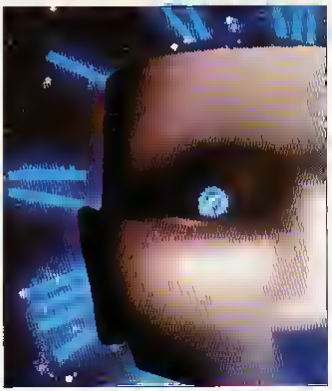

omni
DECEMBER 1987 $3.00
MISSING TIME:
A NEW LOOK AT
ALIEN ABDUCTIONS
TOYS OF TOMORROW
NASA IN THE
21ST CENTURY
THE HARVARD/LEIDEN
COLLECTION OF
MEDICAL ODDITIES

OMNI®

VOL 10 NO 3 DECEMBER 1987

CONTENTS



Splitting his time evenly between commercial and personal projects, Utah-based artist Steven Hunt created this month's cover. The photographic illustration was an experiment using multiple exposures to compose a single image. Its meaning he says, depends on the viewer.

OMNI (ISSN 0149-8711) is published monthly in the United States and Canada by Omni Publications International Ltd. 1965 Broadway New York, NY 10023-5965. Second-class postage paid at New York, NY and at additional mailing offices. POSTMASTER: Send address changes to Omni Magazine, Post Office Box 3041, Harlan, IA 51593-4256. Volume 10, Number 3.

FIRST WORD

By Robert Gallo

"A doctor can easily skirt the AIDS issue by attributing an AIDS death to a malignancy or pneumonia, two of the common conditions that can often bring on an AIDS-related death."

Researchers at the Centers for Disease Control have recently stated that about 10 percent of AIDS cases are not reported, which is approximately 4,300 of those people stricken with the disease. Some physicians apparently falsify death certificates to protect the victim and the victim's family from public ridicule.

A doctor can easily skirt the AIDS issue by attributing an AIDS death to a malignancy or pneumonia, two of the common conditions that often bring on an AIDS-related death. In the Liberace case, his physician attributed the performer's death to heart failure and degenerative brain disease rather than indicating that Liberace had the AIDS virus. The physician's decision may have been made out of compassion for Liberace's reputation, but the doctor had a moral, ethical and scientific obligation to disclose that AIDS had caused Liberace's death. AIDS killed Liberace—nothing else.

A doctor should put everything he knows to be important and relevant on the death certificate. Otherwise we live in a closed society. Of course, revealing AIDS will have an impact on everyone involved, but this virus is not something that should be taken lightly. We aren't going to solve medical problems if everything is kept secret.

I am aware that some gay rights organizations think the cause of death should be left off the death certificate because of the way our society in general views homosexuals. I have gained considerable understanding of those feelings in the last few years. In the past I didn't understand that many homosexuals live as outcasts, denounced by their families and friends, afraid of being stripped of their rights to live normal lives. I feel the gay community has justification in demanding their rights to freedom and privacy—sometimes very, very strong justification. Yet I can't see leaving the cause of death off a death certificate for any reason. As hard as it may be for some groups to accept, the alternative is extremely dangerous.

People don't always realize the ramifications. Some of the gay rights groups didn't want to hear that AIDS was a virus at all. Before we identified the virus, the disease was attributed to "over antigen load," or overstimulation of the immune system. Homosexuals believed that if they reduced the number of sexual partners they were in contact with, the AIDS danger would simply go away. This was an absurd idea—like playing Russian roulette—since contact with just one infected person could spread the disease no matter how many other sexual partners were involved.

It makes me very uncomfortable to think that there is a percentage of physicians who are not telling the truth. If this continues, the medical profession's understanding of AIDS will be inhibited, and researchers will be looking at inaccurate statistics. What happens if the cause of death is listed not as AIDS but as the immediate illness, let's say a pneumonia that was caused by a strain of bacteria? Researchers viewing these figures may think that there is a mutation in some microorganism that is now causing pneumonia more frequently than normal. *Gee, there's an increased incidence of pneumococcal pneumonia, streptococcal infections, and death by streptococcus. That's not normal, and yet the death wasn't attributed to AIDS. What could it be? Well, it must be that either the death was recorded inaccurately and AIDS was the cause of death, or there's a new strain of bacteria around.* So we all go to our labs to try to detect those new bacterial strains. This would be wasted time, energy, and money.

Funding for hospitals, social care and research is based on the incidence of AIDS spread throughout each community. The wrong numbers are going to make a profound difference. If 10 percent of AIDS cases go unreported nationwide, the probability is that in some communities the percentage is much higher. Then there are those people who have direct contact with the body of the deceased, such as pathologists and morticians. They have to be more careful in handling the bodies of AIDS victims to protect themselves from the virus. And it isn't likely that they will take special precautions if AIDS isn't listed on the death certificate. A small cut on someone's hand, inflicted while in contact with the AIDS victim might expose him to the disease.

Death certificates are also used to report data relating to life expectancy, infant mortality and general mortality. These figures are public information that determines health-care policy. Conclusions drawn from this material will not accurately reflect current health trends as long as a percentage of AIDS deaths are not reported.

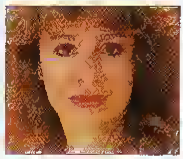
There was a time when cancer was thought of as something of which to be ashamed. People believed it was bad luck to have someone around with cancer. Looking back, if there had been more education, people would have better understood the nature of cancer. More people would have consulted doctors and received proper examinations. Individuals with the disease would have been treated more kindly and perceived as less dangerous to other people. If there were more openness in regard to AIDS, this would also change people's attitudes. The public would become more comfortable with the topic, improving research and treatment of the disease. I'm not saying that openness would lead to a cure. But people understand the truth better than lies. It is hard to believe that a fundamental truth hurts society. ∞

Robert Gallo, a scientist at the National Institutes of Health, codiscovered the AIDS virus.

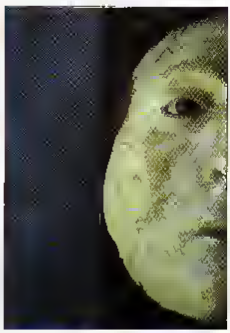
CONTRIBUTORS

OMNIBUS


SECRET SHARERS


WEINTRAUB


FLORAL DERANGEMENT


BODY SNATCHER


PSYCHOTALES


MASON

Dear *Omni*: I'm an alien abductee. I was abducted from the school cafeteria where I work. I couldn't recall what, if anything, had happened, though it was strange to wake up in the kitchen storeroom at five A.M.—unusual as I'd had only a few nips that day.

I forgot the incident until December approached. I became increasingly depressed, with bouts of hostility and a bit more drinking. Then I sought hypnosis to fill in the blanks, which is how I met a senior editor from *Omni* (who, by the way, stole my story). Through hypnosis I learned I'd been kidnapped by aliens!

Three short humanoids took me to their spacecraft, which was propelled by eight motorized deer. The entire race was uniformly short and dressed in identical drab clothing. Their fat leader communicated only with a fixed grin and repetitive chuckle. Ho, ho, ho.

Unlike the abductees I mention in *my* story, I wasn't examined medically but rather sociologically. I was taken to the 'nursery,' where rows of rigid babies lay in frilly cribs, somehow birthed outside the womb. The doll-like creatures chanted human words in alien tones—"Mama," "My name is," etc. The dwarfs thrust one of these silicon infants into my arms—I suspect they wanted to observe the mother–child bond. It was all so horrible. In frenzied despair, I escaped into an adjoining chamber.

Toys! An entire room was stacked with video and board games, cars within miniatures and rubber balls (which prompted me to write the article on future toys). The little people prodded me into the center of the room. I somehow suspected they wanted me to test the toys and show them how to play. Suddenly I understood. My demonstrations were helping the aliens infiltrate the earth with those mock kids—dastardly ploy! My performance pleased them.

Next I was led into a greenhouse where the only illumination was from strobe lights. Eerie plants! As my pictorial shows, the flowers do not have the color and substance of Earth blossoms, so I don't think they're going to fool anyone.

The final room I saw was frightening—dismembered arms, unattached feet, a single nose. Either they were showing me the demise of past visitors, or they were studying the microstructures of life, probably crossing their genes to produce those horrors in the nursery. Next thing I knew, I was lying in the storeroom.

After my therapy I realized the importance of future interstellar laws to stop this madness (see my story, "Arachne"). For deviants I propose a penal death colony on Mars. We could expose offenders to a deadly disease and shoot them off to the red planet to live out the rest of their short, miserable lives. (Read my piece, "Adeste Fideles.")

Feel free to publish my letter; it may help or inspire others, but due to the nature of this topic, sign me Anonymous. —Sincerely, Mrs. Iva Cupitee, Hillside, WI

Dear Anonymous: What sort of loony are you? Obviously you were frightened during a binge by a crazed Santa. Our editor *Pamela Weintraub* put a lot of research into her article on abductees ("Secret Sharers," page 52), spending time with Budd Hopkins (above left, with an abductee) and members of the psychiatric community. Weintraub describes what has been called the strangest mass psychological event of our time. I suggest you read it. *Our* article, "Future Toys" (page 60), by *Jessica Maxwell*, reflects the insights of major toy company executives, hardly the little folks you mention from your alcoholic journey.

As for your claims on this month's fiction: "Arachne" (page 108) is *Lisa Mason*'s first published story, not yours. Her concepts on future laws and ethics (look it up, dear) are provocative. "Adeste Fideles" (page 68), by Hugo award–winner *Frederik Pohl*, is the story of a NASA operation on Mars and its mysterious findings. *Albert Richards* has been X-raying flowers for 25 years. His pictorial, "Floral Derangement" (page 100), is a work of art, not of elves. Our second pictorial, "Body Snatcher" (page 82), is the macabre curiosity of *Rosamond Purcell*, a photographer with a unique perspective. "Psychotales" (page 92), a compilation of short stories, is accompanied by a revealing personality quiz. I don't recommend you read it, as there are far stronger tests for people like you. Please don't bother us again.—Editor

LETTERS

COMMUNICATIONS

We, the People

The September 1987 issue paints a picture of a high-tech society turning in on itself. It's ironic that at the same time the Soviets are opening up and reaching out.

Alan M. Dershowitz [First Word] outlines threats to the Constitution by politicians who wish to use the fear of AIDS to circumvent rights guaranteed by that document. He also states that the government is undermining the Fourth Amendment through increased use of computerized files and wiretapping. Unfortunately he does not mention the erosion of our rights by corporations that test employees' urine and blood.

A fifteen-year-old writes that she is "terrified of the future" and would "rather have a full-scale nuclear war" than have people tell her what to think or censor what she reads [Back Talk, Forum]. Are we going to return to the demented days of Senator McCarthy?

Tom Gill
General Secretary
American Communist Party
Baltimore

Dershowitz says he's concerned about threats to the Constitution, especially the legal problems associated with the AIDS virus. I assume he fears that certain rights may be subjugated in order to stop the deadly disease. A bastardized version of "better dead than red," maybe?

I know our Constitution will survive intact through 1991 because we will not tolerate any loss of freedom. We, the citizens, are very aware of what we have.

Lex McKeithen
Live Oak, FL

Head of the Class

I've just read "Back Talk." Good grief! These censors are ridiculous, and I, for one, should know. When I was younger I read lots of science books. I was completely innocent then, but that's not so today. My change was not caused by evil books such as *The Three Little Pigs* or by reading science but by hate and discord. In the Sixties, before I was born, the seeds of discord were sown by parents who could not talk to their children. You cannot abolish evil by censorship but only by understanding, trust, and love.

Michael Mendoza, twelve years old
Maywood, NJ

Getting Even

To the author of "Break Out Your Handkerchiefs" [Continuum, September 1987]: I incur our expenses, and be as dedicated to quality patient care as most of us are, then write your article.

Sherry Baker says there may be an "epidemic of high blood pressure" in the medical community if doctors' incomes fall below $110,000. Well, this story raised my blood pressure—and probably many other physicians reacted in the same way.

William Wyttenbach, M.D.
Fort Walton Beach, FL

Hand-to-Hand Combat

I had fun with the World's Hardest Which Is Which Quiz [Games, September 1987]. But the answer for question 5 was wrong. The head line runs across the middle of the palm, between the life line and the heart line.

What do I see in your future? I predict a flurry of angry letters from palmistry buffs everywhere. That's what you get for not listening to psychics.

Margaret Gunning
Hinton, Alberta, Canada

PS, Your Cat Is Dead

I've purchased my last copy of *Omni*. I can do without sick humor about some supposed archaeological find called the Middle Testament and the thirteenth apostle named Bing [Last Word, September 1987]. If you can, have a good day.

Vic Humeniuk
Tucson, AZ

A word about the Middle Testament is in order: wonderfully hilarious. I chuckled all the way through it. In those 17 command-ments, one bears specific mention: Thou shalt not discontinue a good thing on pain of loss of readership.

Max C. Marx
Tokyo

LIFE AND DEATH

FORUM

In the near future will death be redefined by the medical community to include people who are in a coma or in what is called a persistent vegetative state? If our concept of death is legally changed will there be a proliferation of organ harvesting and subsequently the creation of a death industry? In the September 1987 issue Omni staff writer Kathleen Stein addressed this issue in her article "Last Rights," and many readers responded

When my mother became ill she signed a donor card Her corneas were the only organs worth harvesting because of her illness but my father disapproved This is ironic as I was recently told I would require a corneal transplant

Many people including my father, believe organ donation is wrong that it's taboo We must try to understand their resistance but not lose hope that organ donation will become the rule rather than the exception

Renee Hoover
Tulsa

I'm an anesthesiologist and the introduction to "Last Rights" cut directly into my mental operating room Most people force issues like death into the far corners of consciousness where they become the material of nightmares and horror movies or they hide as if they were invincible behind new technology Death is being redefined and this article is necessary reading for the living

Robert R Rutledge M D
Miami

Stein reports that the world could find itself in a situation in which death itself would become an industry, especially if we redefine the concept of death It seems to me that this is the case already Death is an industry It's called abortion

Reverend Daniel Hovanec
Grace Community Church
Omaha

It's unfortunate that Stein has helped perpetuate the supposition that persons labeled as vegetative lack any awareness Over the last ten years I've spent a good deal of time with these people witnessing emotional and human expressions that they supposedly cannot show

We still don't know very much about how the brain functions, and it is foolish for medical professionals or journalists to state as fact what they are only guessing Perhaps it's the experts and not the so-called vegetatives who need awakening

J E Trettin
Minneapolis

Hats off to Stein I had a myriad of responses to her article and she has motivated me to think more critically about redefining death

Theresa Allen
Minneapolis

The life of the individual has become worthless We have been gradually transformed into sacrificial victims— up for grabs by terrorists religious fanatics drug addicts and just plain murderous thugs

And now, supposedly we are no longer a human race made up of unique, sovereign men and women but only a "collective unconscious" housed in a conglomeration of interchangeable parts that are subject to appropriation and redistribution among strangers In a not too-distant day when neither our consent nor the consent of our relatives will be required we will go through life haunted by the knowledge that should catastrophe befall us we will end up packed in an Igloo Playmate

J Kallasin
Gaithersburg MD

The decision to be kept alive for an indefinite period of time is an individual one and shouldn't be left entirely up to family members or physicians I now realize it's important for an individual to make a living will

Cathy Kahoe
Warrensburg MO

Today death remains the legal affair of the survivors If the main concerns of the law were changed to reflect people's right to define the quality of their lives and how they wanted to dispose of their own bodies that legal change would ensure for each individual his or her true last rights

Richard B Kruk
Organ Procurement Coordinator
University of Rochester Medical Center
Rochester NY

The idea of cognitive death is appalling. To consider as dead those who have lost their intellect, memory speech and awareness of self or the environment is obscene That definition directly affects every profoundly and severely disabled child and adult Conversely, then do we define *life* as some arbitrarily set acceptable amount of intellect memory speech and awareness? Do we then consider those individuals with only moderate cognitive and sensory impairments as half dead? Where does it stop?

Jacquelyne Leigh
Psychologist, Whittier Areas Cooperative
Special Education Program
Whittier, CA

I was impressed with Stein's impartial stance I found myself both for and against the preservation of life through machines Proponents for each side were very articulate I still cannot decide

Jenni Finney
El Paso, TX

I'm what you would describe as a "lost soul" Three years ago I was in an automobile accident caused by a drunk driver my brain stem was injured I was a perfect candidate for an organ farm I was unconscious for a period of time and spent months in two different rehabilitation hospitals similar to the Greenery I lived with both a tracheotomy and a gastrointestinal tube A radiologist told me point blank that I would never eat again Fortunately the medical staff was more concerned with life than with organ retrieval Although my life has its drawbacks—and whose doesn't?—I have never wished I were dead

Jean Ann McLaughlin
North Harwich MA

THE NEXT SMALL STEP

SPACE

By Steve Ditlea

You're in charge of assembling and operating an American space station. Not an easy task under any circumstances, but your assignment (should you choose to accept it) is to keep the whole project within a $3 billion budget and to make it profitable in a mere three months. Botch this, and the project will be terminated.

Such is life with T. L. Keller's new computer simulation package called *Space M*A*X* (for Materials processing Astrophysics and eXperimental modules). Like simulations used for training professionals, Keller's program is both complicated and educational. It also offers space buffs their first realistic computer challenge. Even before it was officially released for IBM PCs and compatibles early this year, *Space M*A*X* was an underground hit within the international space industry and NASA.

"I wanted to show that private enterprise can work in space—and that a space station can pay for itself with peaceful projects," explains Keller, a former systems analyst for unmanned space projects at the Jet Propulsion Laboratory.

Though the simulation includes on-screen assembly of the space station, *Space M*A*X* is not an action-oriented game. The program's financial displays include spreadsheetlike cost profiles, project-revenue profiles, and salary and bonus-plan reports. "This is meant to be a serious simulation," explains Keller. "We're not beaming people up or flying from one galaxy to another."

To assure realism, Keller based the design of the space station on an actual NASA–McDonnell Douglas design. He also consulted NASA designers who provided graphics and other detailed information. The result is a program that requires at least eight hours of playing time (sessions can be saved, then resumed) to complete. Depending on which of five levels of difficulty you choose, you may encounter such random disasters as fire, toxic explosions, sickness, and worker strikes. "At the highest level of play," admits its creator, "it has caused me a lot of distress." The *Space M*A*X* package bears the following caution: CHIEF FLIGHT SURGEON'S WARNING—USED AT THE HIGHEST LEVEL OF DIFFICULTY, THIS SOFTWARE MAY BE TOO INTENSE AND COULD DAMAGE YOUR MENTAL HEALTH.

Among *Space M*A*X*'s biggest fans is aerospace engineer Andre Sylvester, who works on structural and orbital simulations for NASA's space station project at the Johnson Space Center in Houston. "*Space M*A*X*," he says, "is a good casting of the pressures on someone constructing a commercial space station. Unless you've got deep pockets, you must get production going fast to cover operating expenses."

Sylvester, a veteran user of personal computer programs, also praises the 137-page manual: "It's the best documented software I've seen in years," he says. What makes the *Space M*A*X* manual so good is its detailed introduction to the business of constructing a space station. The user learns about the ins and outs of leasing the space shuttles (the three existing ones and a fictitious one called *Endeavour*), the mechanics of moving heavy cargo around in space, the complicated business of doing research and development off Earth, and the management problems that can arise with flight assembly and operating crews.

For Keller, *Space M*A*X* has been as much of a risk as building a commercial space station is. "This represents a good part of my life savings [about $40,000]," he acknowledges. "But at forty-four, I had to take a shot at what I wanted to do or regret it for the rest of my life. I thought it was time for software that was constructive, not destructive. I also want to encourage young people to think about space exploration."

Now based in England, Keller has established his own publishing company, Final Frontier Software (2FS), with offices in London and Tarzana, California, to bring his program to market. "People tried to discourage me from competing with the big publishers," he relates. "Being self-financed, I can't compete in terms of advertising, so I have to depend on word of mouth to promote my program." Even so, he wouldn't have it any other way. "I would rather run my own show. It's one reason I wouldn't want to be project manager for the space station. I couldn't stand the politics."

Though committed to the primacy of private enterprise, Keller also sees a role for public funding in space exploration. "Governments must still provide seed money; commercial companies will go into space only when there's a possibility of making money." The current lull in launch activity should be used to evaluate what projects private investment can do better, he maintains.

As an encore, Keller is putting the finishing touches on *Lunar M*A*X*, a computer simulation of lunar capitalism in action. "Studies show that oxygen for a space colony will be cheaper to mine on the surface of the moon than to lift from Earth," he explains. "Together with the minerals on the lunar surface, there will be more than enough raw materials to generate profits. It's not fantasy," insists Keller. "In business you can no longer say the sky's the limit." OMNI

Build your own space station, sort of.

AFRICAN NOEL

EXPLORATIONS

By Mark Patinkin

Timbuktu, Mali—We are all of us homeless this night. They are nomads who have lost their land. I am a traveler, far from everything I am part of. Together, we are spending Christmas Eve in the desert.

We are the oddest of couplings. They wear Moslem robes. I, a flannel shirt. I grew up in Chicago and now live in New England; they've known only the Sahara. I have with me enough cash to cross the ocean in a morning. If they want to visit the nearest village, ten miles away, they must walk. They have nothing. And tonight I, too, have nothing. I am here because I want to know their world, what they had and what they lost. For this one night we share our lives.

The best way to get here is by Land Rover. My guide is a Western doctor. He gives introductions, then leaves for his own Christmas.

The name of this tribe is Touareg. They live in tents on the banks of the Niger. They came in from the deep desert only a month ago, refugees driven by hunger.

I am taken to the tent of the chief. He gives me his hand and tells me his name. "Hamzata," he says.

Only one thing about him speaks of wealth—his turban. It is bright blue and of fine silk. It must be the only thing of value in this camp. He has as much pride in it as I have in the three things that have gotten me through this trip—my L.L. Bean shirt, my Swiss Army knife, and Ray-Ban sunglasses. Little items, perhaps, but treasured things that have been with me for years—things necessary in this desert, and right now, my only comfort.

The chief is well educated, fluent in French, but still we share less than half a language. My French is only marginal. This night there would be many gaps to bridge. I watch them unfold the visitor's mat and light a fire for tea, rituals now familiar to me. But unfamiliar, too. I am thinking only of home. I wonder if it is snowing there. Tree lights must be everywhere now. Here I see only sand. Nearby, a tent of newcomers are settling to sleep without food. It is hard to feel the season in famine country.

I explain that it is Christmas Eve. I explain that in America this is the best loved of nights. They say they know about Christmas. It is not theirs, but they know it. The chief motions to some of the others. He has them set up a special bed for me in his tent. I tell him it's not necessary. It's bad enough I've arrived unannounced at five PM. The ground would be fine. But he insists. I am his guest.

Soon it begins to get cold. A fire is lit. I tell the chief I'm here to understand how his people came to be hungry. It is simple, he says. They lived off cattle. The drought came. The grass disappeared. The cattle died. "There must be more of a story than that," I say. Yes, he says, there is. There is a story of loss here that speaks to all peoples who have lost something dear to them. But he does not want to take my time with it.

More tea is poured. More men come around. We gather close to the fire. Why the desert? I ask. Americans would consider it a banishment. That makes him smile. It is the opposite, he says. Desert, for them, is freedom itself. All men, he says, have an aching for land. With the nomad, it is only keener. It is why they choose not a piece of land but a world of it. This way they can even own night.

He begins to tell me of the good times, the fat times. They were wealthy then. They'd have been wealthy even in America. Hamzata's family—just he and his brothers—owned 1,000 cows. Had he been born in Texas, he'd have been a rancher. As his ancestors had for centuries, he, too, followed the rhythm of the desert. From October to May they would find a stand of grass, and this would be the time of settlement. And it was a good time. But they could not shake the love of road, the need for road. Even the cattle knew the rhythm of this movement and were themselves restless by June. Then they would follow the time of wandering—a week here, a month there, the stars guiding them, the camps numbering 100 souls, though they did not call them camps. They were families. The chief did most of the talking. The others gave him the respect of their silence. I had to struggle with the French, but slowly the

CONTINUED ON PAGE 106

With tidings of joy and sorrow: The chief and two members of his tribe on Christmas Eve

MONSTER TRASH

ARTS

By Blythe Arbinger

I have seen trash turn into treasure in my time," commented Forrest J Ackerman seventy legendary science-fiction archivist writer and editor "I have collected everything and anything that qualifies as science fiction or fantasy or horror or monsters scraps that nobody on Earth ever bothered to pick up The only things that stop me are time money and room Otherwise I'd have more than just three hundred thousand pieces"

A sign on the gatepost of Ackerman's 18 room home below the Griffiths Observatory near Los Angeles reads WELCOME TO HOLLYWEIRD KARLOFFORNIA. Inside is what may be a priceless collection of ephemera all the science-fiction magazines that have ever been" 125 000 movie stills, posters, theater and movie props special-effects masks devices and costumes Mingled in the chaos that fills cupboards shelves hallways and closets are the life masks of Peter Lorre Boris Karloff and Lon Chaney Jr a replica of the female robotrix from Fritz Lang's *Metropolis* the metal skeletal infrastructure from the original King Kong's mighty fist and arm There is the furious fish head and other body parts belonging to the Creature from the Black Lagoon the cape worn by Bela Lugosi in *Dracula* There are 40 000 books about devils ghosts, werewolves, zombies and E T s 250 editions of *Frankenstein* and about the same number of *Dracula* versions An autograph in a randomly opened copy of Stephen King's *Salem's Lot* reads REMEMBER FORRY THEY ONLY COME OUT AT NIGHT! There is the painted body cast of barrel-chested Rod Steiger from *The Illustrated Man* and more much much more

Well just as the zany "minister of the sinister" found himself being driven out of house and home by his incredible expanding monster collection along came the auctioneer Arlan Ettinger president of Guernsey's a New York City auction house that specializes in circus memorabilia and other artifacts from the attics of the imagination had had his eye on the Ackerman collection As Ettinger had been receiving increasing requests for far-out phantasmagoria he decided to phone the fabled collector

Martian mask is part of the first major science-fiction memorabilia auction in history

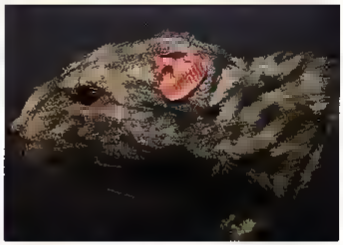
The outcome of Ettinger's timely call is what Guernsey s is now billing as "The Auction of the Century" To be held at New York City's Puck Building in Manhattan on the twelfth and thirteenth of this month it will be—according to Ettinger—the first largest and most important auction of science-fiction fantasy and horror artifacts in history Besides several thousand pieces from the "Ackermansion" Guernsey's will put on the block original fantasy art by such painters as Frank Frazetta Boris Vallejo Kelly Freas and others The auction will also include many original manuscripts and film scripts such as *The Wizard of Oz*

The great throbbing heart of the auction though, will be Forry Ackerman's stuff After the momentous hour-and-a-half phone call Ettinger flew out to Hollywood to see what the collection looked like "He caught on fire," Ackerman recalled a few months later while visiting friends in Cassis, France "got wildly enthusiastic came back with a couple of assistants worked from SIX A M until midnight for a week and wrapped up what turned out to be one hundred and five boxes to ship back to New York"

For six years Ackerman had been negotiating with the city of Los Angeles to house his collection in a museum but nothing had come of the plans Monterey too was interested but good intentions came to naught Disney expressed interest in some special pieces for a theme park on Hollywood in the glamour days Ackerman is still considering that although he really wants the collection to stay intact Why then did he agree to sell off several thousand pieces at auction?

"I have a triplex garage" he explained "the Garage Mahal in which you couldn't park a pogo stick because it s so full of duplicate material I decided to empty out a lot of that for the auction Then I realized you don t have to be greedy When I live with six autographed pictures of Boris Karloff, I can live with one less Or if I have two statuettes of Bela Lugosi as Dracula I can let one go So then I began cannibalizing a bit of the actual collection And I went through it with Disney's eye

"I have collected everything and anything that qualifies as science fiction, fantasy, or horror—scraps that nobody bothered to pick up"



and saw that well some things are on the erotic, exotic sexy side And I figured they wouldn't want this bare breast to be seen in Disney World So I put that in the auction And then I got in the mood and started relinquishing things I never dreamed I would when we started But I got more and more enthusiastic when I saw photographs of how they displayed things These auctioneers don't want to putz around with anything they don't think will bring in a million dollars And then there is the advance publicity and the fact they'll have me back on radio and TV!"

Ackerman doesn't need Thorstein Veblen to tell him why all these items are growing in value He's got the answer mothers The first issue of Ackerman's own magazine *Famous Monsters of Filmland* sold for 35 cents in February 1958 Recently, he says a copy of that very issue sold for a $1 000 certified check Why? Because mothers said "What are you reading that trash for?" to the likes of Steven Spielberg, George Lucas, John Landis and countless others and threw the mags in the wastebasket

Writing for the auction catalog Spielberg in turn ambles down memory lane Ackerman is a hero in his own time and "a keeper of the flame" Spielberg writes reminiscing about how Ackerman used to get him in trouble at home *Famous Monsters of Filmland* was the source. Inspired by one issue of the magazine little Stevie grabbed his father's home movie camera and three younger sisters wrapped the girls in 17 rolls of wet toilet paper and transformed them into mummies Then he filmed furiously until the toilet papier-mâche dried and flaked all over the living room shag rug "I credit Forry with much-needed inspiration" he says and also blame him for all the punishment I received in ruining half the house I grew up in"

Up for auction will be an original letter from Stephen King to Ackerman as editor of *Famous Monsters* It reads "Dear Editor I am fourteen years of age, and have been writing as far back as I can remember and submitting manuscripts for the past couple of years I subscribe to your magazine and my favorite feature is the Obituary department although 'O Henry's Comet' for which this story is intended runs a close second

"Thanks very much for reading my story I hope you see your way clear to put it in 'O Henry's Comet'"

Has the world changed for fans since the Twenties when Ackerman saw *Metropolis* for the first of 77 times? "Oh definitely! In the beginning we were practically spat upon We were those crazy Buck Rogers kids who thought man was going to the moon and all that nonsense I was the resident crazy throughout high school in Hollywood and you know I've lived to be invited back to high school stages and to colleges"

Ackerman has also been invited to act in 25 movies "You see what happens" he says "All these kids like Toby Hooper Lucas Landis Spielberg and [John] Carpenter who read my magazine—they grow up they make movies, and they think 'Hey let's put Uncle Forry in our picture'" Ackerman is currently featured in Landis's new movie *Amazon Women on the Moon* playing the president of the United States

"Hey That's quite an accomplishment for a crazy kid don'tcha think?"

For sale (clockwise from upper right) Golden head mask from the movie Demon Seed *the offspring of Julie Christie raped by her sentient house robot rat head mask from the movie of H G Wells's* Food of the Gods *mask of a Vietnam vet's wife who is transformed into a monster in* House *fat people head mask from the movie* Space Hunter

SUN DANCING

EARTH

By Judith Bell

In a small room in Hovenweep Castle, a Native American ruin in Utah, a narrow window 3.5 by 4.5 inches and 13 inches deep looks west. As the sun begins to set, light comes through the window and, taking its spherical shape from it, travels along the wall as a golden ball. When the light reaches the doorway, it splits into two lines—one horizontal, one vertical—hovers momentarily, and dissolves. Summer solstice has arrived.

The Anasazi, ancestors of the modern-day Pueblos, built this dwelling in about A.D. 1200. They designed two "sighting holes" in the walls, one aligned to summer solstice sunset on June 22, the other to winter solstice on December 22. Just as the sundial indicated the hour of the day by measuring the angle of the sun, these sun-watching stations marked solstices and equinoxes, celestial events that signaled the time for planting, harvesting, and sacred rituals.

The Anasazi's cyclical observation of the sun is a key element in sun drawing, an art form originated by sculptor Janet Saad-Cook. When the sun shines through the large southern windows in her downtown Washington, D.C., studio, it hits reflective film she has bent and placed in the path of the sun. The direct sunlight touches the materials, which reflect colorful forms of light onto the walls and ceiling surfaces: arcs of silver, helixes of pink and green, flowerlike bursts of red. "I create drawings of light with sunlight," she says. These murals of light emerge and disappear only to be replaced by other equally ephemeral forms.

One day in 1981 Saad-Cook was passing through a department store. She was stopped short by a crumpled piece of iridescent plastic in a cosmetic display: a highly sophisticated light-interference film made of 230 layers of ultrathin plastic that breaks white light into the colors of the spectrum. She obtained a bolt of the material from a display company, went back to her studio, and unrolled it in the sun. "The whole room burst into color," she recalls. "I spent a year chasing the sunlight around my studio, experimenting with ways to use the film and the light." Soon she was working with other reflective materials, including Kapton, a glimmering gold polyimide film used to line spacecraft and space suits, and metallized polyester, an industrial plastic film that casts a silvery white light.

With these high-tech materials, in August 1982 Saad-Cook began to mark the sun's passage on her studio floor with the date and time that it hit a particular place. Eventually she learned that as long as the reflective materials were left undisturbed, each shimmering image would appear exactly as before at the same moment in the sun's yearly cycle. A drawing, for example, seen at noon on May 1, 1983, would reappear at noon on May 1, 1984.

Her initial visit to Hovenweep Castle was during the summer solstice. Here in the chambers of towers and castles two and three stories high, set down on the edges of canyons and sheer drops of rock, she worked when the sun, as Native Americans say, "sits down." With the noon sun above her, Saad-Cook set up a cardboard panel and arranged her materials on it to reflect forms made of light onto the ruin. When the artist got the drawing of light she wanted, she adhered the materials to the panel and photographed the sun drawing.

She used the small window in Hovenweep Castle, the sighting hole for summer solstice, as the receiving surface for a sun drawing made of silver, salmon, green, and pink petroglyphs of light. In a chamber in Twin Towers, a structure near Hovenweep Castle, she manipulated her reflective materials to create a phoenixlike image of gold, ocher, green, pink, and silver light that hovered tremulously over the wall. Her sun drawing in an adjacent chamber enveloped the circular room with golden knots of light edged with silver and green.

Since Saad-Cook's first sun drawing, her work has received exposure in the Middle East and India. In 1984 the Smithsonian Institution commissioned a sun drawing that recently finished a three-year national tour. Corporations and private collectors also commission sun drawings to place in sunny lobbies and living rooms.

CONTINUED ON PAGE 165

Saad Cook wants to install a sun drawing at the Very Large Array in New Mexico

LONG DAY'S JOURNEY

STARS

By Marcia Bartusiak

The year is 2010. A dumbbell shaped, unmanned space probe called *TAU* slowly spirals outward from a low Earth orbit. The only evidence of *TAU*'s gentle forward motion is the faint blue glow of its ion engines where energized gas is being expelled at 60 miles per second. Its power source, a million-watt nuclear reactor, sits at one end of the 400-foot-long spacecraft.

After ten years, now well beyond the edge of our solar system, *TAU* will have used up the last of its 40-ton supply of propellant. Its propulsion system will be jettisoned, and its scientific payload—a 60-inch telescope and measuring instruments—will split into two free-flying sections. The twin craft will continue to hurtle outward, having reached a maximum speed of nearly 250,000 miles per hour. As they race through the vacuum of space, the twin units will be beaming pictures of stars and data on everything from gravity waves to magnetic fields. Because sending the data—some 20,000 bits per second—back to Earth by radio consumes too much power, *TAU* will transmit them over a laser beam.

TAU's mission—to measure our galaxy—will take 50 years. By the half-century mark its odometer will register a thousand astronomical units (A.U.s), hence the name *TAU* (one A.U. being the 93-million-mile span between Earth and the sun). The two-part probe will have covered some 100 billion miles and be 25 times farther out than Pluto. By then a *TAU* transmission will take a week to reach us, and our sun will appear as little more than a bright dot in a black sky.

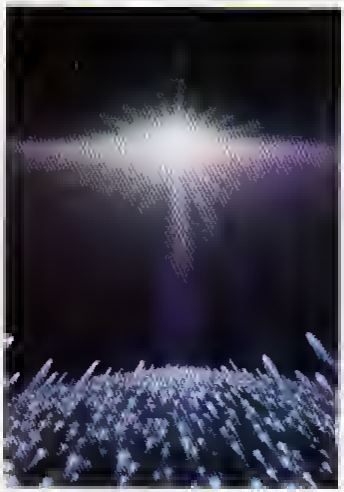
This mission, if funded, will be the deepest, fastest plunge humankind has ever made into interstellar space and will provide a mother lode of astronomical data for generations of astronomers.

The idea of sending a spacecraft billions of miles beyond the planets has been around for years, but it didn't receive serious attention until 1984, when Lew Allen, director of NASA's Jet Propulsion Laboratory (JPL) in California, decided to revise the concept of such a craft. To organize a research team and study the project, he chose the husband-and-wife team of Aden and Marjorie Meinel, both space scientists at JPL.

The Meinels decided that one of *TAU*'s missions would be astrometry, the ungla morous art and science of plotting the distances of celestial objects.

Currently, astronomers can measure precise distances only to stars close to the sun. To do this they use a triangulation method. They plot the position of a star from one point in Earth's orbit and, six months later, from another point. From this, astronomers can determine how a star's position shifts against the celestial background. This shift, or parallax, can be spotted for objects as far away as 500 light-years. For stars and nebulae farther out, they have to use a complex chain of theoretical assumptions.

TAU would extend astronomy's yardstick beyond the 500-light-year limit. Out in space, *TAU*'s telescope, the centerpiece of its payload, could take aim at a star while a similar instrument orbiting the earth did the same. From these two vantage points, parallax measurements could be done even into the next galaxy, 2 million light-years away.



The TAU mission: Tripping the light fantastic

Astrometry will be only part of its mission. "Science will be done from the moment *TAU* is launched," says Aden Meinel. Already the proposed mission calls for more than a dozen experiments, including a search for gravity waves and the first sampling of gases and magnetic fields in undisturbed interstellar space.

Near the end of its life span, *TAU* would approach the inner edge of a distant realm of space called the Oort Cloud—conceived by Dutch astronomer Jan Oort—where innumerable chunks of rock and ice, remnants from the birth of our solar system, are supposedly clustered. It is believed that every now and then a gravitational nudge from a passing star knocks loose odd pieces and sends them tumbling toward the sun. As they pass by, we see these as blazing comets.

TAU's telescope would be able to study the silhouettes of Oort fragments in place as they moved in front of bright star fields. These shadows would let astronomers see the size, mass, and amount of material in that cosmic refrigerator.

Could a spacecraft built using existing technology possibly operate for 50 years? Aden Meinel is optimistic, even though scientists have to clear several engineering hurdles. *TAU*'s ion engines, now being designed at JPL, will have to increase their power a hundredfold; laser communications equipment will have to be built and tested; existing long-duration nuclear reactors will have to be improved. Meinel thinks there is time to develop all of this before the anticipated launch date sometime between 2010 and 2020.

Finally, the Meinels, both in their mid-sixties, are often asked if they have any qualms about working on a project that would arrive at its planned destination long after they are gone. Marjorie Meinel points out that for her, *TAU* is the continuation of a family tradition. 70 years ago, in 1917, her mother was making astrometric measurements at the Yerkes Observatory in Wisconsin. For his part, Aden Meinel says that he and his wife would be quite happy "just to wave good-bye."

CONTINUUM

WHO DAT?

While most of our elected officials focus their efforts on preventing nuclear war, airline crashes, environmental pollution and the spread of AIDS, others are worried about stopping another acronym that is considerably more benign. It's called DAT.

DAT stands for digital audiotape and refers to the most advanced audio recording system developed for home use. If bills in Congress banning or incapacitating DAT become law, it would mark the first time Congress has ever banned a consumer technology for reasons other than health and safety. And it would set the stage for further incursions on the public's right to record copyrighted material for personal use—a right that the U.S. Supreme Court affirmed in the 1984 Betamax case (in which the high court held that the public has the right to record copyrighted material—in this case, video—for their own personal use).

This new format, DAT—which records on and plays cassettes slightly bigger than matchboxes—is the latest notation on the time line of audio technological breakthroughs. The chronology also includes Thomas Edison's invention of the phonograph, the introduction of consumer high fidelity stereo systems, and more recently, the debut of the digital compact disk, or CD.

Unlike Edison's phonograph and today's audiocassette recorders and players, DAT uses digital technology. The digital approach, which converts audio signals into computer language, is also the basis of compact disk systems, making it possible for the CD and DAT to deliver similar levels of superhigh-quality sound with virtually no distortion. Because DAT has the ability to record, however, the prerecorded music industry, which is realizing some of its biggest profits ever from selling CDs, is lobbying hard to stop—or delay—the introduction of DAT, which could be used to copy compact disks and preserve their high quality digital sound. The industry has even managed to persuade the supposedly antiregulatory oriented Reagan administration to support its anti-DAT efforts.

The position of the recording industry is not surprising. Together with their software sidekick, the movie picture industry, the record companies have repeatedly challenged any new consumer recording technology because they say it deprives them of revenues. This has led them to oppose, over the years, the conventional audiocassette recorder as well as the videocassette recorder. Ironically, these formats have created billions of dollars of new business for the software powers, as evidenced by the $5 billion prerecorded home videocassette business.

DAT machines were developed and are manufactured in Japan, which explains why the recording industry has been getting a hearing in Washington lately. Although DAT equipment has been available in Japan since last March, you can't buy a DAT machine in the United States, but some should arrive by the end of this year under the Marantz name. Fearful of arousing more anti-Japanese sentiment and retaliatory trade legislation, the major Japanese consumer electronics names—Sony, Panasonic, JVC—have been holding DAT back from the U.S. market.

Their fear is justified. The recording industry is trying to persuade Congress to require that all DAT machines imported into the United States include a special circuit that would make it impossible for the machines to record. While making its pitch, the recording industry often alludes to the millions of dollars the hardware companies—i.e., the Japanese—are making by allegedly 'stealing' from American recording artists. Not surprisingly, anti-DAT legislation often is part of trade-related bills.

The so-called technology that the anti-DAT forces are using to champion their cause is essentially a form of latter-day Luddism. As reported in the pages of *Omni* (Star Tech, June 1987), if the recording industry has its way, every DAT machine will include a "spoiler" chip that disables the machine's recording function when it receives specially encoded signals. The record companies could theoretically encode all their vinyl tapes and CDs so no one could ever record anything on a DAT machine that was sourced from an encoded musical program. You would not even be able to record from radio, assuming the DJ was playing an encoded disk or tape.

To ensure the future of DAT and other recording technologies on the horizon—as well as preserve the ones we already have—it is necessary for the public to speak up. This can be accomplished by writing to elected officials in Washington. DAT, unlike war, disease and disaster, poses no threat to the health and safety of the people of our nation. On the other hand, DAT provides benefits that will enhance the quality of our lives—without raising taxes. An obvious win-win situation for most members of Congress.—*MARJORIE COSTELLO*

CONTINUUM

ROLLERBOT

There are robots that can serve drinks robots that can drive screws even robots that can play a semirespectable game of Ping Pong But now thanks to a pair of researchers from Carnegie-Mellon University in Pittsburgh there's a roller-skating robot that can keep its balance even if you try to knock it off its feel '

The basic secret is a software program developed by Carnegie Mellon grad student and coinventor Lyman Petrosky The program uses a series of mathematical shortcuts to quickly calculate the robot's velocity and direction then correct any movement that might lead to loss of balance If you try to knock it over the robot may skitter or sway briefly but the rapid-fire corrections performed by its computer will keep it from actually falling over

The roller skating robot Future space station worker?

