

EXCLUSIVE! MYSTERY OF THE SPHINX'S AGE

OMNI



THE MUMMY TALKS

**UFO UPDATE:
ALIEN
ABDUCTIONS**

**LAUGHING AT
THE FUTURE WITH
MYSTERY
SCIENCE 3000**

**INSIDE TIPS
ON BIOTECH
INVESTING**

**ELECTRONIC
WARFARE...
AT HOME!**

**FICTION:
TIME TRAVEL
BY TERRY BISSON**

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FIRST WORD

COMICS ONLY:
Something funny this way comes

By Bob Kreek

The first rule of comedy (and love) is not to examine it. The second rule is written in ancient, undecipherable hieroglyphics and is therefore incomprehensible, but the third rule—and this is the kicker—is that comedy should break the rules. This leaves us with (A) a paradox and (B) a few pretty pictures of Pharos feeding birds for no apparent reason other than that was the easiest thing to capture in granite.

So why comedy? Why a need for Comedy Central, the only all-comedy network that features not just classics like *Saturday Night Live* and *Ernie Kovacs* but hysterical new shows like *Whose Line Is It Anyway?* and *The A-List*? And above all, why can't I find a cab when it rains?

All these questions, except for the cab thing, can be answered

in two words—but you'd be really bored if I blew it all now and then spent the rest of my time telling you about my little girls Carolyn and Katherine. Today's world is saturated by all forms of media, and it's only getting worse. Channels that feature "All News," "All Court," "All Shopping", where do we pause to laugh? To enjoy ourselves? And, above all, to escape the fact that Quayle is our vice president? That's why a comedy network is the perfect solution for a healthier way of life.

Higher taxes. Civic strife in Eastern Europe. Saddam Hussein. Couple this with a new season of *Beverly Hills 90210* and it's easy to understand why suicide and, worse, Karaoke are fast becoming the answer to the insanity of the late twentieth century. You're science buffs (I'm a big *Star Trek* fan if this helps me relate any better)—you know the importance of being able to heave a collective social sigh at the madness modern civilization imposes.

Laughter, apart from in my office, belongs everywhere. We should be able to laugh at our problems, at each other, and most importantly, at ourselves. These are the strides we at Comedy Central wish to make (well, that's what they tell me)—to allow a country to rediscover laughter (or at the very least the Post Office). *Mystery Science Theatre 3000* is a perfect example of this. Even the premise is goofy: A man and his two robot companions are stranded in space and are forced to watch terrible B-movies. And do you know why this programming works? Because it's funny! It understands that whatever is standing in your way—be it a monster or a monstrous economy—is best dealt with by laughter.

Come evening, after a hard day's work, we all need to laugh.

(My wife achieves this effect by comparing our salaries.) So who can we turn to? Do you know the story about Pagliacci? This man goes to see a doctor, says he feels that the weight of the world is going to crush him, that he's going insane and feels so terribly alone. The doctor thinks, then says, "I know just what you need. The great clown Pagliacci is in town tonight; if anything will cure your blues, it's him." The man begins crying. "Doctor," he sobs, "I am Pagliacci." If only the doctor had had Comedy Central, maybe Pagliacci would have been a lot happier.

Comedy Central's influence is much farther reaching than you might think. All the comics themselves are watching us. But have you ever wondered how the President himself unwinds? Okay, okay. I've heard it said he has a job that occasionally keeps him busy, but what about when he's not? We're pretty sure that he's watching Comedy Central. But that's only half the reason for our existence. We're not just a delicious anesthetic. We'll make you think. We'll make you re-evaluate. And we'll do it all by making you laugh. The great comic minds of our time perform on our network, and more often than not, it's their opinions that are the hardest hitting. We're what makes the fact that David Duke nearly became Louisiana's governor easier to handle—and we're not afraid to tell you why. Laughter—it's what makes the world go round (apart from the physics stuff, but I failed chemistry in high school, and that's a subject you know a great deal more about than I).

Comedy. Comic relief. That's where we're coming from. That's what will save our souls, the world, and quite possibly make missing a cab in the rain a whole lot easier to deal with. ☐

"We've got the technology and the talent," says vice president Kreek, "which is why we've got Comedy Central."



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READERS' WRITES.

The power of positive thought, investing environmentally,
and art for health's sake

Mind Matters

I especially enjoyed your article "Men-
tal Muscle" in the May 1992 Omni. I am
living proof that the concepts set forth
in this article are valid. Since I was
eight years old, I have had diabetes.
Doctors said I wouldn't live to see my
thirtieth birthday. A quarter of a cen-
tury later, my doctor comments that I am
extraordinary. He has not seen some-
one so steadfastly normal while in
such an abnormal physical environ-
ment. My response, I'm mind over mat-
ter. I'm too stubborn to give in. Maybe
my stubbornness has contributed to my
longevity. It seems to have worked very
well for me.

Katy A. Courtney
Elgin, IL

Psychic Lunch

I am a professional psychic with ten
years' experience. I was delighted to
read "Portrait of a Prophet" in the April
1992 issue. It's the first article I've
read about the intuitive process written
in a nonspiritual context. Besides be-
ing able to predict future events, sen-
sitive people are sometimes able to re-
act to an event long before it happens.
For instance, I once developed a sud-
den interest in Caribbean culture and
cuisine about four months before I ac-
tually met and had a relationship with
a West Indian woman. I believe psychic
abilities are biological and offer clues
to the mental possibilities inherent in our
consciousness.

James Bennings
New York, NY

The Greening of Dad

Linda Marsa's column in your May is-
sue was brought to my attention by my
daughter. An avid environmentalist, she
often mails me clippings that spell out
gloom and doom for the world. I, too,
get upset with each headline on global
warming, toxins in our oceans, and
chemicals sprayed on everything we
eat. Now, at last, my daughter has
found a way I can help. Your article has
caused me to rethink my financial por-
tfolio and invest in companies that re-

fuse to pollute. This is a clipping I shall
save and talk to my friends about. I
thank Omni for publishing such an en-
vironmentally aware article that
sounds practical, sane, and very do-
able for a lot of us.

Charles W. Hoffman
Huntington, NY

Artist, Heal Thyself

Thank you for the insightful column
(Arts, May 1992) regarding artist Kim
Howes Zabbia and her frustration in deal-
ing with her mother's battle with Alz-
heimer's disease. I have watched my
beautiful, vibrant mother deteriorate to
the point of not recognizing her loved
ones. I commend the artist for her pro-
cess of self-healing through art, and I
think Ms. Zabbia is an inspiration to all
of us who are faced with this mind-
ravaging monster.

Mary Sue LaBonte
Chattanooga, TN

Dumpin' Donuts

As someone who's battled fat for my
whole life, I was extremely relieved to
read the May 1992 Interview with
Sarah Leibowitz. When I was a teen-
ager, I often ate two dozen donuts at
once without stopping. Now, after read-
ing the insightful interview, I actually un-
derstand why I did that. I can only
hope Dr. Leibowitz and her colleagues
continue their work. It's important for
those of us with huge appetites to un-
derstand our cravings and learn to con-
trol them through brain chemistry.

Patrice Bruce
Covington, KY

Never-Ending Story

As I've come to expect, your May 1992
issue was excellent. I especially en-
joyed the fiction. What a great idea!
Each of the four writers had a totally dif-
ferent approach, which was very
thought provoking. I would like to have
known more about what happened in
each story. Maybe I'll just have to wait
for an upcoming issue. — ?

Ralph K. Dawson
Grand Rapids, MI DO

FUNDS

BIOTECH: Cashing in on disease

By Linda Marsa

Fellow science nerds, get ready to wreak deliciously sweet revenge on all those snooty financial wizards who made buckets and buckets of money in the 1980s. For the 1990s, the magic word on Wall Street is *biotechnology*.

The past decade's astonishing breakthroughs in molecular biology and recombinant DNA technology have spawned a new class of drugs that harness the dazzling pharmacopoeia of the body. Only 12 of these therapeutics are on the market, but another

host of debilitating ills." A mathematician-turned-stockbroker, Pancoe combs clinical journals and attends symposiums prospecting for the next breakthrough drugs. His work has paid off. His own portfolio, which is invested mostly in biotech firms, has ballooned 25-fold since 1992.

To handicap a biotech's potential performance, analysts and experts like Pancoe eyeball the company's prospects and check out three key areas: the track record of its management team, what products it already has on the market that are generating revenue, and what's in the pipeline with real commercial possibilities. "If you do your homework and are selective," says Stuart Z. Levine, vice president of research for the brokerage firm Gruntal & Company, "it is possible to identify potential winners."

On the immediate horizon, financial analysts predict the hottest areas will be in vaccines for hepatitis B, AIDS, and malaria, and in genetically engineered compounds that stimulate or mimic the body's natural defenses. In the more distant future, says Pancoe, "will be the ultimate cures: drugs or other methods of tinkering with our DNA that will result in cures for cancer and many inherited diseases."

Among Pancoe's current picks are Carter-Wallace, Alton, and Genentech. Carter-Wallace, the leading maker of condoms in the United States, has developed Felbamate, the first new drug to be formulated for the treatment of epilepsy since 1960. Alton has a drug in clinical trials to treat diabetic nephropathy, a devastating disease that afflicts 1.5 million Americans. Genentech is developing a drug that has been proven in clinical trials to mediate myocardial ischemia damage.

Levine likes Cambridge Biotech, which manufactures diagnostic testing systems for infectious diseases and cancer. The company's also developing vaccine boosters and has a joint arrangement with Memorial Sloan-Kettering in New York City to formulate new cancer therapies. Another of Levine's picks is IGI, a New Jersey company that makes liposomes (Novasome is IGI's trade name). Liposomes are microscopic spheres or sacs that can be used as a more effective drug delivery system.

Tony Sutton, an analyst specializing in biotechnology for Fidelity Investments, is very bullish on Immune Response Corporation, which was founded by polio-vaccine pioneer Jonas Salk and is leading the pack in the quest for an effective AIDS therapeutic vaccine. He also likes Somatogen, which is developing a genetically engineered blood substitute to replace plasma, and Synergen, which is in the third phase of tests of Anril, an IL 1-receptor antagonist designed to combat septic shock.

But despite the spectacular performance in this seemingly recession-proof sector of the economy—consumers may cut back on purchases of VCRs, but they still take their medication—experts do sound a cautionary note. Aside from the first-generation biotechs like Genentech and Amgen, most of these outfits are small start-ups, so their stock's prices can be volatile.

Consequently, these investments require patience and a high tolerance for risk, but the long-term prospects are incredibly bright. "The whole biotech group is where computers were forty years ago," says Fidelity's Sutton. "These scientists are designing drugs that are going to keep our grandkids alive." □

These stocks could plummet on the hint of a disappointment such as a research roadblock, a patent



dispute, or failure to win FDA approval, says one analyst. The industry is still in its infancy so shake-outs are inevitable.

er 20 are wending their way through the long and stringent FDA approval process, and dozens more are in the pipeline.

Experts say these gene-spliced wonder drugs will revolutionize medicine—and correctly picking which ones pass regulatory muster could radically alter your lifestyle. Just ask the investors who shelled out \$3,000 for shares in Amgen on January 1, 1985—their stock had shot up to a staggering \$227,633 as of June 1, 1992.

"Up until now, drugs placated disease," says Arthur Pancoe, a senior managing director of Bear, Stearns in Chicago. "But these new drugs offer the first re-

POLITICAL SCIENCE

GARBAGE IN, GARBAGE OUT:
Who's getting the monopoly on infopollution?

By Tom Dworetzky

When I was a boy, my father took my six-year-old sister and me on the last trolley ride across the 59th Street Bridge. He told us about the way it was when he was a boy. "You could get on the trolley in New Rochelle and, for a nickel, ride all the way to New York City—heck, all the way across the country if you didn't mind making all those transfers."

Trolleys were electric trains, clean running, as environmentally sound (or sounder than) buses. Years later, I find out that the disappearance—destruction—of the country's trolley systems was the result not of free-market forces and consumer preference, but of a callous, monopolistic deal to crush the trolleys nationwide. To make their deal secure, the industrialists paved over trolley rails from coast to coast. Now the land's carved up with highways, and trolley cars, if you can find one at all, exist only in museums.

As we head into the Information Age, we'll soon find ourselves in a parallel situation. Two great technologies now battle it out for the transport of information: telephone and cable companies. Recently, matters came to a head when the Baby Bells started a push to change their original deregulation mandate and offer information services. Newspaper companies across the continent swelled with indignation. Turns out most cable in the United States is owned by media elephants such as Time Warner. While busy on the one hand reporting on the evil phone companies' attempts to crush newspapers and other information organ-

izations with monopolistic muscle, these media companies with their other hand have been shoveling hundreds of millions of dollars into a race to beat the local Bells at the information business.

In fact, 30 cable companies have reportedly obtained federal licenses to construct wireless phone networks that will employ cable wiring and cellular phones as an alternative to the standard phone company.

Back when the country was new and the frontier's bounty stretched forever, rails and roads competed for profits from the transport of grain, steel, cattle, and oil—the fruits of the blos-

some frontier despoiled and spent, plundered by the greedy and reduced to the present economic and environmental morass.

As we enter the Information Age, let's look at the war shaping up "between" cable/newspaper and phone giants. Are their interests ours? Are they really concerned about our information needs? Or are they just colluding to provide us with a Hobbesian choice between two lesser evils?—between one overpriced, moderately bad system and another. Just because they own the patents, do they have the power to carve up the future between them and squeeze out any new-

er, fairer, cheaper, more-useful technologies that might actually serve us all and make for a better information landscape? Think I'm kidding? Look at your phone bill; look at your cable bill. Then ask yourself: if they all start delivering information, as in the electronic workplace, won't the bills run hundreds of dollars a month, and won't we have to pay them? And won't that be a sort of hidden tax, the price of entry to becoming a worker in the Information Age?

The resolution won't be the flurry of proposed legislation in DC to block, free, or regulate the move of data carriers into the information business. I don't know what the answer is. But I do know that if you listen really quietly, you can hear the metallic whisper of knife edge on sharpening stone as today's fat cats, like the robber barons of old, get ready to carve up cyberspace—and your future. Remember: Those who do not learn from the past are forced to re-send it. **DD**



soming industrial revolution. That was, or seemed to be, good: it brought a surge of development and wealth that fed, housed, and clothed us all. Unfortunately, a century later, we

Everything we do today takes information—TV, cable, modems, faxes, phones, and PCs. Try doing business or even having a life without moving data.

THE MIRTHFUL BRAIN: Where the belly laugh begins By Joan Griffiths

Have you ever felt stressed out? That hope and joy are long lost cousins? In quiet desperation you plan an escape—a night with your VCR watching stupid comedies. You are consumed by belly laughs. The grin lingers. In the morning your bounce is back and that old creative energy soars freely again. Was this merely an attitude fix, or did your physiology improve?

Anecdotal evidence always claimed laughter had positive healing effects. Now investigation into the physiology of mirth is gathering momentum. Among the growing numbers of international researchers, two American colleagues have focused exclusively on the subtle realm of brain activity and its corollary, hormonal changes.

In the 1980s, psychologist Peter Deks studied humor appreciation in stroke victims. He pinpointed how they differed in their preference for joke material, depending on the location and amount of damage to the cortex. Generally, lesions in the right hemisphere caused the patients to accept any non sequitur as the joke. Damage in the left hemisphere showed in the person's seriousness or inability to recognize any humor.

At the College of William and Mary in Williamsburg, Virginia, Deks and colleagues now measure neuroelectrical activity during laughter. Humor is characterized by two phases: The joke is set up; punch line is delivered. Physi-

ologically, mirth begins with brain arousal. Similar to the way brain activity heightens in anticipation as a specific problem is set forth and peaks at the recognition of the solution, so, too, does it in the process of a joke.

A subject was hooked up via 21 electrodes to an EEG topographical brain mapper. As the subject heard the joke setup line, the cortex's left hemisphere began its analytical function of processing words. Shortly, the primary activity shifted to the frontal lobe, an area associated with emotionality. One hundred twenty milliseconds later, still well before the punch line, the right hemisphere's synthesis capabilities joined with the left's processing to find the pattern—to "get the joke." But before enough time passed for a giggle to escape the subject's lips, the heightened activity spread to the occipital area associated with sensory processing. It joined the chorus of increased fluctuations in delta waves. Finally, in a crescendo of activity, a "surprise" wave crested as the brain "got" the joke, and the external expression—the laugh—began.

The surprise for Deks was finding that brain activity happens not sequentially, but in concert, and the effects linger. "What humor is doing," he says, "is getting the brain into unison so it can be more efficient in trying to find explanations for—in this case—the punch line. Laughter may enhance both immediate situation awareness and also have long-term therapeutic effects. "But," he notes wryly, "with the increase of delta correlating with not paying attention, it could also mean laughter might distract airline pilots or surgeons. So does delta prepare you to come back into the environment more alert, or does it disconnect you and leave you hanging? I think it sharpens the mind,

refreshes it. But we don't know that yet.

"It's much easier to see a direct link between humor and health in Lee Berk's research," Deks continues. "His group is doing the best work anywhere on hormonal and epinephrine secretions." Since the cerebrum's increased activity during mirth works also through the mid-brain, the hypothalamus is stimulated. It governs the productions of many hormones and plays a role in immune regulation, too.

At Loma Linda University School of Medicine and School of Public Health, in Loma Linda, California, psychoneuroimmunologist Berk and his coworkers measure neurochemical changes from laughter. A group of medical students watch a video of a comedian. After viewing, their levels of the neurotransmitter epinephrine and the stress hormone cortisol are decreased. Lower epinephrine levels can reduce high blood pressure and help relieve other cardiovascular problems. Lower cortisol levels allow the immune system to produce greater numbers of beneficial white blood cells and help it function more normally.

Berk observed a curious difference between his control group and the subjects who planned to watch the comedy video. At the commencement of the experiment, the test group's epinephrine levels were already lower than the control's. He realized he was seeing positive stress—the physical phenomenon of an "anticipatory response." Just as waiting for a dentist's appointment can be stressful, looking forward to dinner with a favorite friend can translate to a healthier hormonal response. So, as the twenty-first century looms, it would be sweet if health science proved it was time to send in the clowns. ☐



During the telling of a joke, release of brain activity and relaxation follow the punch line.

STYLE

SOLE SEARCHING:

Nike retreads lightly on the planet

By David Arneke

United States manufacturers sold some 388 million pairs of athletic shoes last year. The beauty of that dizzying number varies greatly from beholder to beholder.

