DOUBLE MAP SUPPLEMENT: CANADIAN NORTH

VOL. 192, NO. 3

SEPTEMBER 1997

NATIONAL GEOGRAPHIC

China's Three Gorges

ROUTE 66 34
BALLOON CHALLENGE 52
A DREAM CALLED NUNAVUT 68
THE DAWN OF HUMANS 92
BEIRUT RISING 100
SIREN SONG OF EVEREST 124

OFFICIAL JOURNAL OF THE NATIONAL GEOGRAPHIC SOCIETY WASHINGTON, D.C.

From the Editor

BRUCE DALE (TOP); GEORGE STEINMETZ (LEFT CENTER); LOUIE PSIHOYOS (RIGHT CENTER); KENNETH GARRETT

MENTION THE WORD "adventure" to most people and they conjure visions of characters flying hot-air balloons over deserts or scaling the wind-whipped Himalaya—characters like Steve Fossett and David Breashears, who figure prominently in this month's issue. Both men are in the tradition of National Geographic explorers who for more than a century have probed the limits of knowledge, tested themselves against long odds, and returned to share their stories with millions of readers.

But looking over this month's stack of stories on my desk, it strikes me that there is a broader meaning of adventure that appears in almost every article we do. That meaning suggests adventure can be merely setting out—and remaining open to surprise along the way.

Each time NATIONAL GEOGRAPHIC commissions a story, we do so with that sort of adventure in mind. We encourage our photographers and writers to approach every assignment as a journey of discovery. We want them open to the inevitable surprises that occur on unfamiliar terrain, which may be as close by as Arizona and Route 66 or as far away as the sparse and icebound world of the Inuit, who will soon take possession of Nunavut, Canada's newest territory. Michael Parfit, author of the Nunavut article, recently mused about the nature of adventure. "People who no longer read this magazine think of it as some kind of sedate old institution, but in truth NATIONAL GEOGRAPHIC regularly sends out energetic, quirky, talented people to do exotic things in strange places," wrote Parfit, a pilot who often flies himself on assignment. "Now I guess I'll go out to the airport and take off into the storm to make landfall by dark, if ice on the wings doesn't get me first. Just another day at work."

Bill Allen

CHINA'S THREE GORGES

Before the Flood

China's most ambitious project since the Great Wall, the Three Gorges Dam will displace nearly two million people as it swallows up cities, farms, and the canyons of the Yangtze River.

By ARTHUR ZICH
Photographs by
BOB SACHA

QUTANG GORGE; TEMPORARY LOCKS UNDER CONSTRUCTION AT SANDOUPING (RIGHT)

Planted on higher ground, new cities are rising like forests of concrete along the Yangtze to replace their historical counterparts on low-lying riverbanks. One of 13 replacement cities along the 370 miles of affected waterway, new Zigui (above) will be ready for the transfer of 30,000 inhabitants long before the coming flood.

The inhabitants of some 1,400 largely rural towns and villages will be resettled on land either near the reservoir or elsewhere in China at sites chosen by the government. All told, about 1.9 million people will be displaced as a huge reservoir fills behind the new dam, scheduled for completion in 2009 despite opposition from some Chinese citizens

as well as international lending and environmental organizations. Dambuilders are now preparing a channel (below) to divert the river. When the riverbed is dry this November, they will begin pouring concrete for the 607-foot-high dam itself, which will run 1.3 miles from the foreground to the far shore and harbor 26 of the world's largest turbines.

Where rapids and whirlpools now challenge boatmen like Ma Linyou, steering tourists through the Mini Three Gorges, a placid lake will calm the torrent and drown the shadows. Encased by towering limestone cliffs, nearly 200 miles of canyons along the Yangtze and its tributaries braid a golden strand of scenic wonders, arguably among China's greatest sacrifices to the new dam.

JIANG ZAIYING bounced her 32-ton dump truck over the lip of a mammoth crater beside the Yangtze River. Around us stretched a moonscape of granite palisades reduced to gravel. The truck rumbled down the rain-gouged slope and splashed to a stop where a front-end loader filled the bed of the vehicle with rocks and muck. Then Jiang rammed the rig into gear and roared back up the crater to deposit one more earthen load toward construction of the Three Gorges Dam. When it is completed—about 12 years from now—Three Gorges will be the most powerful dam ever built, the biggest project China has undertaken since the first ramparts of the Great Wall went up 2,000 years ago.

"The whole world is watching this project," Jiang said. "It's an honor to be part of it—an experience I'll cherish the rest of my life."