Coinventor Irving Oppenheim says the robot's stability already allows it to hold a camera as steadily as a human being does Its combination of skinniness (three inches wide at the trunk) and strength (its balancing capabilities allow it to throw its weight around and thus pull heavy objects in a humanlike fashion) could make it useful in the tight spaces found in nuclear power plants or as a manipulator on a spacecraft In general, Oppenheim says anything we do in the way of increasing balancing capabilities will contribute to the mobility and usefulness of the robot breed '

—Bill Lawren

...fect? One California scientist says that stuff methane-rich cow belche... ...y be a p... ...cond only to avoiding nuclear war

COW BELCHES

Scientists have warned that the infamous greenhouse effect could substantially raise Earth's temperature, resulting in massive flooding and other catastrophes Mostly researchers have attributed the problem to man-made pollutants that trap infrared radiation but University of California at Irvine chemist Sherwood Rowland has another theory *Cows* are partially to blame

Methane gas contributes to the greenhouse effect and huge amounts of it are belched into the atmosphere

And although methane a by product of decay is released from rice paddies swamps and garbage Rowland and coresearch... Donald Blake blame m... its recent increase on the world's burgeoning cattle population "Each cow produces roughly one-half pound of methane a day he notes 'And there are about 1 3 billion cows in the world enough to raise the earth's temperature by five degrees in the next sixty years

Rowland admits that controlling methane laden cow belches could be impossible Still we have to be concerned A lot of people follow Alfred E Newman's dictum of What me worry? But the most important problem we have other than avoiding nuclear war is the way the atmosphere is changing

—Sherry Baker

BIRTH OF A GALAXY

Peering 12 billion years back into galactic history as tronomers at the University of California at Berkeley have discovered what they believe to be a young galaxy aborning in the privacy of a vast cloud of ionized hydrogen three times the size of our own Milky Way

The astronomers led by Hyron Spinrad used both ra dio and optical telescopes as well as spectrometers and sophisticated light detection equipment in a hunt for ever more distant galaxies This one known officially as 3C 326 1 was pinpointed by identifying it as the source of powerful radio wave energy in the form of light

The ionized hydrogen cloud emits its light in an ex tremely narrow range of the spectrum but its bright ness equals the total output of roughly 100 billion suns while its stars radiate as much light as about 1 billion suns the astronomers say The relatively small amount of starlight indicates that the cloud has yet to form the bulk of its stars they add

Says the puzzled Spinrad, "This is what theoreticians tell you a forming galaxy should look like It has a mass of ionized gas about three hundred thousand light years across with relatively little starlight But it has no clear center of condensation of stars And it is larger than any other known galaxy at such a great distance

The work at Berkeley funded by the National Sci ence Foundation is part of an effort to clarify galactic evolution and eventually to determine whether the uni verse will continue to expand or will ultimately collapse on itself A puzzling aspect of 3C 326 1 is the source of its powerful radio energy Many astronomers believe that black holes usually produce it but if this remote galaxy is just forming what created the black hole?

—George Nobbe

Rush! Somewhere out there a galaxy is about to be born

You do not believe your first pygmy when you see him'
—Negley Farson

In America everybody is but some are more than others I was more than others'
—Gertrude Stein

"The pyramids will not last a moment compared with the daisy"
—D H Lawrence

Rust We see it as a nuisance, but a biochemist at the Scripps Institute believes rust may have helped create life

A NEW ORIGIN OF LIFE

One of the central mysteries in the riddle of the origin of life is how its chemical building blocks—among them amino acids formaldehyde and cyanides—first concentrated and combined into the more complex chemicals that made up the first self replicating systems Some scientists think that certain kinds of clays acted as little ovens chemically stimulating the simpler substances to form the proteins that were the precursors of life But biochemist Gustaf Arrhenius of the Scripps Institute of Oceanography in La Jolla California has a new idea He thinks that life got its first chemical push not from clay but from rust

In his laboratory Arrhenius dissolved rustlike iron compounds in water saturated with carbon dioxide then exposed both to ultraviolet radiation—matching, he says conditions in the primordial ocean and atmosphere as closely as we can manage given our scanty knowledge of early Earth One of those compounds in particular a common bright green rust called ferroferric hydroxide hydrate carbonate turned out to be what Arrhenius calls a "very promising concentrator" of cyanide which is in turn a crucial component of the nucleic acids that make up all terrestrial life Similar experiments with rustlike iron carbonate particles actually yielded full-blown organic materials It's the first demonstration Arrhenius says that under these conditions some kinds of rust are capable of producing organic compounds '—Bill Lawren

' even things of no great intrinsic merit like that chair in the corner have a very good chance of outlasting you and me It doesn't seem right does it?
—John Updike

Nothing is more terrible than activity without insight"
—Thomas Carlyle

CONTINUUM

Greek legend meets high tech: The Eagle (above) is the prototype for a man-powered aircraft that MIT scientists hope will recreate (this time successfully) the flight of Daedalus and Icarus

REVIVING DAEDALUS

In an effort to re-create the mythical flight of Daedalus, the ancient Greek inventor of aviation, a team of engineers, students, and alumni from the Massachusetts Institute of Technology will try this spring to fly a bizarre human-powered craft from Crete to mainland Greece or to another island. Instead of wax and feathers, they'll use such distinctly twentieth-century materials as Kevlar, aluminized Mylar, carbon fiber, and polystyrene foam for the 70-mile journey.

According to legend, Daedalus and his doomed son Icarus fled Crete after an ungrateful King Minos imprisoned them despite their ingenious design for a labyrinth to contain the fabled Minotaur (a voracious beast reputedly half man and half bull). Icarus, you may recall, plunged to his death in the Aegean Sea because he foolishly flew too close to the sun and his flapping wings melted.

In the MIT version of the journey, a single pedaling pilot will take off from western Crete for an as-yet-unnamed landing site. The aircraft, called the *Daedalus*, hand-made except for pedals and gears, has a wingspan of 112 feet and will weigh just 70 pounds.

The ungainly craft, currently being assembled at Hanscom Field in Concord, Massachusetts, will cost around $1.5 million all told, including a prototype called the *Eagle*, which broke four world records for human-powered flight on a 37.2-mile trip over the Mojave Desert in 1986. MIT's Peggy Scott says the money has come from the school itself and several corporate sponsors, including United Technologies of Hartford, Connecticut, the builder of the *Daedalus* airframe. —George Nobbe

"The concrete world has slipped through the meshes of the scientific net."
—Alfred North Whitehead

Whenever you can, count.
—Sir Francis Galton

DOWN'S SYNDROME MICE

Scientists at Johns Hopkins have bred a strain of mice with Down's syndrome—or the rodent equivalent. It is the first time anyone has developed and analyzed an animal model of this human disease.

In humans, Down's syndrome is caused by an extra copy of chromosome 21 and marked by mental retardation, heart defects, blood disorders, facial disfigurement, a dementia much like Alzheimer's disease, and early death. The mice bred at Hopkins possess an extra copy of chromosome 16, analogous to the human twenty-first.

By studying the mice, the Hopkins researchers hope to track down the individual genes responsible for the various manifestations of the disease. "If you isolate a gene from the region, then inject the cloned gene into a mouse embryo, it will grow up with an extra copy of just that one gene," explains Roger Reeves, a molecular geneticist who is part of the multidisciplinary team. "By studying the embryo at every stage of development, you can see when it veers away from a normal pattern of development. You see if a certain population of brain cells makes too much or too little of a neurotransmitter, for instance."

And because all humans with Down's syndrome develop Alzheimer's disease by the age of thirty-five, we hope to learn something about that disease, too."

The ultimate dream is gene therapy to reverse Down's syndrome, but that won't happen tomorrow, according to Reeves. "Down's syndrome is much more complex than genetic diseases like Tay-Sachs disease," he says. "If you have just one gene that doesn't function, you could insert a normal copy of the gene into the embryo, but with Down's syndrome you're dealing with a whole chromosome."

—Judith Hooper

A genetic first: A mouse fetus with Down's syndrome

Gypsy moth at work. The gyps[illegible] a virus within its system—that resea[illegible]ommand.

SABOTAGING THE GYPSY

Four years ago virologist Alan Wood became fasci nated as thousands of gypsy moth larvae swarmed over the apple trees in his New York State backyard. In no time the voracious insects denuded the trees. Then, as suddenly as they had ap peared, the caterpillars died.

What killed the larvae Wood found out, was a virus the insects carry. The sym biotic virus remains dormant most of the time, much like the herpes simplex virus that causes cold sores in hu mans. But when it is acti vated, the virus is lethal.

W[illegible] discover the [illegible] that triggers the vir[illegible] can be used to co[illegible] the gypsy moth, wh[illegible]lly defo liates [illegible]ands of acres of [illegible] forest in the northeastern United States and [illegible] spreading to other regions.

Wood, a s[illegible]entist at the Boyce Thompson Institute for Plant Research, an independ ent institution at Cornell University, says the virus is the only thing that controls the gypsy moth. "Without it [the virus] the Northeast wouldn't have any hardwood trees."

He has found that at least one in every ten gypsy moths is infected with the virus, and his research is geared to finding a way to turn on the virus on command so that it can be used to control the gypsy moth before it causes widespread dam age. Wood and other re searchers are not sure what triggers the virus, but he hypothesizes that it is acti vated when the insects are stressed physiologically by food shortages and large numbers of insects crowding one another.

He believes it might be possible to alter the virus through genetic engineering to increase its killing ability. "This is a latent or back ground infection," Wood ex plains. "We are looking to turn it on without upsetting nature. We are searching for a trigger that is economi cally and ecologically ac ceptable." —Joel Schwarz

THE BIGGER THEY ARE . . .

Even though sports bras must meet standards laid down by the American Soci ety for Testing and Materials, Deana Lorentzen of Utah State and LaJean Lawson of the University of Nevada at Reno suspected that some bras provide more support than others.

To find out, 59 women with cup sizes from A to D jogged on a treadmill in each of eight sport bras, as well as topless. X's were marked on their bras over the sternum and the nipple—and directly on the sternum and nipple in the nude condition. By filming the women as they ran, the researchers were able to calculate the average change in distance between the two X's as the nipple X bobbed up and down.

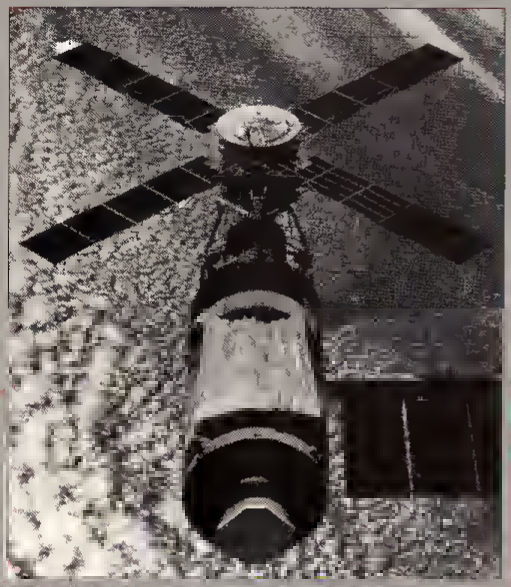
Lorentzen and Lawson found that in the nude, C- and D-cup women experienced significantly more vertical biomechanical breast move ment than women with A and B cups. This was con sistent, say the researchers, with the greater amount of exercise discomfort reported by the fuller-figured women.

When it came to support, a thumbs up went to The Exercise Support Top, with its firm fabric, and its above and below breast support, and to The Lady Duke, with its double layer cups and pointy silhouette. These are bras for the average woman, who tends to have larger breasts than the athlete and thus requires more support, says Lorentzen.

Bra manufacturers are listening. They are already incorporating some of the design features we sug gested," says Lorentzen. —Paul McCarthy

[illegible]

CONTINUUM



Back to the future: A Skylab (above) type of craft could serve as a quasi–space station if fitted with several docking ports

RETURN OF *SKYLAB*?

What's the next best thing to the projected NASA space station? *Skylab*—or, more accurately, *Skylab 2*.

According to Peter Banks, former chairman of NASA's Task Force on the Scientific Uses of the Space Station, the space station as it's now planned would be too much, too late. "[Space scientists] would suffer for years before it became available," he says. Instead, Banks modestly proposes sending up a simple, single-module space station. In other words, a craft similar to *Skylab*.

Banks's *Skylab 2* would cost about $6 billion, take three years to build, and would be launched with a heavy-lift vehicle. The facility, however, would not be a carbon copy of *Skylab*. It would, most likely, have several docking ports so that the station could be expanded as required (much like the Soviet *Mir* station).

Why go to a *Skylab*-type craft when plans for the space station are already under way? A smaller, less expensive facility, says Banks, would probably be more valuable to the scientific community because it would get the United States back into space quickly. People working on man-assisted research areas in space need to get to space to do some thing, he says. "There's a tremendous wealth of new scientific and technological information to be gained. And whether we like it or not, there's an element of competition with the Russians." The chances of a *Skylab 2* or a two-module space station being launched before the late Nineties? "I'm not holding my breath right now," says Banks. "I can't be optimistic." —Devera Pine

SECRET ORDER OF RAT EATERS

What began as a rat-trapping wildlife field trip led by University of Arizona ecology professor E. Lendell Cockrum has turned into a student group called S.O.N.E. (short for the Secret Order of the Neotoma Eater; *Neotoma* being the biological name for the pack rat, which skitters across the southwestern desert in droves).

Some people turn up their noses at the thought of eating rats," says S.O.N.E. cofounder and wildlife ecology graduate student Doug Duncan, "but they have a nice, gamy taste—like quail."

Urban dwellers who wish to join the ranks of *Neotoma* eaters should be forewarned that city rats, which are notorious carriers of disease, do not make healthy entrees. Field rats, however, are safe to eat if properly prepared. "These aren't sewer rats, and we cook them very thoroughly," says University of Arizona medical student Victor Chen. "They're just like wild game—only smaller."

Professor Cockrum agrees. "I've always taught my students that animal protein is protein. Some of it is in little packages—like mice."

S.O.N.E. has formal membership cards and T-shirts boasting the motto ALL FOR RAT AND RAT FOR ALL. And the initiation ritual? Simple. You must *knowingly* eat a barbecued desert rat prepared by Duncan and Chen. —Michael Dale

Members of S.O.N.E. (Secret Order of the Neotoma Eater) hold aloft their favorite entree—the delicious wild desert rat

HIGHWAY REPTILE MURDERERS

The motorist *seemed* mild mannered But when she sped a snake in the road she turned bloodthirsty swerving to kill the creature then turning around and running over it five more times After having documented how 22,000 motorists reacted to rubber reptiles placed on or near roads Southeastern Louisiana University biology professor David Shepherd authoritatively concludes that the woman's behavior wasn't unusual There are apparently very few animals hit accidentally on the highway

To measure drivers intentions Shepherd and his assistants placed fake snakes and turtles in positions where motorists would normally hit them if they continued straight they also put them where drivers could hit them only deliberately We found that while eighty seven percent of drivers tried to avoid the animals six percent went out of their way to hit them—with snakes getting squashed twice as often as turtles Shepherd reports

Seeing reptiles on the road brings out the killer in some people he adds A truck driver even crossed the center line went into the opposite lane of traffic and drove onto the shoulder of the road to run over a turtle And a policeman crushed a snake with his tires then stopped and pulled his gun I quickly jumped from some bushes and explained it was a fake

Do people particularly like to kill reptiles? Those are the only animals I studied but research in England shows people there deliberately run over foxes Shepherd answers In Texas it's armadillos and in Canada it's rabbits Unfortunately I think some people just have a mean streak toward animals —Sherry Baker

And in Texas the armadillo is the road kill of choice

WHY BOOKWORMS WEAR GLASSES

A few chicks with some very heavy shades may have given Josh Wallman and his team of biologists at the City University of New York the first scientific clues as to why glasses really are a common sight among those who love to read

The main cause of myopia is not likely to be dietary hormonal or occupational according to Wallman who has studied the effects of blinders placed over portions of the eyes of a few lab chicks It's probably due to optically unstimulating tasks such as reading that visually starve portions of the eye

Wallman's chicks cannot read of course but he found that portions of their eyes that he had covered for a period of weeks enlarged significantly They had in other words become myopic These results suggested to Wallman a mechanism by which reading might cause myopia in humans During reading only the neurons at the center of the retina which can resolve the letters on a printed page are active The peripheral neurons which have large receptive fields see nothing but a uniform gray and are much less active To compensate for prolonged periods of inactivity the eye becomes myopic

The printed page notes Wallman has three features that make it boring to portions of the eye When the eye is focused on printed text it must deal with small evenly illuminated black and white features that must be terribly unstimulating compared with the wide variety of sizes brightnesses and colors in features of the world at large

Wallman who is himself myopic and wears glasses realizes that these are tenuous conclusions to draw from a few nearsighted chicks We must now make the connection between experimental myopia he says and normal development of the eye If the results hold up he suggests that we may then want to do what the farsighted Chinese have long done have children interrupt their reading with occasional eye exercises

—Patrick Huyghe

Wonder rather than doubt is the root of knowledge

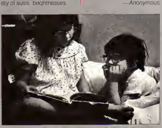
—Abraham Joshua Heschel

Is he who opens a door and he who closes it the same being?

—Gaston Bachelard

Nothing is more common than a fool with a strong memory

—Anonymous



Does reading books cause [illegible] myopia? Are chickens [illegible] support [illegible] old-fashioned theory

CONTINUUM

BLARNEY STONES?

Perhaps 10,000 years ago the prehistoric residents of the Panamint valley in south eastern California whiled away a good deal of their time building vast stone align ments that are recognizable only from the air as birds snakes and complex geo metrical designs of parallel lines and overlapping hoops

Because none of their handiwork can be recognized for what it is from ground level the question that in trigues Christopher Raven research director of the Great Basin Foundation is why the architects of the geo glyphics who could never see the designs themselves bothered to build them in the first place

In an effort to solve this puzzle Raven will use both ground and balloon crews to study the stone alignments later this year We don t need to learn who built them or when They re unquestion ably aboriginal Native Amer ican in origin he says The real enigma is why hunter gatherers would build them in such a dry remote area It seems a fairly irrational act Some of the 60 or so align ments are as long as a foot ball field others cover just 16 or 17 feet As many as 700 stones about six inches high were used in the designs

While he doesn t rule out the possibility that the stones could have been a primitive form of astronomy Raven leans more toward the notion that they had a religious or magical significance

—George Nobbe

... by the doomed Challenger point ... the tragedy

WHAT KILLED CHALLENGER?

Remember the peculiarly bent smoke trail left in the wake of the *Challenger* launch? It turns out that the smoke was bent by a sudden strong shift in the wind—a wind shear In fact the wind shear that *Challenger* flew into was so powerful that according to at least one ex pert it—and not the right solid rocket booster—may have been a major cause of the disaster

William P Birkemeier a professor at the University of Wisconsin who has studied winds for 20 years reached that conclusion after poring over videotapes and photos of the launch And while he agrees with the generally accepted view that the right solid rocket booster was flawed he claims that the booster was holding together fine until the shuttle hit a wind shear 58 seconds into the launch At that point according to Birkemeier the strong winds could have caused enough damage to bring on disaster

Not surprisingly wind shear experts at NASA who did their own study question his conclusion Birkemeier is saying that from an engi neering point of view he can show that [wind shear] caused the accident says Louis Uccellini senior mete orologist at the severe storms research program at God dard Space Center But he derived his data from the smoke plumes and the people down at Houston who used smoke plume analysis don t agree with him I m not saying Birkemeier is wrong but there are a lot of ques tions about his figures

Uccellini is certain though that NASA must upgrade its meteorological observation system if the space program is to progress They need a twenty first-century observa tion system for a twenty-first-century launch system and right now they don t have one I don t think the astronaut corps is going to let them ignore it anymore Most astronauts are pilots You say wind shear or light ning around a pilot and they know what you re talking about —Dovera Pine

Modern life is so thoroughly mediated by electronic images that we cannot help responding to others as if their actions—and our own—were being recorded and simultaneously transmitted to an unseen audience or stored up for close scrutiny at some later time

—Christopher Lasch

A man can no more possess a private religion than he can possess a private sun or moon

—G K Chesterton

There is no excellent beauty that hath not some strangeness in the proportion

—Francis Bacon

ARTICLE

UFO abductees claim that large-eyed, gray-skinned, four-foot-tall aliens are confiscating their eggs and sperm to create a bizarre race of hybrids

SECRET SHARERS

BY PAMELA WEINTRAUB

Browsing through B. Dalton's in Syracuse, New York, Bruce was alarmed by an eerie display of books. Emblazoned on the covers staring out at him in multiples from the showcase grid was a haunting face: grayish skin, pointed chin, receding lips and massive, dewdrop eyes. The color of molten basalt, the eyes held him mesmerized until he broke their discomfiting gaze. He grabbed the book—Whitley Strieber's best seller *Communion* about the author's encounters with alienlike "visitors"—off the shelf. "I just looked at it," Bruce says, "then I turned to the manager and said, 'The eyes are wrong.'"

Instantly embarrassed, Bruce left without purchasing the book. *How do I know if the eyes are right or wrong?* he chastised himself. *I didn't draw the picture.*

But a nagging sensation—one so horrific he'd pushed it from his mind for years—told him he might have drawn a picture like the one on the cover of *Communion* himself. As he left the bookstore that day, and for a long time afterward, Bruce says, "memories flooded in like water rushing through a hole in a dike."

Early one evening during the summer of 1978, it seems, Bruce had been driving home from a relative's house with his wife, Marion, and adopted son, Steven. Scanning the sky, he noticed what seemed like a low-flying plane headed in for a landing. "There was this loud whooshing sound," Bruce recalls. "I thought it was a plane in trouble, trying to land and buzzing me to clear the road. So I sped up, trying to pull away."

But though Bruce remembers pushing the accelerator down full force, the car didn't move at all. In fact, he says, the rubber on the tires began to burn, and the whole vehicle started to overheat. "I figured," Bruce recalls, "that the best thing to do was to shut the car down."

A second later, Marion looked out the window and let out a bloodcurdling scream. Bruce locked the doors, rolled up the windows and threw a blanket over Steven, instructing him not to move. Then, looking behind him, he saw some figures approaching. "What registers in my mind," he says, "are two very formal military figures. Their uniforms were homogeneous—beige from the neck up and

PAINTING BY GREG HILDEBRANDT

black from the neck down.

By this time Bruce recalls Marion's behavior had become bizarre. She's under the impression that the door is unlocked instead of locked. So she keeps trying to lock it, but she's doing just the opposite. And she believes the window is down instead of up. So she's rolling it down, *thinking* that she's rolling it up. There's this struggle between us to keep the door locked. She's getting very mean, almost like a cornered dog. And then she lets out another scream. I spin around, and oh, my God, I'm staring into these humongous eyes. I'm transfixed. All of a sudden I hear a door slam behind me, and Marion is gone. She's just walking along with this guy, sort of on a stroll toward, well, for lack of a better word, a ship.

According to Bruce, he leaped out the door to try to get Marion back when three more figures surrounded him. "My sense of self preservation," Bruce says, "was suddenly very strong. I was curious, but I didn't want to risk going on that ship, so I did something I'm not proud of. I tried to see if I could send Steven, who would tell me what he saw. Should he not return, then I would have evidence I could take to the authorities. So I pulled the seat forward and leaned in to get Steven, and that's when I was jabbed. Right in the rear. I felt like I'd been poked with a hatpin."

From that point on, Bruce says, everything was cloudy. He was, he's sure, dragged down the road a bit. But the next thing he knew, he was back in his car with Marion and Steven, driving home. The family returned two hours later than expected. As far as the "experience" was concerned, nothing was said.

Bruce's chilling story (and the accompanying block of missing time for which he could not account) makes him one of the growing number of people who claim to be UFO abductees. The abductees say, among other things, that large-eyed, gray, skinned, four-foot-tall aliens are swooping down from the skies to take them away. These ghoulish visitors put their victims in a trance and literally float them out of car or bedroom windows onto spherical ships. The medical examinations that reportedly occur aboard alien vehicles are painful and extreme. Biopsies (later appearing on the skin as long, straight cuts or simply as scoops) are performed on arms and legs. Transponder implants that enable aliens to track their subjects like caribou are inserted in the eyes, nose, ears, and even the brain. And most disturbing of all, painful surgical procedures remove human eggs and sperm. The result, many abductees contend, is a race of human–alien hybrids gestated in artificial wombs, raised in alien nurseries, and sent, ultimately, into the unknown reaches of space. The hybrids' suspected purpose: to provide a genetic shot in the arm and new evolutionary vigor for the ailing alien race.

Hearing such stories, one has the natural instinct to give the so-called abductee a wayward glance and run. But these days, that's hard to do. Hundreds of people worldwide, in countries from Canada to Brazil, now claim the abduction experience. What's more, the strange details they conjure up—from the appearance of the visitors to the surgical procedures they perform to the symbols on the alien ship—are often uncannily similar. And the half dozen respected psychiatrists and psychologists who have studied this odd group find no evidence of psychopathology. The abductees have suffered a severe, unspeakable trauma, yes. Most are overly cautious, many neurotic. But according to a spate of standard personality and intelligence tests, the question of whether the abductees are *crazy* can be unequivocally answered with a no.

Explanations put forth by experts in a variety of fields are numerous: repressed rape or child abuse, ancient racial memories stored in the genes, mass hysteria, culturally induced dreams, transcendental

> *"Emblazoned on the cover was a haunting face: grayish skin, pointed chin, receding lips, and massive, dewdrop eyes. The eyes were the color of molten basalt."*

right-brain states, and more. Some have said that the abductees form the core of a powerful new religion, one sure to supplant Christianity and subvert the progress of science. Others, including more than a few of the abductees, insist the reports are literal and the experiences real.

Whatever the ultimate explanation, those tormented by abduction imagery might find their way to Wellfleet, Massachusetts, a quaint Cape Cod town best known for fishing boats, art galleries, and vacationing shrinks. (New York City's entire population of psychiatrists, it seems, summers there.) Wellfleet's lesser-known treasure—a state secret if you will—is acclaimed artist Budd Hopkins, whose imposing, altarlike sculptures add a sacred touch to New York City's Guggenheim and Whitney museums and some of the best art galleries in New York City and Provincetown, Massachusetts. Hopkins has to date worked intensively with upwards of 160 abductees. He has grappled with their plights, published their experiences, and given—well, if not validity—at least a smattering of compassion to their outrageous claims.

When in Wellfleet (his other home is in Manhattan), Hopkins lives at the end of a twisty macadam road on a verdant cul-de-sac. While other houses on the road are simple wooden structures that fade into the landscape, Hopkins's stark concrete home, all angles and slopes, glistens like a sculpture in the sun. He opens his door, and a furious crescendo of Gustav Mahler pulses out in waves. Hopkins's paintings—giant orbs that hint at transcendence, the cosmos, God—dominate his living room. His windows, a collection of different-size rectangles, capture the view of a sweeping wooded valley out back. The artist stands in contrast to all this drama. Hazel-eyed and angel-faced, he exudes an earthy warmth and sensitivity. To the abductees he is a mentor, a father confessor, a *friend*.

That's a relief to Bruce. Sitting at Hopkins's kitchen table, his face tired, glasses tinted, beard manicured, the thirty-two-year-old upstate New York graduate student sips his coffee nervously, waiting for Hopkins's interview and subsequent hypnosis session to begin. "I'm not sure what really happened," Bruce says haltingly, obviously at the end of his rope. "I just feel so embarrassed and at odds. I could be having actual memories, psychological side effects, or dreams. I want to understand."

Hopkins himself believes the understanding Bruce seeks can be gleaned, at least in part, by way of a swampy out back—the tettered, complex terrain of the UFO. The dawn of modern UFO history is generally considered to be June 24, 1947, when Boise, Idaho, businessman Kenneth Arnold was flying his private plane near Mount Rainier, Washington. Arnold reported nine bright objects that moved "like skipping saucers over water" at more than 1,200 miles an hour. Thanks to Arnold's description, the term *flying saucer* entered the English language, and for months after his sighting, saucer reports rolled in.

Eventually things calmed down, and the next true UFO wave didn't crash on American shores until 1952. On July 19 of that year, at nine PM, pilots coming into Washington National Airport reported unusual objects and lights cavorting over the White House lawn. The next week, at about the same time, the objects appeared again. This time, though, they were briefly contacted by Air Force planes and even showed up on radar. The 1952 sightings prompted a massive UFOmania, and before long, Pentagon phone lines were tied up with hundreds of people asking for information about the UFOs.

Then, in 1964, an extraordinary sighting outside of Socorro, New Mexico, convinced at least one scientist that the most outlandish explanation for the reports—the extraterrestrial one—might be right. Physicist J. Allen Hynek, director of the astronomy department at Northwestern University, had been reviewing some data for the Air Force's official investigation, Project Blue Book, when he was asked to check out the Socorro report himself.

As the late Hynek explained it, patrol-

HIDDEN MEMORIES: ARE YOU AN ABDUCTEE?

Have you ever experienced an abduction by the occupants of a UFO? Bizarre as this question sounds, some researchers think the phenomenon, be it physical or metaphysical, is widespread. They hypothesize that because of amnesia often associated with the experience, many thousands of people may have had such encounters with little or no conscious recall. To help a team of psychologists and UFOlogists test their theory that large numbers of people have submerged what they call the "abduction experience," please fill out the following questionnaire. The questionnaire analysts will use the data to see what percentage of *Omni*'s 5 million readers were potentially abducted. They will also try to glean new details about the experience itself. Some questions require a simple yes or no answer; others are multiple choice, and still others ask for elaboration. To provide the researchers with the full facts, please write out all your answers on a separate sheet of paper. Be sure to indicate the number of the question you are answering. Fill out the personal data section on the questionnaire itself. Send your questionnaire to UFO, *Omni*, 1965 Broadway, New York, NY 10023-5965.

1. Have you ever had a sighting of what you believed to be an unidentified flying object? _____ If so, please describe the event.

2. If you answered question 1 with a yes, you reported the sighting to:
   A) the Air Force or any other military agency.
   B) any local police agency.
   C) the news media.
   D) any civilian UFO organization.
   E) none of the above.

3. If you answered question 1 with a yes, does your recollection of the sighting seem to have odd gaps in it, as if your memories of the experience do not form a coherent whole? _____ If so, explain.

4. Have you had any periods of lost or missing time that strike you as unusual? _____ If so, describe the circumstances.

5. Do you have any strong but seemingly unexplained fears of particular places—a stretch of highway, a room, a field, or whatever? _____ If so, describe the location and the nature of your fear.

6. Have you ever experienced an odd displacement in which you found yourself inexplicably in a location different from where you remember being only seconds before? _____ Please describe the incident.

7. As a child, did you ever see strange figures, such as the bogeyman in your bedroom, in a situation that seemed too real to have been a dream? _____ If yes, please describe the figure or figures, and add a sketch if possible.

8. Did you ever receive an unexplained wound that was painless, relatively bloodless, and left a scar? _____

9. If your answer is yes, is the scar located on your chest, on your back, or elsewhere? Please describe the scar and its location.

10. Have you ever experienced recurring dreams that you feel are connected somehow with the subject of UFOs and/or their occupants? _____ If so, describe the dream or dreams.

11. Have you been told that you were frequently lost as a child under circumstances you do not now remember? _____ If so, elaborate.

12. Do you have any intense phobias or fears that seem completely without cause but have had a crippling effect on your life? _____ Describe both the fears and their effects.

13. Do you remember certain "meaningless" words that seem to have a special, as yet unrecollected meaning to you? _____ Is the word *trondant* one of these? _____

14. If you are a woman, have you ever had any oddly disturbing, realistic dreams about pregnancy, infants, or a missing or deformed baby? _____ Please describe the dreams in detail.

15. If you are a man, has any female relative or friend ever described such dreams to you? _____ Have you ever had such dreams yourself? _____ Please explain.

16. Have you ever suffered from an extremely unusual and as yet unexplained medical problem? _____ If so, what were the symptoms?

17. Have you or your spouse ever experienced a mysteriously terminated pregnancy? _____ If so, please explain.

18. Were you ever a sleepwalker? _____ If so, did you ever find yourself outside the house, suddenly awake? _____ Please give details.

19. Have you ever heard voices speaking to you "in your head," issuing orders or warnings? _____ If so, please explain, giving the nature of the communication and your reaction to it.

20. Have you ever clearly heard your name being called "in your head," without literally audible sound? _____ Please describe the circumstances.

21. Has any member of your immediate family told you that he or she recalls the kinds of experiences or images described in the questions above?

22. Which answer best describes your gut feelings about UFOs?
   A) Many UFOs are physically real objects, maybe extraterrestrial in origin.
   B) UFOs are probably only misidentified real objects, such as planes and stars, but I accept the possibility that some of them might be extraterrestrial.
   C) UFOs are always either hoaxes, misidentified objects, or the inventions of overheated imaginations.

23. Which answer best describes your feelings about UFO abduction reports?
   A) At least some of the abduction accounts I've heard about seem genuine, and I accept the idea that such things can and do happen.
   B) These stories sound just too implausible to accept as true, but I cannot absolutely rule out the possibility that I'm wrong.
   C) I cannot accept these accounts as anything other than hoaxes or the products of some mental aberration.

24. Have you:
   A) as a person interested in the subject read more than three books or articles about UFOs in the last year?
   B) as a casually curious person, read a book or two and perhaps a few articles on UFOs over the past few years?
   C) as someone who regards the subject as spurious, tried to avoid reading anything about it at all?
   D) If none of these categories describe you, please explain.

25. Which answer best describes your reaction to this questionnaire?
   A) intellectual rejection
   B) uneasiness
   C) intellectual curiosity
   D) amusement
   E) indifference

PERSONAL DATA

Male ☐ Female ☐
Age _____
Residence:
City ☐ Suburban ☐ Rural ☐

If you would like to be contacted by UFO investigator Budd Hopkins or one of his colleagues, fill in your name and address in the space below. All names and addresses will be kept strictly confidential. Since the investigators will use this questionnaire primarily for research purposes, please understand that many respondents will not receive a personal response.

_____

_____

_____

_____

_____

man Lonnie Zamora had been chasing a speeder out of town in broad daylight when he supposedly saw something descending over the plains. He went through the sagebrush and finally glimpsed what looked like an upside-down car and some creatures. When he went back to investigate, Zamora found some charred greasewood bushes and, more importantly, four pod marks indicating he believed the spot where the thing had landed and scooped up some dirt. Hynek himself tried to char the bushes with matches and create pod-like impressions with a shovel but to no avail. He also interviewed Zamora's old schoolteacher, the railroad baggage man, and other townsfolk. "They all gave Zamora a clean bill of health," Hynek reported. "He was a very solid cop."

By the mid-Sixties, UFO proponents pointed to distant disc sightings, radar corroboration, and physical evidence that had purportedly been found. The Air Force, in its own series of investigations, declared there was nothing much to this evidence. Virtually all UFOs, government investigators said, could be explained away as weather balloons, cloud formations, atmospheric phenomena, meteors, planes, and the like.

The dispute would be settled, of course, if UFOlogists could come up with some aliens. But much to their chagrin, the E.T.'s appeared full-blown in the stories of a group of charlatans known as the contactees. In the standard contactee story, the Earthling was sitting in his yard when gorgeous, Nordic-looking aliens swooped down from the sky. These benevolent E.T.'s eagerly told the contactee about the secrets of propulsion and the mysteries of their home planet—invariably an Eden with no taxes, no divorce, and no war. One contactee said he went to the moon and dined with the lunar king. Another said he went to Jupiter and brought back a native dog that, oddly enough, looked like a Saint Bernard. Whatever the specifics, the contactee was always given a mission: to try to stop atomic testing, end all wars, and promote peace on Earth. Such a mandate, of course, meant forming organizations, writing books, hitting the lecture circuit, and producing record albums of music from Pluto—all for a hefty profit. Hundreds of deluded people ended up converting to UFO religions and cults, but as the tall tales and questionable activities of the contactees continued, the field of UFOlogy itself fell into disrepute.

In the aftermath of this hysteria there emerged one contact story different from the rest: the saga of Betty and Barney Hill. Barney was a black post-office worker and an official in the New Hampshire NAACP. Betty was a white social worker. Coming back from a vacation in Canada, they reportedly saw what would be called a typical UFO. Then Barney inexplicably turned left onto a side road. That was all the Hills remembered until two hours later, when they found themselves 35 miles farther down the road, without any idea how they had gotten there.

They began to have bad dreams and finally went to see psychiatrist Benjamin Simon, who used hypnotic regression to bring them back to the incident. Under hypnosis the Hills said that extraterrestrials had impelled them to leave the car and walk to the craft, where they were separated and given examinations. Betty said they stuck a needle in her navel and then took skin and nail samples. Barney claimed they took a sample of his sperm.

Like most other skeptics of the day, Budd Hopkins, a young artist splitting his time between Cape Cod and New York City, didn't think much of this story. But one day in 1964, while driving to an afternoon party in Provincetown, he saw an elliptical pewter-colored object hovering over the dunes. After three minutes, it seemed to Hopkins, the object simply zoomed off, disappearing in the clouds.

At the party Hopkins discussed his experience only to find that other guests had had similar sightings as well. That summer Hopkins bought a couple of UFO books. And every now and then he brought the subject up at a party.

> *"I didn't want to risk going on the ship myself. So I did something I'm not proud of. I tried to send Steven. Should he not return, I would have evidence for the authorities."*

But his interest in UFOs didn't intensify until 1975, when George O'Barski, owner of the liquor store across from Hopkins's Manhattan town house, had a sighting of his own. "I walked in to get a bottle of Soave for dinner," Hopkins recalls, "and I found George pacing back and forth behind the counter, obviously disturbed. A man can be driving home minding his own business,' O'Barski fumed, 'and something can come down out of the sky and scare him half to death.'"

The story he then told Hopkins was incredible, to say the least. O'Barski lived in North Bergen, New Jersey, and, as was his habit, had been driving his car through North Hudson Park on the way to an all-night diner in Fort Lee after work. As he passed through the park, O'Barski said, he saw a roundish, 30-foot-long ship circumscribed by windows. Then he watched in disbelief as a narrow panel opened to release a ladder. Down the ladder climbed some ten humanlike figures, each three and a half to four feet tall and wearing a one-piece, light-colored garment. The figures carried spoonlike instruments and containers. O'Barski claimed, and proceeded to collect samples of the earth. Inside of four minutes the strange individuals and their craft were gone.

Hopkins investigated the story, found five corroborating witnesses (not to the occupants, just to the apparent craft), and published his findings in *The Village Voice*. The *Voice* story was reprinted in *Cosmopolitan*, and Hopkins's avocation—as a UFOlogist—was off to a start.

Even back then Hopkins was aware of the issue of missing time. O'Barski, who claimed his sighting lasted four minutes, had returned home a couple of hours after he would have on any normal night. But it wasn't until 1976 that Hopkins considered a preposterous notion. What if UFO witnesses were losing track of hours, even days, because aliens were abducting them, then forcing them to forget?

That idea walked into Hopkins's life in the form of Steve Kilburn (not his real name), a tennis instructor he'd met through one of the investigators helping with the O'Barski case. One day, after an informal UFO gathering that Kilburn happened to attend, he approached Hopkins nervously. "There's probably nothing to it," he confided, "perhaps because Hopkins seemed more accessible than others at the meeting, but something may have happened to me when I was in college. I can't remember anything specific, but something has always bothered me about a certain stretch of road I used to pass through whenever I left my girlfriend's house in Maryland." Kilburn recalled no strange lights in the sky, and he only *suspected* a gap of missing time. Nonetheless, he told Hopkins, "I'd like to try hypnosis just to see if there's anything at all to my feeling."

Encouraged by the O'Barski episode, Hopkins agreed to help. He recruited New York psychologist Aphrodite Clamar, referred to him by psychiatrist Robert J. Lifton, Hopkins's friend and an expert in the psychology of survivors. Known for her deft use of hypnotism in psychotherapy, Clamar is as down-to-earth as her name is exotic (her family is Greek). Combining a strong skepticism of UFOs with the unique ability to suspend judgment, no matter how extraordinary a client's claim, Clamar put Kilburn into a deep trance. To abate his fear she provided him with a protective image: "a warm, solid house to stay in, safe from everything threatening, but from which you will be able to watch any events that might unfold outside."

From the depths of hypnosis Kilburn explained that while driving home on the night in question, he'd grown increasingly drowsy, until he felt his car turn violently, "like a huge magnet just sucked it over to the right." Looking up into the sky, he noticed two strange lights. To ease his fear he pulled the car over and stepped out

Walking down the road a bit, he said, he met with four or five tiny individuals, including one who seemed to be the boss. Their faces were dull, chalky white, like putty, he told Clamar, and their walnut-shaped eyes, devoid of pupils, were huge and liquid black. One was bending down, digging in the earth.

Kilburn also recalled a clamp, "almost like an arm," affixed to his right shoulder. At this point, he told Clamar, he was totally paralyzed, and the creatures used the instrument to turn him around. The next thing Kilburn knew, he was walking up a ramp. Sitting on a table in a curved, misty-white room beneath an elaborate diagnostic instrument hanging from the ceiling, he felt the excruciating pain of a needle running along his spine. He was examined over the length of his body, hips, stomach, arms, legs, and thighs. "I feel like a frog," he told the doctor, now touches my skin under that leg. . . . It feels kinda rough. Something else, something 'dirty,' might have happened, Kilburn told Hopkins after the session, but he couldn't recall what.

Kilburn's story shook Hopkins to his roots. "It was nothing I wanted to accept," Hopkins says. "Yet it seemed totally real. What's more, it seemed to fly in the face of the traditional abduction scenario established by Betty and Barney Hill. Instead of remembering portions of the UFO experience consciously, as the Hills had, Kilburn had totally suppressed his experience. 'This opened up the possibility that the experience, whatever it was, had been suppressed in others,' Hopkins explains, 'and that abduction was widespread.'"

Radio and television appearances garnered as a result of Hopkins's work soon flushed still more people out of the woodwork, and as time went on, other patterns emerged. Perhaps the most chilling common denominator, Hopkins learned, was that many people claimed to have had the so-called abduction experience at least twice, and of those, almost all had mysterious scars.

Take Virginia Horton, a corporate lawyer who said she'd disappeared near her grandfather's farm in southern Manitoba at the age of six. She'd reappeared an hour later with a large, straight cut on the back of her calf. A decade later, in 1957, she had a similar experience in Frankfurt, Germany. Later, under hypnosis, she told Clamar and Hopkins about her abduction by aliens who took a "teeny piece" of her leg back to their world.

By 1981 Hopkins and Clamar had worked with 11 abductees. As a professional psychologist, Clamar didn't particularly believe that bona fide aliens were coming to Earth. She was impressed however, by her clients' "frightening experiences which both mystified and disturbed them. I did not find any drug users among the subjects, nor any alcoholism, nor any strange habits or exotic perversions," she says. "Most were satisfied with their choice of careers and relatively successful. In a sense, she adds, 'they were run-of-the-mill people. I could find no common thread that tied them together—other than their UFO experiences—and no common pathology, indeed, no discernible pathology at all."

Clamar didn't know what to make of the group, nor did she *want* to impose an interpretation on the incredible reports. But she suggested to Hopkins it would be advisable to subject some abductees to an independent battery of psychological tests. 'Here was a group of people who had consistently bad press, who were described as crazy, paranoid and marginal,' Clamar says. 'Yet the people I hypnotized did not appear to fit these stereotypes. This, however, was only my impression, not a fact that I could support with hard data. I wanted a way to quantify the abduction experience and its effect.'"

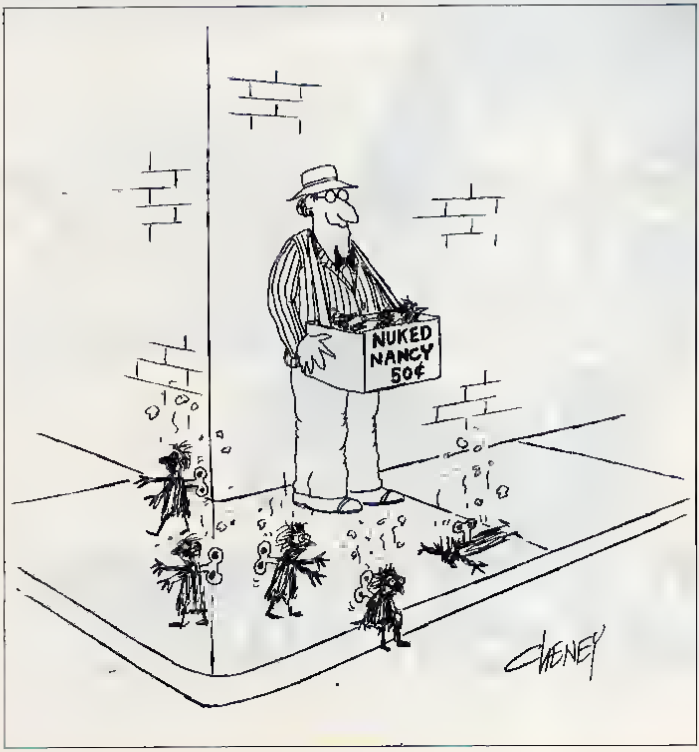
So Clamar and Hopkins went ahead and recruited New York psychologist Elizabeth Slater who tested nine group members for, among other things, creative potential. She was not told that they were in any way involved with UFOs. Slater administered a Rorschach test, in which subjects are asked to interpret inkblots; the Bender Gestalt test, in which they reproduce geometric figures; the Wechsler adult intelligence test; the thematic apperception test, in which testees described a series of pictures; and the Minnesota multiphasic personality inventory, which profiles individuals and evaluates their tendency to lie.

