
MASH	Modem
OPEC	PVC
RCA	RDA
ROTC	SCUBA

and FICA are financial. GIGO is computer slang, and NIMBY is sociological slang. One fern is a tick.

BASIC	BB
CARE	DEW
ESPN	Fannie Mae
FICA	GIGO
4-H	HDL
HMV	ISBN
LASER	MG
MIRV	NIMBY

Herb: Flak. Gestapo, and Nazi are German, INRI is Latin. KLM is Dutch. MG is Russian, and Saab is Swedish. BPCE is the Elk's Club motto. ISO is a film rating. CAT, MRI, and Pap are medical tests. Shazam is cartoon character Captain Marvel's code word.

AWACS	BA5F
BPCE	BVO



Boomer Dots: Did you find the hidden 3-D picture in the November issue's puzzle [page 128]? If you focus your eyes past the page, the images show below appear to be floating above the background. They form a puzzle: BOMB mixes B, plus KNEE; F plus SUN mixes S. The answer to the rebus is OMNI FUN.

SETI	SHAFU
SPF	SRO
SWAK	SWAT
UHF	UNESCO
UNDEF	VCR
VHS	WAC
ZIP	

Hard

Two points each
Maximum: 60 points
Hints: DEW, SAM, and SEAL are military. Fannie Mae

OSHA	Parasc
PT	PX
Rader	RAM
RFD	Rh (factor)
REVP	SAM
SCTV	SEAL
SOP	SOE
VISTA	VSOP
WWES	

Very hard

Three points each
Maximum: 90 points

CAT	COGOL
CONELRAD	EPCOT
Flak	GAF
Gestapo	INRI
ISO	JVC
KLM	MCI
MG	M&M
MRI	Nasa
Necro	Ninjab
Pakistan	Pap
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STP	TNT