Runners see lots of miles run. Retailers see \$12.1 billion.

And environmentalists see 776 million shoes heading straight for landfills (and those are just last year's shoes).

It's not an environmental blight on the scale of, say, tires or junked cars. Shoes don't pile up or desecrate the landscape any worse than a thousand other nonbiodegradable products.

These days, they're just another out-of-control example of why the United States is running out of landfill space. But tomorrow, they might represent a step toward one of recycling's biggest goals—consumer products that can be recycled into themselves, into their own next generation.

Most of what consumers recycle is packaging—bottles, cans, plastic containers, cardboard. Recycling high-volume consumer products, especially those with as high a synthetic content as athletic shoes, represents a breakthrough that could significantly alter the resources-into-products-into-waste cycle.

"Maybe at some point way in the future we'll have a system where shoes can be 100-percent recycled, where you never throw a pair away. You always take them back like bottles or other

common recyclables," says Dusty Kidd of industry giant Nike.

The key to turning today's shoes into tomorrow's lies in a technology developed by Nike. The process grinds and pulverizes whole shoes into material for the outsoles of new shoes.

Nike's process can completely recycle every shoe the company makes except for cleated models. The machinery to draw metal out of the rubber and fiber isn't here yet, but the technology is.

The first Nikes to contain recycled material will arrive in stores next spring. The shoe will be a new version of one of the company's best sellers, the Air Escape Low, a mid-priced outdoor cross-trainer for men and women.

"We're starting to build the idea of a totally recyclable system of production," Kidd says.

The limitation: The recycled material can be used only in the soles of new shoes. And only about 20 percent of the new outsole can be recycled material. A potential future limitation lies in whether the speckled look of the recycled material will be as marketable in, say, basketball shoes as it might be in outdoor cross-trainers. So it's not quite a one-to-one ratio of old shoes into new.

But it's a start and one that no other consumer product manufacturer has come up with. And, besides, just getting the soles right with up to 20-percent recycled ma-

terial was no small feat.

There are four performance parameters for athletic-shoe outsoles: durability, tear resistance, tensile strength, and specific gravity. A Nike outsole with up to 20-percent recycled material performed as well as, and in some cases outperformed, regular outsoles in laboratory tests.

Nike has put the recycled material into prototype versions of its outdoor cross-training shoe. Wear-testing by runners, hikers, and mountain rangers confirmed the lab results. Kidd says, "When you've got to ride on a mountain bike or run or hike, you need real performance. So the real key here was to develop the chemistry for the outsole that had the right technical features. Without that, this really wouldn't have much validity."

And the socially conscious aspect of the technology, which Nike takes no small pride in, wouldn't have much validity if it only served as (yet another) promotional tool for the biggest and most profitable company in the sports and fitness industry. The company's answer on that point is to declare its process open technology. "Once our patent application is accepted, we'll make that technology available to any other shoe company in the world that wants it," Kidd said.

The reasons the company gives for pouring a considerable investment into the project are a combination of corporate responsibility and the original nature of the company, a passion for the environment that marks not only Nike's home state of Oregon, but also the company's founders and first customers—runners.

"Tie in between running and environmentalism is real strong, because if you're a runner, you're in touch with your environment all the time," says Kidd. ☐

Everything old is new again: In the long run, recycled sneakers could ease the landfill crunch.



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ARTS

SPARKS OF CREATIVITY:

Painting with electricity is risky business, but the results can be illuminating

By Judith Bell

When most of us think of stainless steel, we envision smooth, cold, gray metal. Artist Jay Dunitz, however, sees something quite different. For him, the metal conceals hues as rich and varied as those of an abalone shell. Using friction, heat, and electricity, he frees and intensifies the colors in works that become the subjects of photographs seemingly depicting alien worlds.

Dunitz was a painting and photography student at the San Francisco Art Institute when he became fascinated with the qualities of metal surfaces when photographed. "At the time, I was photographing everything," he says. "Then one day I was rummaging around the neighborhood and

ages in which the colors evoke, for example, the seething surface of the sun.

The brilliant hues in the overheated steel fascinated Dunitz, who began contemplating how he might paint whole surfaces with the incandescent palette. Soon he was buying new sheets of stainless steel and using a torch gun to heat the metal plate and a metal grinder to create texture. The result, *Pacific Light*, a series of jewel-like images with unearthly colors and lush textures.

Although the colors change according to the degree of heat applied to the metal, stainless steel has its limitations. "After a few weeks, the colors begin to shift and fade, often before the piece is completed," he says. He's found, however, that titanium and niobium react better to the heating process. He has also abandoned the torch in favor of electricity, which gives him not only greater control, but also richer colors. (Painting with electricity, of course, can be dangerous and shouldn't be tried at home.)

To "paint" the metal, Dunitz solders electrical wiring to an ordinary paintbrush ferrule, which he coats with plastic for insulation. To further protect himself from electric shock, he wears running shoes and latex gloves and stands on a foam pad. With the brush connected to a DC converter and a voltage regulator, and a second wire attached to the metal plate, he dips the brush in a solution of water and baking soda, which acts as an electrical conductor. "At times, I have gone too far—like laying down a high-voltage color that destroys the magic of the composition," he says. "And there's no turning back. Mistakes can't be corrected."

Once he's created the multicolored surface, he takes a series of Poligroid test shots, adjusting the

lighting to achieve the desired effect. During this stage, which often lasts for weeks, he carefully controls the lighting, using as many as 30 lights in intricate combinations and angles. Removing the shade from a drafting lamp, for example, he replaces the standard light bulb with a tungsten halogen bulb. As Dunitz progresses, he may weigh down the lamp's flexible arm with a roll of adhesive tape or a pair of pliers to slightly alter the angle of the light. "I could never re-create one of these pieces," he says. "Move one light an inch or two and the whole feeling is gone. It's only permanent on film."

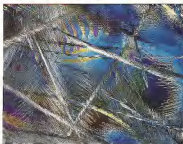
Eventually, Dunitz may end up photographing only a three-square-inch area of a metal plate. However, a finished piece can be as large as 48 x 64 inches. "Something else happens when they're bigger," he says. "With the smaller work, you look at it. When it's bigger, you fall into it."

Light of course, is the basis of photography. In Dunitz's work, however, the process and the subject become one and the same. "As I get more into this process," Dunitz says, "I'm becoming more interested in its potential. But I don't know where I'm going with it. I never know what the next piece will be or even what I want to do until after I start it. If I knew that, I'd be way ahead of myself."

Works from the *Pacific Light* and the *Kroeber* series are the subject of his book *Pacific Light*, released by Beyond Words. From September 15 through October, the Ansel Adams Gallery, Yosemite National Park, will exhibit Dunitz's most recent work in the *Pacific Light* series, and the Haifa Museum of Modern Art in Haifa, Israel, will feature his electrifying photographs during the winter of 1993. **DO**



Artist Jay Dunitz's *Pacific Light* #10 (above) and *Pacific Light* #64



Deal with the luminous quality of light as an insubstantial substance.

found an old refrigerator with rusty metal that resembled the terrain of another world."

The discovery led to his *Kroeber* series, abstract photographs of cut and rusted metal gleaned from sculptors' scrap piles at the Kroeber Arts and Anthropology Building on the University of California at Berkeley campus. Dunitz first juxtaposed pieces of oxidized and painted steel of differing textures and hues. Photographing the results, he created im-

ELECTRONIC UNIVERSE

WAR GAMES:

Experience the thrill of battle, minus the bloodshed

By Gregg Keizer

Imaginary battles come in boxes that sport silhouettes of high-tech Pentagon hardware, portraits of grim-faced commandos, or flashy scenes of death and destruction. These silicon war toys cost a lot less than the cheapest Department of Defense feasibility study, but they offer a view of conflict that's clearer than anything on paper.

Their genesis is in cardboard-counter and colored-map war games where you roll dice at God's crap table to determine if armies live or die. But computerized combat makes the machine do all the scut work so you can concentrate on strategy and tactics.

One of the best-designed war games in years, *Patton Strikes Back* (Bröderbund Software; IBM PC and Macintosh), is a re-creation of World War II's Battle of the Bulge, Hitler's last-gasp offense through the Ardennes forests. What sets *Patton* apart from run-of-the-mill military simulations is its interface. Like the real American or German generals (you play either side in a man-against-machine contest), you simply direct your divisions to their objec-

tives and tell them to attack or defend. No numbers to crunch, no details to lose in the big picture.

Click on a unit and its statistics appear on the screen. Drag it through its marching orders with

Though *Secret Weapons* includes long-playing campaigns where individual missions determine the historical outcome, this is primarily a flight simulation with lots of window dressing. You

fly an airplane, try to shoot down the enemy, and hope you don't end up in a flaming wreck. You'll get the hang of flight fast, but hitting an opponent is no easy task.

It's *Secret Weapons'* what-if possibilities that make it so intriguing. With several add-on disks now available, you can pit the P-80 Shooting Star, America's first jet fighter, against German planes like the

Me-262. Or take your chances in the literally disposable He-162 Volksjäger jet fighter, a German plane designed to sweep the Allies from the skies.

The computer makes believe in periods other than WWII, of course. *L'Empereur* (Koei; IBM PC and Nintendo) details the rise and fall of Napoleon in a grand strategy game. *No Greater Glory* (SSI; IBM PC, Macintosh, and Amiga) duplicates the American Civil War with an emphasis on politics and generalship, and *Red Baron* (Dynamix, IBM PC, Macintosh, and Amiga) puts you in a WWI-era biplane.

You can even play out the future of warfare with science-fiction games like *Rules of Engagement* (Mindcraft; IBM PC) and replay the recent past with the thinly disguised *Desert Strike* (Electronic Arts; Sega Genesis), a Gulf War knock-off.

All of these battles in a box share one common element—they let you become a millitant adventurer from the civilian comfort of home. The worst that can happen: a hard disk drive crash.

Thank goodness ☐



Computerized combat: Simulated military maneuvers, such as *Patton Strikes Back* or *Secret Weapons of the Luftwaffe*, re-create the glory of infamous battles and test your warrior wits.





CONTINUUM

EVERYBODY'S A COMEDIAN:

These days, everybody needs to be. Plus a hearing aid only your dentist knows about, and why night workers should avoid donuts

Being a comedian in the 1990s is a daunting prospect. Crumbling economies, spiraling unemployment, rampant homelessness, crime and disease, unabated starvation and warfare, and an environment that's careening into toxic overload. Take my planet, please.

Life seems a lot less funny than it used to, yet there are many more comedians working now than ten years ago. The mid-1980s cable TV boom proved that comedy—especially stand-up—is not only very cheap to produce, it satisfies that basic human need, to laugh at the shit hitting the fan rather than cry at the shit hitting your face. As writers and performers, we happen to believe that there's more comedy out there now because there's just more crap to duck.

So who are all these funny people and what are they doing for us? The majority of stand-ups today practice "Did-you-ever-notice" observational humor. Men don't want to commit; women always go to the bathroom together. Where do my socks go when I put them in the dryer? There's a huge appeal in this because everyone can relate to the idiotic things that happen to us at the mercy of bank machines, express checkouts, and our mothers.

Hatred turns up a lot in comedy, too. Sometimes it's satire, sometimes it's just plain old animosity: for your thighs, for your spouse, for your spouse's mother, for anyone who is different from this. This stuff sells because there's a lot of hatred out there these days. People have made substantial careers out of, "You're not like me, so you suck!"

It's been said that each generation gets the art that it deserves. Does that mean that all we're left with is chuckles that evaporate after the punch line or routines that encourage us to hit someone else with a baseball bat? We don't think so. There's a growing number of comedians who craft their humor around complicated issues, problems that we all must think about and act upon in order to survive. They are—



"Safe Sex" sketch banned in Bay Head.

guy!—socially responsible comics. Lily Tomlin has been a champion of compassion and hope for years. Bob Goldthwait uses stand-up to tell us that it's time to get our acts together and do it fast, and Whoopi Goldberg's character monologues always deliver a healthy dose of raw reality with the laughs.

We are a duo. We write and perform character sketches about things that people don't always laugh at: homelessness, racism, our messed-up planet. A while back, we performed our "Safe Sex" sketch in a nightclub in Bay Head, New Jersey. In it, we play fifth-graders presenting a show-and-tell project, complete with a large (and we mean large) cucumber and enough condoms to keep the cast of *Beverly Hills 90210* out of trouble for a month. Despite the fact that we were trying to say, "Look at the world in which our kids are growing up," the Bay Head townfolks flipped, and quicker than you can say "Lenny Bruce," we were closed down and

deemed obscene. Which only told us that there are a lot more people out there who need to see what we do. Because, why just make people laugh when you can make them laugh and think? Comedy can change consciousness and consciousness can change the world.

Our civilized life is falling apart. Comedy with a conscience can be a part of making everyone realize that we have to put it back together. The fact is, jokes have staying power—humans like to remember them. If we didn't, we'd go around reciting tenth-grade geometry to each other. That's why we hope laughter can be used to better this world. Plus, it's a hell of a lot more fun than the Pythagorean theorem.

Ted Baus and Debora Tóché perform at theaters and nightclubs on the east coast. When in New York, they can be found at the clubs *Eighty Eight's* and *Don't Tell Mama*, or at their homes having a donut and a nap.



CONTINUUM

IT'S THAT TIME OF THE YEAR

Good news for women tired of hearing about how their monthly hormonal cycle makes them unsuitable for various tasks and responsibilities: Men have a hormonal cycle, too. There's is yearly, but it still affects their intellectual abilities and skills.

Past research has shown that testosterone levels peak in the fall and drop in spring. And in a recent experiment by psychologist Doreen Kimura of Canada's University of Western Ontario in London, men performed better on standardized tests during the spring than during the fall. Kimura had previously documented variations in certain intellectual skills in women as hormones fluctuated through the menstrual

cycle. "The present study is the first demonstration of similar variations in men," she says. She adds that her findings may be significant for "men in spatially demanding and high-risk occupations—for example, aviators."

Could this mean that fall's testosterone surge makes men more aggressive and dangerous? Might it make them more pensive and calm come the spring lull? "It is an interesting possibility," Kimura acknowledges.

Anne Fausto-Sterling of Brown University's division of biology and medicine, however, feels that more research is needed to prove that testosterone surges cause violent behavior. "There is a very complicated interrelationship between the body and behavior, and testosterone isn't necessarily the driver."

If Kimura's research is correct, people who want to bar women from positions of power due to hormonal flux may have to reconsider their arguments, because "equally large fluctuations occur in men, albeit over longer periods of time."

—Jim O'Brien

Here it comes, guys: that seasonal surge in testosterone.



Open wide: A dentist has invented a hearing aid for your mouth.

HEARING VOICES IN YOUR MOUTH

If you cover your ears while speaking, you can still hear your own voice because your teeth and skull pick up acoustic vibrations and conduct sound to your auditory nerves. Nothing that oddity, a Bethesda, Maryland, dentist has devised a hearing aid that hides away inside a tooth.

The unusual device could benefit people unable to use normal hearing aids, according to inventor Barry Mersky. Conventional ear-mounted hearing aids rely on tiny bones and joints in the ear that can be irreparably damaged by recurrent infections or the normal bone displacement that occurs with age. By contrast, Mersky's creation uses a tiny microphone, concealed in a shirt pocket or bow tie, to pick up sound and transmit it via an FM radio signal to a dental retainer or partial denture containing an antenna loop and amplifier. A crystal bonded to the enamel

on the inside edge of a tooth functions like a transducer, converting the radio signals to vibrations that travel through the wearer's skull to the inner ear.

"We're using natural teeth to achieve what we believe is a superior level of hearing," says the dentist, whose work receives funding from the University of Maryland. "The bottom line is how comfortable all this will be."

Mersky declines to esti-

THE HUMAN BODY CONTAINS ENOUGH FAT TO MAKE SEVEN BARS OF SOAP AND ENOUGH IRON TO MAKE A SINGLE ONE-INCH NAIL

mate the cost of the gadgetry, although at present the point is moot. Conducting further tests and gaining the approval of the Federal Drug Administration will take at least another year.—George Nabbie



IT'S IN YOUR BRAIN, NOT IN YOUR HAND

The common but disabling condition known as writer's cramp—in which the hand seizes up after gripping a pen or pencil, leaving the fingers temporarily locked in a clenched position—was once considered a psychiatric problem. "They used to say, 'It's all in your head,'" explains neurologist Lee Tempel of Washington University in St. Louis, Missouri. "We still say that, but now we mean it's a neurological problem that starts in the brain, not in the hand."

Using positron-emission tomography, also known as a PET scan, Tempel and his colleague Joel Perlmutter examined six patients suffering from writer's cramp. While previous studies have indicated that

writer's cramp does not stem from a structural problem in the brain, Tempel and Perlmutter found evidence of abnormal functioning in the brain's sensorimotor cortex and the supplementary motor area.

The PET scans revealed that in subjects with writer's cramp, stimulating the hand in a manner similar to writing produces half the response in these two brain areas, measured by blood flow, than it does in subjects without writer's cramp. More surprising is the fact that this diminished response shows up in both hemispheres of the brain, not just the side that regulates the affected hand. This may explain why some people who switch hands to avoid writer's cramp later develop the affliction in the other hand as well.—Steve Nadis

Dear Diary: I once again take pen in hand to—ouch!



STRESSFUL SCREENS

Work tends to create stress. Now two communications researchers have discovered that the equipment modern office workers use can actually increase that stress.

According to Caroline Dow and Douglas Covert of the University of Evansville in Indiana, the 16-kilohertz pure tone produced by some computer monitors as background noise is the culprit. In one study, Dow and Covert found that women who used noisy monitors quickly showed signs of stress and inefficiency in their work. In another experiment, two groups of female students took part of the Graduate Record Exam, a standardized test for graduate school



Noisy monitors stress women out

headaches, while others' blood pressure will jump, and still others will experience muscle tension, irritability, or combativeness.

Most monitors can cause stress problems, but more advanced monitors, with

THE GIANT SQUID'S EYE IS THE LARGEST OF ANY ANIMAL'S, EXCEEDING 15 INCHES IN DIAMETER.

THE LIFE SPAN OF A TASTE BUD IS 10 DAYS.

admission. The group exposed to the 16-kilohertz tone scored much lower.

The women at the high-estrogen points of their menstrual cycles scored the worst. Women tend to hear sounds at a higher frequency than men to begin with, Dow explains, and when their estrogen is high, they hear even more acutely. So this "tends to make it a young woman's problem," she says.