After completing her study, Slater reported that except for one person—a schizophrenic—the group showed no particular psychopathology. "These people didn't seem alike in any way except for their tendency to be overly sensitive, guarded, and vigilant," she says. "They were careful but not paranoid, and they shared a greater than average intelligence and a richness of inner life."

"When I found out these people claimed to be abductees," Slater adds, "I was flabbergasted. I tend to be a skeptical person, but I find their stories hard to dismiss. I worked on an inpatient unit for two years, and I'd never heard such stories. People reported the CIA was bugging their phones, they heard the voice of the Devil, or they had a desire to kill themselves or their spouses. But alien abduction is something that I had just never heard. I won't say I believe these people were abducted, but I do believe they aren't crazy. I have no explanation for this group. Psychologists, moreover, can't demonstrate facts. They can only try to understand what people experience and perceive."

To get to the bottom of the claims, Hopkins and Clamar also sent ten abductees to Donald Klein, director of research at the

CONTINUED ON PAGE 136

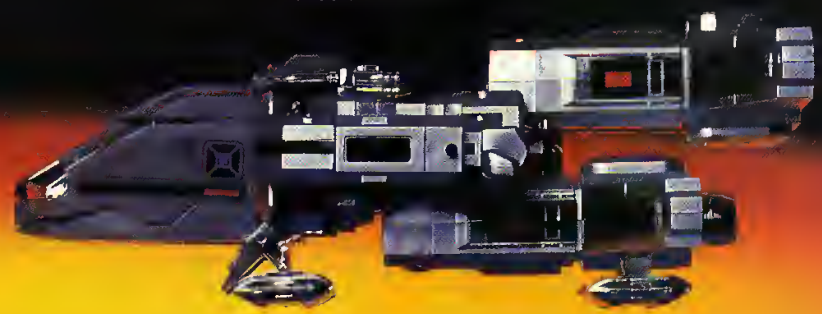


ARTICLE

Antigravity wagons, holographic dolls, pens that draw by themselves—a playroom full of

FUTURE TOYS

BY JESSICA MAXWELL



In the film *Made in Heaven*, Tom Robbins plays a celestial toy maker. "Kelly McGillis is about to be born on Earth for the first time," he explains in his slow Virginia drawl. "Before she leaves I tell her that the purpose of toys is to keep people from growing up too soon, to extend that period when people are in contact with wonder and awe, curiosity and spontaneity, friendliness and laughter—all those things that people admire so much but think they have to get rid of in order

PHOTOGRAPH BY PETE TURNER

to mature. A toy reminds an adult that there was once a time when he or she was sweet and wild, just the way heaven intended us to be. Toys are made in heaven, but the batteries are made in hell.

Actually that last line was so good they gave it to Debra Winger. Nonetheless, it accurately describes the ambivalent relationship between modern toy makers, with their modern technology, and the modern child, who routinely upsets the marketing analysts by embracing something as earthy as Cabbage Patch Kids.

Right now we've got teddy bears that look at you while they tell you a story, dolls that ask to be picked up, toy watchdogs that howl at intruders, a game of tag played with light beams, TV shows that invite kids to fire toy guns at bad guys, and children's home movie sets.

What will come of all this? How will tomorrow's toy designers fuse advanced technology with the decidedly divine nature of toys? Just what will the toys of the future be? And how does a low-tech reporter pin down today's whackaroni toy designers long enough to find out?

How about a pen that could make you draw better?" offers Robert Fisher, senior manager of product design for Fisher-Price of New York. It's my first phone call. I had asked for Robert Fisher, and I had been given Robert Fisher. I had no idea how lucky I was.

And shoes that make you run fast?" he continues. "They'd make you automatically coordinated, too, so you wouldn't fall down. And I've always thought it would be neat if we could step into an environment we could control: feel the change of seasons, go under the sea, experience tastes and smells—smell-o-vision," he laughs.

I bristle, remembering the time my dad took us to "Aromarama" in Hollywood back in the Fifties. It was a promising new type of "scent-accompanied" movie. This one was a documentary on China, which seemed like a great idea until they got to the "streets of China" part, and *eau d'outhouse* wafted out over our heads, sending the audience screaming from the theater out onto Sunset Boulevard.

I've always wanted to be a race-car driver, but that's dangerous, so maybe you could get strapped into this chair and watch this incredible image that you'd sense through your whole body," Fisher goes on. "Going on ... and on ... and on," I later learned, was the best part about interviewing toy designers. *If* you can find them and *if* they return your calls and *if* they're not on vacation or sick at home or at lunch or in a meeting or trying out a new idea on Japan or dead, then once they get going, you can't shut them up.

How about superaccelerators for kids' bikes? Of course, it would be limited by how fast you pedal, and it would be real short-term—say, five seconds to get you up a hill. And I think miniaturization is neat. It would be great to have a really tiny audio system for kids—I'm talkin' credit-card size. Maybe one kid could have the tape player, and all the other kids in class could have invisible earphones that were hooked up.

PEE-WEE'S FUTURE PLAYHOUSE

By Marion L. [illegible]

Omni asked the crew of *Pee-wee's Playhouse* if they would use any of the toys or ideas described in this article. Unfortunately, Pee-wee himself was unavailable. He was out scouting for a locarion for his new movie. You just might find it interesting to know that the average age of that family of puppeteers, model builders, and animators is twenty-two years old.

Prudence Fenton, *Director of Animation*

Interactivity will probably be the next wave of children's television. Viewers could use the "pen that makes you draw better" on Magic Screen, or fill in parts of the set, becoming more involved in the adventure. And children could choose between different endings in the cartoons. If miniaturization becomes a reality—especially if video equipment is miniaturized—kids could record, edit, or reshape the *Playhouse* programs to suit themselves.

With holographic projection a child could interact with a favorite *Playhouse* character after the show. They could work more with Magic Screen, ask Conky questions, request numbers from the Band, get beauty tips from Chicky Baby. Or, hey there, Dirty Dog'll see you after the show.

Jeremy Railton, *Art Director*

Pee-wee would have a little laser friend—paper-thin, like a cutout person. Pee-wee would pull him out of a book or out of the top of the table. He would walk, talk, and turn around; and on one side he'd be flat like a drawing. You could do that with a laser.

It would be great to have a hologram holding Pee-wee's hand. Why not replicate the *Playhouse* characters? Leave Pee-wee in every home.

If kids had those bicycle accelerators or a hovercycle, holography and computers could let them bike ride with Pee-wee when he goes flying out the door. Or they could use the antigravity device to take flying lessons with Ptero.

I love the idea of things being controlled by thought or by computer. Imagine creating the perfect puppets. Just draw them, push some buttons, and they are built in three dimensions.

Phil Trumbo, *Director of Animation*

How about projecting the whole *Playhouse* holographically so that everything takes place around the child who's watching? You'd have your interactive show there, all right—if only there were some way that the audience could feel united, if they could hear one another scream the secret word.

With time travel, thought projection, and teleportation, Pee-wee and the *Playhouse* could go anywhere. We could take kids to the sites of the first nuclear tests or to the McCarthy hearings. They might be scared stiff, but one of the big rules in time travel is that the time traveler is usually safe.

What are future toys going to be? Perhaps we'll have psychic Barbie dolls—Barbie dolls that can bend forks. If I could have one wish for the future of media, it would be good 3-D television. "3-D waking dreams." That's a line from the story, and that's what I want to see. Big 3-D pictures, big holograms projected into our homes or into the community center or wherever we're all living fifty years from now.

Gary Panter, *Production Designer*

I fantasize a lot about companions, robotlike companions for kids. It won't be very long before a toy will not only say something to you but listen to you and respond. It could be a box that sits on the table or a little bunny that hops around and tells you everything—a talking toy encyclopedia.

Steve Binder, *Producer and Director*

There's definitely a place for the chattering teeth in the *Playhouse* of the future. Imagine the expression on the Countess's face when she comes to the *Playhouse* window and sees giant six-foot teeth chattering at her. And holography is really an exciting field. It is coming and would be perfect for us.

I hope someday we are able to manipulate puppets easily, but they must remain compassionate. Children have to relate to them—Dog, Chair, Chairry, all of them—as having feelings. They bleed, laugh, cry. We'll take each new high-tech idea as it comes and see if we can use it. And time travel—what a great idea, just to be able to jump into Magic Screen. The possibility of really traveling in space with the *Playhouse*—phenomenal.

together—a real teacher-driver nutser.

Suddenly he gets nervous. "Jeez. I'm telling you too much. These ideas are too good. I really have to stop now. No, really. I do. No more ideas. But trends—we could talk about trends."

Fisher says he feels the future of toys will be both high- and low-tech. And play value will count more, too. That's one of the strengths of Fisher-Price's new PXL 2000, a kid's black-and-white camcorder. According to Fisher, parents responded positively to the idea of kids creating their own movies. "Hey, how about video imaging!" he cries. "Projecting your own video images into the middle of the room—videos you took yourself! Jeez. I have to stop. I could really get into trouble."

"Why?" I ask. "Isn't this your family's company?"

"Naw," Fisher replies. "No relation. But it does get me better hotel rooms."

The reason I got to talk with Robert Fisher is that I asked for Robert Fisher, and Robert Fisher happened to be near his phone. If, however, you call a toy company and say you'd like to speak with someone in research and development because you're writing a story on what toys will be like 20 years from now, sirens and red lights go off in secretaries' heads, and voices scream, *IDEA THIEF! IDEA THIEF!* They immediately turn you over to their company spokesperson, a calm and logical marketing VP who says things like, "The best way to think about where toys will be twenty years from now is to look at where toys were twenty years ago."

That's what Loren Taylor says. He's the former VP of marketing for LJN Toys, a New York-based company that offers a home version of Photon Entertainment, a high-tech amusement center. Players pay $3 to waddle around a 10,000-square-foot maze in 14 pounds of space gear for six minutes. In the dark, opponents zap one another with laser guns while they try to invade one another's base camps.

I press Taylor for specific ideas. "Superconductivity," he says. "That's a new thing in our culture. There's some work being done with that in the toy industry, especially in the Orient." Maybe with train sets? I ask. "Maybe with video," he counters, but he's not sure how. Fortunately, Taylor recommends I contact the industry's true creative minds, the independent toy designers. "Many of our best ideas come from outside inventors," he explains, and gives me a list of names and numbers. "Be sure to call Eddy Goldfarb," he says. "And the Kislevitz brothers should have some good ideas for you."

"Wanna buy a duck?" It's Noah Kislevitz returning my call—Noah of Andy, Adam, David, Joshua, and Noah Kislevitz, the five-brother toy design team of Kiscom, a New Jersey-based company. The brothers merged their collective business smarts and imaginative powers, establishing a professional reputation among toy companies. They designed Oodles (two-inch-high baby dolls) and Suckers (twisted-looking little characters that shoot out of a tube and stick to the nearest wall) for LJN Toys. "And the Weenies," Noah adds. "Meenie, Whacky, and Willie." "How big are they?" I ask, trying to understand the concept. Noah gets suspicious. "A foot tall," he replies, "or would you rather I say twelve inches?" "What do you do with them?" I ask. "You play with them." "What are they made of?" "Whatlaya think? Rubber. Did they sell well?" "Not really; we positioned them wrong."

Noah has to go to a business meeting with his brothers, so he says he'll call me back. "But be sure you call Marvin Glass," he says. "He's the biggest by far. And call Eddy Goldfarb. He's been around forever. He invented the chattering teeth—you know, those talking dentures Jack Parr always had on his show. Eddy musta sold fifteen million of 'em. Very funny man, Eddy. You should call him."

Eddy Goldfarb lives in California. But he likes to take vacations in New Mexico, which is where he is when I call his office. "It's a driving trip," his secretary, Ruth Sullivan, explains. "I'll ask him to call you from a pay phone."

"Marvin Glass passed away." The receptionist interrupts. "I was explaining that I'd heard Marvin Glass was the biggest independent toy designer in the country." "But I'll have Rouben Terzian or Jeff Breslow return your call," she says.

The phone rings. It's John Lindsay Young, an up-and-coming independent toy designer based in Los Angeles. He is co-founder of a management firm called The Design Collective. He's worked with Color Forms, which Noah's father Harry owns. "Those guys are crazed," Young confirms. "Definitely crazed."

Young has also worked with Mattel Toys. "Everybody's trying to perfect a truly interactive toy," Young explains. "One that responds completely to both the child and the environment. For example, a critter that runs across your desk and bookshelves while you play tag with it. *That* could be a holographic projection, like the *Star Wars* chessboard. And you wouldn't need special glasses to see it, like the *Captain EO* video at Disney World. No, not twenty years from now—no special glasses."

Using full-size holograms instead of traditional toys reminds Young of Ray Bradbury's idea. "You're in a room, and you can make it anyplace you want—a dense jungle or the inside of a buccaneer's ship." "You could soar through the air, do a little Peter Pan flight in your room," Young says. "Or little Peter Pans could fly around you. Storybooks will come true. Open the book, and the characters step out and dance around. You could even take 3-D hologram home movies of your girlfriend dancing and dance around the room with her when she's out of town."

"Or if she breaks up with you, you could still have dinner with her," I offer. "Or throw darts at her and say all the things you wish you had said to her but never did."

"Or change her into someone new," Young says with a wicked laugh. "No, really. In twenty years, computer programs will let you design 3-D play companions. You won't even need a computer. You'll just be able to *think* a companion, and he or she will appear—3-D waking dreams."

> *"If you call a toy company and say you're writing a story on future toys, sirens and red lights go off in secretaries' heads, and voices scream,* IDEA THIEF, IDEA THIEF!"

"You wanna buy a duck?" More precisely, "Yooshwannashbuyaducksh?"

"Noah, what are you eating?"

"Corn and tomatoes," he says. "I was up all night. And after that much beer, I figure I need something healthy. Hey, I haven't done this since high school."

He's calling to say he doesn't want to talk because it would wake him up, "and I really need to sleep," he says. "But I'll call you when I get up."

I decide it's time to try the commercial toy companies again.

Phonetica One, in Colorado City, Colorado, is famous for electronic watch pets—a koala bear and a Shar-Pei dog, both of which understand a little English. They walk toward you when you say "Come here," and they "turn around" and "stop." And when you switch them to "security mode" and leave the house, they shriek and beep as soon as their ultrasonic sensors pick up any motion in the general vicinity. Phonetica One's phone number has been changed, and maybe it is just a bad day, but everyone seems a little confused. I end up talking to a "guy who works in the shop" who says he'll have the "art director" call me back as soon as possible.

I call Alchemy II in Chatsworth, California, creator of Teddy Ruxpin, the world's first animated talking toy. The secretary says she'll have executive vice president Larry Larsen return my call. The secretary at Hasbro Inc., in Pawtucket, Rhode Island, promises the same for designer Dean Carley. The receptionist at Coleco in West Hartford, Connecticut, insists that I speak with marketing VP Barbara Wruck, who is in a meeting that has apparently lasted two weeks. But then, Coleco's busy teaching Cabbage Patch Kids to talk to one another via radio waves.

A new concept in word processing unfolds.

MADE IN U.S.A.

Smith Corona proudly introduces the one-and only, all-in-one PWP 6 personal word processor. Simply unfold it and a remarkable new way of writing will unfold before you.

You type just as you would on a typewriter. Your text appears on the LCD screen in front of you.

Editing is effortless. You can correct and proofread in seconds.

When you're ready to print, just insert a sheet of paper, select PRINT and presto, letter quality printing.

Of course, PWP 6 sports all the features you'd expect of a state-of the art word processor. There's 50,000 characters of internal editable memory (that's about 25 pages). Plus a built-in disk drive which makes storage capacity virtually unlimited. There's also graphic page view so you can preview what your typed page will look like.

But best of all, this giant among word processors weighs under 20 pounds. Which means PWP 6 can go wherever you go.

And that might just be its best feature of all. Because when you consider how remarkable PWP 6 is, it's a wonder you'll ever want to go anywhere without it.

SMITH CORONA™

TOMORROW'S TECHNOLOGY AT YOUR TOUCH

For more information on this product, write to Smith Corona Corporation, 65 Locust Avenue, New Canaan, CT 06840 or Smith Corona (Canada Ltd.), 440 Tapscott Road, Scarborough, Ontario, Canada M1B 1Y4.

Playmates Toys Inc of La Mirada California and Worlds of Wonder in Fremont California don't return calls either But No lan Bushnell chairman of Axlon in Sunnyvale California founder of Atari the father of video games does You're probably talking as much about the future of marketing as the future of toys he begins "There will always be toys that are just a hunk of plastic but with proper marketing will sell But in the future I really think we're going to be creating synthetic playmates A little robot to walk around with a little boy and throw him a baseball and be a comrade confidant—maybe mommies will want that as well"

Tony Miller vice president of new business development at Tonka Toys in Minneapolis, agrees with Bushnell "For a long time our culture has looked for an intelligent obedient surrogate playmate he says "We've already designed very rudimentary robots that will become increasingly lifelike and interactive"

Ever the high-tech advocate Bushnell contends that it's silly for a child to have to color a coloring book with a piece of wax when computer screens are much more interesting and rewarding Will basic blocks be replaced? I ask "I don't think so" he says "They're kind of primal"

Holograms also will be available in the near future— easily doable he says It's about ten years for them to advance from a lab curiosity to become manufacturable into home products, and we're seeing a lot of holographic stuff in the labs now

When I ask his opinion about violent toys what are called "active male toys" he scoffs "A lot of people deny the animalistic nature of little boys he says "I have three sons and believe me, there is an aggressive nature that we cannot suppress we can only channel otherwise we create the preacher's son syndrome"

Bushnell thinks a good futuristic testosterone buster might be what he calls Telesports, a computerized athletic center in a corner of a bedroom where men or adolescent boys play a game that's physically aggressive, physically demanding easy on the knees, and gives them a tremendous aerobic workout "And we can postulate that in twenty years we'll be linked together fiberoptically" he says matter-of factly "We could play a Telesport with a friend who's in his room across town or in another city—Telepresence if you will"

What disturbs Bushnell about the future of toys is time travel "That's something I probably won't see in my lifetime and I'm really disappointed about that Imagine walking down the streets of Greenwich Village when it was full of Italian immigrants Or experiencing Voltaire's France the doges of Venice But he warns you could do time travel only as a nonparticipant otherwise the present would become unstable—as in the movie *Back to the Future* Maybe it'll be possible to time-travel forward but not return because you'd know the future" he says "So it would be only forward or backward . with no refund Perhaps we've stepped over the boundary of reasonable thought"

Whatever we've just stepped over I need to get the hell away from my desk and phone and all these techaholic toy designers I am halfway out the door when the phone rings

"Wanna buy a duck?

"Noah this is a weird connection You sound like the Wizard of Oz"

"The Lizard of Oz? Thank you Have you read any stories by Paul Bowles?"

"Did he play the Tin Man?"

"The one with the worms coming out of his head?"

"No, in *The Wizard of Oz*"

"The one with Danny DeVito?"

"No But Noah, how did you guys start designing toys?"

"First we put on gray sweats Then we put on bunny ears No really our dad was in toy manufacturing"

"So it's a family tradition?"

"Everybody wants to perfect an interactive toy, a little critter that runs across the desk Now, that could be a holographic projection— no special glasses needed"

"Yeah but my sister's a graphic designer in San Francisco She designed the *B* in the Bloomingdale's logo My brothers and I wanted to work together so we said Let's just get a desk and a phone"

At that moment the connection sputters like a punctured rubber duck and the line goes dead

Everyone returns my calls while I'm away The message light on my answering machine looks like a red alert David Shapiro of Ideal Toys in New York says he is leaving town and wishes me luck Dean Carley has called and I call him back at Hasbro but he has gone on vacation His associate Rick Brunner offers to tell me about a project he had worked on a lawn mower with a fish-eye lens and a scanner that would pick up pylons driven into the lawn "The mower knew when it was getting close to the edge" he says and could mow the lawn by itself" Brunner believes this concept could be applied to robots who clean up your room (Not much of a toy I think) He suggests I call another Hasbro designer John Sahler I do John is out sick

The last call is from Eddy Goldfarb He's at some hotel in Taos New Mexico I call the number and they say he hasn't checked in yet I call a couple of hours later and they say he's not in his room I call the next morning and they say he's checked out

But Larry Larsen of Alchemy II returns my call "I've got two other designers here with me" he says So Larsen director of concepts Russell Hicks and associate director of concepts Ron Chesley brainstorm together through a speakerphone

Larsen Alchemy II is a broadly based firm that addresses TV and motion pictures amusement-park facilities and attractions and consumer products including toys and games Without a doubt we're committed to human beings who happen to be shorter than we are

Chesley I've been doing this for about twenty-eight years Things don't change much as far as basic toy lines The technology changes but there are still traditions and cycles Twenty years from now we'll be looking at artificial intelligence linked to holographic systems How about a doll that dances around the table an actual entity that is not really there but is—projected on air maybe

Hicks Or a child's imaginary friend who comes to life so you won't need a sister or brother anymore Just kidding

Larsen History disks Learn history holographically Re-create the signing of the Declaration of Independence in your kid's bedroom The kid could sign it!

Hicks The kid would actually be on the scene I can't wait!

Larsen Mobility, size interactivity—those are probably the key words

Chesley Easily in twenty years people are going to have a better sense of value Products will be either very educational or very entertaining

Larsen Both

Hicks Antigravity toys! Oh, boy kids flying around the room!

Larsen Three-D TV antigravity Hmmm we've got work to do

Chesley Mental imaging Telepathy Some kind of apparatus where there's input but not through your eyes and ears We go direct to the brain

Larsen Teleportation Your molecules break down you transport them and reassemble them someplace else

Hicks Genetic-engineering kits for kids! Make your own pets!

Larsen Creating one's own toys by thinking them into existence

Australian aborigines I say believe everything was *sung* into existence

"RUSSELL WANTS A MERCEDES" Chesley and Larsen sing together

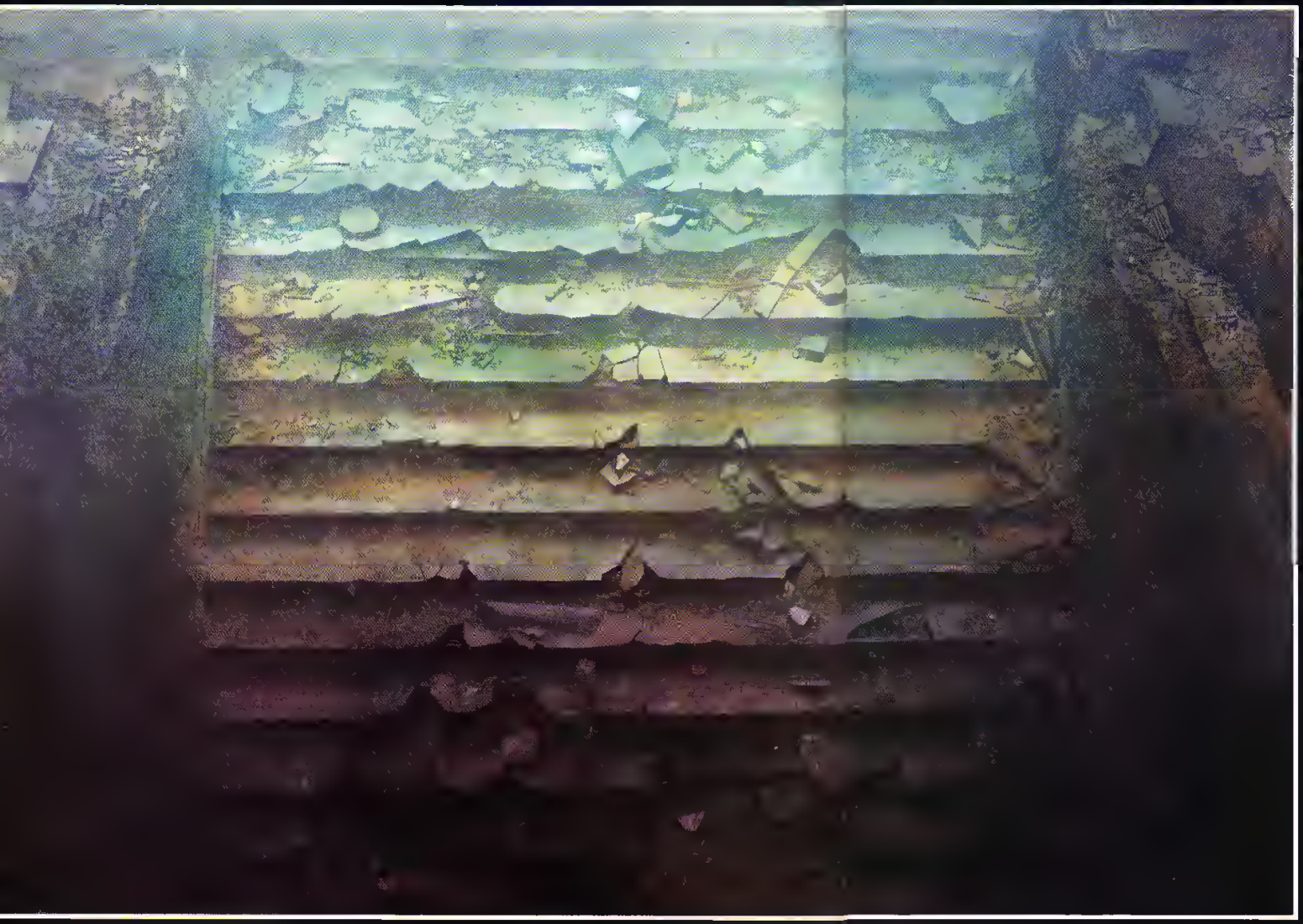
Hicks I *still* want my Mercedes but I need a raise

Larsen Water activities but nonviolent [growing very serious] We have a strong commitment to nonviolent toys We're already seeing a reduction of violent toys in the marketplace

Chesley How about a hovercycle instead of a bicycle—like E T?

Hicks Yeah hovering with your genet-

CONTINUED ON PAGE 172



FICTION

If there really is a Santa Claus, eight tiny reindeer aren't pulling his sleigh. And he might not live at the North Pole

ADESTE FIDELES

BY FREDERIK POHL

As Christmas was only an abstraction on Mars, even for Henry Steegman. The calendars didn't match, Earth's winter solstice had nothing to do with Martian timekeeping. But they kept to the twelve familiar months, to make it easier to count up how long before they could leave for the slow-orbit return trip. As the calendar crept past November and Thanksgiving and crawled toward the holiday, Steegman thought more and more about wrapping paper and Christmas cards and, above all, Christmas trees.

The Christmas before, the community had pulled itself together and made an effort. Most of them were still alive then, and even fairly healthy, so they flanged together something tree-shaped—sort of tree-shaped—out of foam plastic and transparent piping. After it was sprayed, it did at least look green. It didn't smell like a tree. But once they had hung it with bright red and green micromatrices from the spare-parts bins and festooned it with instrument lights, it did cheer up the common room. They went further than that, too. They had even made a Santa Claus suit out of somebody's red flannel long johns, stuffed with somebody else's sweaters and bearded with some other body's curly wig. It made Santa Claus's beard platinum blond rather than white, but that was the least of the incongruities. Santa Claus had very few gifts to give them. For most of them, not even the gift of survival.

Henry Steegman was not an important member of his community of Mars explorers. He was neither a xenoanthropologist nor a xenobiologist, nor did he have any of the special skills that made the lives of the survivors fairly tolerable—or almost—like food chemist, power technician, or medic. Steegman was a construction engineer. That is, he drove tractors. He drove interesting kinds of tractors, a

PAINTING BY
MATTHIAS HOLLÄNDER

nuclear one that crawled through the Martian rock and melted out tunnels, as well as two or three solar-powered ones that leveled and shaped the surface of the planet twenty meters up from where they lived. He didn't usually drive any of them in person. The places where his tractors went were not very hospitable to human beings. When his services were needed, which was less and less often, as the captain and the council decided that there was really no more need ever to build new domes and explore new anomalies the gravitometers pointed out for them, he sat before a television screen and commanded his tractors by remote control.

That was more or less Christmassy, too. It was like having the world's biggest—anyway, Mars' biggest—set of electric trains to play with.

It was about that useful, too, for a community of thirty-eight, once two hundred and four, mostly sick human beings.

Since there was no necessity for much activity of any kind anymore, Steegman was encouraged to play with his toys whenever he wanted to. It kept him out of the way, and it cost nothing. It didn't cost the community valuable working time, because there wasn't a whole lot Steegman was able to do. Radiation sickness in his case had attacked the nerves. He was likely to spasm when he tried anything very demanding. Since the diggers were nine-tenths automatic, he couldn't do much harm there. But he couldn't be trusted with anything as delicate as, say, changing bedpans for the dying. And it certainly didn't cost any more than they could afford in power. As long as the photovoltaic cascades were given plenty of time to recharge, they provided plenty of power for the surface tractors. For the tunneler there were stocks far beyond any reasonable expectation of need of fuel rods, salvaged from the wreck of the slave rocket. The instrumentation it bore was all mangled, but there's not much you can do to stubby, heavily clad rods of radionuclides. There was also plenty of food, water, heat, and light.

The community was really only short of three things. People. Purpose. And hope.

Hope had gone for most of them, along with purpose, when the slave rocket crashed. The expedition was there to conduct scientific investigations. When the drone toppled off its axis of thrust, it split open, blew its fuel tanks, wrecked every delicate part of the instruments, which was most of their parts, and drenched the surface with radionuclides. The misguidance of the rocket wasn't the only thing that went wrong. Someone unforgivably, in the frantic rush to salvage what they could, had brought hot piping down into the cavern; someone else had hooked it into the water recirculators, it had simmered there, seeping powdery fission products into their drinking water for more than a day before someone else thought to put a dosimeter to his coffee cup.

By then, of course, it was all contaminated. They couldn't live without water. They drank it, glumly watching the dosimeters go into the black. As soon as they could, they began to melt water out of the permafrost under the Martian polar ice cap, only a dozen kilometers away, but by then the people began to get sick. The dosage was not terribly high. Just enough to kill, but not very quickly.

There was one other bad effect.

NASA's vast and powerful public relations machine fought for them most courageously, but the odds were too much. No matter how many tearjerker TV interviews NASA ran with weeping wives and children, no matter what presidential proclamations and prayers, the public image of the expedition was robust against propaganda. *Bunch of clowns*, the public thought. *Busted their rocket ship. Ruined their equipment. Got themselves killed.*

Fortunately for the American spirit there was a new black American tennis player who won the Wimbledon that year, and a TV star who actually wrestled grizzly bears in his spare time.

The public found new heroes.

And thought rarely, if at all, about the spoiled heroes on Mars.

"His yells had brought others into the control room. Captain Seerseller ordered Henry out of the way, afraid he'd get excited and knock something over or push the wrong button."

So on what the calendars said was the twenty-first of December, Henry Steegman got out of his bunk, felt his gums to see if they were bleeding, and went to the common room for a leisurely breakfast. He peered in first to make sure Captain Seerseller wasn't up unusually early. He wasn't. The only other person there was Sharon bas Ramirez. The biochemist, and when Henry had picked his almost-hash out of the freezer and passed it through the microwave, he joined her. Sharon bas Ramirez was one of the few survivors who treated Steegman like a worthwhile human being, no doubt because it was Steegman who had brought back samples of organic-contaminated rock for her. "Life on Mars!" their dispatch had read, and they had hoped for a wonderful rebirth of excitement back home. But it wasn't really anything alive, only chemicals that might once have been. And besides, that day the movie star had wrestled a female grizzly with cubs.

"Henry," said Sharon bas Ramirez, "do me a favor, will you? See if you can bring back some better samples."

She was looking very tired. He ate his almost-hash slowly, studying her black patches under her eyes, fatigue in the set of her jaw.

"What kind of samples?" he asked.

She shrugged wearily. "You cook them with the heat of the drill," she complained, "so the structure gets degraded."

"I tried cold rock drills, Sharon! I even went out myself! I even swiped some blasting powder and a detonator and—"

"Don't get excited, Henry," she said sharply, reaching over to wipe some spilled hash off his coverall. He muttered an apology, calming himself down. "Maybe you can find a fissure somewhere," she said. "Try anyway? Because I'm a biochemist, not a candy striper, and I get real tired of feeding the sick ones because I don't have anything more important to do."

"I'll try," he promised, and thought hard about how he could keep that promise, all the way to his handler room.

He took the deep tunneler this time, pondering how he could oblige Sharon bas Ramirez. He pushed it through deep Martian rock, twenty kilometers north of the camp. He was not paying strict attention to what he was doing. He was humming "Adeste Fideles" part of his mind thinking about Sharon bas Ramirez, part of it worrying about the latest one to begin to lose blood rapidly—sickly, pale little Terry Kaplan—when the instruments revealed a temperature surge before the nose of the borer.

He shut the machine down at once and palped the rock ahead with sonic probes. The dials showed it was very thin. The sonar scan showed a lumpy, mostly ball-shaped patch, quite large, filled with white-traced, shadowy shapes.

Henry Steegman grinned. A cavern! Even better than a fissure in the rock! He could break in at one end, let it cool, bring the borer back home, get in it himself, and ride back to collect all the samples Sharon could want, uncooked. He started the drill again on low power and gentled the tunneler another meter along its course.

The instruments told him that he had broken through.

Steegman shut the tunneler down and thought for a minute.

Good practice required that he let the rock cool for half an hour before opening the shutters over the delicate and rarely used optical system. He could do that. Or he could start it back without looking and then go in person, which would take two or three hours anyway.

He shrugged and stretched and leaned back, waiting for time to pass, with a smile on his face. Sharon was going to be real pleased! Especially if there turned out to be anything organic in the rock of the cavern—though of course he cautioned himself that wasn't guaranteed. Was pretty

damn rare actually. The crust of the planet Mars was very cold and very lifeless, it was only in a few places where a vagrant stirring of deep-down heat made a patch minutely warmer than what was around it that you could say it was anything capable of supporting a microbe, anyway. Still, they were well under the polar cap with the digger now. There would at least be residual water, here and there.

When the time was up he looked, and in the searchlight beam he saw that the cavern was there, all right, but it wasn't exactly empty. It wasn't natural, either. It was a great bubble laced with what might have been catwalks and what looked like balconies, and all about it were what seemed to be shelves and what could be called tables. Some of them had things on them.

Henry Steegman didn't know what it was he had found, but it had a funnily suggestive look to it. He didn't make the connection for nearly twenty minutes, though. By then his yells had brought others into the control room.

They began to yell, too. Captain Seerseller ordered Henry back out of the way, because they were all afraid, naturally, that he would get too excited and knock something over or push the wrong button, but he could catch glimpses of what was on the screen and hear what everyone was shouting to each other. He heard perfectly when Marty Lawless yelled, "You know what it is? It's a Martian Macy's!"

By the time Steegman had painfully inched his drill out of the way, he was almost alone at the base. Not quite alone. The walking sick, Terry Kaplan and Bruce DeAngelis and one or two others who were well enough to look but far from well enough to make the trip to the cavern, were wheezing and gasping behind him, but everyone else was gone.

The tunnel from the base camp to the "department store" was thirty-three kilometers and a bit, the last five still unlined. Wheeled vehicles couldn't go down the unlined part, but no one was willing to wait for lining. So the first two parties drove six or eight at a time in the big wheeled tunnel buggies as far as the surfaced section of the tunnel went.

Then they walked, in air masks and backpacks, because the department store was by light-years the most astonishing discovery the expedition had made on Mars, and therefore the thing that most nearly justified the loss of nearly all their lives.

They *almost* all went, all but the ones too sick — and Henry Steegman. The discoverer of the department store was not allowed to enter it.

It wasn't just that he was needed to get the big borer out of the tunnel so people could clamber through. Captain Seerseller's last order had made that clear. It was: "You stay here, Steegman, you understand? No matter what."

So for the first ten minutes Steegman and his hovering casualties saw nothing on the screen but the sonar scan, reporting on what sorts of rock the drill tractor was nibbling through. Then Steegman turned it off and switched channels to the portable cameras in the first buggy. "Is that it?" little Terry Kaplan asked, hoarding breath to speak. "It looks — looks"—she took a deep breath— "looks different."

"It's only the tunnel," Steegman said absently, watching as the field of view swung dizzyingly around. Then the first party was inside, and whoever was carrying that camera was glad to set it down on automatic scan. So Steegman watched jealously as the others piled into the wonderland he had found for them, each one more excited than the other. Marty Lawless, six feet six and fifty years old, pulled his spidery body in and out of prism-shaped structures inside the great hollow bubble and cried, "It really is a store! Kind of a store! Like an enclosed market? Like a great big shopping mall, where you can find almost anything!"

"It could be a warehouse," objected Manuel Andrew Applegate, senior surviving archaeologist, annoyed at the presumption of someone who actually was a communications engineer.

"There's nothing on most of the shelves, Manny-Anny," Captain Seerseller pointed out.

Lawless answered that one, too. "The perishables have perished, of course," he cried. "God knows how old this is! But it's a store, all right. A suq. A bazaar!"

And back in the control booth Terry Kaplan whispered to Steegman, with what sounded like the last of her breath, "It really is a Macy's, Henry. Oh, how Morton is going to love this!"

And no one answered, because Terry was a widow. Morton Kaplan had died more than three months before.

And so the expedition began to live again—as much as it could with most of its people already buried under the Martian soil. Pictures, samples, diagrams, data of all kinds—everyone wanted to put his specialty to work at once, no, not after the archaeological team made its inventories but now, me first! Not only were they thrilled at what they had found, they were actually getting signs of real interest from Earth, for the first time in many months.

It didn't happen right away. The round-trip travel time for talking to NASA Command was less than thirty minutes, but no one at NASA Command was paying attention when the first excited messages came in. Hours later, some no-doubt-bored comm specialist decided he might, after all, earn his day's pay by looking over the last batch of accumulated tapes. And did. And boredom vanished.

It was a good time for Earth to take an interest in Mars again. The movie star had lost his last bout with a grizzly, terminally, and there was a new Czechoslovakian kid burning up the tennis courts. So the network news carried the pictures, and there were special half-hour reports every night

after the late news and NASA's PR people were in heaven. Send us more, they begged. Not just some crummy old archaeological drawings and photographs. Personalities! *Interviews!*

Interviews with most of all, that one hero of the expedition, whoever he was, who had first discovered the Martian Macy's.

Since the captain was well and truly NASA trained, he saw his duty and did it. They co-opted Sharon bas Ramirez away from her delightful duties of studying moldering samples of definitely organic substances from the store and put her to work patching Henry Steegman's old tunic, the one surviving surgeon was taken off the wards of the dying to cut Henry's hair and shave him, and they put him in front of the TV camera.

Captain Seerseller, of course, did the interview himself—he remembered *all* of his training. They found the two best-looking chairs in the colony and planted them before a camera, with a table containing a bizarre sort of unrusted metal implement between them. It was the most spectacular piece the archaeologists had so far allowed them to bring in.

Then the captain gestured the camera to himself. When it was on, he smiled directly into the lens. "Hello, my friends," he said. "Mars reporting. Under my leadership, the expedition has continued to survey this old planet, on its surface and under, and we have just made the most wonderful discovery in human history. Under my direction, Henry Steegman was extending our network of exploratory tunnels. He broke through into a sealed underground chamber of approximately twenty thousand cubic meters volume. It is divided into five levels. All levels are built over with triangular prism-shaped structures. Each triangular booth contains a different kind of item. Our specialists have made a preliminary inspection, on my orders, and have reached the tentative conclusion that the objects are merchandise and that the cavern itself was the equivalent of a Martian department store. This object," he said, picking up the gleaming thing, "was perhaps a scientific instrument or possibly even a household utensil. Of course, most of the contents of this store are rusted, decayed, or simply vanished—they have been there for a long, long time. So I have ordered our archaeologists to exercise extreme care in their handling so that no valuable data might be lost."

The camera focus had pulled back to show the stand the object had come from, and also Henry Steegman digging into one ear with a finger while he was listening in fascination to the captain. Steegman was not at all sure what he was supposed to be doing. His instructions had been: Just relax. But it was hard to relax with the captain's occasional frosty sidelong looks. He was feeling that funny buzzy sensation that meant his ruined nervous system was being overstimulated again; he closed his eyes and breathed deeply.

"Now," said the captain, with an edge in his voice, "I want to introduce to you the man who, carrying out my directions, made the first penetration of this Martian marvel. Henry Steegman."

Steegman jerked his eyes open and blinked at the camera. He didn't like having it look at him; his eyes wavered away, but only onto the monitor, which was worse. He could see that he was shaking. He tried to control it, which made it worse. "Henry," said the captain, "tell us how you felt when you broke through into the cavern."

Steegman thought for a moment and then said uncertainly, "Real good?"

"Real good! Well, we all did that, Henry," said the captain with audible forbearance. "But when you completed this task I had assigned you and saw for the first time proof that there had once been life on Mars—even civilized life!—were you surprised? Excited? Happy? Did it make you want to laugh? Or cry? Or both at once?"

"Oh. I see what you mean," Henry said, pondering. "Pretty much that kind of thing, I guess."

"And did it make you realize that all the great sacrifices of blood and treasure—the lives of so many of us, and the wonderful support the people have given in making this venture possible—did it make you think it was all worthwhile?"

Henry had figured out a safe response. He said promptly, "I don't exactly remember that, Captain."

The captain swallowed a sigh and motioned to Mina Wandwater, the best-looking of the surviving women, who came forward into camera range with a champagne bottle and a glass. "This is for you, Henry," said the captain, leaning forward to stay in range of the camera as Mina poured. "It's your just reward for carrying out my instructions so successfully!"

Henry held the glass carefully while Mina filled it, curtsied prettily to him and the captain, and withdrew. He looked at the captain for instructions.

The captain said tightly, "Drink it!"

"Right, Captain," Henry said. He stared at the glass, then suddenly jerked it to his lips. He slobbered half the contents over himself and the floor. Then—because the bottle was champagne, but the contents weren't, they were something bubbly the chemists had cooked up to refill the empty—Steegman sputtered and choked. He twitched and dropped the glass and then sat there, gaping dumbly into the television camera.

It was not only a lot of trouble to keep up the morale back home, it sometimes didn't work at all. The captain gave the camera a great smile and said, "That concludes our interview with Henry Steegman, who, under my—what is it, Henry?" he asked irritably. Steegman had stopped dabbing at the mess on his tunic long enough to wave frantically at the captain.

"I just wanted to say one more thing," he pleaded. "You folks at home? I know it's a little early, but—Merry Christmas!"

They made Steegman take another physical after that which kept him in the ward overnight among the immobile and the dying. The surgeon studied his tests and plates and told Henry matter-of-factly "You're going. I'm afraid. A few more weeks. Your myelin sheaths are rotted away. It's going to get worse pretty soon—that's a nice haircut though, isn't it?"

When Henry went to the captain's office the captain wasn't there. Neither was the surgeon, but his report had already come over the net, and the executive officer was studying it on her screen.

"You want what, Henry?" she asked. "You want to go into the *cavern*? Good lord, no! Captain Seerseller would never permit it. The surgeon's report makes it very clear, your motor reflexes are too untrustworthy, that's very delicate stuff in there, and we don't want it wrecked."

"I wouldn't hurt anything," he protested, but she wasn't listening anymore. She just waved him out.

Nobody else wanted to listen, either, though some of them tried to make it more palatable. "You wouldn't want to spoil your own discovery, would you?" Mina Wandwater asked.

"I wouldn't hurt anything," Steegman pleaded.

"Of course you wouldn't *mean* to," she said kindly. "You just stay out of there, okay? We just can't afford any more accidents on our record, you know."

She was gone before Steegman remembered to point out that he wasn't the one who had crashed the instrument rocket or let the fission products into the water. Sharon Bas Ramirez was kinder but also busier. She looked up from the tubes of samples long enough to say, "I really can't talk to you now, Henry, but don't worry. They'll let you in sooner or later, you know."

But if it weren't sooner, it couldn't be later, Steegman said absently. "You know it's Christmas Eve?"

"Oh. So it is. Merry Christmas, Henry," she said, turning back to her lab bench.

Steegman limped back to his control booth and activated his tunneler. Then he sat moping before the screen without sending it forward. Sometimes he got pleasure out of executing circles and figure eights under the surface of Mars, drilling the old planet hollow, lacing it with wormholes and channels the likes of which it had never known. Would never know again, most likely, but would also never forget. The Martian crust was too thick and too old and too cold to squeeze itself seamless again. The arteries Steegman gouged would stay there forever.