Some Chinese do not share Jiang's enthusiasm for the Three Gorges Dam. According to journalist Dai Qing, whose book decrying the project, *Yangtze! Yangtze!*, earned her ten months in prison, the dam is a monstrous disaster waiting to happen. "There is only one Yangtze River," she has written, "and we have already subjected it to many stupid deeds."

But no such sentiment clouds the patriotism and devotion one hears among Jiang's fellow workers in the village of Sandouping, where the great dam is slowly rising, a thousand miles up the Yangtze from the sea. Nearly 3,000 miles more separate the damsite from the Yangtze's headwaters, making this river the world's third longest, after the Nile and the Amazon. Yangtze waters irrigate China's "land of fish and rice," the great central valley where close to half the nation's food is grown. On it has been written much of China's history and myth. Yet at the same time the river has brought China misery. Devastating floods have repeatedly inundated thousands of square miles and claimed more than 300,000 lives in this century alone.

To most Chinese the river is known as Chang Jiang—Long River. On maps it traces the sinuous line of a dragon. Its serpentine tail curls out of the ice of the Tibetan Plateau and tumbles to China's largest city, Chongqing. Its torso twines through the fabled Three Gorges, celebrated by centuries of poetry and art; its neck winds across the flatlands to the river's mouth near Shanghai.

Beijing's plan to harness this dragon—to control its furious flooding and transform its raw power into electrical energy—is daunting. The dam will stand 607 feet high and more than a mile wide. It will create a reservoir 370 miles long, with a system of locks designed to bring prosperity through maritime commerce to China's interior. There are taller dams and there are wider dams, but none has this might: At peak load, 26 turbines of perhaps 400 tons each, the largest ever built, will generate 18,200 megawatts of electricity, equivalent to the output of 18 nuclear power plants.

The government claims all this will cost 17 billion dollars. But opponents of the dam—foreign and domestic—challenge virtually every aspect of the government's plans. Critics contend that the region would be better served by a series of smaller dams on Chang Jiang tributaries; that sedimentation will make Chongqing's deep-draft harbor unusable and impede generation of electricity; that an annual flow of a quarter-trillion gallons of raw sewage, together with effluents flushed from abandoned factories left to drown, will kill aquatic species and turn the reservoir into an open sewer the length of Lake Superior; that incalculable relics in unexplored archaeological sites will be forever lost; that before the project's scheduled completion date in 2009 no fewer than 1.9 million *(Continued on page 14)*

ARTHUR ZICH first traveled to China in 1978. This coverage marks his ninth trip there. BOB SACHA photographed "Under New York" for the February 1997 GEOGRAPHIC.

Damming the Yangtze

A dream of China's leaders for most of this century, the Three Gorges Dam was conceived to control flooding that over the centuries has killed hundreds of thousands of people. Last year floods on the lower Yangtze displaced more than a million people from their homes. Today, as critics challenge the dam's value for flood control, pro-dam Chinese are emphasizing its energy and commercial benefits. Drowned in the dam's reservoir will be habitat for animals such as the endangered Chinese river dolphin along with thousands of archaeological sites. Some of the most important sites—many only recently discovered—are shown here.

Beijing
CHINA
Yichang
Chengdu
Shanghai
Chongqing

From its source on the Tibetan Plateau, China's longest river—third longest in the world—flows 3,964 miles before depositing the last of its sediment in the delta at Shanghai on the East China Sea.

Wanxian
Wulingzhen
Shibaozhai
Zhongxian
Dingfang Temple Towers
City of Ghosts
Fengdu
White Crane Rock
Fuling
Changshou
Jialing
Chongqing
Chang Jiang (Yangtze)

ARCHAEOLOGICAL SITES
- 1900 to 1400
- 1400 to 200 B.C.
- 200 B.C. to 2000 B.C.
- Before 2000 B.C.

0 — 20 MILES

SOURCE: CONSERVATION & PLANNING GROUP FOR CULTURAL RELICS IN THE THREE GORGES RESERVOIR AREA

The city of Wushan marks the confluence of the Yangtze and its Daning River tributary, which leads to two smaller groups of gorges to be submerged.

Ship locks

Ship lift

Two five-stage locks on the north bank will raise deep-draft vessels more than 500 feet to the new reservoir. A ship lift will serve smaller vessels.

NATIONAL GEOGRAPHIC MAPS

As China moves toward full development, it faces crippling power shortages. The dam, say supporters, will help solve this problem, generating power equivalent to 18 nuclear power plants.