People react to stress in different ways, Dow adds, so some exposed to the 16-kilohertz tone may get

screens that are frequently refreshed, are less likely to produce the tone.

While the researchers haven't found a simple, inexpensive way to test monitors, Dow recommends "working on a monitor for 30 minutes to see if you become irritable before buying it."

—Paul McCarthy

"Theories are like withered leaves, which drop off after having enabled the organism of science to breathe for a time."

—Ernst Mach



CONTINUUM

SEEDS OF GLASS

When drought starves vegetation of moisture, many plants simply dry up and die. But the seeds of soybeans and the vegetative parts of some desert plants manage to survive even the driest of seasons. How? A trio of scientists from Cornell University has come up with a possible answer. They turn to liquid glass.

Carl Leopold and Fabio Bruni examined the interiors of a variety of seeds using a sophisticated technology known as electron spin



Oh, dry up. Even the dreaded drought can't kill some hardy plants.

resonance. They discovered that the contents of the cells of seeds that die during drought turned solid but that the contents of soybean cells changed to a sort of thick,

liquid glass. The key lies in the differing mix of sugars in the two types of seeds, found Karen Koster, a colleague of Leopold and Bruni's. The sugars in the harder plants

form the glassy state that in effect holds the seeds in suspended animation.

Leopold wants to introduce the glass-forming sugars into crop seeds to see if the seeds last longer in storage. Beyond that, he thinks the vulnerable seeds of many tropical plants might be "tricked" by molecular biological techniques into forming protective sugars, which "might help endangered tropical species to survive."—Bill Lawren

"I have wasted my hours."
—Leonardo da Vinci

I'VE GOT YOU UNDER MY SKIN

Fed up with the fancy acne creams concocted by huge pharmaceutical firms? Soon you'll be able to try an unusual alternative: medications devised by a drilling-fluids engineer.

Frustrated by the ineffectiveness of cold-sore creams, Patrick Beauchamp decided to use oil-well logic to tackle his dilemma. "I realized the biggest problem was that these medications were unable to penetrate into the skin," he says.

Using a solvent base, Beauchamp brewed up the first batch of cold-sore gel in his hotel room and then tried it on himself and some friends. Surprised at how quickly it worked, Beauchamp approached J. A. Rogers, a professor of pharmacy at the University of Alberta in Edmonton and an expert in liquid-drug formulation. Initially amused by the idea, Rogers soon realized the formula's viability and offered to perfect it.

Beauchamp and Rogers's first product, an acne treatment called Acorex,

recently gained regulatory approval in Canada for over-the-counter sales, and Beauchamp has applied for Federal Drug Administration approval in the United States. According to three independent clinical tests, Acorex is 62 percent more effective than leading acne products. A cold-sore medication currently undergoing double-blind tests in Canada looks equally effective and should be available by 1993.

—George Schmidt

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travel thousands of miles,
why won't your
pilot light stay lit?



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CONTINUUM



Why did Halley's Comet recently shine so brightly?

HALLEY'S HICCUP

Our most celebrated comet has burst into the limelight again. Between the orbits of Saturn and Uranus and nearly 1.3 billion miles from the sun, Halley's Comet's coma, or highly reflective envelope of dust, had nearly vanished. But on February 12 of last year, the comet suddenly shone radiantly—at least 300 times more brightly than expected.

Most comets display a coma starting about 460 million miles from the sun, but little warmth reaches into the solar system, so the coma disappears. "The comet community has long held that [outer solar system] comets can crack, letting gas escape—but they have never said how," says Murray Dryer, senior scientist at Space Environment Labs in Boulder, Colorado. Dryer and Devrie Intriligator, director of the Space Plasma Laboratory at Carmel Research Center in California, theo-

rize that shock waves from energetic solar flares broke open Halley's crust and allowed dust to escape.

British astronomer David Hughes of the University of Sheffield disagrees. He thinks that a smaller comet or an asteroid around 2.6 to 60 meters across slammed into the comet's nucleus, shooting dust and debris into space. Karen J. Meech of the University of Hawaii has yet another theory. She believes that part of the comet vaporized as it rounded the sun. A weak point in the crust released the carbon-monoxide gas pocket, resulting in an asymmetrical coma in the cold reaches of space.

The main reason for the lack of consensus is our lack of knowledge. Although we eagerly watch Halley as it makes its trip around the sun every 76 years, we know little about how other comets react as they pull outside our view and into the depths of the solar system.

—Patricia Barnes-Svarney

WORKING THE HEART-DISEASE SHIFT

Working the night shift is not only quiet and lonely, it's also hazardous to your health. Scientists have proven that people who work the night shift have a greater incidence of heart disease than those who work during the day. One medical team has uncovered a possible explanation: Less exposure to daylight elevates chole-

sterol in the bloodstream, and as anyone who hasn't been living under a rock knows, a high level of cholesterol accelerates the clogging of arteries.

Physician Leslie Klevay at the U.S. Department of Agriculture and psychologist Edward Hales at the University of North Dakota subjected rats to light and dark cycles that matched the three common work shifts—8 a.m. to 4 p.m., 4 p.m. to midnight, and midnight to 8 a.m. The rats "working" the second and third shifts had cholesterol levels 24 percent higher than those who scampered around during the day Klevay doesn't yet

DURING HIS LIFETIME, THE AVERAGE MALE EATS 50 TONS OF FOOD.

IN THE U.S., FATAL ACCIDENTS PEAK DURING AUGUST AND DECLINE AS FALL SETS IN.

know why less exposure to daylight raised cholesterol levels but suspects it involves the disruption in natural circadian rhythms caused by the shift-work schedules, a phenomenon proven to exist in humans in independent studies.

Can shift workers do anything to force their cholesterol levels down? Eat more copper, Klevay suggests. Doctors estimate that most Americans don't eat enough copper, and according to Klevay, a low intake of copper is the only nutritional deficiency shown to increase cholesterol. Indeed, the cholesterol levels of rats that both worked the night shift and ingested less copper than their coworkers shot up even higher.

Night nurses, auto assemblers, disc jockeys, and others who make their money in the dark needn't chew on a pipe to raise their copper



Night cops need more copper.

intake. They can simply eat more liver, beans, nuts, and, for dessert, dark chocolate.

—Mark Fischetti

Mama mia! It's a scene of on-ematic grandeur, compilations of Joseph E. Levine.

Queen Omphala, your Italian lackluster of an ancient Helenic deity, has just removed herself from the well-muscled arms of an aristocratic Hercules. Evil, but dutiful ruler that she is, she must greet some unexpected guests in her realm.

Out to the grandiose throne room of Omphala. The sojourners' white-bearded leader is begging Omphala's pardon for their intrusion and for the humble garments they offer as gifts. As he mentions the latter, our hot-blooded Queen—as though wishfully mistaking his meaning—hungrily eyeballs her retinue of baroquely torqued, saffroned steeds.

Just then, as if to put words in their mouth, some offscreen heckler mockingly purs. "These are gifts? Don't bother wrapping!" Who said that? Some rude dude in a Brooklyn balcony? Some low-rent Gene Siskel in a State Street cinema? No-o-o-o-o. In fact, the voice was not even human—and it did not come from planet Earth! In truth, my friend, that voice belongs to that witty and talented robot, Tom Servo, from the wondrous TV world of *Mystery Science Theatre 3000*.

The remarkable Mr. Servo,

as it just so strangely happens, has a bubble-gum machine for a head, a plastic root-beer barrel for a body, and all the pretensions to genius of Winton Marsale. And why not? Back on earth, Tom's show is a television phenomenon.

Ah, but what exactly is *Mystery Science Theatre 3000*, you may ask, Greshamper? MST3K, as it's affectionately

called by initiates, is one of cable TV's most popular programs, seen weekly on the Comedy Central channel. The show is also a critic's darling, widely praised as one of the funniest and most inventive on the air. Each week on MST3K, Mr. Servo and two or three comical buddies soup up such flick buckets of bolts as *Hercules Unchained* with their own quirky brand of comic fan devotion, growing attention, and other trappings of what media nabobs often call "a smash cut hit."

But, as we shall see, MST3K is also something else, something intangibly more. It might be compared to a little spaceborne vehicle that began traveling with a momentum that was beyond expectation. Its mission? To forge unseen links among the sanely maladjusted

BEHIND THE SCREEN AT

MYSTERY SCIENCE

THEATRE 3000

throughout the TV galaxy.

MST3K offers a perfect premise for futuristic feblés without a cause. Curiously, next hour, one Joel Robinson, simply hoping to be an honorable working stiff. But his evil-scientist employers at Gizmonics Institute conceived an arbitrary dislike for him—and shot him alone in space!

There, he's the subject of their cruel experiment. How will a kind, relatively normal Joe(I) react to forced screenings of our planet's worst

films—such "garbage-in/garbage-out" epics as *The Giant Gila Monster*, *Daddy-O*, *Time of the Apes*, *Slime People*, *Jungle Goddoss*, and *Gamera vs. Barog*? These films are what you might call "underground" classics—that's underground as in corgie, as in tuber. . . .

The hapless Joel is played by gifted comedian and loony inventor Joel

Hodgson, who is MST3K's creator and co-executive producer. Hodgson wins us over immediately with his youthful face and sweetly dopey expression—he looks like a kid who's O.D.'d on bedtime stories.

What's more, he proves to be surprisingly resilient, maintaining his peculiar sanity in two ways. First, he builds three root pots (the "bots") to share his exile in the outer reaches. There is Crow, a robot bird whose temperament is mirrored by his brassy color and his pair of cymbals-like torso. There is the aforementioned Tom Servo, who finances himself a multi-talented "bot-about-town," a real Renaissance robot.

And there is Gypsy, the material "evolved" vacuum cleaner who pilots the ship—the wayward vessel which Joel has wretchedly dubbed "the Satellite of Love."

Trapped in space, with Gypsy keeping them safely afloat, our three intergalactic gay caballeros suffer the cinematic torments imposed on them by the mad scientists, the evil Gek Clayton Forrester

low-budget science-fiction films (including many starring the Japanese monster Gamera, of whom it was said, "His look all the pictures Goddoss," turned down). Their absurd high-drama gave Joel and the bots plenty of opportunity for ground-level humor. As it is this exchange:

SCIFI ACTOR: The planet is surrounded by comets.

The ACM, as he grows in size and alienation, commits increasingly anti-social acts. In one ludicrous scene, two men try to subdue the runaway giant with an injection from a ten-foot-long hypodermic needle. As the camera focuses on the men and the giant "fix," Joel remarks, "Oh, looks like they're visiting Keith Richards."

When you first watch

his—puppeteer, Kevin Murphy, also a writer and the show's associate producer, says, "His proof positive that his knowledge is a dangerous thing."

There are many reasons why *Mystery Science Theatre 3000* has become a "smash cut hit." First, the show is very funny. Second, MST3K is not only very funny, but its special quality has something to do with candor and truth. You might call it a kind of off-video verité. These comments from *Mystery Science* principals reveal something of the spirit behind this phenomenon.

Jim Mallon, producer: "A lot of people have commented that the show mirrors the human condition—that, as Joel and the bots are forced to watch these terrible movies, we're all sort of forced to take life as it is. On this planet, we have to watch terrible 'productions' that we can't control. And the way we survive is through our freedom to comment on what's happening around us and our ability to find some humor in it."

Jeff Maynard, toolmaster: "TV is not relaxing to me. People are trying to retain themselves despite the constant bombardment. MST is for the audience that doesn't want to be drowned by the manipulation art of TV and other media. Kind of

and his New-Wave Igor, Frank. As they drift through the starchy remnants of the Big Bang, our buddies provide a searing intimacy despite complex challenges for our flight critics. The MST3K episode featuring *The Amazing Colossal Man*, from the show's third season, offers the essence of the knowing, irreverent, fish-form MST3K style. (*The Amazing Colossal Man* tells the tragic story of a soldier who mutates into a giant after being caught in a nuclear blast.)

The film's titles mount up in dramatic inverse-pyramid style. THE AMAZING COLLOSSAL MAN. Crow pauses a beat, then cracks, "Oh, yeah, you wish."

In its first season, *Mystery Science* stuck with completely ludicrous, lowest-of-the-

gast CROW. Must be from the cosmic cliff.

Later on, the film got better. Sort of. At least they provided more varied and complex challenges for our flight critics. The MST3K episode featuring *The Amazing Colossal Man*, from the show's third season, offers the essence of the knowing, irreverent, fish-form MST3K style. (*The Amazing Colossal Man* tells the tragic story of a soldier who mutates into a giant after being caught in a nuclear blast.)

The film's titles mount up in dramatic inverse-pyramid style. THE AMAZING COLLOSSAL MAN. Crow pauses a beat, then cracks, "Oh, yeah, you wish."



Article By
Marion Long



Sweetly plaintive
space exile
and MST creator
Joel "Robinson"
Hodgson (far
left). Editors: Robot
stars and their
"eternal souls" (center, left to right):



Gypsy/Jim Mallon,
Crow/Trace
Beaulieu, and Tom
Servo/Kevin
Murphy. Evil scientists: "TV's

Frank" Conniff (opposite page, right) and Beaulieu as Dr. Clayton Forrester (center), together in *The Amazing Colossal Man* (above).



Toolmaster Jeff
Maynard
and some techno-
wizardry
"home cooking"
(above).



like the 'art' that flooded the tunnels in Chicago a little while back—you know, that artsy kind of feeling people got from that? That's what TV does to people, I think. It erodes their foundations."

Trace Beaulieu: "The movies that work best for our show are ones that straightforwardly proclaim, 'This is the best movie you've ever going to see'—though they are clearly not. It's like Mystery Science is Groucho Marx to the movies. Margaret Dumont, and the movie just doesn't get it."

Kevin Murphy: "Part of our intention is to expose pretension for what it is, to bit a lance at self-seriousness. I think one of the most unhealthy trends of our culture is that we take ourselves far

too seriously, and we do it for all the wrong reasons. We can take a lesson from damn near any other culture and find out that, when it comes down to it, laughing is just as important as crying or breathing."

As you can see, in its own unassuming way, MST is doing its part to fulfill the mandate of English poet and critic Matthew Arnold, who felt that art should be "a criticism of life." Of course, Mystery Science Theatre may not be exactly the kind of criticism he had in mind.

To truly comprehend why MST3K is so successful, however, one must journey to exotic Eden Prairie, Minnesota, where the offices of Best Brains, Inc., are home to Joel, the boys, and the rest

of the MST3K crew.

It is there, far from the mills of Manhattan and Hollywood, past the foyer with its stuffed iguana (a covered noose trailing from its neck) that the MST staff does its work in self-contained, creative, graceful, and collaborative style.

And it is there that you discover the most crucial Mystery Science secret of success: Inside a nondescript, low brick building, the real *Satellite of Love* has been carefully constructed, deliberately sheltered.

Yes, who would believe it—a hit show that has hidden from the bright lights, the big city? When Mystery Science was originally sold to the Comedy Channel, its creators insisted that the show remain in Minnesota.

"Here, we're not distracted; we're able to focus on what we think is funny," Mallon says. "It's not like it is out in Los Angeles where it's, 'Well, so-and-so is real funny; he's real hot—let's do something like that.' We also have this very efficient workspace—no unnecessary meetings, parties, phone calls, sales people coming by to show their clients who you are. It's a real factory here. We can do it all by ourselves. We can work out our own vision and not have to spend a lot of time and energy fulfilling other people's agendas just to get to that starting point."

Efficient workspace? A real factory? Well, yes, but that doesn't begin to convey the craziness, silliness, and fun that fly around you like wayward comets when you're in that space. As you watch the host segments being filmed for the show with *Hercules Unchained*, you can hear stage directions you would hear nowhere else: "Crow, would you please turn your beak perpendicular to the lens?" and "Can we get a spitting mechanism for Iom so he can do a spit take?" You can watch the bots, crowned with laurel wreaths for the Olympian occasion, as they savor the

grapes peeled for them by their human creator. And you can see Michael Nelson, the show's head writer and sometime Shakespearean actor, transformed via the magic of fiberless cotton into an aging-but-still-improbably-bugling Steve Reeves, now appearing with the Mast Scientists, recalling his glory days in the Greek-god business.

You also discover that such fun and games are hardly just fun and games. In fact, it is amazing to see just how much labor it takes to be very good at making fun of a very bad movie. There are props that need to be made for the skits between movie segments, props that need to be made on a tight budget and an ever tighter deadline. Says toolmaster Maynard, "I work as hard as I can to make sure these guys get just what they're looking for. I know they have a kind of paternal pride in their sketches." He recalls the day they came to him and said, "If we do a piece on Michael Feinstein, can you build a grand piano?"

Then there are the challenges for bot-puppeteers Beaulieu and Murphy, who must sit in front of the screen, splitting their taxed attention among the perfectly awful movie of the week, a fast-moving time-code chronometer, and their scripts, all the while manipulating an unwieldy puppet—in character.

And there is the work of writing the show. It takes the writing group a good part of five days to produce the necessary 800 or so inspired one- and two-liners, material that's constantly reworked until the last possible moment.

First and last but not least, there is the matter of screening, selecting, and working with the perfectly awful films themselves. "These are very bad movies," Mallon says, "and we're forced to watch them again and again, and again. We're talking about atrocious performances, terrible camera technique, poor lighting, awful audio tracks. And to sit for



Look out below, it's Godzilla! He's making things hot for his sci-fi foes, but he's the

one "getting roasted" by captive film critics (left to right): Tom Servo, Joel, and that metalloïd Marx Brother, Crow.

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hours and hours and go through these things very slowly—to spend, not an hour and a half with these things, but to spend entire days, multiple days!”

Pain sometimes dims perception on those days. “When we’re ready to start working with a movie,” Mallon says, “I almost always turn to Mike [Michael Nelson] and say, ‘How’s this movie?’ and he says—and I’m telling you the truth when I tell you he says this 90 percent of the time—he says, ‘I know I said that the last movie we did was the worst movie we ever did, but this one is clearly the worst.’”

President of Best Brains and the producer of MST3K, Mallon, 36, is the man who keeps all the Mystery Science machinery moving. In some ways, it seems as though Mallon has been doing something like Mystery Science Theatre for most of his life. In addition to his business and organizational talents, he possesses creativity, intuition, and a large measure of that humorous but pointed subversiveness that marks the MST style. He produced a TV parody of *Wild Kingdom* while still in high school and later did parodies of news shows (titled “15 Minutes” and “Team 23”) at Channel 23, the Minneapolis UHF station that aired the first Mystery Science Theatre shows. A book to be published later this year about the greatest college pranks devotes 16 pages to Mallon’s “work” at the Madison campus of the University of Wisconsin. “When I sense that someone’s too full of himself, it gets me going—I think that’s where most of my comedy comes from,” he says.