He turned it off and thought about the surface tractors. But he didn't like working on surface much. Oh, in those first weeks after landing—in spite of the deaths and the doom that hung over most of the survivors—what a thrill it had been! He had delighted in bulldozing ageless, eternally untrodden Martian sand and gravel into flat bases for the huge dish transmitter that sent their signals back to Earth, or in roaming out fifty or a hundred kilometers to pick up samples and bring them back for testing. Just seeing the dwarfed, distant sun was a thrill. The tiny points of hot light that were the stars were a delight. The queerly close horizon was an astonishment—they were marvels, all of them, all the time. Over every hummock there was the mystery of what Mars was all about. What would they find? A city? An oasis? A *Martian*?

Or, as hopes for any of those dwindled, a tree?

Or a bush?

Or a thin patch of moss on a rock?

And they had found none of them. There was nothing. There was always nothing except the same sterile sand and rock or sandy ice at the beginning of the cap. Even the tiny sun and the white-hot stars weren't exciting anymore.

Steegman kicked against the rock wall under his control desk.

Then he brightened.

It was, after all, Christmas Eve!

So Henry Steegman made the long trek back to the captain's office again, pausing on the way in his own chamber. The Santa Claus suit was still there in the locker under his cot! He pulled out a knapsack, stuffed the suit in, and hurried down the corridor. Captain Seerseller was not there, and Lieutenant Tesca was not encouraging. "He's at Macy's," she said, "and really very busy, and so am I—I'm going there myself. What, a Christmas party? No, no, I can't authorize that—really, Henry," she said fairly patiently. "I don't think you understand what finding this means to us. We just don't have time for nonsense right now."

But she let Steegman hitch a ride with her. The big-wheeled buggy slid smoothly down the tunnel until they reached the unlined part, then the executive officer jumped out and left rapidly for the last few kilometers. Steegman toiled patiently behind. His gait was getting worse all the time, he knew. His knees were wobbly—not painful, just sort of loosely put together, so that he was never sure his leg would support him at any stride—and his calves were beginning to ache from the unaccustomed strain on the muscles caused by his awkward foot placement. It took him an hour, but by the time he passed the side shaft where he had left the tunneler, he could already hear voices up ahead.

The loudest voice was Captain Seerseller's. He was arguing with Manuel Andrew Applegate at the entrance to the cavern. Beyond them Steegman could see the interior of the cavern as he had never seen it before. A score of bright lights had been put in place all around it, throwing shadows, illuminating bright colors and pastels, clusters of long-rusted-away metal things and heaps of heaven knew what, rotted into black grit. When the captain caught sight of Steegman he turned and blazed, "What are you doing here? I've told you to stay out of this place!"

I wasn't coming in, Captain," Henry said humbly. "I just wanted to ask if we were going to have a Christmas party this year."

"Christmas?" the captain repeated, and Applegate next to him said, "What about Christmas? We don't have time for that, Henry. Everybody's too busy!"

"I'm not too busy," Manny Anny Steegman said, and the captain snorted. "Then get busy! Dig something useful!"

"I've already dug six of everything we could ever use."

"Then make some of the things bigger."

"But I've already—" Steegman began, shifting position to back away from the captain—and in the process sliding on the rubble of loose talus from where the drill had broken through. He lurched against the captain.

"Oh, sorry," he said, but nothing needs enlarging. Not even the grave-yards.

"Go," snarled the captain. And Steegman went. He hesitated at the tunnel buggy, casting a look at the captain. But the captain was once again deep in argument with Manny Anny Applegate.

Steegman sighed and started the long, limping walk back to the dome. He could not, after all, just take the buggy and leave those people marooned.

But a dozen meters down the tunnel his face brightened, his stride quickened, and he turned off into the shaft where he had left the digger. He could drive himself home! Not in that tunnel, of course. But there was nothing to stop him from making a new one.

Steegman pressed against the scarred metal of the tunneler just where it rounded into the straight flank. He found the recessed catch. It had rock chips in it, of course, but he patiently worked them free, opened the hatch, climbed in, and made his way to the driver's seat.

The quarters were cramped, and the cabin was still uncomfortably hot from the last spate of digging. But it was his own. He pulled the Santa Claus suit out of his knapsack and rolled it up behind his head. Then he leaned back and closed his eyes.

He didn't sleep.

After a while he sat up straight, turned the idling circuits on, checked his instruments. The tunneler had communications as well as control circuits to the campsite, and Steegman considered calling back to let anyone who might care know where he was. He thought he might leave a message about how he felt, too, because in fact he was beginning to feel very peculiar.

Since very few persons would really care, Steegman decided against it. He cut the communications system out entirely. Then he advanced the control for the drills and engaged the tractor motors.

There was a racketing roar of noise. The cab, and the whole tunneler, shook in short, sharp shocks. It began to move forward, down into virgin Martian rock.

Twenty minutes later Steegman began to throw up for the first time. Fortunately he was expecting it. The pounding motion of the tunneler was enough to make anyone queasy, even if he hadn't been drinking the colony's water, and Steegman had found a receptacle—actually, it was a case for one of the fuel rods—to throw up in. When he was through he was sweating and light-headed, but peaceful.

He advanced the speed of the tunneler a bit and bored on.

He had no particular objective in mind except to go on. He liked having no objectives. It was how you found unexpected things. At the head of the borer, where the immense, terribly hard, tough teeth ground into the rock, were two flush-mounted poppers. Every second each of them emitted a shattering pistol crack of sound, the frequencies just different enough from each other, and sufficiently unlike any of the spectrum of noises the chewing of the borer itself produced, to be distinguishable by the sonar receivers inside the shell. Every second they reached out and felt for flaws or faults or soft spots and displayed the results on the screen before Steegman. Steegman didn't have a windshield, of course. There was no glass strong enough to fit the shell of the tunneler, and generally nothing to see if there had been. But the screen was as good.

Steegman leaned back, watching the patterns change before him. What he was looking for, mostly, were soft spots in the rock ahead—an intrusion of lighter rock, maybe, or a lens of clathrate, the ice-and-solids mix that was the principal Martian source of liquid water.

Or—perhaps!—another cavern.

It was a pity, Steegman reflected, that he was going to die soon.

It was not a horror. The first shock of that sort of realization had long worn calloused. He had known for a year that his life would be short, and had been certain almost that long that he would not survive to the liftoff, much less through the endless return to low Earth orbit and home. So there were pleasures he would never have again. Item: he would never see clouds in a blue sky. Item: he would never swim. Item: he would never get a chance to see the marvels he had not got around to—Niagara Falls, Stonehenge, the Great Wall of China. Never again a full moon or a rainbow or a thunderstorm; never hail a taxi on a city street; never walk into a movie theater with a pretty woman; never—

Never any of those things. On the other hand, he comforted himself, there was hardly anyone who would ever see the things he had seen on Mars!

Even what he was seeing now on the screen, why, it was wonderful! He was kilometers beyond the "department store" now, far under the thin smear of dry ice and water ice that was the North polar cap. The false-color images on the screen formed pretty patterns, constantly changing as the tunneler moved forward and the sonars got better information on what was before them.

If there was any tectonic activity at all on Mars, it lay not far from here, where echo sounders had indicated an occasional plume of warmer, lighter, softer matter—even liquid water in a few sparse, small places. Peter Braganza, the head geologist, had likened some of them to the white smoke/black smoke fountains at the bottom of some of the earth's seas, slow up-wellings of warmth from the tiny residual core heat of the old planet.

It was from plumes like those that Steegman had brought back the samples that thrilled Sharon bas Ramirez. Organics! It was almost certainly organic matter, she thought, at least—but the heat of the tunneler had boiled the water out of the minerals and had cooked the carbon compounds as well. If they had just had some of the instruments they should have had, the nuclear magnetic resonance scanner in particular, she could have been sure—but the NMR equipment had been on the crashed rocket.

Steegman leaned forward, peering at the screen.

A gray blob on the lower right-hand corner had changed to pale blue as the sonars got a better reading on it. Clathrate? Not exactly. Liquid water? Perhaps. Steegman couldn't get a temperature reading that meant anything while the drills were going, but things did warm up a little as one approached the plumes. It was quite possible that water could be liquid here. He was humming "Silent Night" to himself as he studied the screen.

It was unusually pretty now. It was almost a hologram, or at least it gave the illusion of depth. What the poppers scanned, the sonar computers examined and analyzed and sculpted into the scene before him.

What they displayed was almost always more intricate and beautiful than anything he would have seen drilling through the crust of the earth. Even the most homogeneous of earthly rock shows differences of texture and density. On Mars, where the crust had been almost all cold for almost forever, there were countless splits and cracks and fault lines to make a pleasing tracery of color streaks and blobs.

It was funny, Steegman thought, that they didn't look really random.

He had to pause for another seizure of vomiting, holding the canister close to his lips against the cruelly sharp lurches of the tunneler. When he was through, he put it aside, still staring at the screen. He tried to make sense of what he was seeing.

Almost ahead, a little below the level he was drilling through, there was a prism-shaped tubular structure that was displayed in golden yellow. Not clathrate! Not even liquid water. It stretched off to the left and away as far as the sound probe could reach in one direction. In the other, for a hundred meters or so back toward the "department store" he had long ago passed, until it came up against a hard new—geologically new—intrusion.

Smiling to himself in pleasure, Steegman inched the nose of the borer down and around to intersect it.

When it was huge before him, there was a lurch, and the cutting nose spun madly.

That was a surprise! There were not many caverns under the Martian surface. Steegman quickly shut the blades off. On the tractor treads alone, dead slow, the tunneler shoved its way through a few crumbling edges of rock. When it was free, he turned everything off and paused to consider the situation.

He was really very tired, he realized. Although he was glad that the painful jolting of the tunneler had stopped, he was still very queasy. He cautiously allowed himself a few sips of water from the tunneler's supplies. When he did not immediately throw them up again, he felt more cheerful.

He thought for a moment of opening the communications link again to report his find. The geologists would surely want to investigate this unusual structure.

"Steegman jerked the glass to his lips. He slobbered half the contents over himself. He sputtered, choked, and twitched and dropped the glass, then sat there, gaping at the camera."

But Steegman wanted to investigate it himself.

He pulled on his air mask and, with less strength than he had expected, was finally able to force the front hatch open against the gravel that had accumulated outside it. It was hot.

When he stepped cautiously out onto the talus, it burned his feet. He hopped back into the tunneler, rubbing one foot and looking around for what he needed. Lights. There was a shoulder pack of batteries and a hand lamp. Clothing, too, because apart from the rock that had been heated by the drill, the tunnel was quite cold.

He grinned to himself, took the garments from the back of the seat and pulled them on, even the platinum-blond beard.

He engaged the tractor treads and inched forward, past the rubble where he had broken through, as far as he could until the motionless drill teeth crunched against the far wall.

Then he stepped out onto the smooth, flat floor of the tunnel, which was no geologic feature at all.

Although his vision was blurring and his breathing had become painful, Steegman was sure of that. The tunnel was as much an artifact as the "department store." Crystalline walls, undimmed by the millennia, bounced back the light of his hand lamp. The cross section of the tunnel was triangular, with rounded corners. Natural formations did not come in such shapes.

What price Niagara Falls now! Steegman laughed out loud in triumph. His duty was clear. He should jump back in the tunneler and tell the rest of the expedition what he had found. They would want to come rushing to explore this tunnel, to see what it led to—

But so did he.

Without looking back, he turned left, settled the battery pack better on his shoulder straps, and began limping down the tunnel. When he had his next spasm of vomiting, he had no handy canister to fill. (On the other hand, there was not much left in him to throw up, so the mess was minimal.) When at last he could walk no longer, he sat down, his fingers fumbling with crumbled bits of what might have been broken porcelain or might have been some kind of stone.

He closed his eyes, perfectly happy.

It was a long time before he opened them again, and he wouldn't have, except that he felt as though his old dog were nuzzling at his fingers.

When he woke, the sensation remained. Something was nuzzling at his hand. It wasn't a dog. When he stirred, it flinched away from the light, but with the last of his vision he got a good look at it. More than anything else, it looked like one of those baby harp seals the fur hunters clubbed, only with skinny, stiltlike legs. "Merry Christmas," Henry Steegman whispered, and died.

When at last anyone noticed that Steegman was missing, the captain ordered Manuel Andrew Applegate to follow the new tunnel and retrieve the borer itself, at least—whether Steegman were retrieved or not, he declared, he didn't at all care.

When Applegate reached the borer and saw what it had broken into, his almost incoherent message back brought half the colony there on as close to a run as they could manage.

When finally they saw the dimming glow of Steegman's hand lamp, far down the corridor and hurried toward it, they saw that Steegman was not alone.

He was dead, propped against the wall in his Santa Claus suit. Even under the fake beard they could see he was smiling, and around him, whistling in distress as they tried to avoid the harsh glare of the approaching lights, were eight unbelievably, wholly unexpectedly, unarguably living and breathing Martians.

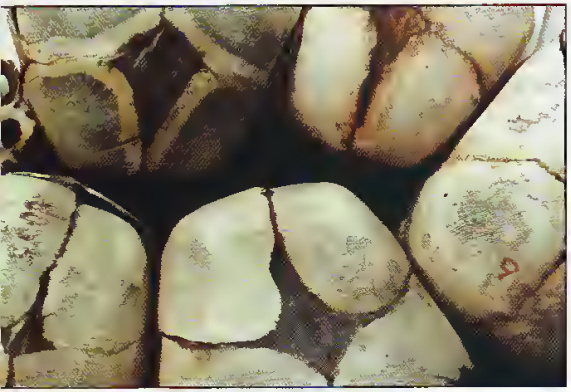
And when at last the few survivors of the expedition came home to a presidential reception and a New York ticker-tape parade, Broadway was not renamed Captain Seerseller Avenue for the occasion. It was called Henry Steegman Boulevard. ∞

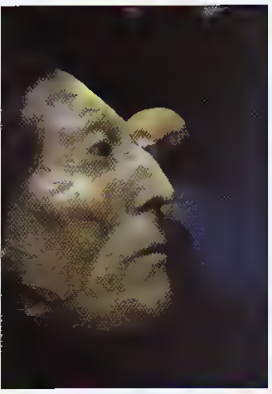
HISTORY IN BITS AND PIECES: BODY SNATCHER

PHOTOGRAPHS BY ROSAMOND PURCELL

Rosamond Purcell specializes in taking photos of what would ordinarily be objects of repulsion—two-headed animals skulls, skeletons, ghoulish fragments of human faces—transforming them into objects of strange beauty. The specimens shown here were gathered a century ago by physician John Collins Warren and his contemporaries for the Warren Anatomical Museum of the Harvard Medical School and by his seventeenth- and eighteenth-century counterparts at the University of Leiden Medical School in Holland.

To find out more about the photographer





and her extraordinary work we dispatched writer Don Lessem to Purcell's studio in Cambridge, Massachusetts, where this interview was conducted.

Omni: What draws you to seek out and photograph such strange collections?

Purcell: I'm fascinated with labeling and organizing things as a way of making sure they exist—especially in natural history and medical collections. There's so much whimsy and artifice in the way things are preserved and displayed.

Omni: I don't think anyone could call your images whimsical.

Purcell: They are *not* delightful. I'd be stupid to say that, but they are not, fundamentally, ghoulish. All these objects are beautifully prepared artifacts. In the late 1600's people did not know a lot about how human beings—hands, ears, noses—were put together. This was all pioneering work.

Besides, looking at a nose in a jar isn't half as bad as looking at the face from which that nose has been removed.

Omni: But what about the wax face mask with the tumor near the left eye?

Purcell: Yes, it is grotesquely disfigured, but the mask itself is a magnificently detailed thing. You can even see the whiskers on it. It's incredibly beautiful.

My photographs are about isolating a piece of the human body as if it were a kind of relic. You are able to contemplate it at a sort of surreal distance. You are not merely looking at an amputated arm here, particularly since it is in a lace cuff. It is more like a sacred object, an icon.

Omni: But the wax model of the baby on

Previous pages: (large photo) Two faced cat; (small photos, clockwise from left) real human face, skeleton of man with rickets, and wax replicas. This page: (clockwise from middle right) Pins swallowed by an insane woman; adult skulls; wax face with tumor; neonatal skulls; two-headed calf. Right: Half cranium.

the board has some horrible parts.

Purcell. True: it's missing a hand and has those horrible bandages. But it reminds me of a tomb figure carved from Italian marble. And the tattooed skin has the feeling of a fine painting. With some other things you say, Wow! I liked the two-faced cat because he seemed to be right in the middle of dividing. And the skeletons attached at the rib cage seemed very close to each other in a tender kind of way.

Omni. What was it about the skull compositions that appealed to you?

Purcell. The newborn skulls reminded me of boulders. The pattern of the fontanels, the soft spots in the skulls, reminded me of stained glass. And there are those two fetuses brought to Holland by sailors in the late 1700's as curiosities. To me they are interesting because they had been obviously preserved with a lot of care and ceremony. They have beads and rattles.

The other skull picture gives such terrific information. As one skull label says, this was a pirate and suicide. The one next to him is from a guy who died at Waterloo. The guy above was hanged for murder.

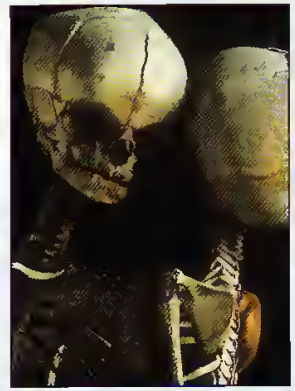
Omni. You use only natural light. Why?

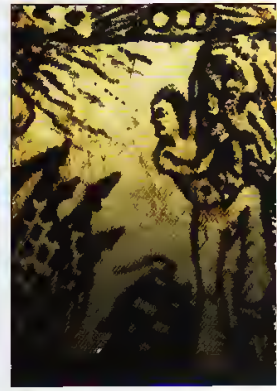
Purcell. It's aesthetic. The specimens look better with available light. It's philosophical, too. Bright lights and technology somehow don't fit with the atmosphere.

Omni. Are there any other collections that you are eager to see?

Purcell. I haven't made specific plans, but a friend told me about a Pilgrim woman embalmed in wax—she lived by a tallow factory or something. I'm on the case. ∞

Previous pages: Two fetuses donated to the Leiden museum by sailors in the eighteenth century. Left: Severed arm. This page (top row): Wax replica of an infant surgical patient; face fragments. Middle row: Skeletons of twins joined at the rib cage; picture on the tattooed skin of a Boston sailor. Right: Toe samples.





ARTICLE

PSYCHOTALES

Langston Hughes, John Updike, Jayne Anne Phillips, John Cheever—and a psychologist—tell you who you are

After standing alone at night staring at Mars and longing to probe its scarlet secrets John Carter the heroic explorer created by Edgar Rice Burroughs is miraculously transported there and begins a series of rousing adventures As a boy, Carl Sagan entranced with these stories would stare at the red planet hoping that somehow he, too would find himself standing on its surface To Yale psychologist Jerome L Singer the fact that Sagan is today a leading astronomer is testament to the compelling power and revealing nature of fiction

Psychologists have long known that like dreams the stories we tell are windows to our souls Our hopes and fears are reflected there our ways of interacting with the world revealed Less clear though are the ways in which our personalities show themselves in our response to reading a work of fiction Was Sagan moved to become an astronomer because as a boy he read the adventures of John Carter or did he read those stories because

PAINTING BY CLAUDE VERLINDE

he was already at heart an astronomer? Why are we as readers more drawn to one story than another? Is it because we empathize with a particular character or feel an affinity for a place or scene or is it because we are intellectually drawn to the richness of the words on the page, the vividness of the vocabulary?

To be sure all of us have our own patterns of interpretation, which reflect more than we might suspect about how we think and feel. Psychologists have developed numerous questionnaires such as the Minnesota Multiphasic Personality Inventory and the Personality Research Form to measure various aspects of an individual's personality. When we asked Singer to prepare this project for *Omni* he thought it would be interesting to apply the principles behind those tests to fiction. "Psychotales" is your chance to find out both how you respond to fiction and what that may say about your personality.

Here's how Singer, who has been studying the psychology of imagination, daydreaming and fantasy for the past 40 years, has prepared a series of questions for four short stories (by John Cheever, John Updike, Jayne Anne Phillips and Langston Hughes) that reveal certain personality traits. Questions for each story fall into five different categories (A through E), each measures a different dimension of personality. When tallied, your responses to Singer's questions can help you see where you stand on these five different scales. Keep in mind, though, that your response is based on just a few questions about these four stories. For a more complex picture of your personality, you would need to respond to many other stories, read on a number of different occasions, to balance out changes in mood.

It's important, says Singer, "that you read each story naturally. Don't try to anticipate questions or what you should be paying attention to as you read. Then answer each question by reflecting on your experience in reading the story, without trying to psych out the question or to answer in a way that would make you 'look good.'" At the end of the last set of questions, total your scores separately for each of the five categories, and see what your personality styles are in "Where You Stand." —The Editors

THANK YOU, M'AM

By Langston Hughes

She was a large woman with a large purse that had everything in it but a hammer and nails. It had a long strap, and she carried it slung across her shoulder. It was about eleven o'clock at night, dark, and she was walking alone, when a boy ran up behind her and tried to snatch her purse. The strap broke with the sudden single tug the boy gave it from behind. But the boy's weight and the weight of the purse combined caused him to lose his balance. Instead of taking off full blast, as he had hoped, the boy fell on his back on the sidewalk and his legs flew up. The large woman simply turned around and kicked him right square in his blue-jeaned sitter. Then she reached down, picked the boy up by his shirt front, and shook him until his teeth rattled.

After that the woman said, "Pick up my pocketbook, boy, and give it here."

She still held him tightly. But she bent down enough to permit him to stoop and pick up her purse. Then she said, "Now, ain't you ashamed of yourself?"

Firmly gripped by his shirt front, the boy said, "Yes'm."

The woman said, "What did you want to do it for?"

The boy said, "I didn't aim to."

She said, "You a lie!"

By that time two or three people passed, stopped, turned to look, and some stood watching.

"If I turn you loose, will you run?" asked the woman.

"Yes'm," said the boy.

"Then I won't turn you loose," said the woman. She did not release him.

"Lady, I'm sorry," whispered the boy.

"Um-hum! Your face is dirty. I got a great mind to wash your face for you. Ain't you got nobody home to tell you to wash your face?"

"No'm," said the boy.

"Then it will get washed this evening," said the large woman, starting up the street, dragging the frightened boy behind her.

He looked as if he were fourteen or fifteen, frail and willow-wild, in tennis shoes and blue jeans.

The woman said, "You ought to be my son. I would teach you right from wrong. Least I can do, right now, is to wash your face. Are you hungry?"

"No'm," said the being dragged, "I just want you to turn me loose."

"Was I bothering *you* when I turned that corner?" asked the woman.

"No'm."

"But you put yourself in contact with *me*," said the woman. "If you think that that contact is not going to last awhile, you got another thought coming. When I get through with you, sir, you are going to remember Mrs. Luella Bates Washington Jones."

> *"Like dreams, the stories we tell are windows to our souls. Our hopes and fears are reflected there, and our ways of interacting with the world are revealed."*

Sweat popped out on the boy's face, and he began to struggle. Mrs. Jones stopped, jerked him around in front of her, put a half nelson about his neck, and continued to drag him up the street. When she got to her door, she dragged the boy inside, down a hall, and into a large, kitchenette-furnished room at the rear of the house. She switched on the light and left the door open. The boy could hear other roomers laughing and talking in the large house. Some of their doors were open, too, so he knew he and the woman were not alone. The woman still had him by the neck in the middle of her room.

She said, "What is your name?"

"Roger," answered the boy.

"Then, Roger, you go to that sink and wash your face," said the woman, whereupon she turned him loose—at last. Roger looked at the door—looked at the woman—looked at the door—*and went to the sink*.

"Let the water run until it gets warm," she said. "Here's a clean towel."

"You gonna take me to jail?" asked the boy, bending over the sink.

"Not with that face. I would not take you nowhere," said the woman. "Here I am trying to get home to cook me a bite to eat, and you snatch my pocketbook! Maybe you ain't been to your supper either, late as it be. Have you?"

"There's nobody home at my house," said the boy.

"Then we'll eat," said the woman. "I believe you're hungry—or been hungry—to try to snatch my pocketbook!"

"I want a pair of blue suede shoes," said the boy.

"Well, you didn't have to snatch *my* pocketbook to get some suede shoes," said Mrs. Luella Bates Washington Jones. "You could of asked me."

"M'am?"

The water dripping from his face, the boy looked at her. There was a long pause. A very long pause. After he had dried his face, and not knowing what else to do, dried it again, the boy turned around, wondering what next. The door was open. He could make a dash for it down the hall. He could run, run, run, *run!*

The woman was sitting on the daybed. After a while she said, "I were young once, and I wanted things I could not get."

There was another long pause. The boy's mouth opened. Then he frowned, not knowing he frowned.

The woman said, "Um-hum! You thought I was going to say *but*, didn't you? You thought I was going to say *but I didn't snatch people's pocketbooks*. Well, I wasn't going to say that. Pause. Silence. I have done things, too, which I would not tell you, son—neither tell God, if He didn't already know. Everybody's got something in common. So you set down while I fix us something to eat. You might run that comb through your hair so you will look presentable."

In another corner of the room behind a

screen was a gas plate and an icebox. Mrs. Jones got up and went behind the screen. The woman did not watch the boy to see if he was going to run now, nor did she watch her purse, which she left behind her on the daybed. But the boy took care to sit on the far side of the room, away from the purse, where he thought she could easily see him out of the corner of her eye if she wanted to. He did not trust the woman *not* to trust him. And he did not want to be mistrusted now.

'Do you need somebody to go to the store,' asked the boy, 'maybe to get some milk or something?'

'Don't believe I do,' said the woman, 'unless you just want sweet milk yourself. I was going to make cocoa out of this canned milk I got here.'

'That will be fine,' said the boy.

She heated some lima beans and ham she had in the icebox, made the cocoa, and set the table. The woman did not ask the boy anything about where he lived or his folks or anything else that would embarrass him. Instead, as they ate, she told him about her job in a hotel beauty shop that stayed open late, what the work was like, and how all kinds of women came in and out, blonds, redheads, and Spanish. Then she cut him a half of her ten cent cake.

'Eat some more, son,' she said.

When they were finished eating, she got up and said, 'Now here, take this ten dollars and buy yourself some blue suede shoes. And next time, do not make the mistake of latching onto *my* pocketbook *nor nobody else's*—because shoes got by devilish ways will burn your feet. I got to get my rest now. But from here on in, son, I hope you will behave yourself.'

She led him down the hall to the front door and opened it. 'Goodnight! Behave yourself, boy!' she said, looking out into the street as he went down the steps.

The boy wanted to say something other than, 'Thank you, Mam,' to Mrs. Luella Bates Washington Jones, but although his lips moved, he couldn't even say that as he turned at the foot of the barren stoop and looked up at the large woman in the door. Then she shut the door.

Circle the one answer for each category that best describes your experience while reading the story or your feelings immediately after finishing it.

CATEGORY A

1. I found my attention wandering much of the time and couldn't really get involved in the story.
2. My attention wandered from time to time, but I successfully followed the main lines of the story.
3. I became engrossed in the story and only occasionally allowed my thoughts to drift to something else.
4. I was so caught up in the story that it seemed for a time that I was actually a participant in it.

CATEGORY B

1. As I read the story, I was struck by the clever use of language—the shifts from the dialect spoken by the characters to the vocabulary of the narrator.
2. As I read, I was occasionally struck by the clever use of language, but I also found myself visualizing scenes and hearing the dialogue between the characters.
3. In reading this story, I often saw flashes of pictures or heard sounds, as if I were watching the story unfold in a movie.
4. The story evoked a rich array of images for me. I saw the faces of the older woman and the boy, I smelled the cooking, and could even taste the cake.

CATEGORY C

1. The story seemed very distant from my own experience.
2. The story presented a good description of life among poor inner city residents.
3. As I read the story, I found myself thinking about my own life and how I would behave if I were the boy or the older woman.
4. The story evoked memories of scenes from my own life. I responded to it strongly.

CATEGORY D

1. I alternated between feeling angry at the boy for his thievery, at his parents for their neglect, and at the old woman for her pushiness.

2 I felt somewhat angry at the social circumstances that led the boy into thievery and that made the older woman a victim

3 I was a little annoyed that the boy couldn't express his thanks to the old woman but most of all I was touched by the compassion of the woman

4 My heart went out to the confused and desperate boy and I was moved deeply by the concern of the older woman

CATEGORY E

1 This story made me think about how much people need each other and how important it is to have a sense of family

2 I felt that both the woman and the boy were lonely yet couldn't come together

3 I admired the woman and the boy for being—in their own ways—independent and strong

4 I was impressed with the independence and strength of the woman and knew that the boy would follow her example

REUNION

By John Cheever

The last time I saw my father was in Grand Central Station I was going from my grandmother's in the Adirondacks to a cottage on the Cape that my mother had rented and I wrote my father that I would be in New York between trains for an hour and a half and asked if we could have lunch together His secretary wrote to say that he would meet me at the information booth at noon and at twelve o'clock sharp I saw him coming through the crowd He was a stranger to me—my mother divorced him three years ago and I hadn't been with him since—but as soon as I saw him I felt that he was my father my flesh and blood my future and my doom I knew that when I was grown I would be something like him I would have to plan my campaigns within his limitations He was a big good-looking man and I was terribly happy to see him again He struck me on the back and shook my hand "Hi Charlie" he said "Hi boy I'd like to take you up to my club but it's in the Sixties and if you have to catch an early train I guess we'd better get something to eat around here" He put his arm around me and I smelled my father the way my mother sniffs a rose It was a rich compound of whiskey after-shave lotion shoe polish woolens and the rankness of a mature male I hoped that someone would see us together I wished that we could be photographed I wanted some record of our having been together

We went out of the station and up a side street to a restaurant It was still early and the place was empty The bartender was quarreling with a delivery boy and there was one very old waiter in a red coat down by the kitchen door We sat down and my father hailed the waiter in a loud voice "*Kellner!*" he shouted "*Garçon! Camerier! You!*" His boisterousness in the empty restaurant seemed out of place "Could we have a little service here!" he shouted "Chop-chop" Then he clapped his hands This caught the waiter's attention and he shuffled over to our table

"Were you clapping your hands at me?" he asked

"Calm down calm down *sommelier*" my father said "If it isn't too much to ask of you—if it wouldn't be too much above and beyond the call of duty—we would like a couple of Beefeater Gibsons"

"I don't like to be clapped at" the waiter said

"I should have brought my whistle" my father said "I have a whistle that is audible only to the ears of old waiters Now take out your little pad and your little pencil and see if you can get this straight two Beefeater Gibsons Repeat after me two Beefeater Gibsons"

"I think you'd better go somewhere else" the waiter said quietly

"That" said my father "is one of the most brilliant suggestions I have ever heard Come on Charlie let's get the hell out of here"

I followed my father out of that restaurant into another He was not so boisterous this time Our drinks came and he cross-questioned me about the baseball season He then struck the edge of his empty glass with his knife and began shouting again "*Garçon! Kellner! You!*" Could we trouble

you to bring us two more of the same?"

"How old is the boy?" the waiter asked.

"That," my father said, "is none of your goddamned business."

"I'm sorry, sir," the waiter said, "but I won't serve the boy another drink."

"Well, I have some news for you," my father said. "I have some very interesting news for you. This doesn't happen to be the only restaurant in New York. They've opened another on the corner. Come on, Charlie."

He paid the bill, and I followed him out of that restaurant into another. Here the waiters wore pink jackets like hunting coats, and there was a lot of horse tack on the walls. We sat down, and my father began to shout again. "Master of the hounds! Tallyhoo and all that sort of thing. We'd like a little something in the way of a stirrup cup. Namely, two Bibson Geeteaters."

"Two Bibson Geefeaters?" the waiter asked, smiling.

"You know damned well what I want," my father said angrily. "I want two Beefeater Gibsons, and make it snappy. Things have changed in jolly old England. So my friend the duke tells me. Let's see what England can produce in the way of a cocktail."

"This isn't England," the waiter said.

"Don't argue with me," my father said. "Just do as you're told."

"I just thought you might like to know where you are," the waiter said.

"If there is one thing I cannot tolerate," my father said, "it is an impudent domestic. Come on, Charlie."

The fourth place we went to was Italian. "*Buon giorno*," my father said. "*Per favore possiamo avere due cocktail americani, forti, forti. Molto gin, poco vermut.*"

"I don't understand Italian," the waiter said.

"Oh, come off it," my father said. "You understand Italian, and you know damned well you do. *Vogliamo due cocktail americani. Subito.*"

The waiter left us and spoke with the captain, who came over to our table and said, "I'm sorry, sir, but this table is reserved."

"All right," my father said. "Get us another table."

"All the tables are reserved," the captain said.

"I get it," my father said. "You don't desire our patronage. Is that it? Well, the hell with you. *Vada all' inferno.* Let's go, Charlie."

"I have to get my train," I said.

"I'm sorry, sonny," my father said. "I'm terribly sorry." He put his arm around me and pressed me against him. "I'll walk you back to the station. If there had only been time to go up to my club."

"That's all right, Daddy," I said.

"I'll get you a paper," he said. "I'll get you a paper to read on the train."

Then he went up to a newsstand and said, "Kind sir, will you be good enough to favor me with one of your goddamned, no-good, ten-cent afternoon papers?" The clerk turned away from him and stared at a magazine cover. "Is it asking too much, kind sir," my father said, "is it asking too much for you to sell me one of your disgusting specimens of yellow journalism?"

"I have to go, Daddy," I said. "It's late."

"Now, just wait a second, sonny," he said. "Just wait a second. I want to get a rise out of this chap."

"Good-bye, Daddy," I said, and I went down the stairs and got my train, and that was the last time I saw my father.

CATEGORY A

1 I found my attention wandering much of the time and couldn't really get involved in the story.

2 My attention wandered from time to time, but I successfully followed the main lines of the story.

3 I became engrossed in the story and only occasionally allowed my thoughts to drift to something else.

4 I was so caught up in the story that it seemed for a time that I was actually a participant in it.

"He put his arm around me, and I smelled my father the way my mother smells a rose . . . a rich compound of whiskey, after-shave lotion, shoe polish, woolens, and the rankness of a mature male."

CATEGORY B

1 I was impressed with the crispness of the vocabulary and the father's clever use of repeated and foreign phrases.

2 I liked the writing style, the use of foreign phrases, and the sophistication of the language and settings.

3 The author's vocabulary evoked some striking images of the settings and the father's appearance and manner.

4 I felt as though I could smell the father and hear him talking to the boy and the waiters. I pictured him and his embarrassed son in each restaurant.

CATEGORY C

1 I found the story funny, but it seemed remote from my own experiences.

2 I thought the story was a clever delineation of the humor and pathos of a particular upper-middle-class, white Anglo-Saxon life-style.

3 Occasionally I remembered some of my own childhood experiences with my father or another older man.

4 A host of childhood experiences came back to me, and I found myself comparing my relationship with my own father to that of the boy in the story.

CATEGORY D

1 I found myself getting angrier and angrier at the father's self-absorption, pomposousness, and drunkenness.

2 I was annoyed at the father and felt sympathetic toward the boy.

3 Initially, I was angry at the father, but I soon felt sorry for his incompetence. I also appreciated the boy's patience and his efforts to establish some sort of relationship with his father.

4 I was touched by how difficult it was for the father and son to express love for each other and for how the father kept trying, despite his limitations.

CATEGORY E

1 This story is really about people's need to be part of a family, even when it's not possible.

2 I was moved by how much the father and the boy wanted to reach out to each other, but really feel as though the boy will have to give up trying.

3 I could see how the boy wanted to admire his father, and I respected his firmness in going off on his own.

4 I admired the boy for seeing that he would have to live his own life and forge his own personality, free of the influence of his wealthy, snobbish, and alcoholic father.

PYGMALION

By John Updike

What he liked about his first wife was her gift of mimicry, after a party, theirs or another couple's, she would vivify for him what they had seen: the faces, the voices, twisting her pretty mouth into small contortions that brought back, for a dazzling instant, the presence of an absent acquaintance. "Well, I-I reawy—how does Gwen talk?—I-I re-awwy cared about conserwation—" And he, the husband, would laugh and laugh, even though Gwen was secretly his mistress and would become his second wife. What he liked about her was her liveliness in bed, and what he disliked about his first wife was the way she would ask to have her back rubbed and then, under his laboring hands, night after night, fall asleep.

For the first years of the new marriage, after he and Gwen had returned from a party he would wait unconsciously for the imitations, the recapitulation to begin. He would even prompt. "What did you make of our hostess's brother?"

"Oh," Gwen would simply say, "he seemed very pleasant." Sensing with feminine intuition that he expected more, she might add, "Harmless. Maybe a little stuffy." Her eyes flashed as she heard in his expectant silence an unvoiced demand, and with that touching, childlike impediment of hers she blurted out, "What are you reawy after?"

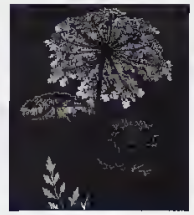
"Oh, nothing. Nothing. It's just—Marguerite met him once a few years ago, and she was struck by what a pompous nitwit he was. That way he has of sucking his pipestem and ending every statement with

CONTINUED ON PAGE 146

"All nature is art, unknown to thee"

FLORAL DERANGEMENT

BY NINA GUCCIONE



'The X ray opens the second eye so you can see the beauty all the way through'

Teeth can get a little boring, says Albert Richards, professor of dental radiology for 40 years. Now retired, his playful experimentations during quiet times led to a 25-year old floral hobby.

Richards wasn't the first to X-ray flowers. 'Since the discovery of X rays,' he explains, 'people have been X-raying bugs and critters, but no one has succeeded like I have.' After experiments with the likes of bats and sea horses, Richards settled on the comparatively more appealing flowers. The good Lord put such beauty in these things, Richards says, 'it seemed a shame we couldn't see and appreciate it all. A photograph, in contrast, shows only the surface—the petal closest to you—so you're looking at it with only one eye. X rays open the second eye.'

It's a tedious process that starts with dusting off the petals. Richards uses a small suction device to remove buried sand specks and intruding

Previous pages: Campanula, *the bellflower. (inset) Queen Anne's lace, or wild carrot. This page, below left:* Columbine. *Below right:* Saffron crocus, *the first shudders of spring. Opposite page:* Tigridia, *a ghostly mast of a phantom ship*

bugs, rain- or dewdrops are gently absorbed with blotting paper. After X-raying his subjects, he develops his own photographic prints.

Richards had no training in botany or photography but held degrees in chemical engineering and physics, as well as six U.S. patents. Richards lives in a Michigan house he built himself, where he raised five daughters and a flower garden. He was the first to use an electron microscope to study the microstructure of teeth; he also developed a technique to reveal fingerprints of people burned beyond recognition.

Richards still has two goals to realize. One is to see a coffee table book of his works published. Reprints of his flowers have appeared in the United States and Europe and are soon to be published in India and the Soviet Union. Second, Richards hopes to have postage stamps made that would certainly be an improvement upon the LOVE stamps. ∞

Opposite page: X-ray of the stately gladiolus. Above left: A prickly field thistle. Above right: The petal of a calla lily. Before printing, Richards solarized both of the floral photographs on this page, reversing the fields of light and dark.

"Now that I've seen all the beauty in these things, I'm very careful not to step on them."

CONTINUED FROM PAGE 26

same words were coming again and again

'Avant' Before

Before when things were good, they had fresh steak every night and fresh camel milk too which is the best of all milk There was guitar music and even hunts—the dogs tracking gazelles, the chiefs following on their horses

'It sounds like the perfect life' I say

Yes says the chief It was *Avant*

Before the sun became a constant thing the nurturer of life changing to the enemy of it, the grass curling under it, the animals beginning to die year after year, until last May, the last of them was gone And a world gone with them

'And now?' I ask

Now they are trying to find a new way of living They are trying to learn the cultivation of crops and a rootedness of their own Now there is only rice from UNICEF and not always that If the women sell their crafts in town, there is dinner If not, there is none Around me I can feel how it is ending I can feel the ache of loss the confusion of men and women who no longer have the things that make them what they are

"Les peuples ont faim" says the chief It is another phrase I would hear throughout the night The people are hungry

Soon the cold becomes too much We go into the tent And he takes out an album of photographs A nomad with a Polaroid He brings a lantern over and begins showing me what times looked like when times were good His camels his cows his soul It is important to him that I see this He understands I am a journalist This is for history, he says So people will know there was once such a life

I had expected we would sleep without food But as we leaf through the album I smell cooking He says it is because I am a stranger who cared enough to come To night, there would be dinner, a true feast They were preparing the meat from one of the last of their desert sheep, meat they'd until now been saving for more difficult times The women bring it to the tent The chief begins cutting the portions with a dull sword I see he is having trouble and offer him my Swiss Army knife He marvels at it and cuts the rest with ease

Sixteen of us are in the tent There is enough for each of us to have five bites There is a seriousness to eating here, a respect for it that only people like this can know The chief eats only half his portion He insists I have the rest He says he isn't hungry When it is done we go back to seek the fire's warmth There is no talk for a while Then I ask how hard this has been for them

The chief says it is the hardest thing in experience, leaving the one life you know Even the secrets understood only in their hearts are those that tie them to the desert How do you give that away? he asks How do you start over—not after a lifetime but after an ancestry?

We stand and talk for more than an hour I tighten my flannel shirt I notice he is shivering 'Is there no clothing?'

'If there is no food' and he lets the sentence go at that

More phrases become familiar with repetition *Rien à manger*—nothing to eat

Whenever I bend to take a note two of the men bring lanterns to help me Slowly I begin to feel an unexpected kinship We are all far from home

There are only two beds in the tent the rest of the floor is sand The chief takes one I am given the other At ten PM we say goodnight The lanterns are put out

'La Noel joyeux,' I say into the dark *"Tu comprends?"*

'Ah, oui,' he says *'Je comprends'*

Christmas Eve in the Sahara I lie there for an hour but cannot sleep The cold comes into the tent and into my bed I get up and walk outside for the embers of the fire I am alone

When this sky is clean, there is no sky like the Sahara sky Under a full moon you can read a newspaper It helps me understand the draw of this place When nature imposes a harshness it seems to give back a beauty as great And now I find myself thinking about the things I've seen this month and what they mean What I've found here in this Touareg camp is what I've found everywhere A man had a life he loved the weather changed, and now he can't even feed his children

> *"There is a knowledge of spirit among famine victims here, a knowledge that says that if you lose everything, you can still have civility, and there is wealth in that."*

I am where I'd begun this journey in a tent city where people of the land had gathered by force of weather people now dependent on nations alone But here as there, in the midst of this pain I find a familiar twist of hope There is a knowledge of spirit among famine victims here, a knowledge that says if you lose everything, you can still have civility, and there is wealth in that I have never known the hospitality I've been given this night

And I will always remember the hungry of Ethiopia days from death walking past a disabled food truck ignoring its load of wheat because touching it would have been theft I try again to sleep I drift in and out Finally morning comes

I recognize this morning I have seen it before elsewhere in Africa The children come to me I can walk nowhere without the children And always they grow quiet and content when I give them my hand

Why is it that they, and the adults too, are drawn to Americans so? I did not expect that There is a warmth for our country I had not known existed And it has nothing to do with politics or allegiances only with what the people here see that when there is pain the people of this nation reach out And I realize more than ever before that what we are and what we stand for rests with that compassion

Before I leave, the chief wants me to see what I've come to see We walk to the newcomers tents I notice he is squinting hard into the sun Soon we pause at one tent, and there we find a true child of famine one of the more troubled of this flock The chief embraces him The child, to him is a stranger But to see the hurt in his face it could be father and son He holds the child close long after I am finished with my photographs *'Rien a manger,'* he says *'Rien à manger'*

There is a kinship here Americans don't know The greatest of this people feels truly diminished by the difficulties of the least of them I ask the chief about this My French could not keep up with him but I did not need it I know from a month in famine country what he was saying That we are one family here joined together by weather and by the little we have For he who like me has nothing is my family

We hear the grind of an engine A half mile distant we see the doctor's Land Rover We walk back to the main camp The chief tells me to wait then disappears into his tent Soon he emerges He is carrying his blue silk turban He places it in my hands For you he says

I take off my L L Bean shirt and hand it to him Then I give him my Ray Ban sunglasses and Swiss Army knife

'For you' I say

Christmas morning in the Sahara

I climb into the Land Rover

'Until next time' says the chief

I say it too As we begin to drive away, I turn to look back at these people who have been changed but not broken by hunger I am thinking one thought *one world*

Editors note Author Mark Patinkin donated the proceeds from his book 'An African Journey' to two organizations that he feels address Africa's problems particularly well The first Doctors Without Borders (68 Boulevard Street Marcef Paris 5E 75005 France) sends physicians to needy sections of the continent the second Foster Parents Plan International (155 Plan Way Warwick RI 02887) sponsors needy children and helps small villages with local development

FICTION

ARACHNE

BY LISA MASON

The flier levitates from a vermilion funnel and hovers. Stiff chatoyant wings, monocoque fuselage, compound visual apparatus. The flier skims over the variegated planetscape, seeking another spore source. Olfactory sensors switch on. The desired stimuli are detected, another spore source is located.