Major artery in the heart of China, the Yangtze has been a people mover for centuries. Its more common Chinese name, Chang Jiang, means Long River. One stretch near the mouth is called Yangtze, and Westerners gave that name to the entire river. Across from Yunyang,

passengers pour from ferryboats to visit the historic Zhang Fei Temple before it is relocated. Yunyang will be submerged. Bypassing the dam through massive locks, vessels ten times the size of those that can ply the river today will have access to the region via the reservoir.

people will be forced from ancestral homes and farms and relocated elsewhere. All told, opponents charge, project costs could run as high as 75 billion dollars; already much has been lost to official corruption. Many international lending institutions have refused to help finance the project, largely out of concern for potential environmental problems as well as for the dam's risky financial viability.

To assay the dam and its impact on the region, I embarked on a six-week, 400-mile odyssey down the middle Yangtze, covering the stretch where the new reservoir will be. I hitched rides on a variety of vessels—sampans and hydrofoils, excursion boats and ferries—and put in at a dozen cities along the way, talking with government officials, scientists, technicians, and the farmers and city dwellers who will be most directly affected when the waters rise. I heard many expressions of enthusiasm and pride, like Jiang Zaiying's. But I also heard voices of anger and foreboding. All along the way I saw new construction on a scale that boggled the imagination—new cities, bridges, and highways being thrown up on the river's mountain flanks. It is all predicated on the success of the dam, and it told me as graphically as the awesome construction of the dam itself that the Chinese government intends to finish this project, whatever the cost.

CHONGQING, my first stop, was on a building binge. Heavily bombed during the war Japan launched against China in 1937, the city looks like something of a war zone again as new buildings rise from towering heaps of rubble and trash. Construction cranes dangle over Chongqing's

Listless fruit vendors on the streets of Wushan mirror slow economic progress for many in China's great hinterland. Signs of new prosperity, however, can be glimpsed even here, where a woman heads home with a live fish, noodles, and produce for lunch. Replying to intense criticism, Chinese officials cite the importance of their dam project to central China, which desperately seeks to catch up with wealthy developed coastal regions. Critics respond in turn that energy could be obtained from smaller dams at other sites or from increased use of the region's natural gas, and that sediment buildup in the new reservoir will eventually impede shipping.

jagged hills like sci-fi movie insects. Apartment blocks with gaily colored terrace awnings sprout where once pagoda-roofed pavilions stood. Shops hawk home furnishings—bathtubs, water heaters, fancy beds. On street corners, handymen in from the countryside to claim a share of the boom times cluster with signs touting their skills. Smog billowing through Chongqing's canyons is so foul that it's said one can flavor food with it: The city's rain is the most acidic in China.

On the riverfront, at the confluence of the Chang Jiang and the Jialing Jiang, the deep-water port will be expanded to handle vessels ten times larger than those now navigating the river and increase commercial traffic in coal, tung oil, silk, and an array of agricultural products that southwest China would like to ship to markets on the coast and the world beyond.

But the Chang Jiang is one of the most sediment-filled rivers in the world. Plunging 21,700 feet from its mountain source, it flattens out at Chongqing and, despite the flushing power of its current, leaves immense bunkers of vole-gray sand along the city's riverbanks when monsoon floodwaters recede each year. Opponents of the dam contend that a still-water reservoir will cause even more sediment to be deposited, obstructing the passage of deep-draft vessels.

I stood on a promontory overlooking the port-to-be. The muddy banks were jammed with blue-and-white excursion boats. The worn stone steps leading to them were alive with ticket hawkers, pancake peddlers, cargo loaders, swarms of passengers clambering to get aboard. I found a gang of diggers pitching a two-story mountain of sand into battered blue

dump trucks. One of them, a spry, muscular fellow named Hu Hongrong, put down his spade and told me that the sand had been left by last year's floods, that it was going to construction sites in the city, and that he did this work six months a year, then waited for the monsoon and the rushing river to replenish their sand dune.

Hu earned the equivalent of 25 cents a truckload, about two dollars a day, he said. He lived with his coworkers in a hillside shed without water or toilet facilities. Home was a village 60 miles downriver. He had last seen his wife and five-year-old daughter on the Chinese New Year three months before. "The dam will make life better for our children," Hu said. "They'll have electric lights, TV, be able to study their lessons. With luck they'll go to university and bring honor upon our family."

Revered by the Chinese as the City of Ghosts, Fengdu is said to beckon souls after death. Here their lives are judged after they cross the city's suspension bridge and either enter nirvana or plunge into hell. Despite its otherworldly connections, Fengdu—a food-processing center—is alive with mortal commerce, and is parlaying its traditions into a profitable tourist trade.