While at Channel 23, Mallon wanted to tap Minnesota’s local comedy talent as a source for original programming. A few years prior to that, Joel Hodgson was the anti-hero in what certainly qualifies as an Amazing Story in this celebrated time: Hodgson voluntarily returned to Minnesota in 1984 after having tremendous success as a stand-up comedian for two years in Los Angeles. He and his “gizmonic” gadget-

ry appeared several times on *Late Night with David Letterman*, *Saturday Night Live*, and other top shows. There he was, living out every Midwestern stand-up comic’s dream—and yet, “It made me really uncomfortable,” he says. “I missed Minneapolis. I didn’t have the stamina to cope. Most of the people who were doing comedy well had been in it for maybe eight or ten

have? Being recognized in a hardware store, that’s going to help me?” He went back to Minnesota. “I was sick of comedy. I didn’t think I’d ever do it again. So I started doing other things—making these robots out of junk and selling them—that’s kind of where the bots came from—and I worked in a T-shirt factory.” Hodgson had just begun writing material again for other comedians, including Jerry Seinfeld, when Mallon approached him about appearing on Channel 23. A week later he came back to Mallon with the prototype of Mystery Science Theatre.

The program, which first appeared in 1988, was an immediate success, inspiring more than a thousand letters from fans (known as Misties), who seemed to feel a special psychic link with the show. Twenty episodes of MST3K had been completed when it was sold to HBO’s Comedy Channel.

Before the show could really take off, however, it was necessary for Hodgson and Mallon to enlist a few highly skilled and trusty crew mates. The Best Brains Creative Team, it must be said, provides a very nice change from your usual TV spuds and duds. The guys act like a bunch of humble Clark Kents, though each possesses powers far beyond those of most mortal TV performers.

Associate producer and writer Kevin Murphy is the voice of the worldly and erudite Tom Servo. Murphy worked with Mallon at Channel 23, where he appeared as investigative reporter Bob Bagadonuts on the “Team 23” news parodies. He has been involved in virtually every as-

pect of Mystery Science Theatre production. Until fairly recently, when the Best Brains budget allowed for hiring more staff, Murphy was the show’s cameraman, did the show’s lighting and sound, and acted as its post-production supervisor. One of his main contributions to the group, he says, is that he serves as “a repository of arcane information.” (Says Hodgson, “Kevin has the mind of a boy who stays up late and

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Abbott & Costello Go to Mars

9:00 a.m.

Quark (pilot for 1978 science-fiction sitcom starring Richard Benjamin)

10:00 a.m.

MST 3000: “First Space Ship on Venus”

12:00 p.m.

Saturday Night Live: Guest host Sigourney Weaver is featured in a spoof of Aliens

1:00 p.m.

SCTV: “Invasion of Planet Zontar, Part I”

1:30 p.m.

SCTV: “Invasion of Planet Zontar, Part II”

2:00 p.m.

Earth Girls Are Easy, starring Geena Davis, Jeff Goldblum, Damon Wayans, and Jim Carrey

4:00 p.m.

Saturday Night Live: Guest host Dolly Parton is featured in “Planet of the Enormous Hoooters”

5:00 p.m.

SCTV: Merv Griffin examines science-fiction movies

5:30 p.m.

The Best of Groucho: Author Ray Bradbury is a contestant

6:00 p.m.

Saturday Night Live: Guest host William Shatner visits a Star Trek convention

7:00 p.m.

MST 3000: “Teenagers from Outer Space”

9:00 p.m.

Penn & Teller: “The Invisible Thread” (Two of Earth’s favorite magicians are called to save the planet from invading aliens)

10:00 p.m.

Saturday Night Live: Guest host Tony Danza is featured in a spoof of The War of the Worlds

(All times are Eastern/Pacific Daylight Time)

years. I was 22. I just didn’t understand how to be with people, where to find friends. I was really lonesome.”

Hodgson, 32, combines the disarming abstractness of “Joel Robinson” with a surprising directness. He has been performing since his days as a kid magician in Green Bay, Wisconsin. Hodgson suffers from few illusions about the value of fame. “Like that’s going to compensate for something I don’t

For more than seven millennia, nothing disturbed the ancient tribal burial site in the hot Florida countryside except the ground-shaking rocket launches from the space center 15 miles to the east.

Then one day in 1982, Steve Vanderjagt's back hoe carved a ten-foot-deep hole in a Brevard County bog, digging up dozens of femurs, ribs, and skulls. Vanderjagt, a contractor working on a new road for a 1,500-acre housing development called Windover Farms, had no idea what he'd uncovered. No one found out until years later that many of the skulls carried a cargo as precious as any probe we've sent to the stars.

Hidden inside the dark-brown bones were gray, claylike brains. They in turn contained 7,000 to 8,000-year-old samples of DNA, the basic biological code for building every human cell.

In a remarkable coincidence, the Windover Farms discovery came just a few years before scientists learned to "amplify" DNA, making it easier to read. Applied to the buried brains, the new tech-



course of evolution itself.

These possibilities never occurred to Vanderjagt on the day his hoe cut ten feet into the old burial ground. He didn't even know at first that he had unearthed part of a body—he thought he'd stumbled on a ball-shaped rock that had rolled out of the soggy black-and-red-brown peat mound.

"But he had enough sense to know that we don't have round rocks in Florida," says Jim Swann, the developer who hired Vanderjagt to clear out the bog to make way for the sand base of a new road. When Vanderjagt got off his back hoe and picked up the strange piece, he came face to face with eye sockets. He and his foreman soon found other bones, washed them, and telephoned Swann. The developer arrived to find several skulls stored in a bucket of water.

"I called the county attorney and said, 'What do you do when you find human bones?'" Swann recalls. The sheriff's department packed the bones in body bags and carried them in a car trunk to the coun-

DARK BOGS, DNA, AND THE MUMMY

Article By
Gurney Williams III

Archaeologists
are tapping a new gene
machine to
analyze ancient
DNA from a
tribe of hunter-
gatherers
buried in a bog

nology has given researchers the beginnings of a family tree for Florida's "lost tribe."

The amplification technique, called the polymerase chain reaction (PCR), allows scientists to make a billion copies of a mere fragment of DNA. Like detectives looking at a computer-enhanced photograph enlarged many times, researchers using PCR can analyze the hereditary messages inside plants, animals, and human cells. When first developed, the technique helped a Wayne State University geneticist delve into the genes of leaves that dropped into a pond 17 million years ago. Scientists today call on the same technique to explore questions about the history of ancient tribes. Using PCR, scientists have also shown human DNA to be unimagably durable, able to survive our living bodies by thousands, perhaps millions, of years. Traipsing through the centuries with this extraordinary time machine, anthropologists are unearthing secrets about the ancient human brain and immune system and scrutinizing the sweeping



ty coroner. "And he proclaimed they were more than a hundred years old," Swann says. The finding closed the book on a possible murder investigation. Swann got his bones back. He himself had become intrigued by the mystery surrounding them and paid for an analysis of their age. No one yet knew about the brain tissue enclosed in the old skulls.

By the time the original bones came back, "it had rained on the pile of peat," Swann says, "and there were bones all over the place." For several days, the foreman had carted some of them around in his truck. To reduce the threat of vandalism, Swann took as many of the bones as he could home with him and left them in buckets in his back yard in Cocoa, Florida. His wife thought he was crazy, he says.

"I had buckets everywhere," he says. "It got to be spooky. You'd look down and see these sockets looking up at you. I wanted to get rid of them." Swann donated the bones to Florida State University. And the state's legislature, at

Swann's urging, appropriated \$200,000 to carry on with archaeological precision what Vanderjagt's rugged back hoe had begun.

By careful digging, Florida State researchers led by anthropologists Glen Doran, Ph.D., and David Dickel, Ph.D., were able to develop a clear picture of the ancient tribe's burial procedures. And they learned some things about the way the tribe lived day to day.

Objects and cloth found in the burial site show that these ancient people used spears for hunting and bones from deer, dog, and bobcat to make awls and needles. These early Americans were also surprisingly skilled weavers, evidence that they were good enough at their workaday hunting and gathering to have time for crafts.

There were other messages, as eloquent as a churchyard stone, in the way the ancient residents arranged graves in what was then a shallow pond. Most of the cloth-shrouded bodies lay on their sides, legs tucked into a loose fetal position. It appears that mourners covered the bodies with peat



terial and fungal organisms that prey on buried bodies and brains. The skin and flesh dissolved over years. But many of the bones, including half the skulls and a number of brains, came out of the natural time capsule well preserved.

So solid were the skulls that it wasn't until two years after Vanderjagt made his initial contact with the bones that scientists found the first of the brains.

From the beginning, researchers had noticed that the skulls were heavy. The scientists had always assumed that the weight resulted from clumps of peat in the crania. But by December 1984, some of the Florida State researchers were beginning to suspect that pieces of tissue might have survived.

One skull fragment was attached to material that didn't look like peat. When researchers scraped the mystery substance and gave it a crude test, "it seemed to be human tissue," Hauswirth says.

They suspected they might find more brain tissue in some of the intact skulls—one in particular. The

Hidden inside the dark brown bones were gray, claylike brains. The shrunken brains contained some ordinary peat—and

USING A HACKSAW, RESEARCHERS REMOVED THE TOP OF THE ANCIENT SKULL, AND A BRAIN FELL OUT!

some extraordinary 8,000-year-old DNA. Scientists reading the DNA are creating a family tree for Florida's "lost tribe."

and wood and built a stick frame like the skeleton of a tent over the remains. Offerings—bones and antler tools, an oak bowl, a double-ended pestle—accompanied some of the bodies, and the gifts were most generous for younger tribe members.

About ten feet of peat accumulating over the site during subsequent millennia provided for tresslike protection for the burial ground and its hidden treasure of DNA. Most peat bogs destroy genetic material even while preserving the bodies in which it resides, according to William W. Hauswirth, Ph.D., a professor of microbiology at the University of Florida College of Medicine.

That's because most bogs are acidic, "very bad on DNA," Hauswirth says. "In fact, DNA can't survive for more than a few days in the typical kind of acidity that peat bogs have." But the particular blend of plant debris at the Wndover Farms site neutralized the acidity. Additionally, the lack of oxygen in the peat and minerals it contained inhibited most kinds of bac-



8,000-year-old skull was heavy, Hauswirth says, "and there was something thumping around inside." More peat, lab workers suspected. Using a saw from the lab's tool chest, Phil Lips, Ph.D., an associate of Hauswirth's, removed the top of the skull. And a brain fell out.

"It just plunked into a student's hands," Hauswirth says. "Somebody said, 'It's a brain!'"

It had shrunk to about a quarter of its original size, the reason it had rolled around freely inside the skull. The brain lacked the usual protective membranes. Blood vessels had disappeared. The narrow slits or fissures in the brain were filled with peat. But the overall appearance was startlingly similar to a modern human brain.

After the initial shock, researchers rushed the brain into a sealed glass jar. They filled the jar with inert argon gas to prevent any further decomposition from contact with oxygen, and refrigerated the whole package. At that point, the scientists didn't know what to do with it. PCR was in its infancy. "We

CONTINUED ON PAGE 66

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IS EGYPT'S
GREAT SPHINX EVEN
MORE ANCIENT
THAN WE THOUGHT?

A MODERN RIDDLE OF THE
SPHINX

ARTICLE BY ROBERT M. SCHOCH



SPHINX FINDINGS STIR UP CONTROVERSY

Several Egyptologists and geologists have challenged Schoch's conclusions. *Omni* will continue the debate.

Naturally Robert M. Schoch's conclusion that the Egyptians built the Great Sphinx in 5000 B.C. rather than 2500 B.C., as Egyptologists have believed for more than a century, has incited controversy and heated debate. Foremost among Schoch's critics are Mark Lehner, an Egyptologist at the University of Chi-

cago, and K. Lal Gauri, a geologist at the University of Louisville in Kentucky. They dispute Schoch's findings on several points involving quite complex aspects of geology and Egyptology. *Omni* has invited the principals to comment further on the data and the controversy surrounding it in a future issue.

The Great Sphinx looms over the Egyptian desert, keeping silent watch over the tombs of the ancient Pharaohs. A human-headed lion carved from solid limestone, the Sphinx stretches for 240 feet and rises 66 feet above its base on the far-eastern edge of the Giza Plateau, facing the Nile River and the rising sun. For decades, Egyptologists have confidently dated the Sphinx to about 2500 B.C., when the Pharaoh Khafre, also known as Chephren, allegedly commissioned its construction. But new evidence challenges that long-held theory: Examining the great statue from a geological point of view rather than an Egyptological one suggests that much of it was built around 5000 B.C.—thousands of years earlier than previously thought.

Over the years, Egyptologists have held widely diverse opinions about the age of the Sphinx. At various points in their careers, such eminent scholars of the field as Sir Flinders Petrie, Sir E. A. Wallis Budge, and Sir G. C. Maspero considered the Sphinx older than the pyramids it guards, as did the Egyptians themselves from about 1500 B.C. (the beginning of the period known as the New Kingdom) through Roman times. To this day, the villagers who live near Giza have an oral tradition that the Sphinx, which they call Abul Al-Hol, or "the Father of Terrors," is some 5,000 years older than the nearby Great Pyramid of Khufu, also called Cheops, and the smaller pyramids of Khafre and Menkaure (Mycerinus).

In recent years, the prime proponent of an older Sphinx has been John Anthony West, a writer, tour guide, and "independent Egyptologist" who has no formal degrees, credentials, or academic affiliations in Egyptology. He first came across the idea in the works of the late Orientalist, philosopher, and controver-

sial Egyptologist R. A. Schwaller de Lubicz. Buried deep in one of his texts, Schwaller mentioned that the Sphinx showed geological weathering features that indicated it could be much older than most modern Egyptologists believed. But West has no training in geology and so could not convincingly pursue the subject on his own.

I first met West through a rhetoric professor at Boston University, where I am a science professor specializing in geology. I hold bachelor's, master's, and doctoral degrees in geology. The professor, Robert Eddy, had known West for many years and was well aware of West's ideas about the Sphinx's age. West asked Eddy to find an "open-minded" geologist to help explore his theory, and Eddy designated me as a potential candidate.

When I encountered West in the fall of 1989, I found his ideas concerning the Sphinx's age a bit outlandish, but interesting. At that time, West thought the Sphinx might have been built before the Sahara became a desert—the Giza Plateau sits on the eastern edge of the Sahara, just west of Cairo—dating back to at least 10,000 B.C. He based this hypothesis on the severe weathering and erosion evident on the Sphinx's body but not on other nearby manmade structures.

West mumbled something about getting me over to Egypt to evaluate the evidence firsthand, but I figured he wouldn't fly me over there just to point out what was surely a simple error on his part. By June of 1990, though, West and I were indeed in Egypt, walking around the Giza Plateau. While I couldn't render a judgment after a week of simple observation, I became convinced that either the rocks were behaving in very strange ways or West was actually onto something.

The most persuasive piece of evidence for an older Sphinx that I found on that first trip involves the two-stage construction of the temples in front of the Sphinx. Rather than resting majestically on the top of the rocky plateau, as most people envision it, the Sphinx actually sits in a hollow—known as the Sphinx enclosure—formed when the ancient Egyptians carved away the limestone rock to shape its body. Large blocks of this limestone were used to construct two temples, and the Egyptians later covered the limestone with granite facing stones called ashlar. My field observations led me to conclude that the limestone was exposed to the elements and underwent considerable weathering and erosion before the granite was laid over it. In places, the workers cut the backs of the ashlar in an undulating pattern to complement the irregular surface—characteristic of weathering—of the limestone blocks from the Sphinx enclosure. Also, where the granite has fallen away, it's evident that the limestone beneath was not cut smoothly. Rather it shows a higgledy-piggledy surface pattern where apparently the ancient Egyptians, before resurfacing it with granite, attempted to cut back and even out the weathered surface, but didn't take off enough to make the wall perfectly smooth.

Egyptologists generally attribute the granite ashlar on the temples to Khafre: Carved into them are Old Kingdom inscriptions dating back to about 2500 B.C. It seems reasonable to assume that the limestone blocks would have been freshly cut—that is, their surfaces would have been unweathered—when initially used to construct the temples. But if the granite facing covers deeply weathered limestone, then the temples' core structures—which came from the Sphinx ditch—must predate the granite facing by a considerable degree. Since the granite ashlar dates to Khafre's reign, the temples must have been erected earlier, meaning the Great Sphinx must also have been built prior to the reign of Khafre.

On my first trip to Egypt, I could only play tourist. I didn't have official permission to carry out scientific research on the Giza Plateau, and I couldn't enter the Sphinx enclosure. Upon my return to the United States, I spent several months drafting a lengthy proposal to the Egyptian Antiquities Organization (EAO), which oversees all research on the Sphinx and other monuments. I requested permission to carry out detailed, noninvasive geological studies of the rocks comprising the Sphinx and its adjacent structures, specifically looking at the stratigraphy (rock layers), wealth-

TWO GUYS FROM THE FUTURE

FICTION BY TERRY BISSON • ARE
TRAVELING ART COLLECTORS?