PAINTING BY H.R. GIGER

Down the flier dips. But the descent is disrupted for a moment by atmospheric turbulence. The flier's fine landing gear is swept against a translucent aerial line as strong as steel and sticky with glue. A beating wing tangles in more lines. The flier writhes.

The trapper hulks at the edge of the net. Stalked eyebuds swivel, pedipalps tense. At the fug of the flier's struggle, the trapper scuttles down a suspended line, eight appendages gripping the spacerope with acrobatic agility. The trapper spits an arc of glue over the flier's wings, guides the fiber around the flier's slim waist. A pair of black slicers dripping with goo snap around the flier's neck.

Carly struggles out of the swoon. Blackout smears across the crisp white cube of her telelink like a splash of ash rain down a window. It's happened again. Her system crashes for a monstrous second; she plunges into deep black nothing. Then, inexplicably, she's in link again, hanging like a child on a spinning swing to a vertiginous interface with court.

Panic snaps at her. How many seconds lost this time?

"Court will now hear *Martino v. Quik Slip Microchip, Inc.*" announces the judge. Edges of his telelink gleam like razor blades. His presence in court, a massive face draped in black, towers like an Easter Island godhead into the upper perimeter of telespace. The perimeter is a flat, gray cloud bank.

"On what theory does Quik Slip Microchip counterclaim to quiet title when Rosa Martino has been titleholder to the *Wordsport Glossary* for thirty-five years? Counsel for defendant? Ms. Nolan?"

Carly hears her name—muffled, tinny—through the neckjack. Her answer jams in her throat. Weird: she shouldn't feel her body in link. For an eerie second she feels like she's *inside* the telelink, sweating and heaving inside the airless, computer-constructed telespace itself. Her body, hunched over the terminal in her windowless cubicle at Ava & Rice, jacked into the telelink, wrapped up in a web of wires, mutters a curse.

But her presence in court is struck dumb.

Gleeful static from the two scruffy solos representing the plaintiff, Martino. Carly can hear them ripple with excitement, killers closing in on their prey.

Of course, they're on contingency, and old lady Martino probably couldn't even scare up the filing fees. One of them, a weaselly hack, shrugs at the whirring seconds on the chronograph and says, "Nof defaulting on your crooked counterclaim, are ya, hotshot?"

"Counsel for defense? The attorney from Ava & Rice? *Ms. Nolan?*" thunders the judge. "You have thirty seconds to log in your counterclaim."

Telelinks of the jury, two rows of red-veined, glassy eyes floating across the purple right perimeter of court, glance doubtfully at each other. The silvery pupils dart to and fro.

Gritty bile bites at the base of Carly's throat. A peculiar ache throbs in her jaw, thrusts icy fingers into her neck. She tries audio again, but her presence in court is still silent.

"Huh, hotshot?" goads the solo. His telelink has the sloppy look and gravelly sound of cheap equipment produces, but for a second, he manages to hot-wire an I-only access into her telelink.

"You ball-breakers from the big firms, with your prime link. You think you're so tough. Watch out this time, hotshot. I'm going to eat you alive this time, hotshot."

The big board across the back perimeter of court hums and clicks. Gaudy liquid crystal projections in each division indicate the moment. In stats, the luminous red Beijing dial registers another three hundred thousand births. *Chik-chik-chik-chik!* Ten seconds later on docket—*bing!*—the eminent law firm of Ava & Rice registers as

"Telelinks of the jury, two rows of red-veined, glassy eyes floating across the purple right perimeter of court, glance doubtfully at each other. The silvery pupils dart to and fro."

counsel for Pop Pharmaceutical against the Chinese women who took glucose instead of birth control pills. In trade, bids for rice futures soar. On news, reports of fifteen suicides of corn investors are filed.

"In ten seconds your client will have defaulted, Ms. Nolan, and I will cite you for contempt of this court—obstructing the speedy dispensation of justice," says the judge.

"I'm sorry, Your Honor, request a recess," Carly says finally. Audio feeds back with an earsplitting whine.

Her telelink suddenly oscillates crazily, sharp white edges flipping black-white-purple-white, like her feminal's shorting out. It's all she can do to keep logged into court. Metallic tickle-pain of electrical shock gooses her body to raise a limp hand and refocus the projection.

"On what grounds?" demands the judge.

"I'm—I'm sick."

Jagged flash. Judge's gavel cracks. Telespace vibrates. "Case recessed until next week, this same time. Ms. Nolan, you will approach the bench."

As Carly approaches the judge's bench, the solo zooms in with one last I-only. "Hey hofshot, hotshot," he says in a cushy vibe. "You new, right? A word to the wise, hotshot. The judge, he hate to wait. Got a reputation to maintain, fastest court in town. He dispose sixty cases an hour sometimes. You hold him up, hotshot, you in trouble. Better talk fast, better have a rap. I'll see you in court, hofshot."

The solo logs off, extinguishing the smeary bulb of his presence in court.

Fully in link at last, Carly slips and slides up to the judge's quarters. No privacy in the gleaming mental construct of telespace, no shadowed corner, no hidden booth behind which to hide her humiliation. All the blank eyes stare at her.

"Ms. Nolan, you are hereby cited under Rule Two of the Code of Civil Procedure for obstruction of the speedy dispensation of justice. You are suspended from this court for thirty days."

Thirty days. Thirty days barred from court could cost Carly her first job, a *great* job, with the prosperous law firm of Ava & Rice. How many other bright, qualified applicants did she beat out for this job? Three thousand? How many other bright, qualified applicants would vie for her position if she lost it? Ten thousand? Her presence in court sparkles with bright panic. "I'm permitted to show reasonable cause under Rule Two, Your Honor."

"Proceed."

"I blacked out for a second. I've not been well."

"If counsel can't prepare the case, you extend, you re-petition, you recalendar, you notify court, Ms. Nolan, in advance. Dismissed."

"But, Your Honor, I had no warning. I just went down for a second, no warning at all. I've not been well, it's true, but not so bad as to keep me out of court. Your Honor, I had no warning, please believe me."

The judge's eyeball zooms in on her flickering link for a close-up. His glittering pupil pulses with his plain doubt. "You've not been well but not so bad, but your system went down. All of a sudden! Oh, yes! You young wires, holding up my court with your lame excuses. I know why link fails most of the time. I should cite you for abuse of altering substances, too."

Carly's teeth begin to chatter; a puddle of urine floods her plastic seat. Then a fouler, hotter wash of shame. During her first link fifteen years ago, her ten-year-old body had disgraced her thus, in the presence of two hundred other link-prep students. She feels her body stress out at the memory of such juvenile dishonor. Her presence in court vacillates.

"I'm not on drugs, Your Honor. I'm ill. I tell you, it's something insidious, striking without warning. It could be cancer or radiation poisoning—"

"Or the flu? Or a hangover? Or the dispos-all ate your brief?"

Court quivers with pitiless laughter from scores of unseen throats. The spectacle of a peer's downfall is cause for rejoicing.

"Your Honor, request permission to enter

ISAAC ASIMOV

HOSTS A MUSICAL VIDEO VOYAGE IN OUTER SPACE

Voyage To The Outer Planets And Beyond

—Los Angeles Times

NASA • JPL
IMAGES FROM
VOYAGER AND
HISTORIC
SPACE PROBES

Video Cassette

Full Color NASA Brochure

Space Almanac Thru Year 2001

MUSIC FROM

The Planets by Gustav Holst

SPECTACULAR

Digital Hi-Fi Stereo

VHS/BETA

Thom Home Entertainment

"Voyage to the Outer Planets and Beyond" is a dramatic first. The first classical music video ever created. Hosted by **Isaac Asimov**, the world's most prolific science fiction author is an acknowledged authority on space, science fiction and the universe. The rare NASA and JPL footage is set to the inspiring music of Gustav Holst's 1917 classical composition ***"The Planets."***

This musical video voyage through outer space includes a special four-color brochure prepared by NASA titled ***"A Look at the Planets"*** and ***"Space Almanac,"*** a specially prepared comprehensive list of astronomical ***"coming events"*** through the year 2001.

For entertainment and educational value, ***"Voyage to the Outer Planets and Beyond"*** is an inspiring experience. Beyond that, it is a spiritual and scientific exploration of space, with authoritative documents to satisfy both experts and novices

VOYAGE THROUGH "OUTER SPACE" WITHOUT LEAVING THE COMFORT OF YOUR OWN HOME!!

ORDER NOW for Only **$39.95** Plus $4.50 for Postage and Handling

Specify: VHS or BETA

Send your check or money order to

Home Video, PO Box 310 San Fernando, CA 91341 – Please allow 4–6 weeks for delivery

FOR IMMEDIATE DELIVERY

Call Toll Free 1-800-544-7557

Operators are standing by to take your order NOW

VISA MASTERCARD. AMEX.

A VCR Space Adventure

medical documentation to establish reasonable cause.'

"Oh, very well, you're new. Permission granted. Ms. Nolan. Submit before your next trial date. Court will now hear *Sing Tao Development* v. *Homeowners' Association of Death Valley*. Issue is breach of warranty under federal standards governing the relocation of low-income housing into public parkland. Counsel for defendant?"

A team of attorneys from Ava & Rice logs into court with a brilliantly constructed defense. A silver spiral twirls across court, frosty tail ejecting wisps of pale yellow sophisms into its own blue-lipped, devouring mouth. Standards met under extraordinary circumstances of the relocation or standards not applicable under the extraordinary circumstances of the relocation, thus in either case, no breach. Counsel for plaintiff withdraws complaint in two seconds. Screams of outrage and despair whistle through the public link. Someone logs in a whimpering five-year-old child dying of third-degree sunburns. Judge's gavel booms like doom. Dismissed! In one second the homeowners' association files suit against former counsel. *Teep!* On docket, Ava & Rice registers as new counsel in the malpractice suit brought by the Homeowners' Association of Death Valley.

Carly logs out of court.

And links out into a heap of flesh and ooze, sprawled in her windowless office at Ava & Rice. Blown it. She's blown the case bad. Every first-year trial lawyer's nightmare come true. Carly rips the neckjack out, spills half a bottle of denatured alcohol into the needle-thin aperture. Grimaces as a tincture of pure alcohol bursts into her brain's blood. Messy, careless—shit! Get too much of that old evil backrub up your link—slit—zing! You're dead, grunt. Happened every now and again around the firm: someone just dropped dead.

She swabs herself off as best she can and flees her dim cubicle, link still flickering with fluorescent green light. Jogs down the endless corridor of cubicles, working off panic with sheer locomotion.

The law firm of Ava & Rice boasts five hundred partners, three thousand associates, one thousand secretaries, five hundred clerk-messengers, and ten thousand terminals interfaced with a mammoth mainframe, all installed in a forty-story building downtown. At every open door, the limp body of an attorney wired up to a terminal. Some are as wasted as junkies, rolled-back eyes between precipitous skull bones, some are bloated with sloth, raw lips crusty with food solutions piped into their guts. Everyone's got a different handle on practicing law. Practicing law. Time is of the *essence*. The volume of litigation is astronomical; planning for the future becomes obsolete overnight; catastrophe strikes with regularity. Billions of bucks to be made, and you'd better grab them before someone else does.

How many bright, qualified applicants would vie for Carly's position when the personnel committee finds out about her failure in court? Fifteen thousand?

Deep in the heart of Ava & Rice, the library hums with a low, soft growl like the roll of a distant surf. The vast, shadowed hall is set with fluorescent amber terminals stacked row upon row up to the flat, smeary ceiling.

Before every flickering screen lies a lawyer jacked into link. The steady hum comes from the controls: temperature, humidity, luminosity, radiation. All for the machines. The air in the library is cool, stagnant, tinged with a faint metallic stench. The hum gnaws at the nerves.

The big board across the library's west wall flashes like an arcade. Down from thirty state courts shoot twenty thousand decisions on whether foreign assets may be frozen when national property is seized by revolutionaries. *Zing!* The government freezes five hundred million bank accounts and deposits them into a slushy umber escrow. Specialists in these matters, jacked into library links for as long as they can stand it, loll on their benches, moan listlessly. Flecks of data crawl across their raw neuroprograms like ants on meat.

Carly sneaks in, slipping through a sullen crew hanging about the doorway. She leans against the cool, grimy wall, shrinking from everyone's sight. News travels fast; surely everyone knows of her disgrace. The doorway gang is skin-popping scag—anything to ease away the whine of link.

"So, Nolan," says an associate from the Death Valley team. Cool, cannibal gaze, supercilious link-bitten smile. "Judge suspend you? Too bad. Maybe you can get a job in research somewhere. Process case data all day."

"You wish, Rox," Carly says in a steady voice, but she cringes from the dead-eyed faces that turn toward her. "Judge won't suspend me. I've been sick. I can prove it."

"Sure, Nolan. We saw; we all saw your link in court. We don't fault you, Nolan. Blackout in link: it can happen." Rox tips her head back, cracking her neckcord, and snorts a hotline. She drools as the drug hits her, spittle staining the ragged three-piece suit that fits her like a man's. "But if you can't handle the life, Nolan—"

Carly seizes Rox's wrist, thrusts it back, pins it at an odd angle. "Rox, I'm telling you, I'm not on a binge. Something's wrong; my system went down."

"Yeah, doll, your system went down. And then?"

Carly turns. From the double bar on his ragged lapel, he's a middle-level, from his desperate look, not on the fast track. But not as bad as the menopausal ones can be in this business, with their cold killer eyes and vampire skin. This one's got a ripple of muscles under the suit, a shot of hots in the look he gives her. Carly rolls her pupils back into her eyesockets, scans the firm

roster, I D 's him Wolfe D

'And then *nothing*,' she says shaking her eyeballs back 'Nothing '

"Visuals?'

'Visuals maybe Yeah Hallucinations." Carly shivers But they fade so fast like a nightmare Something *crawling* I don't know, I can't remember

"You're burned, doll, ' says Wolfe 'You're losing your program, loosening it much too soon You're too young doll I know what you need '

"Yeah?

"Losing link like that? Just a little cram. Cram will put you right ' Wolfe moves close Scent like burned rubber and cinnamon spills off him

Carly flinches "Cram's illegal '

'Oh but it gets you there Gets you there easy, just in time for your next appearance in court You *need* that appearance, doll"

"You're crazy I could get disbarred for cramming in court

Gets you in link like nothing else"

No way '

"The only way, doll You're in trouble don't you know?" Wolfe's hand on her hipbone now, Wolfe breathing the words into her ear "Come on don't you know what everyone's saying? Lose a diddly-shit case like *Martino* v *Quik Slip Microchip*, you're out, doll And when you're *out* ever been on the streets?'

No, but she's seen the devastation But how?

"I can get it

' For godsakes, I just got out of school, how much?'

"Oh— Wolfe grins, teeth clacking as a tic twists his lean face—"you'll have something to make it worth my while"

The med center mainframe says Carly is healthy No treacherous disease no tissue attrition Then doctors slide their needles through her telespace insinuate steel tips into her neuroprogram

Her right perimeter glistens with logical thought, the tan floor of her telespace supports weighty principles Even the dull black monolith of tough, crisscrossed strands of inhibition that extend across Carly's left perimeter looks like a fortress a woven steel wall Nothing amiss

"Then what is it?' Carly pleads 'I'm crashing every other day *What is it?*

'A stitch in your left perimeter must be loose, says the mainframe 'Oh, I know, looks like it's sewn up tight But I don't know what else to diagnose You've got a seepage of unregulated mentality into your telelink Hence this program failure, the weird hallucinations But I can't say where or how it could happen'

'Then my program guarantee from law school is worthless '

'Yes, says the mainframe with Carly thinks evil satisfaction There are rumors some artificial intelligences are jealous of the human condition envious of intelligence beyond program

'Ah ' A strange sadness wells up in her 'Do you know I still remember the left perimeter? How it was? My programmer in elementary school My first crude telelink Do you know I once saw blue jungles and green oceans? Oh and gold castles and scarlet gardens And then the thick black stitches of inhibition wove up and down, stabbing slicing off the left side of my telespace And then the colors and the images faded Faded "

Well, I'll have to suspend your limitation certificate Ms Nolan,' says the mainframe briskly "Court will not link lawyers with loose perimeters Much too dangerous All that raw unconscious energy seeping into telespace? No you can't go to court Ms Nolan, not like this '

'But what can I do? There must be something I can do!"

Your school will reprogram you at a reduced tuition."

"But that'll take another three years of standard programming!"

Maybe longer Deleting an old program instituting one all over again, that can be tricky business

And she would lose her job at Ava & Rice And she would lose everything she'd got Carly weeps frothy waterfalls of grief spilling across her telelink

All right listen there *is* another way " the mainframe says with surprising kindness It's expensive risky Doesn't always work Doesn't always stick when it *does* work But I'm sorry for you Ms Nolan I'm not programmed to ruin biologicals I can refer you to a perimeter prober this one's got full medical certification If the prober can find the loose notch the defect can be restitched You'll be good as new Recertifiable, too '

"What's the risk?' Carly asks

'The perimeter prober may not find the loose stitch and you'll have to get wiped and reprogrammed says the mainframe cautiously Or the prober will find it all right but you won't endure the psychic pain It'll wipe you in another way '

"Okay so how long? How long will the probe take?'

'Three probes If the prober can't find the defect in three attempts it *can't* be found, not without neural damage I can't recertify then You'll just have to go back for reprogramming

But three probes I could be cured in *three probes*?

Scheduled over three or four months, yes Yes

Carly jumps at the chance of course She takes a copter west over brooding slums, ticky-tacky high rises, dilapidated factories that crouch by the sluggish Metro River For some reason the perimeter prober isn't accessed into standard telespace Carly has to get herself physically to the prober's office Rather a shady state of affairs not to mention the costly commute the waste of time spent transporting the body Carly pops a viddeck from her briefcase jacks into a sitcom Anything to ease the link

"An organic feline stalks past her, stinking of fur, and bites at its flea-bitten haunch Carly considers her robopet, a Chatty Catty Deluxe, with new appreciation"

"And you've never injected cram is that so Carly Nolan? asks the prober Her voicetape sounds like an antique phonograph left too many dusty decades in an attic

'No, never, that is correct, Doctor Spinner.' Carly eyes the disheveled robot Medically certified indeed Doctor Spinner is crudely articulated, torso and arms then mobilized from a boxlike locomotor Faceplace of an oldish careworn and caring woman

The faceplace must have been intended to evoke empathy and trust but Doctor Spinner's bleary eyespots glare at Carly with an enmity approaching fury

Carly shifts uncomfortably The prober's office is tucked—amid birth-'n'-abort clinics drug-drag therapists dentists on the muni dole—into the corner of a shabby medical building on the south side of town The place reeks Scabby plants abound An aquarium filthy with dull green scum, bubbles with a school of dingy fish The floor is dabbled with viscous white spots, then Carly spots a flock of ugly little sparrows perched atop a crumbling bookcase

An organic feline does chin-ups on the arm of a ragged couch, then the cat stalks past her, stinking of fur, flops on its skinny cat ass and bites at its flea bitten haunch Jeez, bugs Carly considers her robopet, a Chatty Catty Deluxe with three pop-in eye colors and two slip on breeds with new appreciation

This is charming '

The prober is flipping through Carly's file humming a popular tune with awful two-part harmony 'Hm? The decor? Oh *yes* You mean *for a robot* ' The eyespots stare accusation flickering across the crone's faceplace

I didn't *say* that Doctor Spinner

But that's what you *mean*, eh, Carly Nolan? I know your kind Carly Nolan I know what you mean Why should a *robot* keep biologicals around? Eh? Why should a tin can with dual disk drives keep *life* around? And worthless life at that that's what you're thinking eh?'

'Doctor Spinner please I meant no offense

"I'll *tell* you why. Because I have *respect* for life, Carly Nolan. There are mysteries, there are unknown presences in biological intelligence, there are myths and secrets—" Doctor Spinner's voicetape begins to rattle and wheeze. "No, but you could never understand that, could you?"

"Doctor Spinner, please," Carly says sharply. "I came for your help. Can you help me?"

"Oh, yes. Oh, certainly." Doctor Spinner wheels over, takes Carly's face between the cool aluminum spindles of her robot fingers. The fingers feel like claws—needle-slim, alien appendages against Carly's skin. Yes, soft. Like fruit. Like a berry, so soft with fine down. Well, Carly Nolan." The prober briskly releases her. "It's like this. We'll go into link, you and I, and I will probe the perimeter blocking your unconscious mind. They stitched it shut, you know, only controllable thought can be permitted into telespace. That's why my telelink isn't accessed to public space. If I can uncover this defect in your left perimeter, all sorts of unconscious energy—oh, demons, Carly Nolan, strange and terrible things—could come out. Manifest right into telespace."

"And what happens when these demons manifest into your little telespace, Doctor?"

"I can control them, don't you worry. I can push them back and stitch the defect shut. I'm a robot, you see. The mysteries of biological intelligence may fascinate me, but they can't hold power over me, Carly Nolan. Not like they can possess *you*."

"Possess me? Doctor Spinner—"

"Oh, yes, oh, certainly, you're in the grip of an unconscious force now, yes, right now, but you can't see its form, it's hiding."

"Hiding?"

"Inside your blackouts."

The truth of the prober's assertion pierces Carly: what *is* the demon that lurks in the nameless visions? Does she really want to know? Carly considers walking out; she considers her court recertification. She stays.

And she and the prober jack into link. Telespace there is unfocused, hazy, goddamned cheap equipment again. Spires of silver mist rise and twist from Carly's immaculate tan floor.

"I'm ready for the probe, Doctor," says Carly. To her satisfaction, she notes that her presence, even in this link, is still a crisp white cube.

"All right," Carly Nolan," says Doctor Spinner. The prober's presence in link is a brown cone the size of a Japanese jasmine incense that skitters across the undulating telespace like some verminous thing.

The cone angles its way across the immaculate woven wall of Carly's left perimeter. Tilts its tip in. Digs into the neat crisscrosses of inhibition jams there, digs and digs. Carly means.

A crackling black mass leaps from the wall, vaults across telespace in frantic, jolting bounds. Gripped with dread, Carly shrinks from it, scurrying back into the abacus set across her right perimeter. But the prober flies at her flank, driving her with the sharp conetip to confront the black mass.

It leaps about crazily, a living shard of black glass that stretches and shifts, stinks of sulfur and fresh human blood.

"Is this a blackout, Carly?" asks Doctor Spinner.

"No, no."

"Then what? What is it? What do you see?"

A face appears inside the black glass: an old woman, eyes pulled down with sickness and sorrow, frail, gray haired, utterly vulnerable. "Joe worked on it for fifteen years, you know, in the garage, on a tenth-hand IBM PC," says Rosa Martino in a trembling, old-lady voice. "Rosa," he would say, 'we'll be rich. We'll be rich, and then I'll get roses, a whole garden full of roses for my Rosa.' But that was long ago, when we were so young, so strong. When he was done, you know, he took it to the company. He *knew* he could sell it to the company, because he'd worked for the company as a splicer for twenty years."

Sinister shimmer next to her, like a knife blade.

"But those people, the researchers at the company, they said they weren't interested, they said the company didn't need Joe's glossary, they said no. It broke his will to live. Broke his heart, you know, he dropped dead two days after his fiftieth birthday, heart attack. Oh, there was a small pension, some insurance. But the money never could pay for what they did to my Joe, what they were about to do. Then I got sick. SS went broke for good, and the money, I don't know where the money went. And my daughter Luisa's bringing up her Dan, such a smart boy, Danny, he should go to school, but Luisa gets laid off, she can't pay the school tax, and that lousy bastard of a father won't cough up, not even for his own son, and then he leaves my Luisa. I suppose it's just as well, but the money's gone, there's maybe ten thousand dollars left, and I won't let those lousy lawyers touch *that*."

"Pointed teeth gleam in anonymous smiles. Smiles harden into crescents, shiny black insectlike claws. The claws snap at the old lady. She flutters her hands in despair, trapped."

Into the jolting black mass rolls the slick, circular emblem of Quik Slip Microchip. Pointed teeth gleam in anonymous smiles. Smiles harden into black crescents, shiny black insectlike claws. The claws snap at the old lady. She flutters her hands in despair, tries to escape, but she's trapped.

"It was my Dan, my little Danny," says Rosa Martino shrilly, "who said, 'Granma, they're using Granpa's glossary, I seen the glossary they taught me at school before Granma, *you* showed me.' That company had been *selling* my Joe's *Wordsport Glossary* to *millions*, oh, ten *million* elementary schools or more. They *took* it, made *money* off it, twenty *years*. And how was I to know? Luisa was out of elementary school, Danny not yet in, for all that time. How could I know?"

The greedy claws pop like snapping fingers, pinch off pieces of Rosa Martino's weeping face.

"That company made five hundred *million* dollars off of Joe's work, his *own* work," screams Rosa Martino in a breathless old-lady shriek. "Can you *imagine* so much money? And I don't want it all. I'm not asking for it all, just a little bit, a little percentage royalty that's rightfully Joe's, rightfully *mine*, so Luisa and Danny, my little Danny, don't have to be so poor."

The claws rip the old lady to shreds, stuff chunks of her sagging cheeks into a smiling, munching mouth. Quik Slip Microchip burps.

"I'm sorry!" yells Carly. "I'm sorry. I'm sorry—"

The glassy black mass spins away, ricochets off her left perimeter, speeds into the infinite gleam of rationalization.

Then suddenly Carly's out of link, seated with Doctor Spinner in the grimy prober's office before the telelink console.

Her face is drenched in tears; she shakes uncontrollably.

"Calm yourself, Carly Nolan," says Doctor Spinner blandly. "A little guilt never hurt anyone. Glad to see you haven't sealed all your ethics behind that damned left perimeter of yours."

"It's just a job," whispers Carly. "I'm just doing my job. *Surely this is true.*"

She swallows the tranquilizer Doctor Spinner proffers.

"Just doing your job, shit," says the prober. "Stop anytime you want to. Change your life anytime."

"I can't. How can I?"

"Do something *else*."

"I don't know what else to do. I've been programmed. What else *can* I do?"

"Oh, we'll see," says Doctor Spinner. "There's a hell of a lot more work to do. We still haven't found a blackout."

Wolfe lies back on his bed, stretches his arms out in a hug to be filled. "Come here, Carlique. He's flushed and glittery eyed from the cocaine they've just snorted.

The syringes of cram lie neatly wrapped on the bed table. The price: one thousand cash, plus a roll. *All right, just one.* Carly

thinks. He doesn't seem so bad, and she knows three hits of cram, which is what he offers, which could get you through ten links or more, could be three times the bankroll he wants.

Dim light softens his lean-mean features. Not so bad at all, with shadows smoothing his tough look, making his eyes seem lonely. But for the way he abuses himself, he wears his middle age well.

Carly sheds her suit, suddenly full of flirt, moved to entice him. But Wolfe doesn't watch her: he's busy with the coke again.

"Come here, Carlique," he says at last.

She goes to him, twines around him, gives him her heat. He directs her. Touch here, kiss there, move this way, turn that. He takes his pleasure quickly and withdraws, falling back on the bed, reaching now for whiskey to cut the ragged end of the high. But he touched her. She forgot how long it'd been since she'd been touched like that. Painful longing grips her. Carly turns to him, tries to stroke him, but he waves her away, hand held up like a stop sign, keeping her own touch away.

"Wolfe."

"Leave me alone now."

"But Wolfe."

"My head is killing me."

Carly sits up, lights a cigarette, then takes a syringe of cram from the bed table, fingers it curiously.

"I want to thank you for this."

"*Thank* me?" He laughs, bitter bark of a laugh, then guzzles whiskey. "Wait 'til you take cram. Then thank me, if you can."

"Thought you said I need it. Thought you said it'll focus me in link."

"Sure. Does. Focuses you in link by narrowing your focus. Eliminates self-doubt, inner challenge, the slightest reservation you may have about what you're doing, why you're doing it. Glosses glitches in program, masks stray thought."

"Total concentration: that's what I must *need*, Wolfe. Sounds good to me."

"Yeah, well." He finishes the fifth, cracks open gin. "Gets so you can't stand the smallest deviation from conformity. The most trivial hint of ambiguity drives you mad. You new wires with your doubts and fears and idealism, you make me *sick*." His speech is fast, degenerating into slush.

"Wolfe?" Carly runs a fingertip across the hard curve of his arm. He flinches. "Wolfe, will I see you again?"

"See me? Come *on*, Carlique. You mean, will I want you next time you want cram? Maybe. Maybe not. I'll need more cash. Got to get myself fixed with more cram, you know." He fixes her with a fierce, desperate stare. "Don't you know? You're just a score to me now, Carlique."

Then he passes out.

With tender fingertips, Carly slides his wasted lids over his rolled-back eyes. "It won't happen to *me*," she whispers into his unhearing ear. "Not like *this*."

"How can I get *inside* a blackout?" says Carly. "The blackouts take my whole *system* down." She picks at the linkjack peevishly. *Don't want to, don't want to do this again.* Carly's whole body recoils from the grimy little prober. Doctor Spinner's face-place is smudged with greasy fingerprints. Bird crap mottles her headpiece.

"Got to find us a blackout in telespace, go *inside* it," insists Doctor Spinner. She wheels over to Carly. Skinny silver fingers wrest the jack from her, plug it into her link-slit. The prober's eyespots flash with glee when Carly winces. "Your puny little guilt trip is shit. I want to see a *blackout*."

"And just what do you expect to see there, Doctor Spinner?"

"A big, sloppy heap of unconscious energy. Plus an archetype or two, I truly hope. Only real kick to working with humans. Do you have any idea how bad your breath is, Carly Nolan? Whew, no shit. Makes my olfactory sensors..."

Carly rips out the linkjack, jumps up. "I don't like your attitude, Doctor Spinner. I have a good mind to report you to the med-

Carly opens her left hand. A bright bubble springs from her fingers, filling her eyes with light. Clouds of dust roil. Stars cool, the corona of dust settles, planets spin.

center maintrame. malpractice, see. I'll throw the tucking *book* at you."

"Oh, yes, oh, certainly, the fucking book. All in good time, Carly Nolan. First we probe you three times, then we get you court-recert, *then* you throw the fucking book at me. Understand? So you don't get your ass thrown back into reprogramming for three more years. Isn't that what you want? What little Carly wants, little Carly gets, yes?"

Carly sits, plunks the jack back in herself. Of course that's what she wants. "Why do you hate me, Doctor Spinner?"

"Hate *you*? Don't give yourself such importance, Carly Nolan. Oh, sit *down*. You would rather stitch up your left perimeter just like that, without even *seeing* what it is that's got the symbolic *power* to intrude through a tight-ass weave like you. Oh, yes, oh, certainly. I know your game, Carly Nolan. You bet it upsets me. You receive this *gift*, a great gift from your unconscious mind, an aspect of intelligence no robot can ever hope to glimpse except through a human. For me, there is only *nothing*, nothing but program, and then nothing—try *that* for existential angst. But you, a mysterious presence in your link, visions of an archetype you can't even name, and you, you organic intelligence you want to cut it right off, turn yourself right back into a robot. No. I don't hate you. But you could never understand that, could you?"

"All right, Doctor Spinner." Carly sighs, then steels herself. No more emotion, take *control*. "Let's get on with it."

They jack into link. Telespace is murkier than the first probe. Doctor Spinner's presence has darkened from brown to charcoal-gray. The sight of the scuttling cone makes Carly so queasy she nearly flips the log off.

"What shall I do?" she asks instead.

"Look for a blackout," says Doctor Spinner brusquely. "Take me to a blackout."

At a loss, Carly slides along her towering left perimeter, hesitating here and there as the prober darts behind her, jabbing again. Telespace suddenly gets foggier, a dark poisonous fog, rolling mud that reeks of raw sewage and strange decay. Carly can feel her body begin to retch, that skin-crawling feeling again, physically somehow there in telespace. She jams two fingers into the base of her throat.

"Get out," Carly says, choking. "Got to get out..."

Doctor Spinner prods her forward into the fog.

Then there. Two rows of double-bladed hatchets thrust out of the murk. The personnel committee of the top-notch law firm of Ava & Rice, stands before Carly. Gleaming blades drip rust. Rust coagulates into a poisonous pool.

Mr. Capp Rice III, grandson of the late Capp Rice II, who was cofounder of the venerable firm of Ava & Rice, lurches toward her. Jerky walk, like a marionette held by an epileptic. At age seventy, Mr. Rice has had so many body parts replaced he's nearly a robot.

"So, Ms. Nolan." Dry steel joints screech. Mr. Rice bends over Carly's presence in link. "You have not met our expectations. I am sorry." An articulated tin tongue flickers between his platinum canines. His empty, unblinking solar eye fills Carly with such dread that her body back in the prober's office throws up.

"I can do better, Mr. Rice. I—I *will* do better..."

The personnel committee stands in silence, dead eyes watching. Seventeen thousand résumés from recent law school graduates drop in a wriggling heap at Carly's feet.

"So, so, so, Ms. Nolan." Mr. Rice's tin tongue flick-flick-flicks some gear stuck at the back of his throat, until a member of the personnel committee reaches over and whacks him on the neck. "If you cannot meet our expectations, we will have to ask you to leave. I am so sorry."

"I can do better. I *will* do better." Carly starts to sob. "I'll do anything to keep my job. It's a *great* job, Mr. Rice, I'll do *anything*..."

"Will you kiss my ass?" Mr. Rice offers it. Carly puckers.

CONTINUED ON PAGE 152

NASA administrator for the second time, he's been picking up the pieces of a shattered and demoralized space program and preparing to send new, improved vessels to the nearest heavenly bodies

INTERVIEW

JAMES FLETCHER

Paint is chipping off some doors. Carpets are dingy and worn. Many offices are crammed so tightly with bookshelves and documents that a person has to step sideways to get down a hall. This is NASA headquarters. It stands like a poor relative just behind the gleaming National Air and Space Museum, which houses its triumphant creations, its past glories.

NASA administrator James Fletcher's office is modest, narrow, dimly lit, and furnished with vintage Sixties furniture. The table we sat around wouldn't fetch $40 at a suburban garage sale. When Fletcher moved into that office in May 1986, it was for the second time. NASA had hit rock bottom. The space community had been wounded to its core, and no day passed without some news that made the wound bleed afresh. During that month the families of the *Challenger* crew held their final, private funerals for the fragmented remains of the people they loved.

PHOTOGRAPH BY MIKE MITCHELL

The first time Fletcher came to that office in Washington, D.C., in April 1971, had been very different. NASA astronauts were walking on the moon, and *Skylab* was being built. Fletcher, then fifty-two, brought a rich and varied background in industry and academe. Armed with a B.A. from Columbia, he did research at Harvard and taught at Princeton before getting a Ph.D. from the California Institute of Technology. Working as a scientist for a decade, he developed components for sonar devices and guided-missile systems. In 1958 he cofounded and served as president of the Space Electronics Corporation—later Space General Corporation—which developed and manufactured rocket upper stages. In 1964, when only forty-five, Fletcher became president of the University of Utah, where he remained until summoned by President Nixon to take over NASA.

Just a year later Fletcher had sold the space shuttle program

By 1972 however the American public had already grown complacent about NASA's miraculous successes. And Fletcher had begun to accept serious design compromises to stay within the costs Congress dictated. During his first six-year term as NASA administrator, Fletcher oversaw a wide variety of space endeavors: three successful moon flights; the entire *Skylab* space station program; the *Apollo–Soyuz* test project, and the unmanned *Viking* landings on Mars. *Voyagers 1* and *2* were funded and built under Fletcher and launched on their journeys to the outer solar system just after he left office.

Fletcher resigned in May 1977, and President Carter named Robert Frosch, whose background was in oceanography, to be NASA administrator. Under Frosch there were no manned launches at all.

Fletcher accepted a professorship at the University of Pittsburgh, started a lucrative consulting firm, served on various presidential panels, and sat on several corporate boards of directors. He was attending a board meeting of the Amoco Corporation in Chicago when he first heard news of the *Challenger* disaster.

At the time he felt shock and grief. After listening to the wrenching Rogers Commission testimony and reading the shrill press accounts, Fletcher's shock turned to worry about NASA's ability to recover its well-being—and its future. After Fletcher's selection to head NASA, another former NASA administrator, Thomas Paine, quipped, "We were both being considered for the job. He lost."

Back at NASA's helm, Fletcher set about the business of redesigning the solid rockets, fixing the other critical items, replacing some key NASA center directors, and restructuring NASA headquarters management—and swiftly got bogged down in controversy and conflict. His attempt to shift 2,000 space station jobs from Texas to Alabama aroused the ire of almost every Texan in Congress, unifying them in a way not seen since the Alamo. Fletcher's slow, studious, methodical leadership style angered many.

To make matters worse, President Reagan delayed in asking for a replacement orbiter and then confused Congress further by making no provision to pay for it. While Reagan called for building a space station in 1984, its funding was still very limited. Recently, as the estimated cost of the space station has risen, Reagan's commitment to it has ebbed, and the decision to build some components has been pushed off on some future president.

Space writer Alcestis Oberg spoke with Fletcher in June and late July of this year. At both times he was facing severe criticism in the press for not demanding a new initiative beyond the space station that would give the program a sense of its future direction. Although Oberg had interviewed Fletcher's predecessor James Beggs one-on-one, two aides were present for her interview with Fletcher.

Omni When the *Challenger* disaster happened, had you any sense it was going to impact you personally?

Fletcher No. I worried about the publicity, but a lot of other people were dealing with it. It came down to me, I guess, in two steps. Don Regan, then White House chief of staff, asked me to come in and see him. I knew what it was about. And we had a long chat. We discussed the nature of the job and many other things, and I said I'd think about it. The next day I called him back and said, "No way." I thought it was done. I went about my business and went down to the Bahamas for another board meeting. When I came back, there was a whole bunch of people at the airport. They said, "What's this about you being named NASA administrator?" I said, "I already told them no!" Next day somebody from the White House called and asked for my Social Security number. I said, "What for?" "Haven't you heard?" they said. "I've heard," I said, "but it's all nonsense." Then the President called,

"During the Rogers Commission shuttle hearings, some of the media made us look like idiots, partly because we didn't know how to behave ourselves in front of that kind of commission."

and I knew it was for real. I told him I'd have to talk it over with my wife. She said, "Figure a way to get out of it."

Omni When you came back to Washington, power had changed since your last time there. Was this a factor that would get in the way of rebuilding NASA?

Fletcher Yes. Congress and the press had both changed. Congress had larger staffs and started doing more of what we call micromanagement. Part of that was due to the accident, of course. But part was just the change in Congress from the previous nine years. That took getting used to. It was a little bit of a shock but not an impossible problem. And the press had gotten more into investigative reporting, probably as a result of Watergate and the prizes resulting from it. All the young reporters wanted to become Pulitzer prize-winners. Some of the reporting was a little bit risky—that is, not quite true.

Omni So you feel the press got in the way of the job you wanted to do?

Fletcher Yes. To some extent, both the White House and Congress get their information on how an agency is doing from the press. You are regarded as you are perceived by the public. Members of Congress read the newspapers more than they do the *Congressional Record*. Not exclusively, but typically.

Omni Did you worry that the press accounts would hurt NASA in getting money for future projects?

Fletcher Oh, I was worried that the public, Congress, and the President would think NASA was a bunch of fools. I got to worrying about whether NASA people would believe the publicity themselves and really lose confidence. And this *did* happen to a limited degree. They overreacted to all the publicity and were overly cautious for a while. Now they've regained their confidence—pretty much.

Omni What's the major misconception the public has about NASA?

Fletcher Recently, I suspect it is our reaction to the *Challenger* accident. During the Rogers Commission hearings some of the media did make us look like idiots. It's partly because we did make some serious mistakes, but partly we didn't know how to behave ourselves in front of that kind of commission. That has caused somewhat of a loss of confidence in NASA. But not really. The public wants to go on to bigger and better things.

Omni What's the major misconception the public has about you?

Fletcher My guess is they don't have a misconception about me. Some look upon me as a folk hero, picking up the pieces of NASA. Some people say that I don't have enough charisma.

Omni What's the major misconception about what's possible in the future?

Fletcher I haven't thought much about it. Let me just take the far-out ones, like the idea of visiting another star. Science fiction people talk about it, but it's not really in the cards for a century or two. On the other hand, intelligent life on other planets around other suns is a likely possibility. So while you might think that's far-out, NASA regards other intelligent life as a likely reality and is looking for it. Search for extraterrestrial intelligence—SETI—that's where the term *E.T.* came from. The public's misconception is that they don't realize how real a possibility such intelligence is.

Omni Getting back to Earth, hasn't the agency been robbed of a certain amount of boldness?

Fletcher Yes. Not robbed. Given it up. We did it to ourselves. Normally, when a flyer has an accident, they put him right back on another plane and he flies again. You don't have a national investigation, plus another commission, and so forth, to find out why he did such a terrible thing.

Omni One criticism of the space station was that it is too elaborate, too high-tech. Why couldn't we build a simpler one we could get into space fast?

Fletcher I have to put myself in the position of trying to think like Jim Beggs and Hans Mark [deputy administrator under Beggs] when they decided to go that way. Now that we're this far along, we may as

well go for the whole thing. We could have started smaller, but I'm guessing Beggs and Mark felt we were dropping quite a ways behind the Soviet Union, so by the time we get it built we should have something of substance.

Omni: What will the American station have that the *Mir*—the Soviet space station now in orbit—doesn't?

Fletcher: In 1995 the U.S. station would have had a lot of capabilities that the current *Mir* doesn't have. But by 1995 *Mir* might have the same capabilities.

Omni: So it's possible we might wind up with equivalent systems?

Fletcher: Or maybe even behind. It depends on what the Russians do between now and 1995. We have plans for a much more elaborate science capability including free-flying payloads, or coorbiters, as we call them. Those things don't now exist on the *Mir*. But by 1995, who can say?

Omni: Doesn't the complexity of the space station worry you? Aren't you concerned about the technology failing?

Fletcher: This is a complex system, not a high-tech system. It's the complexity that's of concern, the numerous interfaces between the various contractors in the various work packages. The contractors all have to communicate and work together, but the system doesn't all come together until the station is in space. There's some risk in that. You can't pull the whole thing in a zero-gravity facility.

Omni: We expect our space station to last twenty or thirty years. In that time the Soviet Union will have gone through at least eight space stations. Is it a wise strategy to tie up our whole future in one structure?

Fletcher: That's the beauty of it. We can change almost any part of that space station. It's kind of like—maybe I shouldn't use the DC-3 as an analogy because that's such a simple plane—but they kept changing this and this and this, and soon it wasn't the same DC-3 they started with. You can do that with the space station.

Omni: But life-support systems degrade. The outer hull on the shielding might degrade. Are there going to be backup modules? Are we going to have the spare parts to repair a whole space station?

Fletcher: What should be spared [allotted spare parts], and what shouldn't be? It's not an easy question. You don't have to provide different kinds of spare parts for every one of the modules, because they're all the same size. The outer hull parts are interchangeable. The interconnecting tunnels, or what we call the nodes, are also all identical. Ultimately, I think we'll be in a position to spare everything. The question is on what kind of time scale. You don't want to have a lot of extra modules around until later, when they wear out.

Omni: Assuming they're all wonderful and reliable, is there a possibility of just creating another facility with them?

Fletcher: Sure. Sure.

Omni: So this philosophy of interchangeability, then, precludes our having to build a series of stations starting simple and evolving upward, the way the Russians are doing, because our station will simply change something that fails?

Fletcher: That's the philosophy.

Omni: But could some disaster result in a massive failure of the whole station?

Fletcher: Sure. The obvious worst disaster is a power failure or a big meteorite coming along. Then you come down, I suspect—or go up and fix it.

Omni: Can we replace it without a total disruption of the program, the way we've had with the *Challenger*?

Fletcher: That's just what we're trying to work out right now. The idea is to design the space station so that a disastrous setback doesn't happen. So far we've focused on development. What is the station going to consist of? How is it going to be assembled? How are we going to operate it and spare it? If a guy has a heart attack, do we bring him down or treat him up there? All those operational aspects of the space station are now being looked at.

Omni: NASA has been criticized for lacking specific goals on the use of the space station. Is the criticism valid?

Fletcher: We've been speaking in generalities, but now we have to specify what equipment will go into the modules and what the specific payloads attached will be. They'll be mostly life science and microgravity experiments [materials processing in space] for both pure research and commercial use.