I LEFT CHONGQING bound for Fuling aboard a double-decker river ferry jam-packed with people and every conceivable cargo that could be slung from the shoulder poles of ubiquitous porters known as *bangbang-jun*, "the stick army." Our skipper threaded the vessel through a gaggle of motorized sampans in a fine falling mist. Behind us a giant stone Buddha, right hand raised in the wisdom position, gazed down from the river's south bank—just one of the relics that will be lost to the reservoir that the Three Gorges Dam will create.

As the city fell away, terraced fields of wheat and potatoes appeared on the slopes above the river. Here and there the lone figure of a man or woman, slightly stooped, tilled the land with a hoe.

Fuling, like most of the Chang Jiang's cities, is flung across slopes so precipitous that its narrow streets can run only parallel to the river. They are linked up and down by slippery stone stairways. And like most of the river's cities, Fuling is grimy with coal dust, wet from the mist, and destined to be largely inundated as the reservoir rises. It is a city of unceasing noise—tooting riverboats, quacking taxis, blaring dump-truck air horns, an incessant rattle of stereo speakers and television sets.

A billboard on a mountain above the city proclaims, "Fuling pickles bring everlasting love." Fuling is the pickle capital of China.

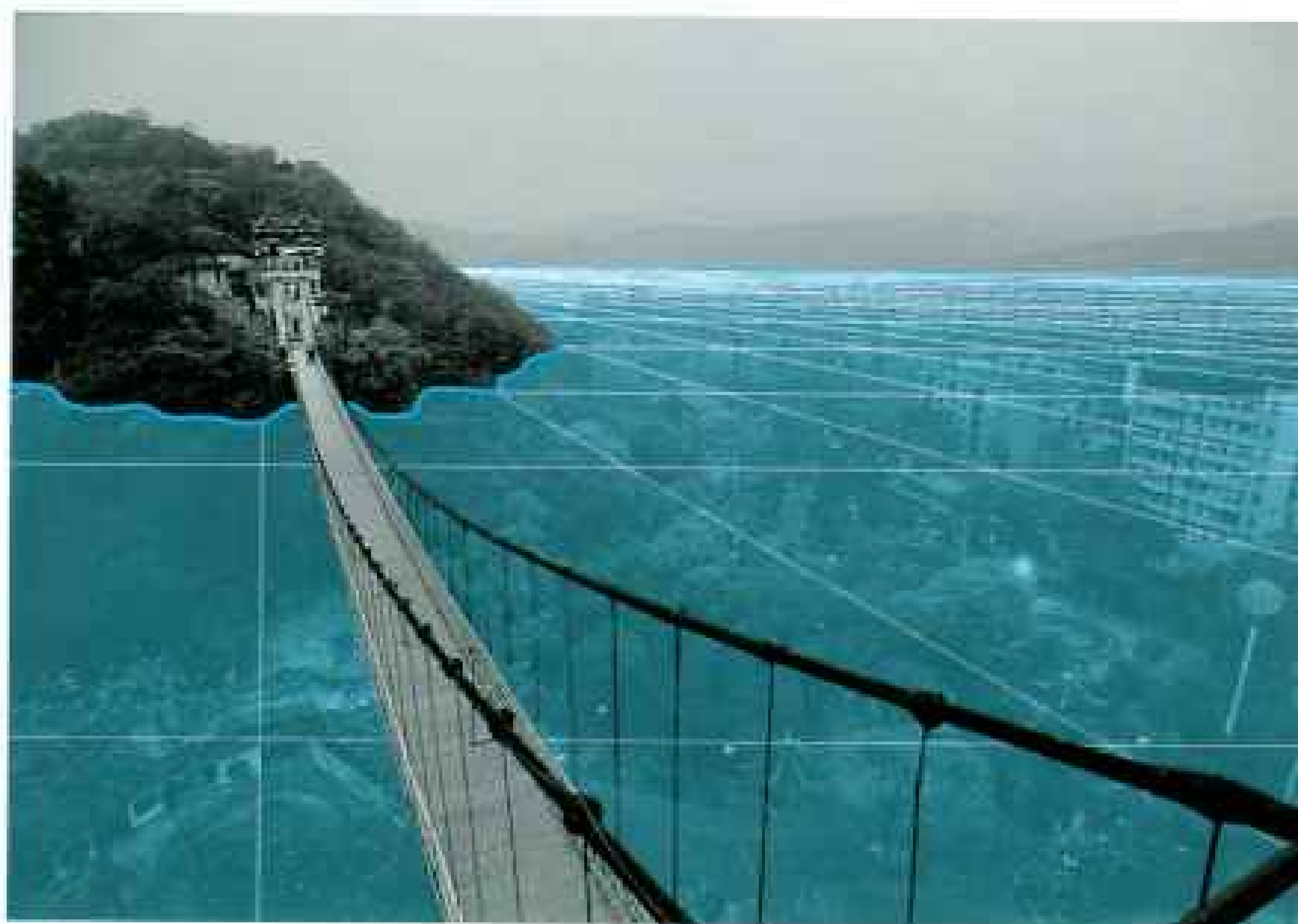
So I went ashore to meet a pickle king. Nimble and sharp-eyed, Zhang Yonglin presides over acres of mustard tuber. He employs a dozen families that produce more than a thousand tons of tart pickles a year. As a measure of his success he carries an expensive pager inside