THEY COMEDIANS, OR REAL TIME
• ILLUSTRATIONS BY CHRIS GALL

WE ARE TWO GUYS FROM THE FUTURE. "YEAH, RIGHT. NOW GET THE HELL OUT OF HERE!" "DON'T SHOOT! IS THAT A GUN?" THAT GAVE ME PAUSE. IT WAS A FLASHLIGHT. THERE WERE TWO OF THEM. THEY BOTH WORE SHIMMERY SUITS. THE SHORT ONE WAS KIND OF CUTE. THE TALL ONE DID ALL THE TALKING. "LADY, WE ARE SERIOUS GUYS FROM THE FUTURE," HE SAID. "THIS IS NOT A HARD-ON." "YOU MEAN A PUT-ON," I SAID. "NOW KINDLY GET THE HELL OUT OF HERE." "WE ARE HERE ON A MISSIONARY POSITION TO ALL MANKIND," HE SAID. "NO SHIT IS FIXING TO HANG LOOSE ANY SOMEDAY NOW." "BREAK LOOSE," I SAID. "HEY, ARE YOU GUYS TALKING ABOUT NUCLEAR WAR?" "WE ARE NOT ALLOWED TO SAY," THE CUTE ONE SAID. "THE BOTTOM LINE IS, WE HAVE COME TO SALVAGE THE ART WORKS OF YOUR POSTERiors," THE TALL ONE SAID. "SAVE THE ART AND LET THE WORLD GO. NOT A BAD IDEA," I SAID. "BUT, MIRA, IT'S



MIDNIGHT AND THE GALLERY'S CLOSED. COME BACK EN LA MAÑANA." "¿QUÉ BUENO! NO HAY MAS NECESIDAD QUE HABLAR EN INGLES," THE TALL ONE SAID. "NOTHING WORSE THAN TRYING TO COMMUNICATE IN A DEAD LANGUAGE," HE WENT ON IN SPANISH. "BUT HOW DID YOU KNOW?" "JUST A GUESS," I SAID, ALSO IN SPANISH. AND WE SPOKE IN THE MOTHER TONGUE FROM THEN ON. "IF YOU REALLY ARE TWO GUYS FROM THE FUTURE, YOU CAN COME BACK IN THE FUTURE, LIKE TOMORROW AFTER WE OPEN, RIGHT?" "TOO MUCH DANGER OF TIMESLIP," HE SAID. "WE HAVE TO COME AND GO BETWEEN MIDNIGHT AND FOUR A.M., WHEN WE WON'T INTERFERE WITH YOUR WORLD. PLUS WE'RE FROM FAR IN THE FUTURE, NOT JUST TOMORROW. WE ARE HERE TO SAVE ART WORKS THAT WILL OTHERWISE BE LOST IN THE COMING HOLOCAUST BY SENDING THEM THROUGH A CHRONOSLOT TO OUR CENTURY IN WHAT IS, TO YOU, THE DISTANT FUTURE." "I GOT THAT PICTURE," I SAID. "BUT YOU'RE TALKING TO THE WRONG GIRL. I DON'T OWN THIS ART GALLERY. I'M JUST AN ARTIST." "ARTISTS WEAR UNIFORMS IN YOUR CENTURY?" "OKAY, SO I'M MOONLIGHTING AS A SECURITY GUARD." "THEN IT'S YOUR BOSS WE NEED TO TALK TO GET HIM HERE TOMORROW AT

midnight, okay?"

"He's a her," I said. "Besides, *mira*, how do I know you really are, on the level, two guys from the future?"

"You saw us suddenly materialize in the middle of the room, didn't you?"

"Okay, so I may have been dozing. You try working two jobs."

"But you noticed how bad our *ingles* was. And how about these outfits?"

"A lot of people in New York speak worse *ingles* than you," I said. "And here on the Lower East Side, funny suits don't prove anything." Then I remembered a science-fiction story I had once heard about. (I never actually read science fiction.)

"You did what?" said Borogove, the gallery owner, the next morning when I told her about the two guys from the future.

"I lit a match and held it to his sleeve."

"Girl, you're lucky he didn't shoot you."

"He wasn't carrying a gun. I could tell. Those shimmery suits are pretty tight. Anyway, when I saw that the cloth didn't burn, I decided I believed their story."

"There's all sorts of material that doesn't burn," Borogove said. "And if they're really two guys from the future who have come back to save the great art of our century, how come they didn't take anything?"

She looked around the gallery, which was filled with giant plastic breasts and buttocks, the work of her dead ex-husband, "Bucky" Borogove. She seemed disappointed that all of them were still hanging.

"Beets me," I said. "They insist on talking to the gallery owner. Maybe you have to sign for it or something."

"Hm-mm-mm. There have been several mysterious disappearances of great art lately. That's why I hired you; it was one of the conditions in Bucky's will. In fact, I'm still not sure this isn't one of his posthumous publicity stunts. What time are these guys from the future supposed to show up?"

"Midnight."

"Hm-mm-mm. Well, don't tell anyone about this. I'll join you at midnight, like MacBeth on the tower."

"Hamlet," I said. "And tomorrow's my night off. My boyfriend is taking me to the cockfights."

"I'll pay you time and a half," she said. "I may need you there to translate. My *español* is a little rusty."

Girls don't go to cockfights and I don't have a boyfriend. How could I? There aren't any single men in New York. I

just didn't want Borogove to think I was easy.

But in fact, I wouldn't have missed it for the world.

I was standing beside her in the gallery at midnight when a column of air in the center of the room began to shimmer and glow and . . . but you've seen *Star Trek*. There they were. I decided to call the tall one Stretch and the cute one Shorty.

"*Bienvenidos* to our century," said Borogove, in Spanish, "and to the Borogove Gallery." Her Spanish was more than a little rusty; turned out she had done a month in Cuernavaca in 1964. "We are described in *Art Talk* magazine as the traffic control center of the Downtown Art Renaissance."

"We are two guys from the future," Stretch said, in Spanish this time. He held out his arm.

"You don't have to prove anything."

Girls
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and I
don't have a boyfriend.
How could
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single
men in New York. ♀

said Borogove. "I can tell by the way you arrived here that you're not from our world. But if you like, you could show me some future money."

"We're not allowed to carry cash," said Shorty.

"Too much danger of Timeslip," explained Stretch. "In fact, the only reason we're here at all is because of a special exemption in the Chronolaws, allowing us to save great art works that otherwise would be destroyed in the coming holocaust."

"Oh dear. What coming holocaust?" "We're not allowed to say," said Shorty. It seemed to be the only thing he was allowed to say. But I liked the way that no matter who he was talking to, he kept stealing looks at me.

"Don't worry about it," said Stretch, looking at his watch. "It doesn't happen for quite a while. We're buying the art early to keep the prices down. Next month our time (last year, yours) we bought two *Harings* and a *Ledesma* right around the corner."

"Bought?" said Borogove. "Those

paintings were reported stolen."

Stretch shrugged. "That's between the gallery owners and their insurance companies. But we are not thieves. In fact . . ."

"What about the people?" I asked. "You stay out of this," Borogove whispered, in *ingles*. "You're just here to translate."

I ignored her. "You know, in this coming holocaust thing. What happens to the people?"

"We're not allowed to save people," said Shorty.

"No big deal," said Stretch. "People all die anyway. Only great art is forever. Well, almost forever."

"And Bucky made the short list!" said Borogove. "That son of a bitch! But I'm not surprised. If self-promotion can—"

"Bucky?" Stretch looked confused.

"Bucky Borogove. My late ex-husband. The artist whose work is hanging all around us here. The art you came to save for future generations."

"Oh, no," said Stretch. He looked around at the giant tits and asses hanging on the walls. "We can't take this stuff. It would never fit through the Chronoslot anyway. We came to give you time to get rid of it. We're here for the early works of Teresa Algarin Rosado, the Puerto Rican neorealist/minimalist. You will hang her show next week, and we'll come back and pick up the paintings we want."

"I beg your pardon!" said Borogove. "Nobody tells me who will or will not hang in this gallery. Not even guys from the future. Besides, who's ever heard of this Rosado?"

"I didn't mean to be rude," said Stretch. "It's just that we already know what will happen. Besides, we've already deposited three hundred thousand dollars in your account first thing tomorrow."

"Well, in that case . . ." Borogove seemed mollified. "But who is she? Do you have her phone number? Does she even have a phone? A lot of artists . . ."

"How many paintings are you going to buy?" I asked.

"You stay out of this!" she whispered, in *ingles*.

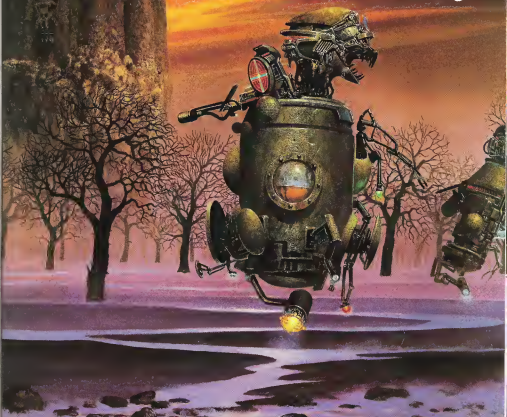
"But I am Teresa Algarin Rosado," I said.

I quit my job as a security guard. A few nights later I was in my apartment when I noticed a shimmering by the sink. The air began to glow and . . . but you've seen *Star Trek*. I barely had time to pull on my jeans. I was painting and I usually work in a T-shirt and underpants.

"Remember me, one of the two guys from the future?" Shorty said, in

CONTINUED ON PAGE 71

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INTERVIEW

The diva of West Coast performance art indulges in a little cosmic laughter at the fate of Earth

RACHEL ROSENTHAL

PHOTOGRAPHS BY DAVID MICHAEL KENNEDY

I believe in the sacred clown: in many traditional cultures, the persons who are the clowns, who make people laugh, have been high in the spiritual hierarchy and considered close to the gods. And of course the gods are always laughing at us. So if we can laugh at ourselves, we get a little closer to the gods." Rachel Rosenthal is not a clown, even by her own definition. She's called a performance artist, but that, too, is a category that cannot contain her. Combining elements of theatre, dance, painting, sculpture, projected slides and texts, taped and live music, Rosenthal creates art she hopes will help heal the earth.

Born in Paris in 1926 to Russian parents, she began performing at age three and just four years later was presenting "events" for up to 150 guests in her parents' home. Her parents, she says, were "sensual people who loved art and music." Her home was filled with the works of Monet and Chagall, and her father, a wealthy jewelry importer, frequently traveled to Italy accompanied by an art historian.

When the Nazis invaded France in 1939, the Rosenthals fled penniless, eventually arriving in New York City, where Rachel attended the High School of Music and Art. She studied art with Hans Hoffmann, dance with Merce Cunningham, and theatre in Paris with Jean-Louis Barrault. Her friends then included John Cage, Robert Rauschenberg, and Jasper Johns. In 1955 she moved to Los Angeles where she founded the Instant Theatre and met the actor King Moody, better known as the clown Ronald McDonald. They were married for 20 years. Since 1975 she has written, directed, and acted in close to 30 full-length performances in the United States and Europe.

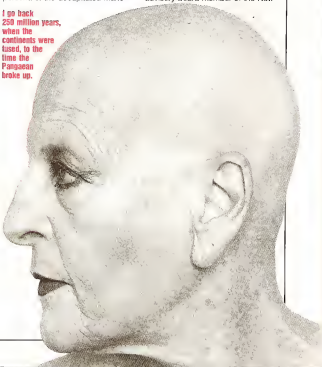
Rosenthal's art is dedicated to staving off what she envisions as a "total ecological crash." One

performance piece, "L.O.W. in Gaia," is based on her three-week rite de passage in the Mojave Desert when she turned 60. The Death Crone is a central character in the piece; another is a conservation-minded camper who accumulates increasing numbers of ballooning plastic bags attached like milestones to her body. In the shamanistic "Pangaea Dreams," she travels back 250 million years and gradually re-creates the evolutionary process up to the present. In "Rachel's Brain," which won an Obie Award in 1987, she "becomes" first the persona of the decapitated Marie

Antoinette and later Koko (the "talking" gorilla), attempting to learn sign language to explore symbols of society's alienation of mind from body, and nature. In "The Others," she brought more than three dozen animals on stage.

Besides creating and staging pieces, Rosenthal also teaches at her studio and has taught performance at the University of California and the Otis School of Art and Design, both in Los Angeles, UC-Santa Barbara, and New York University. She is director of the Rachel Rosenthal Company and an advisory board member of the New

**I go back
250 million years,
when the
continents were
fused, to the
time the
Pangaea
broke up.**



Museum of Contemporary Art in New York. In her Los Angeles studio, Rosenthal conducts a workshop called "Doing by Doing," designed to access more profound levels of the self through art making. "Overcoming fear is the *mondo* problem people come up with," humans are made up of cosmic stuff, she says, and as the cosmos is both creative and violent, so are we. Creativity and violence are in inevitable conflict. "I try to take people away from the sense of separateness, loneliness, isolation, and alienation that is killing us."

Her most recent piece, "I[Name] FUTURFAX," presented at the Whitney Museum in New York, shows us a world of rationed food, government hydrofarms—a world without nature or art, where extinction is a certainty. "Until now I've re-

entations. I had puppet theatres I'd manipulate for hours on end. I always felt as if I were on show for my parents, because I was brought up by nurses and governesses. So when we actually faced each other, it was an event. I would be on my best behavior, well dressed, well combed, clean and cute. I felt like a little pink poodle, a Shirley Temple-like person. At six, I began ballet classes and felt like a dancing bear. Every year on my birthday there was a huge celebration because it was also my parents' wedding anniversary. That's when I performed for 150 people.

I'd go through agonies up to the performance—just like now. I'd enjoy performing and enjoy the applause. I never stayed downstairs afterwards but gath-

and something would be touted as so new and innovative, I'd say, "Well, we've done that." Because we did it all.

After ten years, I went back to the visual arts and sculpture. And in 1975, I began to see a lot of performance art, and thought, "I can do that. I've been doing that under another name." A gallery asked me to do a performance in 1975, and that was the beginning of it. Since then, that's all I've done, it satisfies all my needs. I control everything: visuals, sound, other people, animals, even cars. The beauty of it is that it also gives me enough improvisational leeway, which I adore. I love to improvise.

Omni: Why is improvisation so vital?
Rosenthal: It deals with being at one with time, creating in the now. When you don't improvise, being at one with

SELF-DESCRIPTION:

Interdisciplinary artist,
eco-feminist, anti-racism
activist, vegetarian

GENDER DESCRIPTION:

A gay man
in a woman's body

REASON FOR SHAVED HEAD:

"In a 1981 piece about body and
soul parting ways, I
created this ritual to get rid of the old
so the new could grow.
I planned to grow it back right away,
but it felt so great, as if
finally I took the way I feel inside."

WHY HUMOR:

"I like to laugh, but pragmatically,



an audience is disarmed
by laughter and more apt to absorb
what I have to say.
Otherwise, the pit is too
tough to take."

ON INTELLIGENT MACHINES AND SOULS:

"All objects have souls.
Some have souls that may look more
like ours because we've
created them that way, but that
doesn't mean one object
has more soul than another."

QUOTE:

"We are made of cosmic
material, so each of us is like a
spark from this furnace of
unbelievable violence and force,
creativity and destruction."

ally been afraid to put this out in my work because it is so disturbing," she admits. The greatest threat to the planet's welfare, she believes, is the failure to notice.

A converted storefront building serves as Rosenthal's home, studio, and business office. I knew I'd arrived when I saw the posters in the window urging the boycott of veal. She shares her quarters with two cats and two dogs. A life-sized replica of Koko sits in an armchair. "I'm not saying this is the way it will be," she comments as she leaves to walk her dogs, "just the way it might be. What if and then what. Who knows how it will all turn out."

—Denise Meola

Omni: You've performed since you were three?

Rosenthal: Yes. We had a fun family and were always having theatrical pres-

ented up all my presents and went upstairs to my room to be by myself. So in my relationship with people, there was no intimacy, just the love that an audience gives a performer and a performer gives back to an audience. This is what my real temperament wanted to do. It started very early.

Omni: How did your career as a theatrical improviser begin?

Rosenthal: When I returned to Paris after the war, I read Antonin Artaud's *The Theatre and Its Double*, and suddenly it was clear that I had to do experimental theatre. During the Fifties and Sixties I had my own theatre company in Los Angeles. Our work paralleled experiments being made in New York at the time. It was imagery-oriented theatre, completely improvised, totally spontaneous. We experimented in so many different ways that for decades afterwards, whenever I went to the theatre

time is hard to do because you're either remembering something past or projecting into the future. You're not really mobilizing your whole being in the creative act that's happening at the moment. The one thing I do not improvise is the text. I want to be very precise. But the way I present the text—timing, shaping, amount of reality or unreality, abstract or real movement—this stuff I play with every time I perform it.

Omni: How does your performance art differ from the Dadaist shows early in the twentieth century or from the "happenings" of the Sixties?

Rosenthal: Dada was steeped in Absurdism, and "happenings" were open-ended, real tasks usually performed by many people. Performance art evolved from those and body and action art, but developed as a form where one person is usually in control of every aspect of the piece (unless it's a collaboration, as

occurred later on). Performance is very personal, vulnerable, with a strong visual art input and conceptual matrix rather than a linear narrative as often is the case in conventional theatre. Visual artists were first to do performance art. When I started, I was already much more theatrical than anybody else. Their philosophy was that things had to be totally untheatrical, no idea of acting or theatrical illusionism. It was all real time, real space, real actions. What I do is theatrical with elements of acting, illusion, and persona. I'm not truly a performance artist.

Omni: That pure form has become rare.

Rosenthal: Yes, but quite a few in Europe and the United States still do it. The need for it has almost disappeared because it came first of all from a rebellion against the crass materialism of the art world. People wanted to do things that could not be bought and sold, that didn't involve an object you can peddle, that were ephemeral. That of course has disappeared because everybody now wants to be bought and sold; it's not economically possible anymore to do performances and not be remunerated. If it weren't for grants, foundations, and presenters who pay my fee, I wouldn't be able to exist or do my work.

Omni: Why are women drawn to this kind of art?

Rosenthal: It's simple. They were barred from almost everything else. Hordes of women made visual art but few had a gallery representing them. Performance art was a way for women to make a dent in the art world without passing through the art structure—the gallery scene, museums, collectors, the whole schmeer. This way they could be who they are. Also, somehow women have a knack for performance.

Women were very revolutionary in the Seventies, going into taboo areas. Men did taboo things, but most of what they did had to do with body and pain. Many men worked on the masochistic level, doing ordeals, shooting themselves, and so on. Women were usually more interested in telling their story. This was a perfect vehicle, an art way of making personal and political statements. This was more effective than going on a soapbox, writing an article, or giving a lecture. For women, this was a fabulous way to get out of the closet and be who we are.

Omni: Artists such as Laurie Anderson, Eric Bogosian, and Sandra Bernhard use humor to get across many of their ideas. Why has comedy become so popular?

Rosenthal: It's always been popular. Peo-

ple want to be entertained, to be made to laugh. In the old days, people would go to the vaudeville, the circus, the music hall and laugh there. Now they go to other places. The performers you've mentioned target a sophistication level: audiences of a certain sophistication who don't go to the circus or clubs to see stand-up comics. This is a bit of an elitism where these audiences can get the "in" joke.

Omni: What makes people laugh?

Rosenthal: Unfortunately, Aristotle's book on comedy was lost. There's been essay upon essay to try to analyze what makes something funny and little overall agreement. One thing that happens, though, is that the manipulation of events in comedy allows us to disengage from them, distance ourselves from personal and emotional investment; it allows us to be closer to the gods in the sense that we're farther away from what ails us most.