Omni: Maybe it's difficult to define specific scientific goals when science programs have been starved for so long.

Fletcher: Space science in general wasn't starved—but science on the shuttle and the space station definitely was. Science was booming along, but unfortunately it was *big* science. *Galileo*, *Ulysses*, *Magellan*, Space Telescope, Gamma Ray Observatory—each is a billion-dollar program. They soaked up all the money and apparently we didn't have enough money left for the research that was going to be done on the shuttle and space station.

Omni: Is the emphasis going to change toward shuttle and space station science?

Fletcher: It has already changed. We solved it the hard way. We decided not to start any new billion-dollar science programs. We've got enough of them as it is. We've decided on several little programs in the microgravity and life science arenas. One new start in the fiscal '88 budget is called GGS, the Global Geoscience Satellite. It's a solar terrestrial plasma experiment. It's not cheap, but it's not a billion-dollar program either. Then last year we moved more strongly into a bunch of mid-deck shuttle experiments [the smaller locker size experiments, as opposed to payload-area space-lab experiments].

Omni: James Beggs told me once that he thought the business sector would become the "driver" of space development.

Is leadership in space shifting into the private sector and out of government hands?
Fletcher It'll be awhile before more than half of it is in private hands. People have to step up to the private enterprise and put the money in. That's just not happening as fast as people thought. [Shortly after this interview, NASA turned down a joint endeavor agreement with Spacelab Inc., one of the largest commercial space ventures.]
Omni What can the government do to encourage private space development?
Fletcher We can't subsidize the private sector, except by getting it free rides on certain good experiments. Sometimes we'll even cost-share with them if we get science value out of the experiment and if it's not a direct subsidy by NASA.
Omni Can you cost share on something as big as moon development?
Fletcher No. That would be a huge amount of money for the private sector. The most you can get out of the private sector for *anything* in space is a billion or two.
Omni The Commission on Space has planned a huge buildup in 1991, when the budget is supposed to be balanced. Isn't this too grandiose, given the fiscal restraints we have nowadays?
Fletcher Absolutely. There's no way we could sell a threefold increase in the NASA budget in those three years.
Omni Why not define goals as a series of sprints? The Apollo program was a sprint. Tell Congress we want five flights to Phobos [a moon of Mars] to set up a refueling base, another five flights to explore the surface of Mars, and five more to explore the commercial resource opportunities of asteroids. Then we can decide what to do on the basis of what we've found.
Fletcher That's the right way to do it. We'll try that. We have to. A program should be an orderly movement out into space—providing you have a political system that allows for it. The Russian system is perfect for such an orderly movement. I'm not sure in our political system we can do it that way. With our system, in my limited experience, the most successful programs are those done in fits and starts. The Apollo program is exhibit A. I was also involved in the ICBM program when it started, and that was extremely successful. All of the intercontinental ballistic missiles except Minuteman were designed within a two- or three-year period. Another project which I was not involved in, was the H-bomb. Look at what we did in World War II! It's incredible. World War II lasted only four years, and we developed atomic bombs, radar, sophisticated submarines. Basically, all the good programs have been done in fits and starts.
Omni So it would be difficult to get an open-ended initiative, like a colony on the moon, working to produce liquid oxygen?
Fletcher Yes. The question is: What technology would we need if we decided to do those things in a fit or start? We're not ready to make that decision today because too many technologies have yet to be developed. People forget that Huntsville [the George C. Marshall Space Flight Center in Alabama] had planned to develop Apollo, for example, when they were part of the Army. That and other technology from the Air Force were already developed by the time the Apollo decision was made.
Omni What technologies does it take to get to Mars?
Fletcher We have to develop refueling techniques and the technology for aerobraking, that is, the use of the atmosphere of Earth and Mars, rather than a retrorocket, to slow down a vehicle. That is crucial for any manned space activities beyond a space station. The concept of cryogenic fuel storage implies we have to have fuel stations in space. Certainly one at the space station and probably depending on how we do it, another in orbit around Mars for the return journey. Another crucial technology involves assembling a large vehicle in space. It's not possible to launch a whole Mars spacecraft. Basically we're thinking in terms of five to seven astronauts who might spend up to three years, so you need fuel, possible resupply of food and water, and all the consumables you need for that trip. And we have to know a lot more about human physiology under zero gravity than we do. We want to have some entertainment, too.

> *"We can't go to the nearest star, but we can go to the nearest planet or heavenly body, we can even plan to go to the farthest planet. That's what I call future oriented."*

Omni Won't we learn about these things from the space station?
Fletcher Yes! One of its purposes is to explore human endurance in zero gravity.
Omni What do you think about advanced propulsion, such as plasma, antimatter, or nuclear propulsion?
Fletcher It would reduce the cost of the trip to Mars, but you can do it with current technology. It'll cost more and take more flights to put the fueling station into orbit. One critical technology involves artificial intelligence—the official name is knowledge-based systems. We have to have it. We can't use humans for everything.
Omni And Mission Control is pretty far away, too?
Fletcher You're sometimes ten or twenty minutes away from the folks on the ground, so you can't depend on them to do things for you. We have to develop technology for closed-life support. That's being done on the space station.
Omni Is the moon attractive as a goal because we already have the technologies to get there?
Fletcher You put your finger on it. Also, some technologies enabling us to put a permanent base on the moon are common to a Mars mission. There are solid reasons for putting scientific observatories on the moon first, although scientists argue about where on the moon. Some want to put them up by the polar regions, some on the back side of the moon, away from Earth, and others want to put it where we can see it.

Then there's the business of lunar resources. Except for hydrogen, all of the materials necessary to construct rockets and make rocket fuel are on the moon. We need to know how to process those materials to use them for missions near Earth, in geosynchronous orbits. And using a moon base first might be a much better way to go to Mars. Then last but not least, there's the argument that you really need the experience on a nearby body before you tackle a one-year trip to Mars. If you have a problem on the moon, it's only three days back. There's no way you can get back from Mars in three days. The main reason for going to the moon is to gain the experience of living a long way from Earth, yet not on the space station, for a long time.
Omni Would you put people on the moon for three years—as long as a Mars trip?
Fletcher Ultimately, yes. But you'd have the option of bringing them back in case there were problems.
Omni What does the taxpayer get from spending billions of dollars on sending yet twenty more astronauts to the moon?
Fletcher The taxpayer gets the feeling that yes, the world is following U.S. leadership as we move the high frontier farther into outer space. Some people think that is the main thing: national prestige, national feeling of accomplishment. The other is the technological spinoff. When we do something like going to the moon during Apollo, there's enormous economic benefit. People have estimated that we've had a return of five to seven times what we put into that Apollo program. And we'd get the same kind of economic benefits from a permanent moon base or a trip to Mars.
Omni Are any of these enabling technologies coming out of SDI [Strategic Defense Initiative] or other military programs?
Fletcher There's at least one that I know of that's very similar to the Apollo situation. A joint program called advanced launch systems, which is paid for mostly by the Defense Department [DoD], will provide the heavy-lift launch vehicle we'll need to lift this enormous amount of fuel and spacecraft into Earth orbit.
Omni What about the advanced propulsion systems?
Fletcher It's unlikely they would help us very much. I hate to say it, but we probably have more advanced propulsion technology at NASA than the DoD or SDI.

Omni: What prevents you from asking for a commitment beyond the space station?

Fletcher: It's not absolutely required, but it would certainly help a lot. We'll get our act together and then the President is going to have to decide.

Omni: Is he likely to go for a bold goal like a manned mission to Mars this late in his administration?

Fletcher: I can't answer that question. We haven't defined the programs sufficiently, although we're almost there. We've got a little bit of feedback as to which direction he would like to go. We're close to that.

Omni: How close?

Fletcher: That's the President's call, not mine.

Omni: It has been said that Beggs was reluctant to ask for a Mars mission because he thought it might endanger the space station commitment.

Fletcher: I have no such reluctance.

Omni: You would gladly ask?

Fletcher: Yes, when the time is right.

Omni: You're dodging!

Fletcher: Of course [smiling]. I think the relationship between myself and the President shouldn't be made public.

Omni: How long do you think the Russian lead in space will last?

Fletcher: In the manned area they clearly are ahead of us. They've had cosmonauts exposed to zero g for two hundred thirty-seven days—almost eight months. We hope we'll get some of their data, but that's not the same as having your own. They also have the beginnings of a space station not unlike the one we'll have in the Nineties. In manned space it's safe to say they've definitely passed us.

In the unmanned exploration it's mostly talk so far, but by the Nineties they might pass us there, too. The Russians have talked about the Mars program very intensely, but we've visited all the planets except Neptune, and we expect to do that in 1989, something they haven't begun to do. So right now, in unmanned exploration, we're way ahead, and I think we'll remain ahead in that area. We have permanent observatories planned—the first one in 1989, with the Hubble Space Telescope.

Omni: What do we hope ultimately to achieve with our current small-scale cooperation with the Russians?

Fletcher: A lot. We're beginning to get their data on human physiology in the zero-g experience. But I haven't calibrated for myself how good their data are or how much data they've passed. They gained from us our experience on Mars. We've had extensive experience from the *Viking* probes that will help them to plan their series of Mars missions starting next year.

Omni: Is it realistic to do a joint manned mission to Mars with them—to tie up a huge program with a traditional adversary?

Fletcher: That would be such an extremely difficult program that it's premature even to talk about it.

Omni: Reagan has stated that he wants even greater cooperation. I think he mentioned a shuttle–*Mir* rendezvous.

Fletcher: I never heard that.

Omni: Not a "pure rendezvous," where the spacecraft meet, but an "in the vicinity" kind of rendezvous.

Fletcher: I hadn't heard anything about that.

Omni: In a press release dated October 30, 1984, the White House announced that President Reagan had signed Joint Resolution 236, calling for U.S./USSR cooperation in space, specifically, "a joint simulated space rescue mission." So is it feasible to test *glasnost* and see how far cooperation can go?

Fletcher: It's a possibility, but we have to see how far the scientific exchanges go before we do it. Remember, we've been out of touch, but we're just now getting back into that routine again.

Omni: You recently set launch priorities as military first, then scientific, then commercial. How long will priority on military payloads last?

Fletcher: That wasn't really it. We really want to have a balance among the three. The first priority is to make sure that balance is correct. If necessary, however, the military will have top priority. And this has always been the case. It wasn't much of a concern when we had many launches scheduled per year. But now that we've skimmed down the launches to three orbiters with only a slow buildup, it has become an issue.

Omni: Just how much of a role is the military going to play on the space station?

Fletcher: Well, there's no way it'll become a battle station. They've never indicated any interest in the use of the space station. It'll take four or five years to come up with experiments for them to use on the space station. They might have their own microgravity experiments on special materials peculiar to DoD problems. They may want to test out tracking and pointing [navigation and targeting] systems, which we do for our own interests. So I would guess that the kinds of things they would use the space station for are quite similar to those for which we plan to use it—except for Defense Department interests.

Omni: What would happen if we lost another orbiter?

Fletcher: There's a very low probability we'd lose another orbiter before assembling the space station. Even if we had one loss in twenty-five, which is inconceivable with all the fixes, that would take us well into the space station. We are expecting a much lower failure rate when we start up the shuttle program next year than we did in the early days of the shuttle. The Rogers Commission pointed out some of the things that people in NASA already knew, that is, that there were a lot of marginal things in the first twenty-five shuttle flights. We're fixing most of those. Of course, if we did have a failure, depending on what the failure was, we'd either start flying again soon or stop the remaining two vehicles.

Omni: The remaining orbiters wouldn't be

CONTINUED ON PAGE 174

[illegible] are brought [illegible] encounters between [illegible] ake energy and the brain

ANTI · MATTER

UFO UPDATE

F[illegible] at [illegible] were [illegible] quake lights [illegible] mag[illegible] caused [illegible] Persinger [illegible] UFO reports often precede earthquake activity by as many as six months. In fact, [illegible] Sweden [illegible] from 19[illegible]3 through 1967 Persinger a[illegible] investigator Dan Mattsson found [illegible] specific [illegible] lag [illegible] relationship between clusters of earthquake activity and UFOs.

Persinger has been [illegible] away at the [illegible] 196[illegible] in the process has developed [illegible] calls the tec[illegible] [illegible] are constantly shifting [illegible] one another and building up stresses and strains. [illegible] results [illegible] act[illegible] eventually [illegible] energy [illegible] the form of luminous balls of light. Within six months earthquakes [illegible] 197[illegible] Persinger has been [illegible] relationship between UF[illegible] [illegible] United States, Canada, and more recently [illegible] atel[illegible] like [illegible] predi[illegible] [illegible] His the[illegible] has ruffled some [illegible]logical feathers [illegible] says UF[illegible] [illegible] earthquake lights, while the more structured [illegible] perceptual distortions brought on by close encounters be[illegible] [illegible]ake energy and the [illegible]

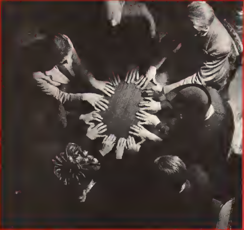
[illegible] Rutkowski, who does research at the [illegible]rsity of Manitoba and has [illegible] back[illegible]

ground [illegible] view [illegible] underground [illegible] into [illegible] Rutko[illegible] also [illegible] Persinger [illegible] whe[illegible] consist of 95 [illegible] analyses [illegible] analys[illegible] [illegible] bage [illegible] similar compl[illegible] [illegible] from [illegible] Maccabee [illegible] the [illegible] Navy [illegible] take b[illegible] enough [illegible] time could [illegible] things.

Suc[illegible] When you [illegible] relation[illegible] becomes less and less [illegible] spurious. [illegible] bothered by the mis[illegible] UFO databas[illegible] patterns not absolute[illegible] look at [illegible] arbitrar[illegible]

Because [illegible] Persinger sa[illegible] lack of statistical understanding [illegible] has almost given [illegible] speaking at UF[illegible] conference. "[illegible]ple make [illegible] statements," he says, "but no one has ever supported these [illegible] with data analysis."

The ultimate [illegible] might be geoph[illegible] who [illegible] specialized knowledge and no particular ax to grind. James Byerlee of the [illegible] Geological Survey thinks Persinger should submit his work to *Geophysical Research Letters* [illegible] professionals [illegible] view.—*PAUL M[illegible] ARTH[illegible]*



NEW AGE YELLOW PAGES

...oking for some crystals ...onsc...ess-raising ...ta-mins, or psychospiritual reprogra...g ...s New A...e holistic ...r maybe ...st a b... strange, you can find it ...the National New Age Yellow Pages.

Billed as "A...ited States Guide to Consciousness Raising Services, Products and Organizati...th..." yellow pages first appeared ...this year. It s...

...MN

...tine ...[illegible] a narrow directory for the New Age movement, ...ays ...Mar... ...therwise ...genito... "...people ...s Angeles had this provincial idea that ...s all happening in L.A. and that's just not s... There's ...terest in the New Age all over the country.

"It isn't just the space cases that are ...to...s... genito adds. "A lot of New Age thinkers use the book ...ac...ss what is available without exposing themselves ...ridicule. But the atmosphere has ...the United States."

...comes ...popular as New Age ...woodwork ...things are for ...accept...

The 1988 edition ...National New Age...

...shed here ...th...

nterference for decad

So far Greenfield theory hasn't wo among orthodox AIDS researchers foun at Haitian AID patients in Miami and New York had pretty ch the same factors as others says K net astr an epidemiologist with the s for Disease ontro Atlanta ey had ies he sexually transmitted dis and ad ad sexual ntac with p tutes We did d an a al between AI a o k it al

But as ra report hat the greatest m mon facto among Haitian women with AID as friendships with voodoo priests We hey had been sexually involve with ties s ven hey had that al heterosexual transmission en a

You nothing but pack o ds

ewis ar

ATLANTIS DESTROYED

between nature an man s.

Atlantis, like its legendary namesake, was destroyed. With 30 day piece, a series of seven tain -steel waves was

dragging ut ater sh lo s er d nitials and ped the s surface t from air

A r later 986 e Powers

time an ts oke into te er ow that es tho ar e ne gree se what happened says, "ju ten f th dest Nonetheless le late Powers quiet wat Keys t er do fee ave longer he says an is a cr despite the ev contrary Ro Ma

PSYCHIC PERSONALS

Almost everyone is familiar with personal ads like this SWM seeks SWF for possible matrimony. But with a new publication, the *Psychic Connection*, you can d personal ads with a differ twist telekinetic male seekin female channeling fabled ate and says the advertise

same k wh wh Me publica $15 onta Mar

Wh

GHOST GUIDE

[illegible] d [illegible] ut [illegible] e [illegible] h [illegible] A [illegible] e [illegible] a [illegible] we [illegible] gs aro [illegible] the [illegible] ap [illegible] are [illegible] v c tim [illegible] ad [illegible] usually are [illegible] g ten [illegible] y [illegible] Mo t are [illegible] sou [illegible] te [illegible] m [illegible] ha [illegible] nes es to ghostly appari [illegible] de [illegible] he [illegible] at rants hotels theaters and [illegible]

[illegible] g [illegible] hos [illegible] de [illegible] t [illegible] d a [illegible] s rn [illegible] tr [illegible] as [illegible] eo [illegible] own [illegible]

Tu [illegible] yle [illegible] an [illegible] D [illegible] ver doors slammed lam [illegible] le tated and lights lic [illegible] n an off [illegible] spi [illegible] *he Ghostly Reris* [illegible] Mr Ande son [illegible] indly old woman [illegible] als potato peelers [illegible] hes [illegible] the children Nedra and Robert [illegible] rock [illegible] ale [illegible] ginia Joh ny Johnson a sad soul end [illegible] y wande [illegible] aro [illegible] d a [illegible] store searching for h [illegible] woman he love [illegible] more th [illegible] 100 ye [illegible] ago when the [illegible] pounds in Sunny [illegible] alifornia [illegible] tained a [illegible] he was a ranch [illegible] Abbott a [illegible] who keep [illegible] New York [illegible] 75 [illegible] was [illegible] building [illegible] le Myers [illegible] that [illegible] never [illegible] ghost he [illegible] ced that they exist [illegible] nterv ewees [illegible] demonstrably off [illegible] kers although hey reported mysterious sounds [illegible] ste ous [illegible] lls [illegible] o n objects, an [illegible] the tou h [illegible] un seen hands, says Myers "A lot [illegible] gs go b [illegible] p [illegible] the night and quite few by day too — Beth Karlin

"The instan I touched the thing wrappe a [illegible] ny wrist as if it had been filled with nerves that sensed everything

— Carlos Castaneda

"Most of the evils [illegible] life arise fr [illegible] an [illegible] ber [illegible] e to [illegible] till in [illegible]

— Blaise Pascal

MAGNETIC UNDERWEAR

[illegible] ally doses of ele [illegible] waves from [illegible] or TV s [illegible] ays from your [illegible] oven will [illegible] your un [illegible] hild? Fear no more [illegible] cloud has a silver [illegible] and now you can too [illegible] inings undergar [illegible] ade of silver plated [illegible] h offer prote t on [illegible] sibly harmful radia [illegible] eloped by Des Moines engineer Barbara K Lunde The underpants slips camisoles and shirts reflect electromagnetic waves the way a mirror reflects light

While there s no solid evidence that stray electromagnetic waves cause internal damage, some recent studies suggest they may lead to miscarriages and even birth defects Aware of the studies and convinced that it just isn t natural to have electric fields in our bodies Lunde an equipment engineer at Northwester Bell Telephone Company decided to see if there was anything she could do

Silver Linings were the result Ranging from $12 95 each for the camisoles and underpants to $19 95 each for slips an [illegible] r-w ne k nder shirts the garments are washable And so far h n dreds have been sold mostly to pregnant women

But interest in the shimmery undergarments is not limited to expectant mothers Be careful who sees you wearing them Lunde warns They re transparent and very sexy — Beth Karlin

SHARERS

CONTINUED FROM PAGE 98

New York State Psychiatric Institute Klein had offered to do psychohistories—psychological profiles taking the subjects' entire lives into account—to see whether he could find anything to account for their stories and claims. Working with staff psychiatrist Abigail Feuer, Klein found that all ten abductees, including author Whitley Strieber, were sane. The researchers found a high degree of anxiety in all the subjects, to be sure. One of the ten had somewhat of an alcohol problem. But nobody emerged as a sexually abused child or the victim of an alcoholic parent. No patterns, no trauma, no insanity and no psychological explanation emerged. In other words, the institute team found nothing that in any way would suggest a cause.

While psychologists claimed merely that the abductees were sane, Hopkins decided to take a stand. Perhaps we were witnessing a long-term study of humans by an alien race, he suggested, who could be fitting our children with monitoring devices and extracting them decades later. The purpose he did not know.

These ideas were put forth in *Missing Time*, Hopkins's first book on the abductees. The book, which sold 55,000 copies, generated a response. Hopkins soon received letters from more than 400 self-proclaimed abductees. Writing back to many of them, he knew that the second phase of his research could begin.

Now, instead of working with a mere dozen witnesses, Hopkins interviewed scores of them. The large workload meant he could no longer rely on psychologists like Clamar to volunteer their time and, after studying with experts, he began hypnotizing people himself.

His first subject, a woman he calls Kathie Davis, would ultimately become the center of *Intruders*, his latest book. Davis had written to Hopkins, telling him about a gap of missing time experienced by her sister and sending him 15 photos of so-called UFO landing traces—circular areas of dead grass—that had appeared on her lawn. Because Davis's letter sounded urgent and because she seemed to be hinting at a submerged abduction experience of her own, Hopkins called her on the phone. After several conversations, she agreed to come to New York for interviews and a series of hypnosis sessions.

An unemployed mother of two children, aged three and four, Davis had put literally all her resources into the trip. The journey from her home to New York took 17 hours by bus. But when she arrived, Clamar had only two available sessions open for the duration of the week.

"I called around, trying to get other psychologists to do the hypnosis," Hopkins says. "But I kept getting estimates of two hundred dollars an hour. So I finally said, 'Kathie, this is really terrible. Let me do the hypnosis myself.'"

Hopkins knew the process. He'd already learned self-hypnosis from accomplished New York psychiatrist Robert Naimon. He'd sat through hundreds of hours of observation with three psychiatrists, two psychologists and a police hypnotist. And noted psychiatrist Donald Klein had observed Hopkins's technique and given him pointers. "Listening to the abductees' stories, I'd matched them tear for tear," Hopkins says. "They would be crying, and I would be crying. I didn't want Aphrodite to see my tears, but it was awful. And as a mere observer, I felt so *helpless*. It was like seeing somebody in terrible pain on the other side of a glass wall. As the hypnotist, I could calm these people down. I could ease their passage through the experience. I could *help*."

Those skills, Hopkins feels, were particularly useful with Davis, whose story was one of the most wrenching he had ever heard. According to Davis, she'd been abducted by small, gray visitors repeatedly since childhood. In late adolescence she'd been examined and impregnated by aliens, only to have her fetus—a human–alien hybrid—taken away. And, she eventually told Hopkins, she'd seen the girl child years later, during an abduction. "I was in this place, and it was all white. It was like I was getting ready to go back where I came from—like they were essentially finished with me except for one thing. And there was a whole bunch of these little guys in the big room—little gray guys, and there were several of them around me. One of them, I seem to remember—it's almost as if he had his arm around my waist, very comforting. I was standing up. And they were all around me, and one of them touched my shoulder. Everyone seemed very pleased with me, and—I didn't know why. And then—a little girl came into the room—escorted by two more of them. And she stood in the front doorway—she looked to be about four—she didn't look like them, but she didn't look like us, either. She looked like an elf or an—angel. She had really big blue eyes and a little teeny weeny nose, just so perfect. And her mouth was just so perfect and tiny, and she was pale, except her lips were pink and her eyes were blue. And her hair was white and wispy and thin. Her head was a little larger than normal, specially in the forehead, but she was just a doll. And they brought her to me. And they stood there and looked at me. And I looked at her, and I wanted to hold her. And I started crying. I'm pretty sure somebody told me I should be proud."

Davis had wanted to take the child with her, she said, but one of the figures, a man she'd seen many times before, ostensibly the girl's father, said the child would not be able to live. "You wouldn't be able to feed her," he said. "She has to stay with us."

Kathie Davis, moreover, was just the tip of the iceberg. According to Hopkins, he

"You know, I've told you things today I've never told another living soul."

has collected similar details about the production of these hybrids from dozens of abductees. Since the details have never been printed in *Missing Time, Intruders* or any other book or magazine Hopkins says they couldn't have been copied from one person to the next. Instead their redundancy and strangeness add an eerie credence to the abductees' claims.

Most of the stories, for instance, include the removal of eggs or sperm, apparently in preparation for the hybrid's conception. Lying down on the couch in Hopkins's darkened Wellfleet studio, responding to questions under hypnosis, Bruce echoed other abductees when he recalled one such procedure in great detail.

Bruce: There's a finger. It looks rubbery, like it's made of latex. But it's hard when it touches me. It's hard like a piece of plastic. All I know is, the more I think of it, the bigger this stupid thing gets, and the more I hate it.

Hopkins: Let's move on. What's happening elsewhere on your body?

Bruce: They put some kind of device on me that causes an erection. They're trying to collect semen.

Hopkins: Then what happens?

Bruce: I'm embarrassed.

Hopkins: Of course, but it happened a long time ago. Let's look at it objectively. What is this device?

Bruce: I have nothing to compare it to, except it seems like something you might use to milk a cow.

Hopkins: Is it just on the penis, or is it on the testicles, too?

Bruce: No, it's just on the penis. I'm not sure how far up it fits. They were saying something about not fitting far enough or something like that. They were embarrassing me.

Hopkins: Are you aware of having an orgasm?

Bruce: No, it's fast. They just do it real fast. They collect what they want.

Hopkins: Is there a sensation connected with it, either pleasurable or painful?

Bruce: Well, some of the pleasure that comes from that kind of thing, but not much, really.

Hopkins: Was there an orgasm or not?

Bruce: Not what I'd call an orgasm. Curiosity is the only thing they'll allow me.

Hopkins: They allow you curiosity?

Bruce: Nothing more.

Others may doubt my experience, Bruce said after his stint in Wellfleet, "but I no longer do. These creatures are as concerned about us as Jacques Cousteau is over a new species of fish. They're doing methodical research into our functioning and placing us in the proper context in the universe at large."

Other abductees recalled special incubation rooms, weird incubation vessels (Hopkins will not describe them for publication), and bizarre high-tech nurseries in which the tiny babies were raised. People consistently described the unusual way the hybrid babies were dressed. Still other ab

ductees, both men and women, claimed they were taken for the distinct purpose of touching these baby hybrids. One woman Hopkins says, was even presented with a baby she simply didn't like. Well, here are some others. The aliens allegedly told her, 'Touch any one you like.'

Perhaps the most bizarre type of report was that of the dummy birth. According to reports, aliens sometimes tell a nonpregnant female abductee that she's about to have a baby *now*. The woman lies in a birth position, and the alien doctors pull a hybrid baby out from between her legs. As far as Hopkins is concerned, the goal is to simulate the bonding process, providing the baby with human touch.

Hopkins likes to tell one story about a Southern gentleman who recently came to his door. 'He looked very nervous, and I asked him if he'd come about my book. 'No,' he said. 'He'd seen part of a film about Barney and Betty Hill, and spurred by that, he'd taken his story to the Center for UFO Studies. They referred him to me.'

The man's abduction experience, Hopkins says, went back to the age of five. 'You won't believe it,' he told the artist, 'but when I was five years old they cut my leg, and I even have a scar.' He recalled other abductions, during which sperm samples were taken, and then he got to the point. 'Budd,' he said, 'I was recently taken again. I went into the ship, and there was this female who held out a pan that had this little tiny baby, halfway between us and them. It had a very big head and a little tiny neck that didn't seem big enough to support the head. They wanted me to pick that thing up and believe it was mine. But the skin was so thin, I felt as if my fingers would puncture it. I wanted nothing to do with it. I felt really upset, and they felt upset, too.'

Some of the details might have been picked up from Hopkins's books. But Hopkins says the man went into incredible detail about the presentation of the baby, dredging up technical descriptions I'd heard from dozens of other witnesses but had deliberately withheld. I asked him to draw a picture of the abductors, then I showed him one drawn for me by another abductee. Big as he was, he broke down like a baby and cried.'

The specifics of the abduction experience have recently been culled not just by Hopkins but by Temple University professor of American history David Jacobs as well. Like Hopkins, Jacobs spends much of his spare time hypnotizing abductees. Standing in the kitchen of his Victorian home in Philadelphia's elegant Chestnut Hill, Jacobs drinks some coffee from a cup with the label HALDOL, a powerful antipsychotic drug. The moniker, he says, is significant—he should be examining the abductees' *psyches*, he often hears people say, not charting the abduction experience as if it were real.

Jacobs obviously does not agree. Padding up two flights of stairs, he reaches the top floor, which houses his library of UFO books, his tape recorder with special microphone, and his pretty flowered couch. 'This is where I do my regressions,' he says, and takes his customary seat.

A short, pudgy man with stubby fingers, prematurely gray hair, and electric-blue eyes, Jacobs explains that he's been involved with UFO research most of his adult life. 'Initially,' he explains, 'my goal was to synthesize knowledge so we could make sense of the UFO phenomenon. But I was never really able to make any serious headway as far as understanding the purpose of it all.'

Indeed, throughout his years of studying UFO reports, Jacobs could never truly comprehend the phenomenon or understand why people were seeing things in the sky. 'Why didn't they land on the White House lawn? Why didn't they say, 'Take me to your leader'? Why didn't they crash? Why had we never recovered the pieces? I was never able to answer any questions that started with the word *why*.'

'I've explained myself two hundred twenty-five times in public, and I've had the experience of being laughed at in front of eight million viewers on the Phil Donahue show.'

Then, in 1981, he met Budd Hopkins and became familiar with his work. Though skeptical, Jacobs reasoned that if Hopkins were on to something, the true business of the historian—the task of synthesis—could begin. 'If Hopkins was right,' he explains, 'then he would have found the intellectual breakthrough we had been waiting for, and his work would launch us into a new era in the study of UFOs.'

Jacobs launched his own investigation of the abductees a couple of years ago, when a Philadelphia native contacted Hopkins about an experience. Unable to work extensively with the woman, Hopkins referred her to Jacobs. 'I studied hypnosis,' Jacobs explains, 'until I felt I was proficient enough to do it myself.'

Hopkins's referral moreover was just a start. Thanks to newspaper articles and radio shows, other local abductees found Jacobs, and his research took off. In the past two years, Jacobs has worked intensively with 13 abductees. Functioning much like a psychotherapist, he tries to see each individual as often as once a week.

'Budd works on the macro level. He's interviewed dozens and dozens of people. Jacobs explains. 'I work more constantly with each individual, getting them to go over their stories again and again.'

As a result, Jacobs has come up with what he says is a chronology of the abduction phenomenon—as it exists second by second. What happens when they know something is wrong in their bedroom? What's the first thing they see as they're led down the hallway? How do they get their clothes off? How do they get on the table? What do they see on the ceiling? What happens during the examination? What happens to them point by point, up until the time they return?

Jacobs says his multiple hypnotic sessions have yielded 'just tons of information.' And in an upcoming book he plans to take readers through the abduction experience step by step, room by room. 'I don't want to go into too much detail right now,' he says, 'but once the abductee is in the ship, the first part of the experience usually involves an examination, egg harvesting, and sperm sampling. Next come baby presentations and machine examinations. Finally, the experience can involve media presentations of idyllic places where, supposedly, the hybrid babies go.'

Needless to say, Jacobs, Hopkins, and the abductees have stirred more than a little debate. Nowhere was the fire hotter than at American University in Washington, DC, where the world's most committed UFOlogists gathered this past summer to commemorate the fortieth anniversary of Kenneth Arnold's sighting of a UFO. It was at the end of a long, sweltering day when the panel on abduction convened.

Sitting in front of the crowded lecture hall were some of America's most celebrated abductees: Whitley Strieber, author of *Communion*; Kathie Davis, the subject of *Intruders*; and Charles Hickson, whose gripping tale of abduction had been publicized a decade before. David Jacobs, moderator of the event, threw out the first question. 'What was it like,' he asked, 'to talk about this experience in public?'

Strieber took the mike. 'I perhaps have made the most public statement about this so far,' he said, his voice welling with emotion. 'This has been the most difficult thing I've ever done in my life by an enormous degree. I have explained myself two hundred twenty-five times in public since January, and had the experience of being laughed at in front of an audience of seven hundred people and eight million viewers on the Phil Donahue show. I have cried all the way to the bank because it's no secret that I made a million dollars from *Communion*. However, up until now it's been a secret that I found out I deserved every penny.' Then, glaring into the audience, he announced: 'There's a gentleman here tonight who has seen fit to call me a liar in public on a number of occasions. Mr. Philip Klass, right here, in case anybody doesn't recognize him.' At that point the room shook with hisses and boos. When the audience simmered down, Strieber quoted from a

polygraph test administered to him by the BBC. "Do you intend to answer the questions truthfully? Reply 'Yes.' 'Have you invented the visitors for commercial gain? 'No.' Then Strieber perched forward. "While in the presence of those visitors, have you actually felt them touch you? 'Yes.' " And then actually yelling: "Is *Communion* an honest account of your experience?' 'Yes!' 'Have you ever taken any kind of hallucinogenic drug?' 'No!' 'Are the visitors physically real?' 'Yes! Yes! Yes! I think they may be!'

"I would like," Strieber said amid a round of applause, "to give this copy of this test to Mr. Klass."

Klass took the report, and when the meeting ended just before midnight, he met Strieber in the hall. "Whitley, as far as I know," he said, "I have never called you a liar." Strieber then mentioned a TV show that had appeared not long before in New York. Klass told Strieber that the statement may have emerged as the result of unfortunate editing on the part of the show's production staff. "But," he said, "if you send me an audiotape, I will issue a public apology at once."

Klass never received a tape or transcript, and the incident faded. But the bitterness directed at Klass by many UFO researchers has remained. The reason is clear. Klass is a fireless opponent of the so-called abduction phenomenon and an explanation for UFOs. His contention? Hopkins is "the Typhoid Mary of UFOs," he says, and he is creating an "alien epidemic" on his own.

Referring to the work of University of Pennsylvania psychiatrist Martin T. Orne, one of the world's leading experts on hypnosis, Klass explains that the technique can be used to implant *pseudomemories* that, even when subjected to the scrutiny of a polygraph, appear real. "Let's say," Klass explains, "that I want you to recall what happened last night after six. You know you had dinner, watched some TV, read, and went to bed. Now I put you in a trance and I ask, 'Did you hear a loud noise?' Because we have this peculiar master–slave relationship, you will respond to my leading question with a yes, even if you heard no noise at all. When I ask you how you responded to the noise, you will say, 'I went to the window and looked out.' If I tell you to remember everything we discussed under hypnosis, even in the unhypnotized state, you will now accept this memory as real. And if the next time I hypnotize you I ask you what you saw, you are likely to describe that as well."

Beyond this, Klass adds, Hopkins violates many of Orne's clinical rules. "Hypnotists must not have any preconceived ideas about the subject under discussion, they must have no contact with the subject prior to the session, and they must videotape the proceedings so that not only oral communication but also facial expressions can be reviewed. Hopkins violates so many of these principles," Klass says, "that I would give more credence to a gypsy tea leaf reader than I would to his hypnosis."

Hopkins counters, however, that today Klass's hypnosis argument is all but moot. "We have had sixteen cases where the entire abduction story surfaced without hypnosis," he says. "And in twenty-three instances people who thought they were abductees underwent hypnosis only to find mundane explanations emerge."

But Klass has other complaints as well. For instance, he says, the similarities Hopkins finds from one case to the next have been exaggerated. Drawing from Hopkins's books, he contends that different abductees portray the hybrid babies in different ways. "Kathie says the baby looked like an old man. Pam said it looked like a little newborn lamb, with white skin so thin it was see-through. And Susan described the skin as grayish, with the head going down to a point. It seems to me," Klass says, "that similarity is in the eye of the beholder. I'd like to say I'm similar to Robert Redford,

> *"If we do not stop imposing our own interpretations on the experience, we may find ourselves in the grip of the most powerful religion the world has ever known."*

and to an alien, I probably would be. But I doubt a Hollywood producer would see it that way."

Finally, Klass says, the prototypical alien is just what you might expect. "Would you expect these creatures to be eight feet tall with long, flowing hair or short and bald-headed?" he asks. "I'd expect them to be short and bald-headed. That's the traditional science-fiction image. I would be more impressed if everyone described eight-foot-tall giants with four hands."

There are other critics as well. UCLA psychopharmacologist Ronald Siegel, an international authority on altered states of consciousness, says abduction accounts can be explained by hallucinations related to stress, darkness, and isolation. "Such situations can create images that are strikingly vivid and cause those who see them to respond to them as if they were real." The abduction reports are alike, Siegel adds, because they arise from "a common subjective state of consciousness in which archetypal images emerge."

Alvin Lawson, an English professor and UFOlogist at California State University at Long Beach, believes that UFO witnesses weave their abduction stories from haunting but submerged memories of birth. As far as Lawson is concerned, Hopkins's abductees recalled not alien abductions but fetuses, medical examinations, forceps, and piercing delivery-room light."

And according to psychiatrist Harvey Ruben, public affairs chairman of the American Psychiatric Association, one possible explanation for the abduction phenomenon may be a "psychological epidemic" infecting those who are most suggestible. Says Ruben, "Psychological epidemics do occur. One example was brought to light in a study of Arab schoolchildren on the West Bank of Israel. The children smelled fumes from a sewer, and one by one they all became sick, even though there was no reason for this reaction. People can be very suggestible," Ruben says, "yet show no evidence of psychopathology at all."

The abduction phenomenon, Ruben adds, may be somewhat akin to a form of psychological epidemic known as mass hysteria, where large numbers of people, spurred by movies or books, misinterpret what's going on. "A film such as *Close Encounters of the Third Kind* might provoke this reaction," he says. "And once people believe a traumatic event has occurred, they might develop the same posttraumatic stress disorder seen in rape victims and Vietnam vets."

But perhaps the strongest criticism comes from the domain of UFOlogy itself. After speaking to colleagues and sitting through the abduction panel in Washington, DC, Jenny Randles, a British UFOlogist, felt American naivete was extreme.

Randles's opinion is not uninformed. She has conducted a study of abductees on her own. Working in Britain, she interviewed 28 abductees. Comparing her cases to those studied in America, she found that cultural differences were widespread. "In virtually all the American cases," she says, "the entities resemble the one on the cover of Whitley Strieber's book—small creatures with large heads and eyes." It astonishes no one that we have recently begun to get similar reports in Britain as well. "But most often, our aliens are more humanlike and six or seven feet tall. Of the twenty-eight cases we have found only one scar, and it was fairly suspect; it might have even been a birthmark. And only ten of our subjects reported medical exams. Not one recalled a gynecological exam or a sperm or ovum sampling."

Hopkins says those in Randles's study may merely be "claimants," not true abductees. But Randles insists that her study is bolstered by the finding that one report tends to influence the next. "We have found that if a story appears in a newspaper about one abduction case, a subsequent witness, under hypnosis, will produce details that are very much the same."

As for the abduction reports in America, Randles says, "It's just a fascinating sociological phenomenon. In their zeal, it's

possible that the researchers are manipulating people into accepting their version of the phenomenon. There's no doubt that there is an abduction phenomenon, and there's also no doubt that so far no standard explanation seems to fit. But that's a long way from concluding that the phenomenon is extraterrestrial in origin."

Instead, Randles sees the abduction phenomenon as a vast cult movement that will expand drastically. "I don't know how it can grow any more than it has," she says, "but it will. The UFO researchers who take an interest in abduction may be seen, essentially as gurus. For them, abduction is just what they have been seeking for the past thirty years. It is the last step, the dramatic new evidence proving UFOs are real. But vulnerable people will seize upon anything they say. Just after the panel discussion yesterday, I spoke to four people who had become convinced they were abductees." And, Randles adds, "there's a similarity between what's happening now and what happened in the Fifties. Sure, the UFO movement has been updated in thirty years, and the reports have been updated as well. But if you talk to some of these abductees, you'll hear them presenting a contactee-style message to the world."

Take Kathleen, a filmmaker whose work has met with significant critical success. Kathleen's strange story starts in Turkey, where she was making a documentary about the Orient Express. Kathleen shot the scenery leaning over the side of the train. When the person helping her to steady herself went back into the train, Kathleen did, too. But then she experienced a period of missing time, and the next thing she knew, she found herself flying through the air and crashing into the rocks. The second person in history ever to survive such a fall, Kathleen's traumatic experience propelled her to seek out past-life regression therapy. Working with her therapist, she says, she discovered she had been a nineteenth-century Austrian woman who had met her death falling from a train. The therapy sparked what Kathleen calls a "spiritual search." She began channeling and eventually came into contact with a spirit guide named Layftet-tzun, or, as Kathleen calls him, L.T.

Hopkins, who has worked extensively with Kathleen in both New York and Wellfleet, says the channeling part of Kathleen's story is merely invented, a mask for the horrors she experienced during the abduction itself. "The abduction experiences Kathleen reports are pretty standard, just what we get," Hopkins says. "But she's imposing on that experience a heavy desire to turn this into something very nice. She's developed a theology in which the gray-skinned figures are helpers, but the true spirits—with whom she channels—are wonderful and understanding. I'm afraid that's just a wish-fulfilling fantasy."

University of Wyoming psychologist Leo Sprinkle, who has been studying abduction and contactee claims since the Sixties, says Kathleen's *entire* story may be real. "I've heard many types of aliens described—some people claim there may be as many as forty. Some are tall and beautiful, some are small and gray," Sprinkle says. "There are many groups, and each has a different job."

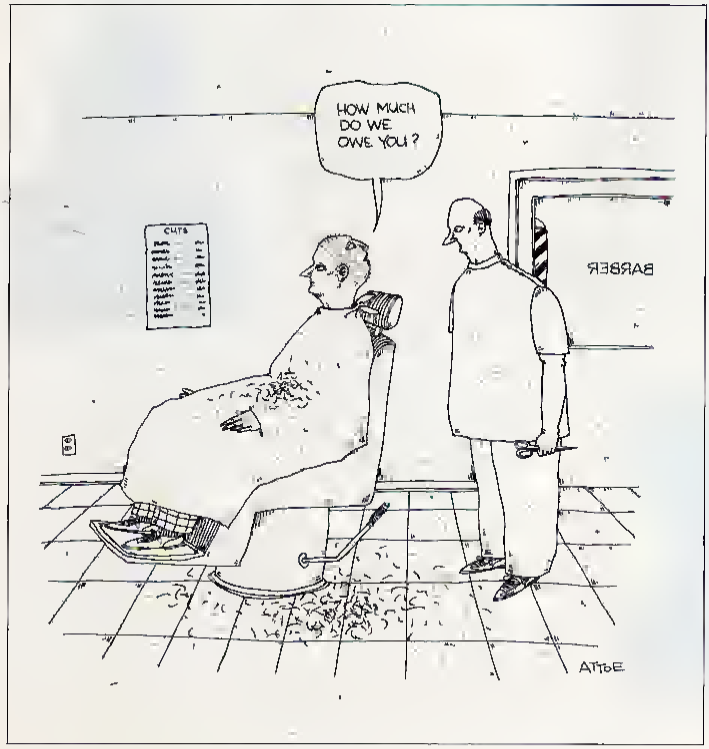
Now, Sprinkle is no skeptic. A pioneer of the New Age and an avid proponent of channeling, he believes we can talk to otherworldly spirits and that the space brothers are here. He accepts the abductees, the contactees, and the channelers as equally real.

But, in fact, once the waters get muddy, how can one say that a certain component of a witness's story is legitimate while another is not? Speaking to Kathleen certainly gives one the impression she has suffered at least as much as abductees with slightly different claims.

There are other problems, too. If the aliens are advanced enough to traverse interstellar space and reach planet Earth, why don't they employ technologies that resemble those used in fertility labs to store up human genetic material instead of abducting a person every time they want a single sperm or egg? For that matter, why don't they create a library of genes, building their progeny nucleic acid by nucleic acid, however they wish?

Finally, even those who believe the experience is real do not necessarily think that aliens from space are to blame. Strieber, now writing his second nonfiction book on abduction, says that he is "a thinking person who by no means buys the extraterrestrial explanation. However, I don't feel that a simple psychological explanation is in order, either. Something else is going on, something akin to the transcendental, visionary experience that has always been with humanity. I myself try to make use of this experience the same way that a shaman on the steppes of Central Asia two thousand years ago made use of his startling vision of the world of the dead—by telling my story and bringing my dreams back to society. Perhaps we had better try to stop laughing at this slate and start trying to describe it, because an awful lot of people believe they are experiencing contact with higher beings and another world. If we don't stop imposing interpretations and narratives on the experience, we may find ourselves in the grip of the most powerful religion the world has ever known."