Clowns base much of their physical routines on the technique of mechanizing the organic. Even simple stuff in circuses where a human reacts as though you're pushing its buttons makes people laugh. On a more intellectual level, a metaphor in a joke can be used as a kind of trigger. You trigger the punch line and get an almost automatic response. You become a machine yourself, watching a machine. Like cartoons, you see these people and animals go through horrendous pain and accidents. It's no longer a feeling being you're watching.

Omni: What is the role of an artist in today's culture?

Rosenthal: The separation between art and science is going to disappear completely. More scientists realize their work is art and not hard science and vice versa. Art is like research and development in science. That's why it's so hard to assess if it's "good" or "bad." Quantum physics has shown us something wonderful: Everything we touch and observe changes for the reason of being observed; our input actually changes the world. There's a tremendous movement of Earth-oriented philosophies and political awareness among artists. If artists read science and connect with the most contemporary realizations about the universe and reality and then work that knowledge into a form readily understood, that will go far in creating a new reality. Artists have a calling, a responsibility to understand these new scientific paradigms and create work that reflects that understanding, that disseminates these paradigms on the human level.

Omni: How has the evolving technology changed the ways in which artists



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UFO SHRINKS

To most people, UFO abductees who say they've been kidnapped by aliens seem like flakes. But recently, this maligned group of sufferers has garnered support from some members of the mental health profession: psychiatrists, psychologists, social workers, and other assorted shrinks. That's the scoop, at least, according to psychiatric social worker John Carpenter, recently named abduction investigation coordinator for the Mutual UFO Network (MUFON), the Seguin, Texas-based UFO group. Thanks to Carpenter's efforts, in fact, MUFON has recently signed up more than 100 mental health professionals interested in working with the alleged victims of UFOs.

One of MUFON's rising stars is Toronto therapist David Gotlib. Gotlib began to work with abductees in 1988 after meeting a woman who suffered from extreme anxiety because, she said, aliens had whisked her away. Several other therapists had refused to work with the woman, but Gotlib took her on. "I was sympathetic," he explains, "because she was systematically being

denied help." Now, some four years and 35 cases later, Gotlib attends abduction conferences, writes papers, and even cranks out a newsletter of useful information for abduction researchers.

Another abduction shrink is Carpenter

Carpenter works 40-hour weeks with disturbed patients, yet he has added more than 50 abductees to his caseload as well.

Abductees are also of prime interest to Harvard psychiatrist John Mack. At first, Mack explains,

self-aggrandizing, or trying to hide child abuse. But since their stories were beyond the bounds of what most conventional therapists might consider reality, they were said to belong in some psychiatric category or other."

Of course, not everyone is willing to jump on this bandwagon. Robert Baker, a retired professor of psychology from the University of Kentucky and an expert on hypnosis, for example, says that mental health professionals get into abduction work because "they are naive and eager for attention and publicity." Stories elicited through hypnosis, which may enable subjects to fabricate scenarios, are suspect, Baker says. Any legitimate psychiatrist who has worked in the area, he adds, "would be the first to tell you that the abduction phenomenon is utter nonsense."

Still, as far as Carpenter is concerned, the abductees offer mental health professionals an area for fresh inquiry and debate. "I have found," he says, "that if you take it seriously and talk about it seriously, serious people will listen."

—Paul McCarthy



An inner circle of shrinks soothes the psyches of UFO abductees.

himself. He'd been attending a workshop at The Menninger Clinic in Topeka, Kansas, he explains, when he read *Intruders*, the book by abduction research pioneer Budd Hopkins. An expert in hypnotherapy, Carpenter was intrigued by Hopkins' use of hypnosis to bring abduction accounts to the fore. "I could understand what he was talking about and envision the process," says Carpenter. Soon after contacting Hopkins, he had his first case.

he considered the UFO phenomenon "nonsense." Then, two and a half years ago, a psychologist friend introduced him to Hopkins. Hopkins brought him up to speed on abductions and Mack realized they were not a psychiatric anomaly, but rather, "an important and interesting phenomenon."

In fact, says Mack, "I realized there was a lot of misdiagnosis among abductees. These people were not psychotic, dissociative, malingering,



Sky Mound. Art on a landfill.

STONEHENGE IN NEW JERSEY

A 57-acre garbage dump in northern New Jersey is about to be turned into a modern-day Stonehenge. Dismayed by the ten tons of garbage marring the site in Kearny, the state's Hackensack Meadowland Development Commission (HMDC) has asked artist Nancy Holt to reclaim the site in the form of a work of art called Sky Mound.

Like the original Stonehenge in England, Sky Mound will serve as what Holt calls "a celestial observatory." Situated atop what was once a 110-foot-high landfill, in fact, Sky Mound will offer sweeping views of New

Jersey and New York.

The new art work, says Holt, calls for transforming the flat-topped, pyramid-shaped landfill into a park with radiating gravel paths, 10 large mounds, steel poles, vegetation, and a pond designed to attract some of the area's 250 species of birds. In addition, a series of arcing pipes will probe deep into the landfill, recovering methane from the rotting garbage below and providing an alternative source of energy for those in the community.

"The extreme positions of the moon will be framed through the methane pipe loops, and the rising and setting of the stars Sirius and Vega will be marked by tunnels and stairways," explains Holt. "On the solstices and equinoxes, people will be able to observe the sun rising and setting between the mounds framed by the Sky Mound poles."

Because the Kearny landfill is adjacent to the

New Jersey Turnpike and the Amtrak train lines and is observable from a flight path to Newark Airport, Sky Mound will be seen by as many as 125 million commuters annually.

"Landfills will be seen as the legacy of our generation," says Holt. "They are the monumental artifacts of our era, and the time has come to think about how we're going to bring them back to the community."

—Anita Baskin

PET SCULPTURES

When a pet dies, the loss is often hard to take. Perhaps that's why Americans are buying custom-made tombstones in the pet cemetery and fancy urns for pets' ashes. Now there's a new option: Lifelike sculptures made from a pet's remains.

Susan McNeely-Ellebracht of Dexter, Missouri, came up with the patented process for these sculptures three years ago, after her own pet cat, Casey, died. Like most grieving pet owners, McNeely-Ellebracht found herself poring over "flat photos" of the animal. "The photos didn't help," she says, "so I tried to find something better."

According to McNeely-Ellebracht, building a realistic sculpture of a pet is not easy. "We do

interviews with the owner. Then the pet's ashes, along with photos, are shipped to company studios in Grand Rapids, Michigan. Ashes are mixed with clay and poured into a mold of the animal. There are several options, adds McNeely-Ellebracht. "We can do different sizes and colors and even add on the pet's actual collar or bow."

But are these pet sculptures really good for the owner? Not according to Bonnie S. Mader, manager of the Pet Loss Support Hotline, affiliated with the University of California-Davis Veterinary



Pet memorial.

School, who says sculptures of dead pets may encourage bereft owners to "pretend the animals are still in their life."

The new pet sculptures begin at \$475 and range into the thousands.

—Allen Salzberg

Celestial observatory with a view of New York.



The Artist

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How does it
feel to star
in a creative
process ?



To tell the truth
until the snow melts
I could use
a cushion !

MUMMY

CONTINUED FROM PAGE 44

didn't know if we could ever rescue a gene," Hauswirth says.

Some lab work at the time had raised hopes that it might be possible. California researchers led by the late Allan Wilson, Ph.D., at the University of California at Berkeley, reported that they had been able to isolate and copy DNA from museum remains. Their specimen was an extinct horselike animal called a quagga. Assisted by Russell G. Higuchi, Ph.D., Wilson accomplished the cloning by inserting pieces of quagga hereditary code into bacteria. When the bacteria multiplied, they multiplied the quagga DNA as well. The researchers eventually extracted that DNA—genetic clones of the original quagga genes—from the bacteria. Then they compared the cloned quagga genes with genes from modern animals. To the scientists' surprise, the evidence showed that the quagga was actually a closer relative of the zebra than the horse.

Another breakthrough came that same year at the Cetus Corporation in Emeryville, California. There, a researcher developed a new technology that would supplement bacterial cloning with a biological "copy" machine.

The polymerase chain reaction (PCR) machine was the invention of biochemist Kary B. Mullis, Ph.D., at Cetus. [See *Omni* Interview, April 1992.] Mullis, now a consultant, says the idea for the technique came to him one Friday night in May of 1983. By the following fall, he was ready to try his first experiment. It failed. "I was shooting for the moon," he says, with an overly ambitious test of the idea. He scaled back and ran the first successful PCR experiment in December. When it worked, "I felt terrific," Mullis says. That night, he dropped by the home of Fred Faloona, a technician who had worked with him, and over beers told Faloona that the experiment "was going to change molecular biology." He was right.

Mullis had invented a comparatively simple way to amplify any small piece of DNA. The easy-to-use device, Hauswirth says, works like an oven that alternately heats and cools the molecules of heredity. "It's just a temperature cycler," he says. "Just a block with a few holes in it for test tubes. There are no moving parts."

The catch is making the recipe for what goes into the test tube. Chief ingredient is a sample of the DNA under study. In its natural state, it's shaped like a long ladder twisted into a spiral

Under heat close to the boiling point of water, the hydrogen bonds that hold the two strands of the spiral together break vertically, down the middle of the "rungs." The heat-sundered parts now simmer in a soup, rich in parts needed to make copies of the original.

What's clever is that the soup contains tiny fragments of laboratory-produced DNA called oligonucleotides, far smaller than the sample DNA strands. These are comparable to short chains of letters a word processor operator types on a keyboard to begin a search for a passage in a document. After the heat goes on and breaks down the sample, the oligonucleotides find the beginning and end of a specific portion of the broken, ancient DNA. They bind with and mark off portion after portion, eventually reconstructing each of the two broken strands. Then other ingredients in the "soup" fill out two new double-stranded spirals that perfectly match part of the original sample.

Researchers don't have to know the pattern of the DNA between the oligonucleotides any more than a word processor operator needs to know all the words between markers in a block of copy. But once the strands have been "tagged" with the oligonucleotides, Mullis says, "you can take a portion of DNA out of its context and stick it somewhere else, as in word processing. Or you can make a lot of copies of it," each exactly the same length and therefore easy to identify and study in later analyses. Researchers make the duplicates by repeatedly turning up the heat—breaking up the double-stranded spirals and forcing chemicals from the soup to pair up with each single strand, forming two new double strands. The process enables its users to reproduce the ancient gene and to scan for similarities and differences between ancient and modern hereditary code.

None of this takes a long time. "You can amplify one gene from one brain in about four hours," Hauswirth says, although analysis of results may take another week or two.

The technique doesn't always work perfectly, Hauswirth acknowledges. "Each sample requires different PCR conditions to get it to amplify. It's not just a routine thing to crank out a whole bunch of samples." But when it works, PCR is so sensitive, it can detect one cancer cell out of a million healthy cells. And for archaeologists, it's like a time machine: The technique enables them to reconstruct far older and hence more time-ravaged samples than ever before.

Hauswirth is now applying the laboratory "time machine" to a mother lode



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of such samples. Out of 177 bodies found so far in the bog, 91 yielded brains or substantial brain tissue. If we could reconstruct their memories, the collection would give us centuries of tribal history. "These people were buried over a period of at least one thousand years," Hauswirth says.

But the brains may yield up something almost as good as an oral history. Stored in a locked freezer at -80 degrees Celsius, the neuronal tissue may give researchers genetic information virtually impossible to obtain by studying modern populations. "We have a genetic sampling of fifty generations of humans," Hauswirth says, "very likely related to each other. We may have the great-great-great—forty-seven times great—grandfather of the youngest individual. We'll try to work out those relationships as well as we can."

Hauswirth says PCR probably won't reveal a full family tree spanning a millennium. But preliminary work shows that portions of chromosome 1, the largest of 23—each made up of thousands of genes—remains unchanged throughout most of the 50 generations. It'll probably take five years to trace all the chromosomes, he says. The PCR work should disclose some of the most important personal events in tribal history.

"It will tell us things like how isolated this population was—how much contact these people had with other populations with different genetics, and how much mixing there was."

Another major study is designed to compare the Windover genetic material with genes from several other ancient, contemporaneous populations—probably one other North American tribe and another from Middle or South America. The work should help answer some old questions about our past. If the genetic profiles are different, for example, that might mean that waves of immigrants crossed the Bering land bridge at different times. Or it might mean that just one group of nomads entered the hemisphere, and then, over thousands of years, their common genetic pool dispersed and changed.

The PCR trail may also lead to reconstructions of tribal catastrophe. Prior to Columbus' arrival here in the late fifteenth century, the native population amounted to more than 20 million, according to some estimates. In the subsequent century, contact with Europeans cut the population to fewer than 5 million, perhaps from diseases like smallpox, influenza, or measles. In theory, these survivors passed through a genetic "bottleneck," leaving behind the

rich hereditary diversity that had developed on this continent since the first inhabitants arrived.

The PCR studies of several Native American populations could confirm the devastation. The test is straight-forward, Hauswirth says. "We should see a higher diversity—more different versions of a given gene—in ancient populations than in modern."

PCR might even find messages in the DNA about what killed the earliest Americans. In research published last year, David Lawler, Ph.D., a postdoctoral fellow at Stanford University, and his associates, working with Hauswirth, reported amplifying genes from one of the Windover brains named S3325 (for "special sample"). The genes were partly responsible for immune system defenses against illness. No one can say yet whether S3325 was more or less likely than we are to catch colds or any of the New World maladies imported by European settlers. But researchers predict that within the next five to ten years, PCR will give us the tools to read prehistoric medical records: DNA evidence of disease resistance or susceptibility. Comparisons with our own immune systems may reveal the nature and extent of the changes over 7,000 years.

And scientists may be able to peer back not just 7,000 years, but literally millions. The reason for this estimate, the work of a Wayne State researcher who's been able to make copies of plant DNA millions of years old. At first, the claim of Edward Golenberg, Ph.D., an ecological geneticist, drew open skepticism from other researchers who argued that DNA couldn't survive intact for more than a few thousand years. Golenberg's repeated success has blunted the criticism, although he says plant DNA has a clear longevity edge over the DNA of animals and humans.

The plants Golenberg analyzed came from the ranch of Francis and Vickie Kienbaum of Clarkia, Idaho. The leaves never would have surfaced if Francis wasn't a snowmobile buff. In the fall of 1971, he borrowed a bulldozer from a friend to make a four-acre oval racetrack on his 100-acre land. He was amassing dirt from a 60-foot-high knoll at the south end of the track late one night when he happened to hit a slick patch of soil about 16 feet under the surface. "I guessed it was just crap," Kienbaum says.

He couldn't see it clearly under the lights of the bulldozer, and he left the wet dirt before sunrise. When he returned to the site a week later, he was surprised to find a pile of dead leaves where he had been digging. "It



smelled like an old lake bottom," Kienbaum says. He puzzled over the find for a few days and then called the geologists at the University of Idaho.

"I told a lady there that there were all kinds of black leaves on the ground," Kienbaum says. "They were sitting in clay, and they came loose and blew all over. She started quizzing me. She says, 'Well, how old are the leaves?' I say, 'About two weeks.'"

University of Idaho geologists led by C. Jack Smiley, Ph.D., soon determined that Kienbaum's estimate was wrong. The researchers using radiocarbon techniques estimated that the leaves were alive during the Miocene period. Then, the land that became the Kienbaum snowmobile track—today used for dirt-bike races—was a warm forest. The leaves fell from oak, beech, tulip, and magnolia plants through humid air into a large lake.

The dead plants Kienbaum found were probably at least 17 million years old. Today, anyone can scoop up a carton of the leaves by paying Kienbaum \$5. (Call ahead to Clarkia: 208-245-2606.) A couple thousand people a year pick up some, wrap them in newspaper, and carry them away in a cardboard case. Kienbaum says the leaves often appear red, yellow, or green when you shovel them from the ground but turn black within minutes when exposed to air.

They're not much good as compost, he says. "It's harder than it get to get something to grow" in the sticky, clay-filled soil that rests on his track call "dinosaur dung."

But starting in 1988, PCR analysis of the leaves has found and amplified traces of what Golenberg argues is ancient DNA. He started with seven samples of frozen plant material, and within 24 hours, working in the laboratory of Michael T. Clegg, Ph.D., at the University of California at Riverside, suspected he had copied one of their genes. It took six to nine months to complete the work confirming that the DNA was recognizable—as the biological instructions for making part of a magnolia, 17 million years ago.

Golenberg's find has raised new speculation about whether the genes of dinosaurs—who lived some 48 million years earlier than the ancient magnolia—might have survived as well. "There's a chance, yeah," Golenberg says. But in general, plants have an edge on dinosaurs and us, he says. One reason is that for millennia, flowers and greenery have produced protective chemicals that are distasteful to herbivores. Some of these, like tannins, are natural preservatives. So plants of-

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ten carry with them nature's version of a do-it-to-yourself mummification kit. Animals and humans are comparatively riddled with bacteria that often live on after their host's death and consume the genetic code, particularly in soft tissue. That's why our best hope for retrieving dino DNA, Golenberg says, is probably finding ways to pull it out of bones.

One widely recognized expert on bone DNA, though, says it's unlikely. "I think it's worthwhile trying," says Erika Hagelberg, Ph.D., a research scientist with the Institute of Molecular Medicine at the University of Oxford in England. "There's material that's very well preserved. But I don't think that the PCR techniques developed up to the moment would be really sufficient to be successful with anything as old as that. It would need quite a bit of work and refinement still."

Over the past three years, Hagelberg has been successful in amplifying DNA from seventeenth-century skeletons found in a mass grave in Abingdon, England, and from a 5,000-year-old thighbone found in a cave in the Judean Desert. The genes she found were certainly human.

Some critics suggested that her results might be due to contamination. PCR is so sensitive that simply handling

the bones, rubbing off a few flakes of skin, could result in a false blossoming of human DNA. "I was getting more and more worried, thinking this is a real possibility," Hagelberg says. So she decided to put PCR to a challenging test.

She ran her technique on a white, well-preserved bone taken from the Mary Rose, a ship that sank and tilted quickly in the English Channel in 1545. She knew before she started that the bone was a leg of pork, one of many found among the cutlery, leather shoes, and medicinal salve dug from the silt. Fortunately for PCR, the results, published last year, were unequivocal. The DNA in the bone was pure pig.

Hagelberg is one of thousands of researchers in hundreds of laboratories today using a technique that didn't exist nine years ago. Thanks to the radical new technique, the scientists say, we now have the ability to go back and look at genes that, in essence, no longer exist on the face of the earth. In fact, the PCR breakthrough also marks a turning point for the human race. From now on, even after we die, with proper tending in the modern equivalent of the Brevard bog, we can supply the template for copies of our genes. And someone can reproduce portions of the code that made us. ☐

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SPHINX

CONTINUED FROM PAGE 48

ering, erosion, and geomorphology (land forms). My studies didn't require collecting any samples, or breaking or disturbing any rocks.

In addition, I needed to examine the structure and weathering features beneath the rocks' surface and to find out what lay under piles of sand. But how could I see through 50 or more feet of sand? How could I probe nondestructively through rock to see how deeply it has weathered or whether it contains cavities, voids, or chambers? West and I ultimately decided to ask permission to pursue limited seismic investigations near the Sphinx, which the EAO granted along with the rest of our proposal.

West and I carried out the seismic work as well as other research when we returned to Egypt in April 1991. We were accompanied by Thomas L. Dobson, a geophysicist with the Houston firm of McBride-Ratcliff, who had signed on to supervise the technical aspects of gathering and analyzing the geophysical data. The seismic research required hitting a steel plate with a sledgehammer to generate energy waves (essentially sound waves) that traveled below the surface of the rock and sand, reflecting off of whatever was underneath. Electronic geophones—microphones, more or less—picked up the resulting vibrations at the surface. The geophones fed their data into a sophisticated portable seismograph, which stored it on computer disks. From the seismic data, we reconstructed cross sections of the area beneath the rock and sand, creating pictures of what lay hidden underneath our feet without disturbing more than a few pebbles.

After collecting our data, we discussed our work with colleagues at Cairo University and returned to the United States to analyze the data. I returned to Egypt in June 1991 to collect more data and further check the information I'd already gathered.

Based on the data, I've concluded that the Sphinx was built in stages. The Egyptians carved the core of the Sphinx—the front and sides—first, in at least 5000 B.C. and perhaps earlier. Later, possibly in Khafre's time, workers chiseled out the rear of the Sphinx and recovered the head. No one knows what the original head looked like, many observers consider the current head too small for the body, and it shows signs of more recent cut marks than does the body. Furthermore, it has long been suggested that the face of the Sphinx portrays Khafre, but this assumption has re-

cently been questioned. After detailed analysis, Frank Domingo, a senior forensic officer of the New York City Police Department, concluded that the face of the Great Sphinx does not match the face seen on statues of Khafre. Most Egyptologists agree that since Khafre's time, the Sphinx has been restored and refurbished many times, as evidenced by the layers of stone veneer covering much of the Sphinx's body and paws.

Geologists can date land forms by analyzing their weathering and erosion patterns. In examining the rocks of the Giza Plateau, including those incorporated into the Sphinx and nearby structures, I observed several distinct modes of weathering in identical rocks from the same formation of limestone. The Sphinx's body and the walls of the Sphinx enclosure exhibit moist precipitation-induced weathering, giving a rolling, undulating, very deeply weathered profile to the vertical rock surface. By contrast, structures unambiguously attributed to early and middle Old Kingdom times (2600 B.C.—2300 B.C.), the same time the Sphinx was supposedly built, display primarily wind-induced weathering and fairly little precipitation-induced erosion. Weathering produced by the effects of the wind looks much different from that caused by precipitation. On these structures, much of the original surface remains intact, often with hieroglyphic inscriptions still legible, but in places, the rock is softer and has consequently been worn away by wind and sand abrasion, creating gaps in the vertical rock surface.

The precipitation-induced weathering evident on the Sphinx—clearly preserved under the oldest repairs to the statue's core, which date back to at least 1400 B.C.—harks back to an earlier, moister period of time preceding the current and regime that has held sway on the Giza Plateau since middle and late Old Kingdom times. Both historical and geological data indicate that the area underwent a moist period, with sporadic heavy rains, between 5000 B.C. and 3000 B.C. Since then, the Giza area has simply not experienced the precipitation necessary to produce the erosional features found on the Sphinx's core body. For corroborative evidence, one need look no farther than the Saggara Plateau, about ten miles from the Giza Plateau, where fragile mastabas, or tombs, built around 2800 B.C. of sun-dried mudbricks show no evidence of the precipitation-induced weathering seen on the Sphinx. Therefore, the Sphinx must predate these structures—by a considerable degree, given the depth of weathering

seen in the Sphinx enclosure.

A few geologists have previously noticed the anomalous and very ancient weathering on the Sphinx's core body, but none seem to have drawn the conclusion that the Sphinx must be older than its traditional attribution of 2500 B.C. In fact, the well-known geologist Farouk El-Baz has suggested that the Great Sphinx is nothing more than a yardang—a natural erosional land form, essentially a wind-shaped hill—that the Old Kingdom Egyptians merely "dressed up" to look like a Sphinx. But El-Baz's yardang hypothesis is untenable, because in order to carve the Sphinx's body, the ancient Egyptians had to dig a ditch around it—the Sphinx enclosure, which is clearly artificial and manmade. Moreover, substantial evidence indicates that the Egyptians used the blocks removed from the Sphinx ditch to build the temples in front of the monument.

Seismic investigations conducted on the floor of the Sphinx enclosure suggest that on the north, south, and east sides (the Sphinx faces due east), the rock has undergone considerable weathering, from the surface to a depth of between six and eight feet, atmospheric moisture has made the rock more porous and caused some mineralogical changes. Along the back or west end, the identical limestone has weathered to a depth of only about four feet—compatible with a date of about 2500 B.C. If the Egyptians had carved the entire body of the Sphinx out of natural bedrock at one time, the limestone surrounding it should show the same depth of subsurface weathering everywhere. The data we collected indicates that initially only the sides and front of the Sphinx were carved free of the rock, while what would later become the back or rump originally merged with the natural rock. If the back end dates back to about 2500 B.C. and the other three sides exhibit about 50-percent to 100-percent more weathering, then they are probably at least that much older than 2500 B.C., dating the Sphinx's core body to about 5000 B.C. The seismic data is corroborated by the precipitation-induced weathering patterns evident on the Sphinx's body and the Sphinx enclosure.

In October, I presented my Sphinx work at the Annual Meeting of the Geological Society of America in San Diego. Geologists tend to be an honest lot, and I knew that someone would surely point out any major misinterpretation of the data. Much to my relief, no one found any errors in my work. In fact, many colleagues, intrigued by the research, suggested that I call on them

if they could be of assistance.

My research on the Sphinx continues. Dobeck and I hope to gather more subsurface geological and geophysical data, and I plan to continue my stratigraphic, weathering, and geomorphologic studies in the Giza Plateau area. If the EAO permits, I'd like to collect a few very small samples of rocks from the plateau for certain mineralogical studies that could shed more light on weathering rates and regimes. More importantly, I'd like to pursue isotopic studies of such rocks that might accurately date the initial carving of the Sphinx. This procedure measures the concentration of isotopes produced in situ on the rock surface by the bombardment of cosmic rays—high-energy particles

from outer space, like protons and neutrons, that constantly bombard the atmosphere. As these particles collide and interact with atoms on a rock surface, they produce numerous new isotopes, and in some cases, the accumulation of these isotopes reveals when a rock surface was initially exposed or, in this case, carved.

Finally, I hope to search Egypt for the remains of other major structures built back in 5000 B.C. by the same enterprising Egyptians who constructed the marvelous, enduring Sphinx. I predict that we will find them buried under the notorious Egyptian sands and Nile silts. The concept of an older Sphinx could herald the beginning of an exciting new era in the study of ancient Egypt. **DO**

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MYSTERY

CONTINUED FROM PAGE 40

reads *The World Book Encyclopedia* and remembers everything.") Indeed, at Murphy's desk, he has *The Oxford Companion to the Mind*, *The Quincentennial Dictionary*, and both volumes of the *Great Books of the Western World Complete Works of Shakespeare* to keep him company. But Murphy is hardly a reclusive bookworm. He is spirited and vigorous and has the voice of a great radio personality. Murphy writes short stories, loves philosophy, poetry, and "the Graham-Greene type writers, who, whether or not they can figure out if there's a God in heaven, always leave room for the possibility of grace in life." He is also a devoted fan of the *Three Stooges*.

Writer and set designer Trace Beaulieu is an actor, engineer, and artist who plays the parts of Crow and Dr. Clayton Forrester on MST3K. Beaulieu has a strong curiosity about the inner processes, inner workings of everything from snorkeling to the Hollywood "system." No doubt this intellectual bent helps him portray that bent intellectual, the mad and perversely visionary Dr. Clayton Forrester.

Beaulieu is multitalented ("the Renaissance man of comedy," says Nelson) and remarkably modest—even by Best Brains' rather stringent standards. Like Crow, whose antenna-like "ears" give him an appearance of being literally tuned in, Beaulieu has a quick, responsive, playful mind that ricochets at great speed from one association to another. It's easy to see how Crow comes by both his endearing qualities (Beaulieu says part of the characterization stems from his early experience as a youngest child, competing for family attention) and the more mischievous qualities one sees in the bot-bird's restless and deeply recessed ping pong-ball eyes.

Michael J. Nelson, the show's head writer, also composes music for the show and has appeared on MST3K in a wide variety of special "guest appearances"—as Michael Feinstein, and the Amazing Colossal Man, among others. Nelson is a talented actor, a gifted musician. "I was pretty painfully shy when I was a kid, and music was the first thing I was able to perform without being too afraid of it," he says. And he's a very funny writer, with a penchant for dark surprises. "He will write these wonderful little things for the childlike play that the robots do, and then suddenly he'll bring out something deathly and dark from these guys, almost always at

a very strange time," Murphy says. "For instance, Joel asks the robots what they want for Christmas, and Mike has Crow say, 'I want to decide who lives and who dies.'"

Frank Conniff is a writer and a talented stand-up comedian who, in his portrayal of "TV's Frank," somehow manages to look like a combination of a sneering Billy Idol and an eager member of a later day *Little Rascals*. Born and raised in New York City, he is the only non-Midwesterner at Best Brains.

Since Conniff is a man of few but always-well-chosen words, we'll give him the last word on the MST spirit. He says, "The saying that maybe sums up the attitude of the show best for me is the one the bots use frequently. 'Bite me, bite me, it's fun.' You know, the bots don't feel it anyway. To me, that implies, 'Hey, if you're getting too up-tight or too self-conscious or too seri-

It's like
Mystery Science is
Groucho
Marx to the movie's
Margaret
Dumont, and the
movie
just doesn't get it. ●

ous about it all, just cut loose a little—bite me, it's fun."

Since its beginnings, MST has proven to be "The Little Spaceship That Could." Now, Joel, the Bots, the Mad Scientists, and the Crew seem poised to make the quantum leap to media light speed.

This past January, MST3K principals met with Brandon Tarkoff of Paramount Pictures about a possible film version of Mystery Science Theatre. Since then, the group has been struggling with the gravitational pull of some 200 pages of proposed contract language. "We're getting closer, but we're not sure we can get what we need to preserve the spirit of the show," Mallon says. "Naturally, they need certain things to protect their investment. But the question remains: Can we figure out a way that we both can get what we need out of this? We're protecting something we hold very dear. If we can work it out with Paramount, great, otherwise, we may do the film ourselves or find some other way."

On the wall behind Mallon are blueprints for yet another major project—the planned construction of a more cosmic production pad for the Best Brains astronauts. "The reason for building a new space is that we could then do two shows instead of just one," Beaulieu, Hodgson, and Murphy have other television projects in the planning stages, and Mystery Science Theatre has potential development deals with HBO and Universal Television.

"It used to be that our problems were figuring out what the show would be about, what the set should look like, how to pay the bills," Mallon says. "Now, the toughest stuff is about our future. Our fans are writing in. Are you going to sell out?"

Well now, this should provide still more suspense and mystery for Mystery Science fans everywhere. Loyal Misties will have to watch the TV skies for the answers to these burning questions: Can our heroes resist the mind control of the bi-coastal cyborgs? Can the Satellite evade the star destroyers of the Evil Empire? Can Best Brains continue to go where no comedians have gone before?

They have certainly shown their mettle thus far. They've not only endured, but chosen to endure, the cold and comparative isolation of Hoth-Minnesota, a veritable media ice planet. They've dared to launch jokes into viewer-space which may exceed the comprehension of your average Venusian slug. And they've commanded praise and production vessels while repulsing flatterers and proton power-lunchers.

There is surely good reason for hope. But all we can say is, "Stay tuned, Misties." And may the Force be with them. **DD**

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TWO GUYS

CONTINUED FROM PAGE 54

Spanish, as soon as he had fully appeared.

"So you can talk," I said, in Spanish also. "Where's your *compañero*?"

"It's his night off. He's got a date."

"And you're working?"

"It's my night off, too. I just—uh—uh—"

He blushed.

"Couldn't get a date," I said. "It's all right. I'm about ready to knock off anyway. There's a Bud in the refrigerator. Get me one too."

"You always work at midnight? Can I call you Teresa?"

"Please do. Just finishing a couple of canvases. This is my big chance. My own show. I want everything to be just right. What are you looking for?"

"A bud?"

"A Bud is a cerveza," I said. "The top twists off. To the left. Are you sure you guys are from the future and not the past?" (Or just the country, I thought to myself.)

"We travel to many different time zones," he said.

"Must be exciting. Do you get to watch them throw the Christians to the lions?"

"We don't go there, it's all statues," he said. "Statues won't fit through the Chronoslot. You might have noticed. Stretch and I broke quite a few before we quit trying."

"Stretch?"

"My partner. Oh, and call me Shorty." It was my first positive illustration of the power of the past over the future.

"So what kind of art do you like?" I asked while we got comfortable on the couch.

"I don't like any of it, but I guess paintings are best, you can turn them flat. Say this is pretty good cerveza. Do you have any roll and rock?"

I thought he meant the beer but he meant the music. I also had a joint, left over from a more interesting decade.

"Your century is my favorite," Shorty said. Soon he said he was ready for another petal.

"Bud," I said. "In the fridge."

"The cerveza in your century is very good," he called out from the kitchen.

"Let me ask you two questions," I said from the couch.

"Sure."

"Do you have a wife or a girlfriend back there, or up there, in the future?"

"Are you kidding?" he said. "There are no single girls in the future. What's your second question?"

"Do you look as cute out of that shimmer suit as you do in it?"

"There's one missing," said Borogove, checking off her list as the workmen unloaded the last of my paintings from the rented panel truck and carried them in the front door of the gallery. Other workmen were taking Bucky's giant tits and asses out the back door.

"This is all of it," I said. "Everything I've ever painted. I even borrowed back two paintings that I had traded for rent."

Borogove consulted her list. "According to the two guys from the future, three of your early paintings are in the Museo de Arte Inmortal del Mundo in 2255. 'Tres Dolores,' 'De Mon Mouse,' and 'La Rosa del Futuro.' Those are the three they want."

"Let me see that list," I said.

"It's just the titles. They have a catalog with pictures of what they want, but they wouldn't show it to me. Too much danger of Timespits."

"Slips," I said. We looked through the stacked canvases again. I am partial to portraits. "De Mon Mouse" was an oil painting of the super in my building, a rasta who always wore Mickey Mouse T-shirts. He had a collection of two. "Tres Dolores" was a mother, daughter, and grandmother I had known on Avenue B. It was a pose faked up from photographs—a sort of tampering with time in itself, now that I thought of it.

But "La Rosa del Futuro"? Never heard of it," I said.

Borogove waved the list. "It's on here. Which means it's in their catalog."

"Which means it survives the holocaust," I said.

"Which means they pick it up at midnight, after the opening Wednesday night," she said.

"Which means I must paint it between now and then."

"Which means you've got four days."

"This is crazy, Borogove."

"Call me Mirsy," she said. "And don't worry about it. Just get to work."

"There's pickled herring in the nevera," I said, in Spanish.

"I thought you were Puerto Rican," said Shorty.

"I am, but my ex-boyfriend was Jewish, and that stuff keeps forever."

"I thought there were no single men in New York."

"Exactly the problem," I said. "His wife was Jewish too."

"You're sure I'm not keeping you from your work?" said Shorty.

"What work?" I said forlornly. I had been staring at a blank canvas since 10:00 p.m. "I still have one painting to finish for the show, and I haven't even

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started it."

"Which one?"

"La Rosa del Futuro," I said. I had the title pinned to the top corner of the frame. Maybe that was what was blocking me. I wadded it up and threw it at the wall. It only went halfway across the room.

"I think that's the most famous one," he said. "So you know it gets done. Is there a blossom . . ."

"A Bud," I said. "In the door of the fridge."

"Maybe what you need," he said, with that shy, sly, futuristic smile I was growing to like, "is a little rest."

After our little rest, which wasn't so little, and wasn't exactly a rest, I asked him, "Do you do this often?"

"This?"

"Go to bed with girls from the past. What if I'm your great-great-grandmother or something?"

"I had it checked out," he said. "She's living in the Bronx."

"So you do? You bastard! You do this all the time."

"Teresa! Mi corazon! Never before. It's strictly not allowed. I could lose my job! It's just that when I saw those little hands and feet . . ."

"When you saw what?"

He blushed. "Those little hands and feet. I fell in love."

It was my turn to blush. He had won my heart, a guy from the future, forever. "So if you love me so much, why don't you take me back to the future with you?" I asked, after another little rest.

"Then who would paint all the paintings you are supposed to paint over the next thirty years? Teresa, you don't understand how famous you are going to be. Even I have heard of Picasso, Michelangelo, and the great Algorin—and art is not my thing. If something happened to you, the Timeslip would throw off the whole history of art."

"Oh. How about that?" I couldn't seem to stop smiling. "So why don't you stay here with me."

"I've thought about it," he said. "But if I stayed here, I wouldn't be around to come back here and meet you in the first place. And if I had stayed here, we would know about it anyway, since there would be some evidence of it. See how complicated time is? I'm just a delivery guy and it gives me a headache. I need another leaf."

"Bud," I said. "You know where they are."

He went into the kitchen for a carveza and I called out after him: "So you're going to go back to the future and let me die in the coming holocaust?"

"Die? Holocaust?"

"The one you're not allowed to tell me about. The nuclear war."

"Oh, that. Stretch is just trying to alarm you. It's not a war. It's a warehouse fire."

"All this mischogesch for a warehouse fire?"