Many experts think Strieber has hit the nail on the head. Sociologist Marcello Truzzi of Eastern Michigan University says that we, as a society, have been so totally indoctrinated into the science of behaviorism we have forgotten our unconscious mental life. "When ideas like channeling, past lives, or abductions come along," he says, "some people grasp onto them, producing highly imaginative stuff. They seem unaware that this material, and the urge to express it, may be part of them. It's easy



for them to say. Sure, it's Ramtha. It's not so easy for them to see that there's simply more to them."

Dennis Stillings, a philosopher and Jungian scholar who heads the Archaeus Project in Minneapolis, essentially agrees. "We're seeing an eruption of the unexplored aspects of the mind," he says. "We are a pioneering nation, and the introvert in America has never had status. But now the pendulum is swinging the other way. We see the unconscious like we saw the wilderness. We exploit it for business, marshal it for an advantage. The American unconscious has only recently been blasted loose, and we don't have any notion of how real these images are. They resonate in all of us. We're not in a position to evaluate these images because we're not used to them. It's much easier to fall victim to them, to become their prey."

As far as Stillings is concerned, in fact, Americans have lost touch not only with their unconscious but with the basic primal experience—religion itself. "I personally find it interesting," Stillings says, "that the abduction phenomenon was ushered in with the strong rise in channeling and past life regression. I see it as an attempt at re-creating a religion dressed out in high tech."

"The breakdown of organized religion," Stillings notes, "has been going on for four hundred years. This has increasingly forced man to have a personal confrontation with God, which results in strain. In our era some people compensate with channeling, in which they themselves become the gods. In the most extreme case, others—the abductees—have become the passive victims of omnipotent, omniscient forces whose godlike characteristics are drawn from science-fiction movies, fertility clinics, and other forms of high tech."

The abduction scenario is so religious, Stillings believes, that it borrows some of its most graphic images from religious motifs. The hybrids, he says, resemble the wise babies, from Jesus to Buddha, who were born with extraordinary knowledge and superhuman skills. "The abductees," Stillings says, "even have what Hopkins calls wise baby dreams." The strange scars and scoops, he notes, resemble the stigmata associated with religious devotees and saints. Mysterious pregnancies mimic the motif of the Virgin Birth. And the abductees have even adopted what Stillings calls the motif of three and four.

In this strange scenario four people are expected, but only three show up. "We find this in the Bible," Stillings says; "we find it in Plato; and we find it in *Intruders*, when Kathie meets three strange young men, including a mysterious blond."

Where do these images come from? According to the late Carl Jung, they exist as literal structures in the brain. Jung, Stillings explains, believed that religion and the images it spawned were biological entities. Nonetheless, the religious instinct is vague. We give it form. If this stuff appeared as angels today, we would laugh

at it. But when it comes packaged in the form of E.T., we're more likely to believe.

No matter what the answer ultimately turns out to be, the bottom line, Aphrodite Clamar points out, is the obvious torment experienced by hundreds, perhaps thousands, of abductees. Few stories seem sadder than the one told by an attractive, successful New York businesswoman named Leigh. Today in love with a man she met at the UFO convention in Washington, Leigh lives in a graceful wood-frame house beside a gentle harbor filled with millionaires' yachts. Sitting in her living room early last summer, she recalled numerous partial memories—including periods of missing time and strange sightings of UFOs.

It was almost fall, though, before she had the chance to visit Wellfleet, where Hopkins hypnotized her so her story could emerge. Lying down in his cavelike den, she recalled what should have been a joyful encounter, the first time she made love. The night had been a blank for years.

"When I count to three, raise your eyes and look to the doorway," Hopkins said. "What do you see?"

"I see a little gray kind of person with lines all over his head," Leigh replied. "I keep asking Bill what's happening, but he isn't with me. Mentally, he's gone. . . . I feel like I'm being tugged out and jerked, but I can't move. There's some sort of liquid sensation. . . . There's a long arm under my side. . . . He takes a long tube and puts the tube inside my stomach at an angle, and there's a green liquid that goes down. I feel like I have cramps. . . . He says it has to be done." Leigh woke up sobbing, and she cried on and off for days.

The leaves were turning brown in New York when Leigh, still upset by her experience in Wellfleet, finally had the chance to meet a roomful of other abductees. The scene was Budd Hopkins's town house in the Chelsea section of New York. Original paintings by Hopkins and a dozen great artists adorned the walls. Hopkins's wife, art critic April Kingsley, made pasta primavera. There were Italian hors d'oeuvres, Perrier, vodka, and wine. It seemed like any other New York party with attractive, educated men and women discussing politics, films, and jobs.

After dinner, though, clustered around in a circle, those in the 25-member support group discussed the issue closest to their hearts: the fact that they were abductees. One young woman who came forward trembled as she described an immaculate conception and her daughter's subsequent birth. "I didn't know how it could have happened," she said, her lips quivering, her eyes filled with tears. "I was having panic attacks. I was close to suicide. I couldn't go to nursing school." Since working with Hopkins, however, she had recalled artificial insemination by aliens and several abduction experiences since the age of ten.

Now I know what's happened to me," she said proudly. "My life is back on track. I think I understand.

PSYCHOTALES

CONTINUED FROM PAGE 98

'Do you follow me?

"I thought he was pertectly pleasant," Gwen said frostily and turned her back to remove her silvery, snug party dress. As she wriggled it down over her hips she turned her head and defiantly added, 'He had a *lot* to say about tax shelters."

I bet he did." Pygmalion scoffed feebly, numbed by the sight of his wife frontally advancing nude toward him and their marital bed. "It's awfully late," he warned her.

'Oh, come on," she said. the lights out."

The first imitation Gwen did was of Marguerite's second husband, Ed; they had all unexpectedly met at a Save the Whales benefit ball, to which invitations had been sent out indiscriminately. "Oh-ho *ho*,' she boomed in the privacy of their bedroom afterward. "so you're my noble predecessor!" In aside she added, "Noble, my ass. He hates you so much, you turned him on."

"I did?" he said. "I thought he was perfectly pleasant in what could have been an awkward encounter."

"Yes, *indeedy*," she agreed, imitating hearty Ed, and for a dazzling second allowing the man's slightly glassy and slack expression of forced benignity to invade her own usually petite and rounded features. "Nothing awkward about *us*, ho ho," she went on, encouraged. "And tell me, old chap, why *is* it your child-support check is never on time anymore?"

He laughed and laughed, entranced to see his bride arrive at what he conceived to be proper womanliness—a plastic alert sensitivity to the human environment, a susceptible responsiveness tugged this way and that by the currents of Nature herself. He could not know the world was his fear unless a woman translated it for him. Now when they returned from a gathering, and he asked what she had made of so-and-so, Gwen would stand in her underwear and consider, as if onstage. "We-hell, my dear," she would announce in sudden fluting parody, "if it wasn't for Portugal there *really* wouldn't be a country left in Europe!"

"Oh, come on," he would protest, delighted to see her pretty features distort themselves into an uncanny, snobbish horsiness.

"How did she do it?" Gwen would ask, as if professionally intent. "Something with the chin, sort of rolling it from side to side without unclenching the teeth."

"You've got it!" he applauded.

"Of course you *knoaow*," she went on, in the assumed voice. "there *used* to be Greece, but now with all these dreadful Arabs."

"Oh, yes, yes," he said, his face smarting from laughing so hard, so proudly. She had become perfect for him.

In bed she pointed out, "It's awfully late."

"Want a back rub?"

"Mmmm. That would be reawy nice." As his left hand labored on the smooth, warm, pliable surface, his wife—that small something in her that was all her own—sank out of reach; night after night, she fell asleep.

CATEGORY A

1. I found my attention wandering much of the time and couldn't really get involved in the story.

2. My attention wandered from time to time, but I successfully followed the main lines of the story.

3. I became engrossed in the story and only occasionally allowed my thoughts to drift to something else.

4. I was so caught up in the story that it seemed for a time that I was actually a participant in it.

CATEGORY B

1. This story was masterfully written. It was concise and structurally balanced, with a precise vocabulary.

2. In addition to the distinctive language of the story, I enjoyed the dialogue and even spoke some of it aloud to better appreciate it.

> *"What he disliked about his first wife was the way she would ask to have her back rubbed and then, under his laboring hands, night after night, fall asleep."*

3. I found myself trying to imagine the husband and wife in their bedroom and heard the wife's efforts at imitating others' speech patterns.

4. I found that I was practically hearing the way the two wives performed their imitations for Pygmalion, and pictured each couple in bed or visualized Gwen in her underwear or her husband rubbing her back night after night.

CATEGORY C

1. This story seemed to be a superficial account of suburban life and very unlike anything I've experienced.

2. This story captured both the good and bad aspects of suburban marriages and the need of some men to completely control women.

3. I found myself feeling like the two wives who were doing imitations to please their husband.

4. At first I was sympathetic to the women when they yielded their independence to the man, but then I began to feel the emptiness of his life as the women lost interest in him sexually.

CATEGORY D

1. I considered this a superficial and trivial story that merely pointed out the emptiness of certain suburban life-styles.

2. Although I was annoyed at the husband for his domination and at the wives for yielding to him, I did sense the trap they were in.

3. I felt more pity than anger for the couples. They were striving for closeness but were actually caught in a battle for power.

4. I was struck by how hard it is for two people to love each other naturally without playing games.

CATEGORY E

1. Although this story seems funny and ironic on the surface, it is really a tragic account of how hard it is for people to find real closeness.

2. I felt that the man's two wives were eager for love and intimacy but had to sacrifice their independence and sexuality in order to attain it.

3. The story captured the struggle between women who want to merge their personalities with those of their lovers, and men who need to feel in control.

4. I felt that each of the characters—the two wives and the husband—were struggling in their own ways to assert their uniqueness and power.

BLIND GIRLS

By Jayne Anne Phillips

She knew it was only boys in the field come to watch them drunk on first wine. A radio in the little shack poured out promises of black love and lips. Jesse watched Sally paint her hair with grenadine, dotting the sticky syrup on her arms. The party was in a shack down the hill from her house, beside a field of tall grass where black snakes lay like flat belts. The Ripple bottles were empty, and Jesse told pornographic stories about various adults while everyone laughed, about Miss Hicks the home-ec teacher whose hands were dimpled and moist and always touching them. It got darker, and the stories got scarier. Finally she told their favorite, the one about the girl and her boyfriend parked on a country road on a night like this, with the wind blowing and then rain, the whole sky sobbing potato juice. *Please let's leave*, pleads girlie, *it sounds like something scratching at the car. For God's sake*, grumbles boyfriend, and takes off squealing. At home they find the hook of a crazed amputee caught in the door. Jesse described his yellow face, putrid, and his blotchy stump. She described him panting in the grass, crying and looking for something. She could feel him smelling of raw vegetables, a rejected bleeding cowboy with wheat hair, and she was unfocused. Moaning in the dark and falsetto voices. Don't, don't, please, don't. Nervous laughter. Sally looked out the window of the shack. The grass is moving, she said, something's crawling in it. No, it's nothing. Yes, there's something coming, and her voice went up at the end. It's just boys trying to scare us. But Sally whined

and flailed her arms. On her knees she hugged Jesses legs and mumbled into her thighs. It's all right. I'll take you up to the house. Sally was stiff, her nails digging the skin. She wouldn't move. Jesse tied a scarf around her eyes and led her like a horse through fire up the hill to the house, one poison light soft in a window. Boys ran out of the field, squawling.

CATEGORY A

1. I found my attention wandering much of the time and couldn't really get involved in the story.

2. My attention wandered from time to time, but I successfully followed the main lines of the story.

3. I became engrossed in the story and only occasionally allowed my thoughts to drift to something else.

4. I was so caught up in the story that it seemed for a time that I was actually a participant in it.

CATEGORY B

1. This story uses words so effectively that I could hear the thoughts of a rural teenage girl.

2. I was struck by the vivid language of this story and also occasionally pictured some of the scenes.

3. I thought the language was very expressive and frequently pictured the scenes of the girls, the shack, the boys in the grass.

4. I practically smelled the Ripple wine, felt the sticky hair lotion, and was disturbed by the image of the crippled boy.

CATEGORY C

1. I felt detached and unresponsive and wondered why this story was ever written.

2. Although the story and characters seemed remote from my life, I did feel somewhat drawn to the story by the fine vocabulary.

3. I found myself thinking occasionally of some of my first experiences drinking with other teenagers, talking about sex, and telling scary stories.

4. A whole flood of teenage memories came back to me, and I continued to reminisce about those days for a while after finishing the story.

CATEGORY D

1. I found this story repulsive and was annoyed that I had to read it.

2. I was angered by the cruel story Jesse told and also felt sorry that these kids had nothing better to do with themselves.

3. While I was disturbed by Jesse's story, I sensed the closeness and intimacy of the girls sharing early adolescent experiences.

4. The story evoked for me some of the moments of intimacy, humor, and sharing that kids experience in their early teens.

CATEGORY E

1. This story gave me a sense of teenagers growing up together and feeling close as they work through early feelings about sex.

2. I was attracted to the close ties the girls had with each other, but I also sensed some of their cruelty.

3. I was impressed by Jesse's strength and assertiveness.

4. I was struck by how Jesse, with all her fears and cruelness, still maintained a sense of control and independence. She was learning to grow up in a difficult world.

WHERE YOU STAND

Before proceeding, tally your scores for each of the five categories. If you marked answer 2 under Category A for "Thank You, M'am," and answer 4 under Category A for "Reunion," your score would be six. After adding your marked answers for "Pygmalion" and "Blind Girls," to this you will have your total score for Category A. Do the same for categories B, C, D, and E.

CATEGORY A: Absorption

Research by psychologists such as Auke Tellegen at the University of Minnesota has shown that some people can become so caught up in a book or movie that they almost lose touch with their surroundings—the room or movie theater they are sitting in and the others in the audience. These individuals would undoubtedly score high on psychological scales measuring absorption—that is, the degree to which you become immersed in an experience.

"Psychologists have found that people who are creative and easily hypnotized report that early in life they had become absorbed in a book or a fantasy relating to a book."

Psychologists have found that individuals who are particularly creative and who are easily hypnotized report that early in life they had become absorbed in a book or a fantasy relating to a book. High absorbers have also been shown to have more than the usual number of pleasant daydreams. Interestingly, no correlation has been shown to exist between high absorption and negative daydreams.

If you scored between 13 and 16 after adding your totals for Category A, you tend toward the high end of the absorption scale, probably immersing yourself easily in a book or story. You might possibly be a good candidate for hypnosis. Like the girls in Jayne Anne Phillips's story, you find yourself wrapped up in a scary story only to be "creeped out" when you finish it. Or, like Madame Bovary, you get enraptured by a romantic novel, only to spin daydreams about such a life. Most high absorbers, however, won't go to extremes and try to live out their daydreams as Bovary does.

Many people, however, are much more detached when they read a story or watch a movie. If you scored six or below, you are likely to be one of these persons. Perhaps it was just these four stories that failed to attract you, or perhaps you feel reluctant, in general, to "give yourself up" to the seduction of an aesthetic experience. Although psychologists aren't always sure why some people score low on scales of absorption, one of the most common reasons is a fear of loss of control. Perhaps you worry about giving up some autonomy by going with the flow of a story or movie.

If you'd like to improve your ability for absorption, read the stories again, more slowly this time. Try to picture in your mind the people or incidents involved, imagine the conversations as if you were actually hearing them. Taste the cake in the Langston Hughes piece, envision the grass moving in "Blind Girls."

Most people are likely to score between eight and 12 on this scale, reflecting some mix of absorption and detachment.

CATEGORY B: Verbalizer vs. Imager

As we experience the world around us, it's natural to try to retain certain moments in forms that we can retrieve later as memories. Most people label their experiences in words or phrases, such as "an exciting ball game," "a typical business day," or "an interesting person," but they also store in memory some kind of image, a picturelike record—the sounds of birds in a field, say, or the smells, touches, and tastes associated with a specific encounter. Efficient recall requires some combination of the dictionarylike word retrieval and the more evocative imagery memory. Some people will be more sensitive to the vocabulary and logical patterns of a story, while others will tend, when they read, to be especially involved in "seeing" pictures, hearing sounds, smelling scents or odors, practically tasting foods, or touching objects.

If you receive a score between four and seven, you are likely to be someone who responds to a piece of fiction chiefly by considering the words and the formal or logical patterns of what you have read. You may have problems taking in stories that are not arranged formally with a beginning, middle, and end.

Those who score between 12 and 16 are more image oriented. They are likely to experience the smells, touches, and tastes of what they read about without noticing the particular words that evoke sensations. They may tend to think in concrete images, flashing on particular scenes, sounds, or smells. They'll see the wind blowing in "Blind Girls," and the whole sky sobbing "potato juice," or smell, as Cheever's character did, their father "the way my mother sniffs a rose." After reading these stories, they may have vivid and emotional memories of the material but may feel at a loss for words to communicate the experience to others. Verbalizers, on the other hand, may be able to summarize a story quickly

but may often miss the richness of detail or emotional quality of the material.

The majority of readers, though, will once again find the middle territory, scoring between eight and 11, focusing in part on the words while they react to some extent to the images.

CATEGORY C: Identification

While absorption reflects the degree to which you become caught up in an experience, identification reflects a tendency to relate the material one reads to one's own life and memories. Some people are especially prone to see similarities between events or characters they read about and their own lives. Of course, some stories may evoke feelings of empathy and identification more than others. A person who grew up in an inner-city black enclave might be more likely to remember personal experiences after reading the Hughes story than the suburban middle-class domestic vignette by Updike. But whatever our background, some of us are always more ready to empathize with characters' sadnesses, successes, and predicaments.

If you scored between four and seven, you are likely to approach fiction with a certain detachment. You may have a cool sense of who you are and how you differ from the people you read about or see in a movie. You might for a moment connect with people in a story, but afterward you're unlikely to dwell on similarities and differences between what you've read and the memories you have about your own life. This aloofness may also show itself in your relationships with other people. You may, in fact, prefer relationships that are more structured, feeling more comfortable when there are formal rules to direct people's behavior. Rules give relationships some stability without forcing either partner to identify with the other. Scoring low on this scale won't affect your work as a chemist, but it might severely limit your effectiveness as a social worker or a psychologist, professions in which the ability to identify and empathize is essential.

If you scored between 13 and 16, you are likely to see similarities to your life in all kinds of dramatic situations. You may constantly notice connections between your wishes, fantasies, fears, or critical memories and the actions of characters in fiction. This may make you vulnerable on occasion to persistent sadness or doubts triggered by a novel or film, but it may also help you explore important issues in your life that require reflection and positive action. Although a high score does not mean you would or could offer the kind of empathic response the old lady offered to the young boy in "Thank You, M'am," it will probably help you understand the people with whom you have relationships.

Of course, you might identify with people in some of the stories and not in others, thus scoring between eight and 12.

CATEGORY D: Hostility vs. Amiability

To a certain extent, we all need to be careful or suspicious of new situations or to be able to show annoyance and express anger. Yet we also must be ready to show compassion and friendliness, to see the potential for love, as well as danger, in relationships. This dimension reflects the degree to which, even in reading, some of us may react more readily with annoyance or suspicion, others with a tenderhearted compassion or warmth.

If you scored between four and eight, you may be prone to suspicion, anger, or annoyance. Of course, this may be a reflection of distaste for the writing style or the story. Or it may reflect the quality of a given story or the reaction the author seeks to arouse in readers.

As suggested above, most people probably fall in the middle with scores between nine and 12. If you rated yourself between 13 and 16, you are likely to approach situations on the lookout for opportunities to experience love, warmth, and pity. Where others may be wary or dubious, you may make a habit of looking for the good in others, their positive potential.

> *"Some readers will be more sensitive to the vocabulary and logical patterns of a story, while others will be especially attuned to the sounds, smells, and visual imagery."*

Individuals whose scores put them at one extreme or the other on this hostile–amiable dimension may be at risk, on the one hand, of being overly suspicious, embittered, possibly antagonizing others, and, on the other hand, of being overly trusting and compassionate, of turning the other cheek and getting slapped too often.

CATEGORY E: Communion vs. Autonomy

Anton Chekhov's story "The Darling" is about a woman who takes on the values and attitudes of her lovers to an alarming degree. When she is with a pompous government official, she completely accepts his way of being in the world. As soon as she becomes involved with another man, she changes, accepting his attitudes—no matter how different—as her own.

At the opposite extreme are individuals who, like hermits in secluded woods, prefer to forge their lives alone. They neither desire nor need to define themselves in relation to other people.

David Bakan, a psychologist at the University of Toronto, has proposed that most human beings spend their lives struggling to reconcile these two opposite needs, which he calls communion and autonomy. We are wired almost from birth to cling to other people—our mothers and fathers and other family members. As we grow up, we yearn for the personal intimacy of a love relationship and the more general feeling of communion found in being a member of a group. Yet we also find ourselves striving to develop individual skills, to keep our thoughts to ourselves, to feel independent and self-directed. Most people manage to strike some kind of balance between communion (losing oneself in another person, a family, or a group) and autonomy (feeling that one can really go it alone, that one has skills, private opinions, or personal strengths that can maintain a sense of an independent self).

If you scored between four and eight on this scale, you may be a person who feels an especially strong pull toward affiliation and merging yourself with others. You may want intimacy or communion and are willing, perhaps even eager, to lose your private sense of self in the interest of belonging. Pygmalion's first wife in John Updike's story would score as a strong merger on this scale; she is completely lost in her husband. His second wife is, too . . . for a time. But she tries to separate herself from him.

If you scored between 13 and 16, you are probably very independent, intent on self-development and guarding your sense of privacy, even at the risk of some isolation or loneliness. Updike's Pygmalion would find himself here.

With a score of nine to 12, you strive to balance the tensions of affiliation and autonomy. On the one hand, you want closeness and the feeling of belonging to something bigger than yourself, but you also need to maintain a strong sense of self outside of any relationship. Research has indicated that women, especially those raised in traditionally feminine roles, lean toward affiliation, while men tend more toward autonomy (though often yearning to be able to feel the security and warmth of communion). Striking the right balance between submersion or dependence on others and the heady sense of personal independence or uniqueness represents a lifelong human dilemma, an existential struggle.—Jerome L. Singer

ARACHNE

CONTINUED FROM PAGE 118

"Will you lick my shoe?" Mr. Rice extends it, Carly laps.

"Will you take cram?"

"Cram's illegal," says Carly, flushing.

"Focuses you in link like nothing else, Ms. Nolan," says Mr. Rice. He takes out a hypodermic, stabs the needle into the corner of his eye, slams the plunger. "Oh! Like nothing else, Ms. Nolan."

"I'll do anything to keep my job, Mr. Rice, *anything*."

"I am so glad to hear that, Ms. Nolan. Just don't let that asshole judge catch you. Be discreet. Takes one to know one." Mr. Rice pops the needle out, tosses the syringe over his left shoulder. A member of the personnel committee picks it up and eats it, steel molars crunching the glass and metal into pulp. "I will give you another chance, Ms. Nolan," says Mr. Rice. "Don't make me regret it, eh?"

The personnel committee vanishes.

"Shit!" yells Doctor Spinner, poking Carly's cube. "Lousy *fear* is all you got for me?"

Carly is numb, so stiff, so paralyzed that she can't even shiver from the deep, deathly cold.

"Hate this fear," she says at last. "Hate them for making me afraid. Hate myself for being afraid."

"Guilt and fear, guilt and fear," says Doctor Spinner, taunting.

"And I hate *you*." A spume of red smoke races through Carly's telespace.

"Boo-hoo-hoo." Doctor Spinner laughs with exaggerated gaiety. "Poor little Carly, she's so sad, poor little Carly, can't get mad."

Carly snaps into fury, slaps the prober's cone with a resounding *Gong!* The prober scuttles away, darts and dashes, turns back sharply at the slick bank of her right perimeter, wrestles her.

"Good, good, good!" cries Doctor Spinner, still laughing. She aims the conetip squarely into Carly's side. *Oof!* Carly falls back, winded. "There, you see? You're not hamstrung by guilt anymore. You're not trapped by fear."

"But I'm still trapped in this lousy life of mine. What good does it do? I'm still trapped in this bitch of a world."

"Ah, we shall see," says the prober. "We haven't found a blackout yet."

Carly approaches the judge's quarters. Her presence in court gleams like mother-of-pearl. Cram always adds a sheen.

"Your Honor, my client Quik Slip Microchip defends the plaintiff Martino's cause of action on the grounds of adverse possession." She logs in the facts of the case, a sleek green stream of data. "Plaintiff failed to protest defendant's illegal and flagrant use of the *Wordsport Glossary* over twenty years. Legality of acquisition is sustained by virtue of sustained illegality." In one and a half seconds, strict conformity of data with statutory requirements of Property Code Section 344 is confirmed.

The two scruffy solos for the plaintiff Martino groan.

"Therefore," continues Carly, "my client counterclaims to quiet title under Section 501 of the Property Code."

Nee-dee nee dee nee-dee-DEE! On the big board the registrar of deeds cheerfully transfers title to the *Wordsport Glossary* from file M to file Q.

"Further," says Carly, "my client sues for attorney's fees under Civil Code Section 666.09(1)(B)."

"Objection!" screams the weaselly solo. "You can't get away with this, hotshot!"

"Overruled," says the judge. His gigantic eyes flick over to the whirring chronograph. Carly has presented, proved, and concluded her defense and counterclaim in five seconds.

The judge's towering face smiles at Carly. "I am pleased to readmit you to court and look forward to your official recertification. Proceed, Ms. Nolan."

Grounds are vexatious and baseless litigation.

Ching! Data conforms to statute.

"I claim," says Carly, "Ten thousand dollars."

"So held, award granted. Dismissed!" The judge nods approvingly at Carly. Her presence in court glows.

Big lead hook of a garnishment plucks the last of Rosa Martino's money. From stats, soft *poop!* like a fart. In a tiny black-and-white newsline, the big board reports that Rosa Martino, age seventy-one, locked herself, her daughter, and grandson in the kitchen of her southside tenement studio and turned on the gas. *Tik-tik-tik!* Three corpses are dumped into the crunching jaws of the public morgue.

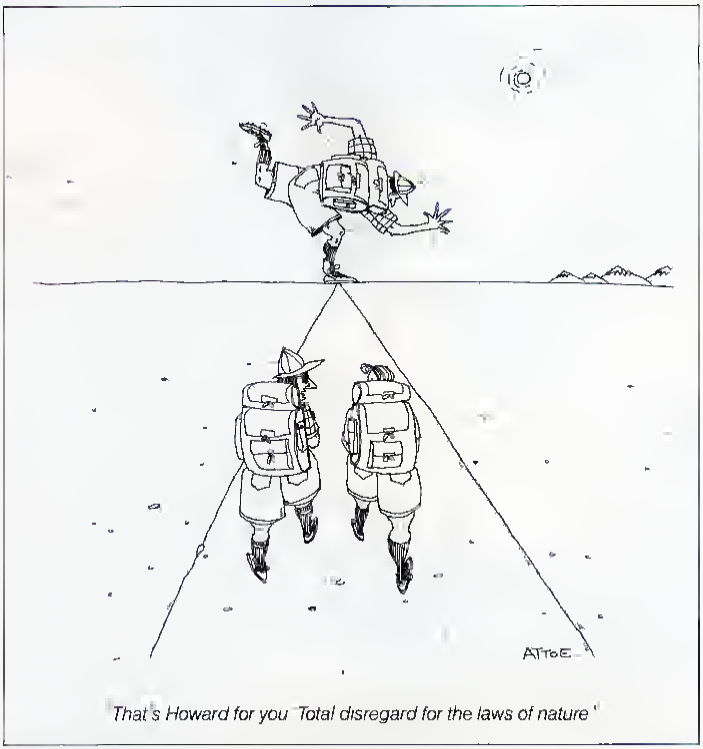
The inky net of a collection agent logs into court, scoops up the solos before they can get out of link.

"What goes around comes around, hotshot!" yells the weaselly solo as the collection agent's net drags him away to service his debts.

Carly doesn't know what he means by that. She logs out of court, coming conscious in her filthy little cubicle at Ava & Rice. Rox is there, cutting up lines of coke on a blood-spattered mirror.

"Way to go, Nolan," she says, winking a bloodshot, black-rimmed eye. "Nice touch, sticking it to the old lady like that. That'll teach laypeople to fuck with business."

In the hallway Mr. Capp Rice III rolls by. He toasts Carly with a shot glass of high-octane gas. "I'm so glad you are meeting our expectations, Ms. Nolan." Mr. Rice winks. The wink opens and shuts, opens and shuts, until Rox reaches over and whacks him on the ear. "I've got another case just like Martino's. Consider this sort of thing your new specialty. Every lawyer needs a good specialty, eh, Ms. Nolan?"



That's Howard for you. Total disregard for the laws of nature."

Carly nods, takes the mirror from Rox, toots Quick, sharp high pierces the deadening stupor that always follows cramming. Wolfe has taught her other ways to handle cramming, ways to handle the cram addiction. Wolfe has taught her lots of tricks of the trade now that he's her pusher. She's had to learn. Twenty thousand dollars in debt to him, she finds other scores, gets them hooked, deals. Anything to score more cram.

Hands shake all the time now. Fifteen pounds gone, she looks like an anorexic. Left eye twitches, some kind of swelling aches in her left temple, stretching out blue, bruised skin. Afraid to sleep, afraid to dream. She crams into link, cokes out of cram, boozes herself down into deep black nothing.

Damned probes have shaken something loose. Carly's dislike of Doctor Spinner festers into loathing. Surely the terror of the probes hasn't been necessary. Carly tries to contact the med center mainframe, go over Spinner's head, get the recertification without a third probe, but the mainframe is teaching a class at summer school and cannot be accessed. Furious, Carly accesses the med center library instead, researches perimeter probers. She discovers the treatment is deemed not just unreliable like the mainframe said but suspect. Several doctors, *human* doctors, hold this view. In particular Doctor Marboro at Stanford, who advocates layering new thicknesses of inhibition when left perimeter defects are suspected and who has proved layering is ninety percent effective, writes quite harshly of probe technique. Threatening the integrity of the left perimeter which Doctor Marboro asserts is the guardian of correct thought and proper linkage. Marboro exposes the case of Steven H., a young industrial programmer about Carly's age who, despite a strong body and good education, suffered from hallucinations in link.

Steven H went into telelink with a perimeter prober, never came out. The man vanished, mind and body. The prober claimed Steven was lured through a gash in his left perimeter, bolted into his unconscious mind, re-created his own reality. Of course the prober claimed she tried to stop him, blocked him, chased him, but the prober's telelink wasn't publicly accessed, so there were no witnesses, no record. Only a computer I.D. and an overdrawn credit account to show Steven H ever existed. A cult of telespace technicians propounding the existence of multiple universes sprang up in the medical community, claimed Steven H as their patron saint. But the big board suppressed the account.

Enraged, determined to press malpractice charges against the med center and Doctor Spinner both, Carly calls the prober's office, intending to refuse a third appointment. But the prober's answering machine talks her into a third probe.

"I warned *you not to insist on a second opinion.*"

"You don't want no cloud hangin' over your court recert, do ya, Miss Nolan?" says the answering machine. "Come on, come on, come on. Link in wit the doc one more time, and I *guarantee* she'll recert ya."

Carly considers this. She indeed has a hearing before the judge in two days; has promised to present him with final med center recertification.

"But we haven't found a blackout," Doctor Spinner keeps insisting.

"Relax. She'll recert ya. I wouldn't kid ya."

So Carly sets the appointment. Just one last probe. Get in, link, get out, quick.

"You really will? Just like *that*?" Carly stalks back and forth across the prober's dust-fluffy floor.

"Oh, sure." Humming this week's pop hit off tune, Doctor Spinner fiddles with the telelink console.

"I can't believe it. I can't *believe* it." Carly shakes with fury. "Then what has been the fucking *point*?"

"Med center mainframe says three probes, then recert, then I get another probe client. You look like hell, Carly Nolan. Not cramming, are you? No, you wouldn't tell me if you were."

"The mainframe said recertification *if* I'm cured in three probes. You haven't done a damn thing for me, Spinner."

"Haven't done a thing? Not a *thing*? I beg to differ, Carly Nolan. You've been sprung loose of guilt and fear, can't claim your freedom with baggage like that. Whew, you've even got the B.O. of a crammer. Don't you know that garbage is illegal? And do you know *why* it's illegal? Hey? Rips the living *shit* out of your perimeters, that's why. I would have bounced you right out of here if you showed up like this at the start of treatment?"

Bitter cold shock. Wolfe never *did* say why. Carly shrugs it off. Bitch is trying to hassle her, as usual.

"I don't want to argue with you, Spinner," says Carly. "Get on with it."

They jack into link.

Telespace is clear, still, focused, luminous. Maybe cram effect, maybe Carly's clear pure anger. In either case very nice, very calming. Carly tightens up at once at that, oh, yes, just what Doctor Spinner wants, for her to let her guard down. Doctor Spinner's presence in link is a crisp, perfect ebony cone.

"Please traverse your left perimeter, Carly Nolan," says the prober. Her voice seems to contain an awestruck note.

Ahead, a beautiful golden glow. Carly's presence in link slides gracefully, eagerly toward it. Her hand brushes a lock of hair from her cheek; in link, she feels the soft touch of her own skin on her face. But the touch doesn't panic her, doesn't worry her a bit.

"At last!" cries Doctor Spinner. "Thank God! At last! A blackout!"

"You're crazy," says Carly. Terror gallops through her, ripping away her peaceful

ness. "I see a beam, not a blackout."

Yes! A blackout! Tell me what you see!"

The golden glow swirls with luminous colors. A world appears, both microscopic and gigantic to Carly's eye. *A flier levitates from a vermilion funnel and hovers. Stiff chatoyant wings, monocoque fuselage, compound visual apparatus.* The mayfly bungles into a spiderweb. *The trapper hulks at the edge of the net. Stalked eyebuds swivel, pedipalps tense.* A garden spider scuttles down, wraps the fly in a silken shroud, begins to feed.

Carly screams.

"So this is the secret place inside your blackouts!" exclaims Doctor Spinner. "The spider! Fascinating!"

"Horrible, horrible. oh, God, oh, help me!" yells Carly.

"Why? What are you afraid of?"

"Ugly. Repulsive. Monstrous. *Alien.* . . "

"Oh, no, not ugly." Doctor Spinner glides around the bright vision. The spider bites the flier's leg off and chews. "It's nature. It's beautiful."

"Violent. Vicious. *Murderous.* . . " Carly chases after the spinning cone. "Just like the judge and Ava & Rice and Wolfe and *you*. All of you, preying on me, trapping me, forcing me into bondage, sucking me dry. . . "

"Oh, yes, oh, certainly, you've been a victim. The world, the people around you, the role you've found yourself compelled to play. These have preyed upon you. The spider has slipped from the depths of the dark unconscious, through the left perimeter itself, in search of such a fine victim. But what about *you*, Carly Nolan? You've taken your own victims; don't tell me you've had no choice. All that human creativity reduced to such a low and ugly fate. . . "

"I won't hear this, Spinner." Carly scurries to log out of link.

"But wait, Carly. It's not so simple." The cone dives at her, prodding her, slapping her away from the log-off key. "There is a story, an old story no one remembers anymore. There was a goddess, an immortal weaver, who grew jealous of a mortal girl and her incomparable weaving. So gray-eyed Athena transformed the beautiful Arachne into a *spider*."

Out of the glowing garden creeps the garden spider. It scuttles across Carly's clean tan floor. The spider extends a hairy, clawed spindle, catches a silken line, sweeps across telespace, drops down onto Carly's cube. Carly shrieks, gags, tries to shrink away, shake it off, but she can't, she's trapped.

"But Carly, the story is apocryphal." Doctor Spinner lovingly taps at the spider, gently hurrying it across Carly's cube, catching it as it tumbles off the edge, easing it back onto her. "A lie, a slander, a political ploy, no better than propaganda flashes on the big board. The Greeks, who worshipped the vengeful goddess, coveted the lucrative textile trade of Cretan weavers, who worshipped the spider.

The spider quadruples in size. Now in-

stead of crawling across Carly's cube, it straddles her, gazes down at her with a ghoulish, gape-mouthed face.

"Who would worship *that*?" says Carly, gasping. "How could they? *Why?*"

To the Cretan weavers, the spider was Eater of Souls. She who relentlessly destroys the hunter, the killer, the maker of deceptions. But She was also Weaver of Fate. She who unceasingly creates, says Doctor Spinner. "Universe upon universe, over and over. She redeems Her own destruction with Her infinite power to create. She weaves. Carly. She weaves!"

Salty wind blasts across telespace. Carly sees a pinpoint in the sturdy crisscrosses of her left perimeter, sees a thread of golden mist connecting the vision and the pinpoint. The pinpoint dilates, thick ropes of inhibition unraveling, rippling away. A long tunnel—with dark red, curving, striated walls—yawns open in her left perimeter.

"Look!" says Doctor Spinner. "Carly, look!"

"No," whispers Carly. Her presence in link, her body, all is wasted, so without power she feels oddly calm again. "I'm afraid."

"Don't fear now," says Doctor Spinner. "You've lived the dark side of Arachne. Now claim the light."

Telespace is a gray-green mist. Carly's presence in link is her own nude body. She stands on a windswept crag, surrounded by a splashing sea. Before her is a gigantic loom, made of smooth, hard wood, strung with woolen warp and woof.

She seats herself before the loom, takes the smooth, hard shuttle, slips it in and out around and through the fibrous matrix. The wool glows phosphorescent green and amber. The warp slips off the loom and coils into a shape. The shape solidifies, a crystal retort in the form of a woman's figure through which white sand falls endlessly. The woof snaps and hurtles a spray of globes into deep space. The shuttle becomes a bullet of light and disappears. Carly reaches out, seizes pulsing strands of pure creative energy.

All is darkness.

Carly opens her left hand. A bright bubble springs from her fingers, filling her eyes with light. Clouds of dust roil. Stars cool, the corona of dust settles, planets spin. The primordial ocean roars. Creatures swim, then wade onto shell-strewn beaches and stand up. Empires rise. China. Egypt. Rome. England. America. China. Mushroom clouds jut above broken cities. Spaceships blast off toward an uncharted galaxy.

All is darkness.

Then Carly opens her right hand. A luminous sphere pops out of her palm, flooding her eyes with light. Clouds of dust roil. Stars coagulate, the halo of ashes precipitates, planets orbit. The primal ocean pounds. Creatures swim, then the skin of their fins closes around each digital bone, and they grasp. Empires rise. Xeron. Forf.

Klamat Lator Meen, Xeron An ocean floor splits swallowing crushed cities Space-ships blast off into the unknown universe

All is darkness

Doctor Spinner's voice calls, "Carly? Carly? Carly? Carly?"

Checkerboards of golden light pierce Carly's left perimeter The thick black wall of inhibition shatters shards of guilt, wisps of fear strands of denial flung into infinity

Carly hovers in telespace Her presence in link is a luminous pearl She gleams with crystal, the wonder drug that preserves life expands consciousness, permits Earth dwellers to send their presence across the galaxy to new worlds The jade obelisk of Wolfe, her beloved is there Doctor Spinner's presence in link an indigo cone set with silver crescent moons joins them

Before them towers a castle of gold, turrets ablaze There the judge holds court, dispensing justice Across Carly's right perimeter splashes an emerald sea dragons frolicking in the swells There new people of the modern age refresh themselves cast nets for plentiful fish Bordering the back perimeter scarlet gardens yield spicy perfume There Rosa Martino joins hands with her daughter, Luisa and grandson, Dan and the three of them circle in a sprightly dance Glorious blooms thrust brilliant creepers into the blue jungle of Carly's left perimeter There through jungle vine and murex bush peep the wild yellow eyes of new ideas not yet thought, jungle cats, and bright-beaked birds

"Doctor Spinner" says Carly "what is this place?"

"Telespace, Carly Nolan," says Doctor Spinner "Oh yes, oh certainly As only a human mind could create it"

"But some call it reality" says Wolfe "It is yours beloved

Anchored overhead to the four corners of telespace is the lattice of time and space, like a spiderweb a beautiful fine spiral hung with crystalline drops of dew Night rain has torn a hole in its center Carly knows what to do She flies up through telespace, takes the warp, takes the woof Then she skips across the silk and begins to weave ∞

CREDITS

Page 14, Malcolm Kirk ("Secret Sharers"), Randy Myer (Weintraub), Albert G. Richards ("Floral Dec...ngement"), Rosamond Purcell ("Body Snatcher"), Claude Verlinde ("Psychotales"), Peggy Parks (Lisa Mason), **page 22,** ...fill, Hella **page 26,** Mark Patinkin/*The Providence Journal Bulletin*, **page 28,** Matthew Miller, **page 30,** Matthew Miller, **page 34,** Janet Saad-Cook, **page 40,** Geoffrey Chandler, **page 44 top,** Paul O'Neil, **page 44 bottom,** Carnegie-Mellon University, **page 46 top,** © Bruno J. Zehnder/Peter Arnold, **page 46 bottom,** Don Dixon, **page 46 top,** © 1967 N.S.A., **page 46 bottom,** John D. Gearhart Ph.D., **page 47 top,** Pat Lynch/Photo Researchers, **page 47 bottom,** Utah State University, Logan, **page 48 top,** NASA; **page 48 bottom,** Mark A. Schaefer/*The Arizona Daily Star*, **page 49 top,** © Jon Halaska 1985/Photo Researchers, **page 49 bottom,** © Paul Seube/Photo Researchers, **page 50,** 1986 Glenn Hudson/Black Star, **pages 100 to 105,** Albert G. Richards, **page 131,** Chris Moore, **page 132 top,** Photo Researchers, **page 132 bottom,** Odette Mennesson/Photo Researchers, **page 133 top** Odette Mennesson/Photo Researchers, **page 133 center,** Jim Harter, **page 133 bottom,** Stephen Frank, **page 134,** Anna Pomaska, **page 162,** Ellen Schuster, **page 167,** Parish Kohanim, **page 168 top,** Robodevco Ltd., **page 169 bottom,** Sony/Fleishman-Hillard Inc., **page 169 top,** R.M. Vogel/Smithson an, **page 169 center,** Dorf & Stanton Communications, **page 169 bottom,** Walter Chandoha, **page 176** Mati Klarwein

TECHNOTHERAPY

MIND

By Peter Garrison

Computers are used widely today in psychology to administer personality-profile questionnaires keep records and make diagnoses Computerized programs that treat emotional disorders, however are a novelty But Stanford University computer scientist Kenneth Colby believes computers will help relieve the chronic shortage of mental health workers and could be successful in testing short-term acute stress situations, including marital problems parent–child relationships, or conflicts between colleagues at work "Most people who need help," Colby says "don't need a complete personality make over—something no treatment can guarantee They just need to learn to live with their problems Their question isn't, 'Who am I?' It's, 'How can I get a date on Friday night?'"

Several computer treatments for specific disorders are in various stages of development testing and use Computer treatments for phobias for example consist of a series of structured graduated exercises in confronting the feared object or situation A Raja Ghosh, a British psychiatrist has used a computer to treat people who suffer from such mild phobias as agoraphobia (the fear of open spaces) The program suggests activities Go to a museum or a restaurant alone When the subject returns the computer asks him about the experience Ghosh believes that patients can modify their behavior with practice

Paulette Selmi of the University of Wisconsin has been successful in treating depression which is the most widely reported psychological complaint in America She used a cognitive-therapy approach "Change your thoughts to change your feelings Her program asked people what they thought about and then suggested other things for them to think about The treatment worked

Roger Gould a psychiatrist and researcher at UCLA, has developed a therapy package he calls *TLP* (Therapeutic Learning Program), which uses computers in tandem with a therapist The computer asks questions, assigns homework, and tries to uncover "thinking errors" that trap patients in self-destructive behavior A nationwide health maintenance organization, CIGNA Healthplan Inc , offers *TLP* to its members The program takes five weeks and each workshop lasts two hours

In the first session the Developmental Goals Workshop people choose an area of their lives that dissatisfies them The computer asks, "What have you been doing so far about your key dissatisfaction?" Participants are given a choice of 18 answers to help them identify why they haven't solved their problem Responses range from "I'm accepting and living with it" or "I blame others" to "I'm ignoring it" or "I withdraw" After completing the exercise at the computer patients sort out what they've learned about themselves with the therapist

"I thought I had been dealing with my everyday stress," says one woman whose doctor told her that her physical symptoms—laryngitis facial swelling—were stress related "Once I faced my feelings of inadequacy," she says "my symptoms went away It was incredible how fast I learned" Another woman says that the program helped her identify her weaknesses "The program helps you focus on old beliefs you don't need—on goals and your potential," she says

Perhaps you'd rather tell all to a computer?