"It's cheaper to go back and get the stuff than to avoid the fire," he said. "It all has to do with Timeslip insurance or something."

The phone rang. "How's it going?"

"It's two in the morning, Borogovel" I said, in *inglés*.

"Please, Teresa, call me Mimsy. Is it finished?"

"I'm working on it," I lied. "Go to sleep."

"Who was that?" Shorty asked, in Spanish. "La Gorda?"

"Don't be cruel," I said, pulling on my T-shirt and underpants. "You go to

◀ "De Mon Mouse" was a painting of the super in my building, a rasta who always wore Mickey Mouse T-shirts. He had a collection of two. ●

sleep, too. I have to get back to work."

"Okay, but wake me up by four. If I oversleep and get stuck here—"

"If you had overslept we would already know about it, wouldn't we?" I said, sarcastically. But he was already snoring.

"I can't put it off for a week!" said Borogovel the next day at the gallery. "Everybody who's anybody in the downtown art scene is going to be here tomorrow night."

"But . . ."

"Teresa, I've already ordered the wine."

"But . . ."

"Teresa, I've already ordered the cheese. Plus, remember, whatever we sell beyond the three paintings they're coming for is gravy. *Comprender?*"

"En *inglés*, Borogovel," I said. "But what if I don't finish this painting in time?"

"Teresa, I insist, you must call me Mimsy. If you weren't going to finish it, they would have arranged a later pickup

date, since they already know what will happen. For god's sake, girl, quit worrying. Go home and get to work! You have until tomorrow night."

"But I don't even know where to start!"

"Don't you artists have any imagination? Make something up!"

I had never been blocked before. It's not like constipation, when you're constipated you can work sitting down.

I padded and paced like a caged lion, staring at my blank canvas as if I were trying to get up the appetite to eat it. By 11:30 I had started it and painted it out six times. It just didn't feel right.

Just as the clock was striking midnight, a column of air near the sink began to shimmer and . . . but you've seen *Star Trek*. Shorty appeared by the sink, one hand behind his back.

"Am I glad to see you?" I said. "I need a clue."

"A clue?"

"This painting, 'La Rosa del Futuro.' Your catalog from the future has a picture of it. Let me see it."

"Copy your own painting?" Shorty said. "That would cause a Timeslip for sure."

"I won't copy it!" I said. "I just need a clue. I'll just glance at it."

"Same thing. Besides, Stretch carries the catalog. I'm just his helper."

"Okay, then just tell me, what's it a picture of?"

"I don't know, Teresa . . ."

"How can you say you love me if you won't even break the rules to help me?"

"No, I mean I really don't know. Like I said, art is not my thing. I'm just a delivery guy. Besides—" he blushed. "You know what my thing is."

"Well, my thing is art," I said. "And I'm going to lose the chance of a lifetime—hell, of more than that, of artistic immortality—if I don't come up with something pretty soon."

"Teresa, quit worrying," he said. "The painting's so famous even I've heard of it. There's no way it can't happen. Meanwhile, let's don't spend our last . . ."

"Our what? Our last what? Why are you standing there with your hand behind your back?"

He pulled out a rose. "Don't you understand? This Chronolink closes forever after the pickup tonight. I don't know where my next job will take me, but it won't be here."

"So what's the rose for?"

"To remember our . . . our . . ." He burst into tears.

Girls cry hard and fast and it's over. Guys from the future are more sentimental.

tal, and Shorty cried himself to sleep. After comforting him as best I could, I pulled on my T-shirt and underpants and found a clean brush and started pacing again. I felt him snoring on the bed, a short brown Adonis without even a fig leaf.

"Wake me up at four," he mumbled, then went back to sleep.

I looked at the rosa he had brought. The roses of the future had soft thorns; that was encouraging. I laid it on the pillow next to his cheek and that was when it came to me, in the form of a whole picture, which is how it always comes to me when it finally does. (And it always does.)

When I'm painting and it's going well, I forget everything. It seemed like only minutes before the phone rang.

"Well? How's it going?"

"Borogove, it's almost four in the morning."

"No, it's not, it's four in the afternoon. You've been working all night and all day, Teresa, I can tell. But you really have to call me Mimsy."

"I can't talk now," I said. "I have a five minute Sort of."

"I thought you didn't work from five models."

"This time I am."

"Whatever. Don't let me bother you while you're working, I can tell you're getting somewhere. The opening is at seven. I'm sending a van for you at six."

"Make it a limo, Mimsy," I said. "We're making art history."

"It's beautiful," Borogove said, as I unveiled "La Rosa del Futuro" for her. "But who's the model? He looks vaguely familiar."

"He's been around the art world for years and years," I said.

The gallery was packed. The show was a huge success. "La Rosa," "De Mon Mouse" and "Los Tres" were already marked SOLD, and SOLD stickers went up on my other paintings at the rate of one every twenty minutes. Everybody wanted to meet me. I had left Shorty directions and cab fare by the bed, and at 11:30 he showed up wearing only my old boyfriend's trench coat, saying that his shimmery suit had disappeared into thin air while he was pulling it on.

I wasn't surprised. We were in the middle of a Timeslip, after all.

"Who's the barefoot guy in the fabulous Burberry?" Borogove asked. "He looks vaguely familiar."

"He's been around the art world forever and ever," I said.

Shorty was looking jet-lagged. He was staring dazedly at the wine and

cheese and I signaled to one of the caterers to show him where the beer was kept, in the back room.

At 11:55, Borogove threw everybody else out and turned down the lights. At midnight, right on time, a glowing column of air appeared in the center of the room, then gradually took on the shape of — but you've seen *Star Trek*. It was Stretch, and he was alone.

"We are — uh — a guy from the future," Stretch said, starting in English and finishing an *español*. He was wobbling a little.

"I could have sworn there were two of you guys," said Borogove. "Or did I make that up?" she whispered to me, in *ingles*.

"Could be a Timeslip," said Stretch. He looked confused himself, then brightened. "No problem though. Happens all the time. This is a light pickup. Only three paintings!"

"We have all three right here," said Borogove. "Teresa, why don't you do the honors. I'll check them off as you hand them to this guy from the future."

I handed him "De Mon Mouse." Then "Los Tres Dolores." He slipped them both through a dark slot that appeared in the air.

"Whoops," Stretch said, his knees wobbling. "Feel that? Slight aftershock."

Shorty had wandered in from the back room with a Bud in his hand. In nothing but a raincoat, he looked very disoriented.

"This is my boyfriend, Shorty," I said. He and Stretch stared at each other blankly and I felt the fabric of space/time tremble just for a moment. Then it was over.

"Of course!" said Stretch. "Of course, I'd recognize you anywhere."

"Huh? Oh." Shorty looked at the painting I was holding, the last of the three. "La Rosa del Futuro." It was a full-length nude of a short brown Adonis, asleep on his back without even a fig leaf, a rose placed tenderly on the pillow by his cheek. The paint was still tacky but I suspected that by the time it arrived in the future it would be dry.

"Reminds me of the day I met Mona Lisa," said Stretch. "How many times have I seen this painting, and now I meet the guy! Must feel weird to have the world's most famous, you know..." He winked toward Shorty's crotch.

"I don't know about weird," said Shorty. "Something definitely feels funny."

"Let's get on with this," I said. I handed Stretch the painting and he pushed it through the slot, and Shorty and I lived happily ever after. For a while. More or less. . . .

But you've seen *I Love Lucy* DO



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INTERVIEW

CONTINUED FROM PAGE 68

communicate?

Rosenthal: In every way. Artists are working with computers and video. I had a proposal to work with seismological instruments that are in place all over the world. The sky's the limit! Whatever science and technology has to offer in creating a collaboration concerning metaphor and statement should be explored.

Omn: Why is there such an effort to get the "theory of everything" and boil it down to one equation?

Rosenthal: I wonder if that can ever happen, you know? Because everything does hold together obviously, because the universe holds together. The human brain cannot grasp that oneness and unity because we live in a world of levels and scales. Maybe people will be able to find that equation, they're working hard for it. But even if such a thing is found, there will never be certainty that it's correct because there's just too much we don't know. As long as we don't know what happened before the Big Bang, we just have to accept that we won't know everything. This is hard for human beings to accept, but it's what keeps us searching.

Omn: Are computers capable of having a soul, a consciousness—a mind?

Rosenthal: Since civilization began, people have longed to create intelligent objects. There's the myth of Galatea, the Golem, Frankenstein. Now technology makes that myth possible. I'm a bit of an animist. I think everything has a mind, consciousness, and soul, but what type of souls, and what degree of consciousness?

Omn: "Rachel's Brain" begins with a quote by Arthur Koestler that the evolution of the brain not only overshoot the needs of prehistoric man, it is also evolution's only example of providing a species with an organ it does not know how to use.

Rosenthal: There is something in the genetic structure of our brains that created a total imbalance between object making and our ethical sense. So we've developed this attitude that if it's there, it has to be examined, used. If one can do it, it ought to be done. This is the scientific view, and we came to it not as a quirk of history, but because of the way our brains are shaped. And so we muddle on in our evolution.

Omn: Your most recent piece, "filename: FUTURFAX," addresses the real possibility of planetary extinction. Are we headed for the final crash?

Rosenthal: I believe so. When working on the piece, I was continually sobbing and feeling absolutely depressed by and frightened at what I was saying. I see such social upheaval coming up that even if there is no ecological crash, as I think there will be, and humans do survive, we're going through dark ages that will probably decimate a huge percentage of the human population. If this happens, survival will be the only concern.

Omn: Your personal hope, you've said, is that four-fifths of the human race will be destroyed. Why?

Rosenthal: Because our uncontrolled proliferation is at the root of all the calamities that befall us and the rest of Earth's creation. In another generation we will hit the 10 billion count, with no hint of reversing the trend. Resources, habitat, and species will have been decimated to make room for us, our food, and our habitat. As Daniel Quinn says, we take the entire world as our ecological niche. That's an outrage, and I, for one, don't want to live in such a world, because I can't bear to see this extraordinary planet lose its wildness and become a human cybernetic machine as it will be if humans prevail. There won't be anything left of what we call nature.

The salmon is going, we've prevented it from owning its habitat. There are almost no rivers left, they're completely dammed, corseled, and engineered to the point that the normal working of an eco-system can't function. Yet we continue fishing the rivers like crazy. This is one of many examples. You're going to have a planet with nothing remotely resembling original nature, everything has been managed and recreated by humans.

Omn: Why do we continue to do this?

Rosenthal: Because there are so many of us, and because we're always tinkering. We always want to do things better than the gods.

Omn: Unless a complete change in our thinking occurs, will we be headed toward the total crash you describe in "filename: FUTURFAX"?

Rosenthal: We are coming to the dissolution of everything we believe in because of an aberration in our thinking, not because of technological proliferation. The atom bomb, pesticides, clear cutting—these crimes don't exist in a vacuum. They exist only because we see ourselves in relation to the cosmos as the apex of evolution. Given this kind of thinking, it's no wonder everything is falling apart and dying.

The concept of progress is one of the biggest lies we've concocted. It's based on an erroneous premise. We're saying, "Oh look what we've created;



"Sorry, but this is where Budlong wanted his ashes scattered."

how wonderful!" We have more and more things doing more of our work, and these things are achieving more of what we want to achieve at the price of a plundered and degraded planet. We are so disturbed, addicted, guilty, and anxious. We are emotionally bankrupt, sick in our souls. We don't understand our place in the universe, that we're not exempt from the laws of nature. We cannot continue to see ourselves as having license to eradicate anything that does not directly feed, entertain, or make us richer. Every pore of consciousness existing in the community of life knows how life works, except us. Life, or whatever this big consciousness is, will begin to fight us because we're fighting it. We've created an adversary in nature instead of being embedded in nature.

Omn: What about the beauty of life, the simple pleasure from just being alive?

Rosenthal: These are still very potent, making it even harder to conceptualize the reality. People are in denial, just as when they find out they have cancer. We're just beginning to have an inkling it's malignant. We're like people during the Black Plague, all those revelers dancing around the bonfires. It will take enough of a disaster that every person is touched by it. Most people don't see that, except for prophets and artists—they have enough imagination and are willing to use it no matter how painful. There has to be a twist in consciousness with more emphasis on the philosophical, the ethical, and spiritual and away from materialism and greed.

Omn: How do your workshops help people overcome their fear of success, of independence?

Rosenthal: People have different backgrounds and personal histories, but their problems and needs are amazingly alike. They all have this thing about "How do I put out who I am? How do I go past the barrier preventing me from being me and from expressing this particularly?" That's the big issue for a human in society. Because we're forcibly socialized as children, and society is so effective in its dictates, most of us succumb to that. The other stuff is always there, festering inside and making us sick because it wants to come out and be what it is. Social and individual are always in conflict. People are afraid that being themselves is not acceptable and may hurt others. When you repress for so long and so much, you begin to suspect that what's in there is virulent. The repression creates anger, rage—the resentment that can't come out. Naturally people are afraid if they open the door what will come out will be this monster who will go on a ram-

page and kill everybody.

In my workshops I try to release that monster to art making, where the violence, aggression, and anger don't really occur in so-called real life. People can release those things in ways that show them what's in there is not so terrorizing and terrible. It's okay to begin to release in small doses at first, then give it form. Art making is about giving form, and this is the trick. So long as it's formless, it's frightening, and you can be panic stricken about releasing this huge amoeba that's going to swallow everything. But the more people get past this barrier, the more they are on the same wavelength with Earth's own creativity. We must become artists and let out this creativity urge or force, because this puts us in that same vibration, energy field, as the creative aspect of Earth.

Omn: What is our place in the cosmos?

Rosenthal: We are capable of working with all nature to exist in a world with room enough for all to live peacefully—and by all, I mean all species, not all humans—and with the understanding that evolution doesn't stop just because we arrived on the scene, we are capable of seeing, experiencing, and understanding, what is, so far as we know, unique on our planet and in our solar system. Our music, art, and literature are many degrees more advanced of what other animals are capable of creating. That doesn't give us leave to eradicate them, exploit them, or eat them. I don't think we really have a "place" in the cosmos. We have the same place everybody else has on this planet. We have to compete without exterminating everybody else. We must use what evolution has given us—immeasurable treasures in dexterity, intelligence, and capabilities of all sorts—in ethical and conscious ways that do not eliminate everything else.

Omn: What is consciousness?

Rosenthal: Consciousness is a gift. We've taught ourselves we're the only ones who are conscious. Many other traditions talk about universal mind, a pervasive consciousness of all creation. We don't do that in the Western world. We have to learn to be humble. There is good and bad, creation and destruction, violence and peace. I'm not saying the whole human race has gone bad, but that we are in free fall and can't remain aloft. A universal and very sudden shift in consciousness could save us if everyone realized the big picture of global interconnectedness of all life. You'll understand why I'm rather pessimistic.

Omn: Are the gods laughing at us?

Rosenthal: I hope so. I'd hate to think they were on our level of angst. **DO**

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Faded

GAMES

MOVING RIGHT ALONG:

Neat new ways to get from here to there

By Scot Morris



Just in time for summer, three inventors have come up with innovative new muscle-powered devices that may revolutionize the way we exercise and play.

Exerlopers put a new bounce into jogging. They resemble ski boots attached to an elliptical spring consisting of two arched pieces of plastic. Jog with these on, and you'll find yourself taking long, loping strides. As you strike the ground, the springs collapse, bringing your foot down close to the pavement; then they bounce you back up into the air for the next stride.

Gregory Lekhtman invented Exerlopers as a way to ease the shock of running. "The impact with the road, which normally jolts the knees and skeletal system, now is absorbed by the muscles, which increases the level of exercise," he says. Russian emigre Lekhtman, an electronics engineer and inventor of a variety of medical, electronic, and fitness devices who now lives in Montreal, says that his bouncy boots can lengthen your stride to six or seven yards, meaning you can cover more ground. With Exerlopers, some people, he claims, "run up to fifty percent faster."

I can't guarantee any increase in speed, but the boots do give you a cushioned landing and send-off. After a five-minute lope, I felt like I'd been working out for 15 minutes. Afterward, my old running shoes seemed flat.

(Cost: \$199. Order accord-

ing to shoe size and body weight from 800-752-8080.)

Snakeboard. Imagine a skateboard with two platforms that pivot independently, one for each foot, connected by a central crossbar. This variation on a familiar theme is a Snakeboard, the most radical change in skateboard design in the past 20 years. It got its name from the way a rider moves to make it go—twisting the feet together while rotating the shoulders. The movement

using the two-foot moves of downhill skiers or snowboarders. Many trials and crashes later, he introduced his first Snakeboard in South Africa last summer, selling more than 2,000 in the first four months. Encouraged, he introduced the Snakeboard to the United States last December on the boardwalk at San Diego's Mission Beach, where rollerbladers and skateboarders gawked along with the rest of the crowd.

Fisher licensed his design



Exerlopers (top), the Snakeboard (above), and the monofin (bottom) put a new spin on jogging, rolling, and swimming.

looks like a controlled version of the Sixties dance called the "Mashed Potato."

It takes practice, but a skilled rider can generate forward momentum and even climb hills without ever dropping a foot to the ground. Inventor James Fisher claims to have topped 25 miles per hour Snakeboarding over a flat surface.

While a high-school student in Johannesburg, South Africa, Fisher dreamed of a skateboard that he could maneuver safely down steep hills,

to Snakeboard U.S.A., and it's now patented in 23 countries.

(Cost: about \$149. For ordering information, call 800-547-0775.)

Hyperfin. In the late Sixties, fin-swimming made its debut as a sport, offering a speedy alternative to conventional swimming. But today the fastest swimmers use a monofin—a single giant fin resembling a dolphin's tail, propelled by both feet at once using the dolphin kick familiar to butterfly swimmers.

Scuba-diving equipment provided the models for traditional swim fins, but biomechanical research produced these fins specifically designed for swimming. They increase speeds dramatically. The current freestyle record for 50 meters stands at 21.81 seconds, while the monofin record is 14.90.

Peppo Biscarini, a winner of fin-swimming competitions as a teenager, designed his first monofin in Italy in 1976. Now living in Del Mar, California, he owns Hyperfin, the United States' only mass producer of monofins.

He recommends his monofin as a conditioning tool—expect to burn 1,200 calories per hour in a workout—and as a break from the monotony of swimming laps. The activity exercises the lower body, since you keep your arms stationary, pointed straight forward above your head. Although it may sound a little awkward, you swim up to 25 percent faster than ever before with maneuverability to spare.

(Cost: \$150 to \$175. For information, call 619-634-0629.)

FIN