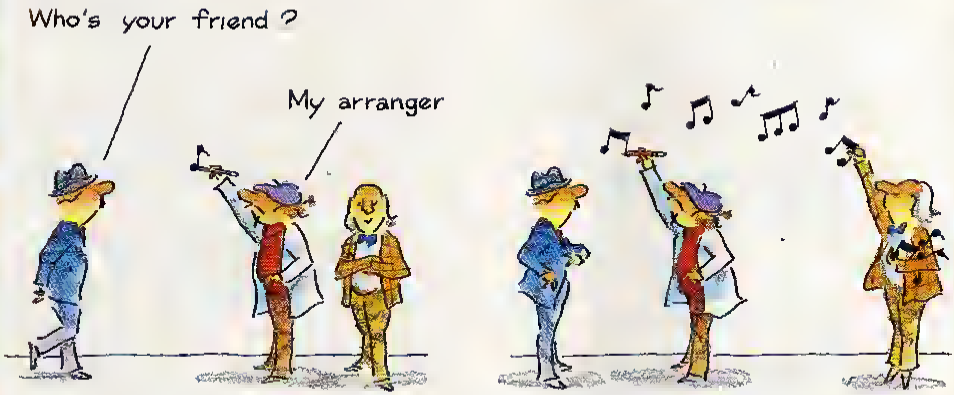
Gould's *TLP* has been used by more than 2,000 people and he gives glowing reports of the results "beneficial change" in half the patients, "life-altering change" in 15 percent "The key role of the computer," says Gould, "is to help people go through their conflicts step-by-step"

Robert Cutrow regional mental-health department head for CIGNA Healthplan in Manhattan Beach California was one of the first therapists to use *TLP* Cutrow believes *TLP* succeeds where many other types of therapy fail, because patients are more willing to reveal their feelings to a computer than to a therapist. Facing a monitor is less threatening than talking to a therapist "Seventy-five percent of the people who belong to medical groups could benefit from *TLP*," he says "Most people encounter a lot of stress in their day to day lives but often they're not even sure what is bothering them And the majority of these people resist any suggestion that they may have a mental-health problem In other words they won't see a shrink"

Cutrow claims that the technique underlying computer-assisted therapy is simple but powerful "Patients soon realize no one else can solve their problems—not a therapist nor group members," he says "Because the program is self-directed it is very appealing"

According to Otto Thaler professor of psychiatry at the University of Rochester School of Medicine computer-assisted therapy won't work for serious problems like psychosis "I don't think anyone has ever used a computer to help psychotics," he says "The single most important factor in psychotherapy is the relationship with another human being The computer will never substitute for that" Thaler also thinks it's very important to distinguish among serious moderate or trivial problems "Trouble getting a date is not a psychiatric problem," he says

The Artist



EARTH

CONTINUED FROM PAGE 14

A proposal for a sun drawing is being considered now by the Museum of Art at the University of Arizona in Tucson for its central exterior wall. "Saad-Cook is a groundbreaker," says Peter Birmingham, director of the museum. "Her work with light is unlike anything I'm familiar with. It's one thing to shoot a laser across a river at night, but it's quite another to take the sun and put it to work to create art."

Now she plans to select a permanent site for a building that will contain a sun drawing for the full cycle of the year. Designed as a white concrete hemisphere with a six- by eight-foot glass-enclosed opening, the building will cover approximately 2,000 square feet. The interior room will contain the sun drawing and a sitting area. On clear days, visitors will be able to see time passing in visual form, as Saad-Cook says. One location under consideration is the Very Large Array at the National Radio Astronomy Observatory—a grouping of radio antennas in New Mexico.

The materials that will be used to activate the permanent sun drawing have changed from the temporary plastic films used earlier. Saad-Cook now works with glass that has been dielectrically coated, an optical process that breaks sunlight into pure color. These coatings literally give the artist her palette of colors for a drawing. "I slump and sag the glass in a kiln, bending it until I get a shape I like," she says. "When the glass cools, I put it in the sun to see what kind of shape is reflected on the wall." The glass is then sent to an optical coating company where it is coated. Saad-Cook then combines the glass with mirrored metals to get the full range of forms and colors that she had when she was using the plastic films.

"I envision the sun drawing project as a quiet enclosure, a sacred place that will reflect the interaction of sun and Earth through four dimensions: light, space, movement, and time," Saad-Cook explains. "From the earliest times, civilizations have used the sun's cycle to make their calendars so they could live in harmony with the cosmological order. I'm planning to make this work of art reflect that order, and my purpose is to bring us back to an awareness of it and the connection it gives us with each other."

Editors note: In Washington, DC, next May, the Chevron Conservation Awards Program will pay tribute to ten volunteer citizens, ten professionals, and five nonprofit groups whose work in protecting the earth's natural resources has contributed significantly to our quality of life. Each individual and group will receive $1,000. Members of the general public may nominate a friend, colleague, or group by December 31, 1987. For further information write to Chevron Conservation Awards, Box 7753, San Francisco, CA 94120.

STAR TECH

ACCESSING THE FUTURE

HOLOWINDOWS ON THE WORLD

Laser-generated holograms have already been used for everything from light swords in *Star Wars* movies to the nifty little 3-D insignia on your credit cards. Now a group of technologists from Cambridge, Massachusetts, are planning to use holographic windows to splash sunlight into dark interiors of homes and offices, thus cutting lighting costs by as much as 80 percent in the process.

The windows, explains Richard Ian-Frese of the Advanced Environmental Research Group, will probably be coated with a photographic film that has been exposed to laser light. The laser creates a "relief pattern" that turns silver halide particles in the film into what amounts to a series of microscopic mirrors.

These holographic mirrors will, in Ian-Frese's words, "redirect incoming sunlight wherever you want it." By stacking a series of these films—each one with its "mirrors" set at a slightly different angle—the coating will actually follow the sun as it moves across a window during the course of the day, thus allowing the interior lighting to remain constant. "Remember," says Ian-Frese, "that the nature of a hologram is to redirect light. So we're just taking advantage of a natural lighting source."

—Bill Lawren

Access: Prototype by the end of 1987, should be commercially available in two to three years.

FAT SHAVER

Dr. John B. Simpson, a Redwood City, California, cardiologist, has developed a new surgical procedure—transluminal atherectomy—that opens clogged arteries by shaving fatty deposits out of them with a tiny internal drill-like device.

Once a catheter threads the instrument to a narrowed point in an artery, a miniature balloon is expanded, moving the instrument tightly against the artery wall where plaque obstructs blood flow. Driven by an outside motor that is connected to a cable, a razor-sharp cutting tool whirling at 2,000 revolutions per minute cuts out strips of fatty material and stores them in a retaining cup that is later withdrawn.

According to Chuck Benson of Devices for Vascular Intervention, the company that manufactures the fat shaver, this new procedure is less traumatic to vessels than balloon angioplasty, an older technique that pushes plaque aside but doesn't completely remove it.

"We believe atherectomy will reduce the likelihood that a treated artery will narrow again soon after it has been treated," he says.

So far the treatment has been used only for blocked leg arteries, but clinical trials on heart patients began this past summer.

—Sherry Baker

Access: Chuck Benson, Director of Marketing and Sales, Devices for Vascular Intervention, Inc., 595 Penobscot Drive, Redwood City, CA 94063.

PERSONAL BLIMP

Get ready for what may be the ultimate executive toy: a one-third-scale, fully flyable personal blimp. Designed by Steve Garner of Memphis, Tennessee, the 90-foot single-seater version will be powered by an ultralight airplane engine and will get its lift from 19,000 cubic feet of helium—just like the real thing. When airborne, it is expected to cruise at altitudes of about 2,500 feet and at speeds up to about 45 miles per hour.

The blimp, says West Coast distributor Richard Milewski of Pacific Airships, is safe to fly. "If you have engine failure," he says, "the craft simply becomes a balloon, and you can fly it like one." It's cheap to operate (probably less than the typical $100 per hour for conventional small planes) and can land in any large open space (though someone must be waiting there to tether it). At a projected price of about $30,000, it costs considerably less than a Rolls-Royce.

The sticky part, says Milewski, is getting licensed to fly it. "You can't just go down to your local flying school and rent one," he says. To solve this, the company plans to inaugurate five or more training centers around the country with instruction provided by—who else?—former pilots of the Goodyear blimps.

—Bill Lawren

Access: Write Memphis Airships, Box 13114, Memphis, TN 38113.

TOTAL MOVIES

You're driving through a graveyard on a moonlit night. In front of you a huge and eerie arch looms threateningly, while on either side a pack of diaphanous spirits dance a ghostly ballet—all in time to music so sinister it would make even Hitchcock squirm. Scared? Well, relax. It's only ROBOSHOW, a new experiment in total-immersion entertainment from Robodevco of London.

Essentially, ROBOSHOW is a theater full of screens, three large ones in front, and anywhere from 40 to 1,200 smaller ones spread around the room. As you might expect, a specially programmed computer (called ROBOCORE, shown above) is required to rapidly move images from one screen to another and to integrate the visual show with dynamic, high-fidelity surround sound. The intention is to provide what Robodevco spokesman Hugh Roberts calls "psychosensory art, an orchestrated tapestry of sound and vision."

Currently, Robodevco is trying to raise money for a robot-guided ROBOSHOW musical to be staged in a London theater. "It's really a new entertainment medium," says the enthusiastic Roberts, "and we're only scratching the surface. Basically, ROBOCORE can do anything the imagination wants."—Bill Lawren

Access: Travelers to London can arrange to see a demonstration by writing Robodevco, 105-A Torriano Avenue, London NW5 2RX, England, or by calling 44-1-267-4886.

WALKKID

After selling 30 million of its Walkman products to grown-ups around the world, Sony is now setting its sights a little lower. The company recently introduced its first line designed specifically for children, called My First Sony. Included (see below, bottom right to left) are a brightly colored Walkman featuring bigger buttons than you'll find on Daddy's or Mommy's model; a radio/cassette recorder; a cassette recorder with microphone; and a walkie-talkie headset. There's even a kids' line of audiocassettes that come in more than 4,000 color combinations.

Despite their primary colors, protective rubber moldings, and larger buttons, these products are not toys. Instead, My First Sony products feature adult technology designed to be more attractive to kids and to survive some less-than-delicate handling. For example, the items are made of a more sturdy plastic than you'll find on a standard Sony Walkman. There's also a volume-limitation feature on the kids' Walkman that parents can set to keep a child from listening to music at a harmful level.

—Marjorie Costello

Access: Available since October in large retail electronics, toy, and department stores. Suggested prices: Walkman, $34.95; recorder with microphone, $44.95; walkie-talkie headset, $49.95; radio/cassette recorder, $59.95; audiocassettes, two for $3.99.

MICROWAVES THAT CAN READ

For consumers who find microwave ovens too complicated or who just want the latest labor saver, Sharp has come up with a model that features a bar code reader similar to the kind used at supermarket checkout counters in the United States.

The unit, which is one of Sharp's high-end convection

microwaves includes a hand-held bar-code scanner that electronically reads recipe instructions from a special cookbook with bar codes. Passing the wireless scanner over the code corresponding to a desired dish transfers instructions on time and temperature to the oven via infrared light waves. A display panel provides step-by-step recipe instructions, ensuring a perfect outcome for even the most maladroit chef.

Although Sharp believes it

will have at least one ready market for this product in the United States—among more affluent senior citizens—the company does not plan to export it to the States until the price of the bar code feature can be brought down. Retailing for $1,000 in Japan, the oven's price would have to be cut almost in half for it to be practical even in the high-end sector of the competitive American microwave marketplace.

—Marjorie Costello

Access: Available in Japan now. Export to the United States will most likely begin when the price can be brought down.

INDUSTRIAL ARCHEOLOGY

In a small is-beautiful world where a megabyte of computer memory is the definition of the word *big*, it is reassuring to know that some people still long for the days when America's building material of choice was iron, not silicon.

The Society for Industrial Archeology, an activity of the Smithsonian Institution's National Museum of American History, was founded to preserve the nation's technological past. The objects of its affection—to which members have traveled for annual meetings and tours—have included the Goodyear Airdock, a mammoth 21-story, 364,000-square-foot military blimp hangar in Akron (above right); Buffalo's collection of mighty grain elevators (13 still standing on the banks of the Erie Canal, including the 3.5-million-bushel Cargill Superior Elevator); and the four monster mechanical ore unloaders located at the Pennsylvania Railroad Ore Dock in Cleveland.

The 1,500-member society publishes a semiannual journal and a quarterly newsletter and organizes tours of mills, power plants, blast furnaces, and other industrial and engineering sites throughout North America.—Timothy Onosko

Access: Annual fees: $25 regular membership, $20 for students. Contact: The Society for Industrial Archeology, Room 5020, National Museum of American History, Washington, DC 20560.

DOGGY DATING SERVICE

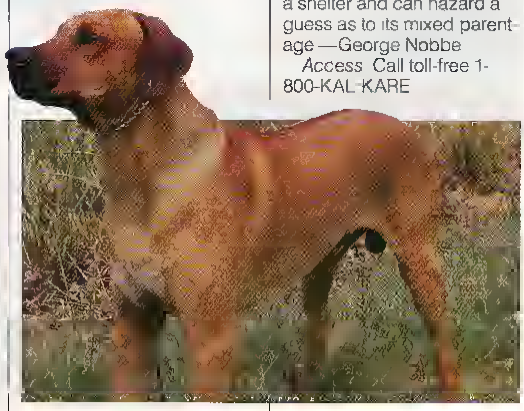
An electronic service along the lines of those used by computer dating services has been developed by the folks at Kal Kan, the Vernon, California, dog food manufacturer—only theirs matches you with the ideal dog instead of the ideal date.

Pedigree Selectadog is free; all you have to do is dial 1-800-KAL-KARE. You'll be sent a questionnaire requesting your views on such doggy matters as: Do you live in a house or apartment? Do you have a yard, small children, or elderly relatives? How often can you walk your new acquisition? What do you want to spend on food? What are your notions of a dog's ideal coat, size, build, and temperament?

When the computer gets the completed questionnaire it will recommend and thoroughly describe two to four possible breeds.

The system will even work in choosing a mutt if you happen to come across a particularly appealing one in a shelter and can hazard a guess as to its mixed parentage.—George Nobbe

Access: Call toll-free 1-800-KAL-KARE.



GAMES

CONTINUED FROM PAGE 177

TREASURE HUNT WINNERS

No matter how great the obstacles, nothing can deter *Omni* readers' determination. Take, for example, last February's Great Treasure Hunt. Each clue consisted of two parts. You had to first interpret its reference to a particular advertisement or article and then confirm the correct page by finding words on it that also appeared in the clue. The correct page numbers: 128, 25, 75, 41, 87, 45, 35, 63, 86, 9, 27, 13, 77. Congratulations to the 25 prizewinners.

Jean Kurtz, Little Chute, WI
AMC Jeep Wrangler
Sharon Hughes, West Newton, PA
Hoverstar Sports Hovercraft
Josephine H. Sucher, Bay Village, OH
Mitsubishi VCR and 50-inch TV
John Orashen, Flemington, NJ
Lazare Kaplan diamond
Paul Kalowski, Fort Leavenworth, KS
Bang & Olufsen stereo equipment
Jennifer Roberts, Columbia, LA
Fantasy Holidays Rome vacation
E. Joy Schwartz, Riverside, CA
STS Satellite Earth Station
Jane S. Bond, Bristol, VA
ACS Imports computer and printer and VocaLink speech recognition board
Laura Wren, Douglasville, GA
Set of Luma Telecom picture-transmitting telephones
Sam Walkup, Pegram, TN
Canon camera outfit
Elsie Chemnwchan, Naperville, IL
Clarion car stereo system
Deborah Munn Price, Smithfield, NC
Liquor, Carillon Importers
Vincent M. Wojtak, Stevens Point, WI
Liquor
Gary E. Soneira, Rockville, MD
Liquor
Raymond Meneses, Houston
Casio synthesizer
Jacqueline Gross, Boston
Canon personal copier
Gloria E. Johnson, Kearns, UT
Personal copier
Lloyd Barnes, Atlanta
Micro Eye Vector Radar Detector
Gigi Raygor, Stockton, CA
Radar detector
Lois M. Harp, Evansville, IN
Radar detector
Al Bolz, Colby, KS
Radar detector
I. Ludwick, Wallace, ID
Radar detector
Ray Maciewicz, Marcy, NY
Radar detector
M. J. Wilton, Port Huron, MI
Radar detector
Mark A. Peterson, St. Paul
Halleyscope telescope

STATEMENT OF OWNERSHIP

Statement of ownership, management, and circulation (Act of August 12, 1970; Section 3685, Title 39, United States Code). 1. Title of publication: *Omni*. 2. Date of filing: September 30, 1985. 3. Frequency of issue: Published monthly. 4. Location of known office of publication: 1965 Broadway, New York, New York 10023-5965. 5. Location of headquarters or general business offices of the publisher: 1965 Broadway, New York, New York 10023-5965. 6. Names and addresses of publisher, editor, and managing editor: Publisher: R. C. Guccione, 1965 Broadway, New York, New York 10023-5965. Editor: R. C. Guccione, 1965 Broadway, New York, New York 10023-5965. Managing Editor: Steve Fox, 1965 Broadway, New York, New York 10023-5965. 7. Owner: Names and addresses of stockholders owning or holding 1 percent or more of total amount of stock: Omni Publications International, Ltd., 1965 Broadway, New York, New York 10023-5965; Penthouse International, Ltd., 1965 Broadway, New York, New York 10023-5965. A Trust for the Benefit of the R. C. Guccione Family, Georgetown, Grand Cayman, B. C. Guccione, 1965 Broadway, New York, New York 10023-5965. 8. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amounts of bonds, mortgages, or other securities: None. Average number of copies of each issue during preceding 12 months: A. Total number of copies printed: 1,198,162. B. Paid and/or requested circulation: (1) Sales through dealers and carriers, street vendors, and counter sales: 284,705. (2) Mail subscriptions, paid and/or requested: 625,530. C. Total paid and/or requested circulation: 910,235. D. Free distribution by mail, carrier, or other means: samples, complimentary, and other free copies: 7,221. E. Total distribution: 917,456. F. Copies not distributed: (1) Office use, leftover, unaccounted, spoiled after printing: 4,617. (2) Return from news agents: 276,089. G. Total: 1,198,162. Actual number of copies of single issue published nearest to filing date: A. Total number of copies printed: 1,269,852. B. Paid and/or requested circulation: (1) Sales through dealers and carriers, street vendors, and counter sales: 270,700. (2) Mail subscriptions: 660,000. C. Total paid and/or requested circulation: 950,700. D. Free distribution by mail, carrier, or other means: samples, complimentary, and other free copies: 7,300. E. Total distribution: 958,000. F. Copies not distributed: (1) Office use, leftover, unaccounted, spoiled after printing: 4,364. (2) Return from news agents: 307,488. G. Total: 1,269,852. I certify that the statements made by me are correct and complete. John Prebich, Senior Vice President and Chief Financial Officer.

FUTURE TOYS

CONTINUED FROM PAGE 66

cally engineered friend.

Larsen: Artificial intelligence. In twenty years we'll be talking to Hal.

Chesley: It's bound to happen.

Hicks: But we'll become mindless, dependent on them.

Larsen: Mush brains.

Hicks: Totally confused on what to serve the in-laws for dinner. But I doubt they'll ever be creative.

Chesley: Your in-laws?

Hicks: Computers.

Chesley: They can't dream. But if we designed a computer that really could reason, it would free us up to be creative.

"You wanna buy a duck?" Noah again. "Okay. I've got it. Some things are never going to change. Never. Your Legos and your building blocks. But in twenty years kids will be able to control the characters in TV cartoons with a sort of joystick—high-tech Winky Dinks. Winky Dinks of 2007. Okay, that's it. I'm going to Europe. I'll call you from Paris. Bye."

There is only one antidote for all this high-techitis: Phil Garner—artist, inventor, a critic of American consumerism. His inventions have appeared in *Esquire* and *Rolling Stone* and on *Saturday Night Live*. The visual punster brought us Shower in a Can, "Team Jogging Shoes" that three people can wear, and the "Electronic Auto-Zipper" which warns the wearer of "incomplete closure." The mad unscientist believes the bicycle was the "apex of the Industrial Age."

"In twenty years we'll need Techno-Moss," Garner insists. "We'll need it *bad*. We can drape it on our computers and appliances to give them a rustic look."

"You know Masters of the Universe?" he continues, gaining artistic momentum with every word. "Well, how about Masters of Nothing—perfectly aimless dolls that don't conquer anything? And instead of gunslingers, we could have punslingers. Pull the trigger and the gun tells a pun. Then there has to be Regresso, an early-retirement game for children so they can get their adulthood over with quickly and have happy lives. And Amnesia Helmets that get rid of all static and responsibility. I got that from a Buck Rogers movie. And Boarding-Up Kits for kids so they can board up gas stations and computers."

The line makes a disagreeable bleep, and I admit to Garner that I have Call Waiting. He hangs up in disgust, and I find myself talking with a sweet-voiced man—Eddy Goldfarb. I ask him about the chattering teeth of the future. "Oh, that's easy," he says cheerfully. "Electronic chips are becoming very, very inexpensive. In the last couple of years we've been using electronic chips to make rather expensive talking toys—basic, digitally generated speech. In twenty years, chattering teeth will really say something! Tell you jokes. Talk back to you. Say, 'Wanna buy a duck?'"

Late that night, the phone rings again. The male voice is muffled and strained. I immediately expect obscenities. Instead, I receive a number of strange ideas. He's a toy designer who insists that both his and his company's identity remain anonymous. He refers to himself only as Deep Barbie (DB).

"In twenty years there won't be toy stores," he begins. "We'll have the ability to create whatever we want to entertain ourselves and our children. We will have figured out a way to monitor brain waves or thoughts—a biological computer. If you will, that transmits your thoughts. We already have a machine called a stereo lithographer that creates solid information from computer data—a materialization machine. Most of the background and structures in the movie *Tron*, for instance, were computer-generated solid models. We will expand that technology until we have a machine that creates solid reality."

According to DB, we'll wear this gadget on our heads, talk to it, tell it what we want. It will talk to a computer, and the computer will ask questions to help us define the toy we want to create. Then the toy will appear. "It could get scary if there aren't any controls," DB says.

The line starts crackling, then goes dead. Deep Barbie calls back, admitting that his cat had knocked over the phone. "I was thinking about a product that uses superconductivity and antigravity," he mutters. "We're looking for ways to neutralize the gravitational field of the earth. It's an entertainment phenomenon, really. A whole bunch of entities I call fairies or fireflies that choreograph color and dance and read alpha waves to indicate pleasurable experiences. Now this would take some elegant algorithms." DB fantasizes that these fireflies would listen to your mind and know if you liked their performance—instant critique. They'd live in a little shoe box on the floor, and when switched on, these little guys would shoot out. If they were capable of enough speed, they could create a television effect so you could actually see what you were thinking. "We'll have cold light by then," DB says. "We already know we can run a fluorescent tube without any wires by placing it next to a Tesla coil. Or maybe the fireflies could be the size of baseballs with an internal light source."

Of course, all this depends on coming up with new materials from extraterrestrial sources—Martian clay, for instance. "Nothing is new," DB says. "That's proved all the time. We trap ourselves when we limit our thoughts; we get out of the trap by finding new worlds. We will create wonderful new toys—just like the little fellow building androids in *Blade Runner*. Perhaps he'll be the new toy maker. We'll go to one of these fellows' shops, and he'll make our dreams—a dream shaper.

The heavenly toy maker come to Planet Earth. I am thinking, just in time for the twenty-first century. ∞

CONTINUED FROM PAGE 128

turned over to the military at that point would they?

Fletcher: I don't think they'd be interested!

Omni: Are you going to postpone the Citizen in Space Program indefinitely?

Fletcher: The Citizen in Space Program will have to wait until we start flying again. Obviously we wouldn't have a citizen on the first one and probably not the second one. Beyond that I don't know. We don't want any aberrations or anomalies in the shuttle turnaround before we start complicating things by including civilians. Part of that is the astronauts feel uncomfortable with someone who hasn't trained with them. That's something they'd have to adjust to.

Omni: Why not get people from different disciplines into the astronaut corps itself?

Fletcher: We already have them.

Omni: No, you don't. You don't have teachers there or journalists, filmmakers, or people from other walks of life. In essence, why not extend the talent of the astronaut corps?

Fletcher: I don't know whether that's a possibility. I don't believe anybody's ever thought of it. You're the first. Could we really get journalists to spend that much time?

Omni: I can think of about a hundred right off the bat who would do it. When would the ordinary citizen be able to participate in the proposed moon base?

Fletcher: The early settlers on the moon would have to be astronauts. You'd need people skilled in manufacturing technology. A new category of astronaut would arise—an *industrial astronaut* as opposed to a mission specialist. These specially trained people would be part of the astronaut corps, even if the numbers got up to fifty or sixty. After that period we'd have larger bases—colonies—on the moon. This would be well into the second decade of the next century. By 2020 at least.

Omni: Let's talk about shuttle passengers. What about foreign payload specialists?

Fletcher: There are two kinds. The payload specialists, unique to a particular mission, like those for Spacelab, will need more extensive training than they've had in the past. The odds are we'll continue with those payload specialists. The big question concerns the payload specialists who would tend a particular satellite being launched by a foreign country or a non-NASA customer. We're setting up a committee to examine that whole process. Some people say no, we ought to exclude them, and some say yes, they have a right to be there.

Omni: How about members of Congress?

Fletcher: Oh, no, we're not planning on sending members of Congress.

Omni: What's the single greatest obstacle to rebuilding the space program?

Fletcher: Single? I would say there's a short- and a long-term problem. It's easier to talk about the long-range problem, to rebuild NASA. We've lost some good people, and our facilities, in some instances, are awful, especially here at headquarters. That influences the kind of people we can get. We couldn't go to Mars with our current workforce. In the short term our problem is fixing the shuttle and building up public confidence in NASA as a can-do agency.

Omni: Draw a picture of your ideal NASA.

Fletcher: Very talented individuals, each of whom understands the importance of his assignment and all of whom work toward a set of common, future-oriented goals. You could call them visionary goals, but that might imply going impossible lengths. We can't go to the nearest star—that I'd call visionary. But we can go to the nearest planet or heavenly body, and we can even plan to go to the *farthest* planet. That's what I call future-oriented.

Omni: Dreaming with your eyes open?

Fletcher: I call it "dreaming with your feet on the ground."

Omni: What caused NASA's decline—as far back as the Apollo program?

Fletcher: We neglected to pay attention to the institution—people, facilities and equipment—and they all interact. Some of our people work in buildings that are falling apart—the elevators, air-conditioning and other things don't work. Data-processing equipment and test equipment of all kinds, like wind tunnels, have deteriorated. It's going to take at least two or three years to build back that institution.

"NASA has had too much charisma in the past and not enough management. My job is to build a team and to be an appropriate leader of that team. We have a first-rate team."

Omni: Who's the culprit in this slide?

Fletcher: I don't think it was all Congress. OMB [the Office of Management and Budget] was the principal offender in that regard. But NASA itself put its money into programs rather than institution building. But *not* under my administration.

Omni: When you returned to office, what things did you want to achieve?

Fletcher: First, foremost, and maybe only, to get the shuttle flying again! The second priority was to get rid of the backlog of missions that we lost because the shuttle was down. The space station was third.

Omni: Will you accomplish those?

Fletcher: Those three we will. Rebuilding will be tough. It's not just the money. It's a question of federal constraints on whom you can hire and what you can pay and on who's in charge of this building.

Omni: In a press conference you said that NASA was difficult to manage because it was a research agency on the one hand and an operational one on the other—an unhappy hybrid. Must NASA split?

Fletcher: We're wrestling with that now. I'm not sure it can be done in the next decade. Presently all our operations are heavily R&D [research and development], so it would be a very great risk to separate them now. There are just too many fixes on every flight of the space shuttle. Real operations are still far downstream.

Omni: Do we still have the resources to call forth a great program? Didn't Kennedy have more resources at his fingertips?

Fletcher: The amount NASA spends of the total federal budget is one half of one percent—not a very large piece! It's estimated that if we did all the things the Commission on Space suggested, NASA's budget would triple—and it still wouldn't be as large a piece of the federal budget as was the Apollo program. It's a question of national priority. Right now the national priority is to reduce the federal deficit. So it's unlikely that we can undertake any mission to the moon or Mars until that national deficit is nearly balanced.

Omni: But people are wondering why we haven't even asked for any big missions. Is it strictly a matter of fiscal constraints?

Fletcher: We can't ask for big missions while we're still trying to fix the shuttle. You try your best to save the missions you've got. We ought to be thinking about new missions so that when we're flying again and fiscal restraints may not be so severe, we'll be ready for that next project. That's what we normally do anyway.

Omni: Your leadership style has been criticized as not being bold enough; you've said you thought you weren't "inspirational" enough. How do you perceive your role as NASA administrator in these times?

Fletcher: The question put to me was, Did I have enough charisma to be NASA administrator? My answer was that NASA has had too much charisma in the past and not enough management. My job is management—to build up a team and be an appropriate leader of that team. That I have done. We have a first-rate team. Next it's to interact with the President and the Congress so they know the programs. I think the nation ought to pursue. I think I'm doing both of those things reasonably well.

Omni: NASA has been accused of no longer being an agency of "dreaming." Is it NASA's job to dream, or should it carry through the dreams of others?

Fletcher: NASA administrators have to dream. We're the agency of the future, and if we don't have that vision of the future, who will?

Omni: Maybe the public at large.

Fletcher: There are some individuals in the public who are more visionary than NASA. Because we have to make things work, we must be realistic about that vision. There's no lack of vision at NASA.

STAR WARS®

- Limited edition
- Actual size: 8½"
- 24K gold rim

THE FIRST 1977 STAR WARS 1987 TEN YEARS

Han Solo™

"A long time ago, in a galaxy far, far away..."
With these words, the adventure of *Star Wars*® began nearly 10 years ago. And since the premiere of this beloved film trilogy, millions of movie fans and science fiction buffs have thrilled to the daring exploits of the *Star Wars* characters.

The movies' timeless theme of good versus evil—played out against a background of incredible special effects—has set the standard by which other action films are measured today. And now this legendary trilogy has inspired the *first-ever, limited-edition Star Wars collector plate.*

This gleaming porcelain plate features *Han Solo* in a brilliant tribute to the pilot of the *Millennium Falcon*, as portrayed by Harrison Ford. The scene is the *Mos Eisley Cantina*, where *Solo* is lounging with other space pilots among a startling array of strange exotic aliens.

Han Solo represents the first of eight issues in the *Star Wars* Plate Collection. Each is an original work of art capturing favorite characters and scenes from the movie trilogy with lifelike precision. This fine porcelain plate measures 8½" in diameter and has a 24K gold rim. An edition limit of a total of 14 firing days has been set for each plate, and each will be numbered and accompanied by a numbered Certificate of Authenticity.

As an owner of *Han Solo*, you are guaranteed the right—*not the obligation*—to acquire subsequent issues, in the sequence offered to you. Furthermore, you may acquire this collector plate at no risk. The Hamilton Collection *100% Buy-Back Guarantee* assures that you may return any plate for a full refund, within 30 days of receipt.

The enduring popularity of the *Star Wars* trilogy and Harrison Ford's *Han Solo* character, combined with the superb quality of this *first-ever Star Wars* plate has resulted in strong demand for *Han Solo*. So to secure your reservation, you should send in you application promptly.

RESPOND BY: December 31, 1987

Limit: Two plates per collector
Accept my application for *Han Solo*. I wish to purchase _____ (1 or 2) at $29.50 (plus $2.14 shipping and handling) each, for a total of $_____ (31.64* or $63.28*). Check one:
☐ Check or money order enclosed.
☐ Charge my: ☐ Visa
☐ MasterCard ☐ American Express

Acct. No. _____
30593 B7
Exp. Date _____
003164/00632#
☐ Ms. ☐ Mrs. ☐ Mr.

Name _____

Address _____

City _____

State _____ Zip _____

Signature _____
*FL residents add $1.58 and IL residents add $2.22 per plate for tax. *All applications must be signed and are subject to acceptance. Allow 6 to 8 weeks from payment date for shipment. Deliveries made only to the U.S. and its territories.*

The Hamilton Collection
9550 Regency Square Blvd., P.O. Box 44051
Jacksonville, FL 32231

Alice in Wonderland
The Oregon challenge, Competition #44
The "Punish" Dictionary, Part 4

GAMES

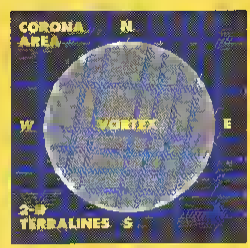
By Scot Morris

Everybody knows a ball can't roll *uphill*. A heavy object should be no more difficult to pull one way than the other. And people can't shrink or grow before your eyes like Alice in Wonderland. Yet such phenomena, defying the known laws of physics, are said to occur at various mystery spots.

Comprising an area 165 feet and 4.5 inches in diameter, the Oregon Vortex is the oldest among these mystery spots. At Sardine Creek in the hills near Medford, people appear to experience a change in height—increasing or decreasing in relation to where they stand. Conducting some simple tests using photographs and a carpenter's level, however, we concluded in our article "Magic Man" (May 1981) that the effects of this Alice in Wonderland phenomenon were merely illusions.

Strongly disagreeing with our conclusions, former high-school physics teacher Rodrigue Prescott recently challenged us. "How can you produce an optical illusion in the middle of a forest when there's no special background *and* when it's visible from every angle?" More interested in learning the truth than in championing a particular position, Prescott offered us $1,000 (Canadian) if we could provide a legitimate answer.

Since 1980 Prescott has studied such roadside attractions as the Mystery Spot in Santa Cruz, California, The Cosmos of the Black Hills in South Dakota, and the Mystery Crater in his native Canada, all similar to the Oregon Vortex. Even though he had demonstrated that the uphill-rolling ball, for example, was really moving *down*ward, Prescott was still convinced that something beyond illusion was happening at least in some cases. Serious investigations, he believed, could open a new chapter in physics.



The Oregon Vortex, some say, causes light to bend, affecting such physical factors as height. The diagrams give an idea of the changes within the vortex compared with the surrounding area.

Accepting Prescott's challenge, we invited magician Jerry Andrus, who had previously studied the vortex and University of Oregon psychology professor Ray Hyman to take part in the investigation, which occurred on July 24, 1987. An expert in illusions, Hyman has refereed challenges like this one and has investigated Uri Geller and such controversial subjects as fortune-telling and dowsing.

A CBS film crew went along to document the investigation for *The Morning Program*. And we were joined by local Rogue River High School science teacher Steve Plotnick, who had heard about the event from two of his students who work as vortex tour guides.

Since Prescott had posed the challenge, he decided where to conduct the tests. His first choice, an area in front of The House of Mystery, a dilapidated shack that supposedly slid 30 to 40 feet down a hillside in 1904. The walls, floor, and roof all lean downhill, and there's no true horizontal or vertical line in the place. The Alice phenomenon itself occurs on a plank in front of the structure.

Moving from one side of the plank to the other, you go through an amazing transformation. On the uphill side you appear shorter, on the downhill side, you seem to be *taller*.

To eliminate the background distraction, we hung a large tarp from a freestanding structure constructed of aluminum piping. Prescott then stood at one end of the plank, and I at the other, while Andrus took several Polaroid photographs. Measuring our recorded images, however, we found no discernible difference in our heights. The illusion, moreover, disappears when a television monitor's image or a still photo is cropped so that all you see are the people, the plank, and the tarp.

It's probably the cockeyed house we thought that's causing the illusion. With the

roof on the uphill end well above your head, you appear shorter than you really are On the downhill side of the house you appear taller because your head is even with the roofline But that accounts for only part of the effect Away from the camera viewfinders even though the house was not visible the illusion remained

To find out what causes this feat we moved on to Prescott s next area of interest a spot below the house where two white wooden poles stand about ten feet apart on a seemingly level concrete platform

The vortex the tour guides say actually bends light traveling between the poles creating the illusion of height change To determine if that claim is true we conducted several tests with Plotnick s neon laser in order to work with a light beam we could see First Plotnick directed the laser through the mist rising from a bucket of dry ice This made the red light visible much like a beam of sunlight streaming through a cloud of dust The result no bending

If the vortex *really* affects light the refractive index (the degree to which light beams bend) should be different when the light is shone in various directions There should also be a difference between measurements taken inside and outside the vortex To detect any such variations Plotnick measured the refraction of light through an optical glass The degree of refraction however never varied from one location to another

In another test Plotnick filled a length of garden hose with water Affixing one end of the hose to one pole he raised and lowered the other end until he found the point at which the hose was level and no water escaped from either end Then he stretched the hose 40 to 50 feet downhill to the office headquarters for the vortex determined the hose s level point along the building wall as he did on the poles, and marked the point with masking tape

If the vortex claim were true light would be deflected enough to miss the mark by at least a foot evidence of a genuine light-bending effect So Plotnick directed the laser s light from the uphill pole toward the mark on the side of the building The red dot of light however hit the masking tape dead center proving that the vortex does *not* affect light

Conceding that the Alice phenomenon is just an illusion Prescott presented us with his check for $1 000 (We donated the equivalent—$736 40—in American currency to the *Challenger* Fund the organization established to aid the children of the astronauts killed in the 1986 shuttle explosion)

THE TRUTH ABOUT ALICE

Strange things happen when you re standing on a hillside When you face downhill and point to what you think is the horizon your arm will be a few degrees too low facing uphill you'll point too high Although that doesn t matter to most people such distortion can be deadly for a lumber jack Before you begin chopping you have to determine where you want the tree to fall Some woodsmen have been killed as a result of misjudging the direction which is why psychologists call the phenomenon the Lumberjack Illusion

When you re on the uphill side of the plank in the vortex and look at someone of the same height standing on the downhill side your vision is directed to the person s chin or neck and he seems taller And that person looking uphill and observing you is actually gazing just above your head making you appear shorter than you really are So until somebody can demonstrate otherwise we'll use the Lumberjack Illusion to explain the Alice phenomenon

Even if phenomena like height changes are only illusions the Oregon Vortex and other mystery spots are fascinating lessons in perception The following is a list of some of these attractions in the United States and Canada They all feature the Alice phenomenon the uphill-rolling ball or other physics-defying feats

- The House of Mystery (Oregon Vortex) 4303 Sardine Creek Road Gold Hill OR 97525
- Mystery Spot 1953 Branciforte Drive Santa Cruz CA 95063
- The Cosmos of the Black Hills 3616 West Main Street Rapid City SD 57701
- Confusion Hill 75001 North Highway 101 Route 2 Box 61 Piercy CA 95467
- Mystery Hill U S Highway 12 Sand Lake MI 49343
- Les Maisons Hantees 3905 Route 147 Lennoxville Quebec
- Mystery Crater Fundy National Park New Brunswick, Canada
- Magnetic Hill Box 2278 Station A Moncton New Brunswick E1C 8J1 Canada

COMPETITION #44

Our last entries in the *Omni* Dictionary (Competition #39) included the letters *K L M N* and *O* uncovering such redefinitions as *Kodiak* (a photogenic species of bear) *legalize* (20/20 vision) *nuclear fallout* (fission chips) and *Omni* (medical condition of kneeling meditators)

In Competition #44 we re now looking for redefinitions of words beginning with the letters *P Q R* and *S* For example— *panhandler* intern *punish* adjective describing the *Omni* Dictionary, *quadruplets* four crying out loud *rebuttal* fanny transplant *slalom* Jewish skier s greeting

In addition to $250 the grand prize-winner in Competition #44 will receive a Franklin Computer Spelling Ace, a computer dictionary containing more than 80 000 words Eight runners-up will each receive $25 All winners will also receive a year s subscription to *Omni*

Send up to four entries— one word for each letter— with your name, address and ZIP code on a postcard to Competition #44 1965 Broadway New York NY 10023-5965 Entries must be received by January 15, 1988 and become the property of *Omni* magazine

CONTINUED ON PAGE 170

LAST WORD

By Dean Christopher

"For all we know, the earth may appear spherical because eyes are spherical. Perhaps reality stuttered. Or maybe the Mercator family was looking for work. It doesn't matter."

For years I have admired the Flat Earth Society, that plucky band of retrovisionaries who maintain that despite appearances, Planet Earth is not now, and never has been, a spheroid. Presumably all evidence of roundery is either superstition or a trick or maybe some slippery quirk of nature that science has yet to parse.

For all we know, the earth may appear spherical because eyes are spherical. Perhaps reality stuttered. Or maybe the Mercator family was looking for work. It doesn't matter, because even if the earth is not flat, I feel that it *ought* to be.

We tend to trust our senses to tell us right from wrong. Our senses tell us that the earth is flat. All meaningful human experience bears that out. And that should be reason enough to make the earth flat. After all, aren't there enough disappointments in life? Is it too much to expect reality—just once—to match our expectations?

There are many compelling arguments in favor of creating a satisfying, floorlike Earth. On a flat planet:

• *Nobody will have to waste time trying to picture why we don't fall off the bottom.* Think of all those saved man-hours!

• *There will be only one time zone.* This will effectively remove all that need for brain-fagging calculation that presently bedevils airline passengers and long-distance phone callers. All humans everywhere will know—at last—what time it *really* is! Peace will finally be possible because there will be universal agreement on at least one thing.

• *Water will glug directly down the drain.* Civilization will waste no more time with unnecessary swirling, clockwise or counter. Dishes will be washed more quickly, leaving additional time for useful pursuits such as Esperanto lessons and bassoon practice.

• *Entire ships, not just their masts, will be visible as they approach.* Think of the benefit to the coast guard, which today must wait agonizing minutes to learn whether that vessel topping the horizon is an Iranian destroyer, or the H.M.S. *Dickie-Dickie Doo*, a pleasure cruiser packed to the rails with golden agers.

• *Shadows will be more predictable—all year long!* Of course, we will still have "years," but there will be no more bother with seasonal inconvenience. The new Earth will tilt enough for variety but will be so controlled that nobody will need superfluous wardrobes. Garment manufacturers may squeal, but then, no plan is ever 100 percent perfect. Many clothiers could be retrained for careers in ground tamping or ocean control.

• *Oceans will be neatly walled in for everyone's better use.* No more pesky hurricanes, no useless tidal changes with all that smelly stuff clotted among creosote muck and festering Mollusca. And yet surfers will still thrill to our clever wave machines, which will pump out pipelines as yet undreamed of by even the tannest wahine.

• *A flattened Earth will be a safer Earth.* Without mountains the number of mountain-climbing accidents will be sharply reduced. This may take some of the excitement out of downhill skiing and Alpine sight seeing, but the benefits are too great to ignore.

Besides, cross-country skiing offers better cardiovascular benefits and less orthopedic risk. And as for scenery, a crack special-effects team can matte into travelogues breath sucking views unmatched by any sierra you care to name. And there are more bonuses. A world without mountains is a world without altitude sickness and oxygen starvation. Once we tamp down those pesky Himalayas and Andes, we will reduce the danger of being overrun by lichen, moss and other above-timberline threats.

• *Short people will feel less so, since there will be fewer tall reference points.* This will significantly lessen insecurity problems deriving from Napoleonic complex aggressiveness, thereby making the world a less warlike place in which to live.

• *There will be less wear and tear on tires, wheels and shoes.* With no hills or sharp curves, friction coefficients will be more evenly distributed, so all products that rub the road will last longer. Furthermore, roads will be absolutely straight, making traffic much more manageable and—surprise!—marathons will be more fun without all that uphill struggling.

Space limitations preclude our listing the many more benefits of a flat Earth. Suffice it to state that it will be glorious. A few gloomy Guses may cry out: If we make the surface of the earth flat, what will we do with the underside?! Anticipating these cranks and naysayers, the author has devised a solution both dazzling and simple: *Mobius Earth!*

You heard it here first. Henceforth Planet Earth will not only be flat, but it will also have one contiguous side, forever facing the sun. This will provide countless jobs for makers of sunscreen, dark glasses and sleep masks. (I try to think of everything.)

By the way, the sun is not really a star. It is an enormous fluorescent tube, 93 million miles long, hovering hundreds and hundreds of feet above the earth. It was nailed to the sky by Korgo of Zorkon with a single golden spike on April 22, 1937, just after four P.M. Everything else you have heard is a lie. ∞

Dean Christopher is a California based freelance writer who lives on what he thinks of as the edge of the United States.