his old blue Mao jacket and uses it to keep in touch with his daughter, the factory manager. But since Zhang's property lies precisely on the reservoir's 700-foot elevation mark, his days on the ancestral farm will be measured by the rising waters.

Zhang is not alone. Half the people destined to be moved are farmers. At rough estimate the reservoir will take as many as 240,000 acres of cropland out of production, including many of the orange groves that grace the river's lateral valleys. "It's a pity that so much fertile land must be lost," Zhang said as we toured his fields and fermentation pits. He pulled a dripping tuber from a pit, cracked it open, sniffed it the way a connoisseur would savor cognac, and pronounced it fragrant.

Back at his house Zhang's daughter served us tea. "My family has been here since the Ming dynasty," Zhang said. The Ming dynasty, I reflected, ended more than 350 years ago. I asked him what the government would be offering in return for his land. "I don't know," he replied. "I don't know when we'll have to move. Or even where we'll be moved. You have to take what the state gives you. There is no bargaining."

Zhang's daughter added softly, "Mama died here. We hope that we can move her grave."



Rising water, simulated here by computer imaging, will likely swamp all of Fengdu except the hilltop home of the spirits, at the end of the bridge, and a few other peaks. Although Fengdu's ghosts will remain unmolested, the city's 65,000 living inhabitants will be moved to a new town across the Yangtze.

BELOW FULING the river cleaves yet another stretch of green terraced slopes, where tiny farm villages perch atop stony ledges, isolated, save for the river, from the rest of the world. Along this middle reach of the Chang Jiang, the landscape conveys a simple message: that China is a nation of peasant farmers, always has been and perhaps, given the imperative of human numbers, always will be. Yet the great dam rising at Sandouping seemingly sends a different message—that China is a nation in transition to another kind of society altogether.

"Farmers find it hard to survive in an industrialized society," Pang Xiaolong was saying. I met this imperious young businessman aboard a crowded hydrofoil plowing toward the city of Wanxian, 125 miles downriver from Fuling. Pang was a branch manager of a company hoping to win government contracts for resettlement housing. His tailored green plaid suit stood in marked contrast to the drab peasant garb of the other passengers.

"Farmers want to work in the factories, but the transition is difficult and few of them adjust," Pang went on. "They have no skills. They lack education. They lack the attitude one needs to learn. They have no sense of time, of living by the clock."

A stonecutter near Chongqing (Chungking) quarries the material of growth for a city that this year became China's largest. Anticipating an economic boom in the wake of the dam, the National People's Congress removed Chongqing and adjacent territory from Sichuan

Province to create a municipality nearly the size of Austria—with 30.2 million people—that will answer directly to Beijing. At the western terminus of the future Three Gorges reservoir, Chongqing is expanding its deepwater port and its hopes for a new age of commerce.

The vessel cut its engines and coasted toward the barge that served as Wanxian's landing. "There's competition for positions these days," Pang shouted over the crush of passengers moving toward the exit. "A new generation is taking over. If you want to keep your job, you have to produce!"

I asked how he had managed to reach such an exalted position at such a tender age. "My

No price tag has been attached to the cultural heritage China will lose to its great dam. Archaeologists estimate that some 8,000 unexcavated sites will be lost forever in a tomb of water and sediment. Meanwhile they scramble to salvage what they can. Artifacts from a dig outside Yunyang include a 1,700-year-old government seal (above) fashioned from Yangtze mud—the first

father is manager of the company," he said.

Wanxian, at the midpoint between Chongqing and the dam, stands so high above the river that porters with red-curtained sedan chairs queue up at the landing to haul tourists up its 183 steps. But its elevation will not save the city. Beside Wanxian's old clock tower and a leafy park in the center of the city stands a red-and-white sign indicating the level to which the waters will rise. All below it—two-thirds of the city proper, embracing 8.5 square miles and 900 factories—will be drowned. A quarter million people will be uprooted and moved to an unknown location. Wanxian will be the reservoir's costliest victim.

The good news is that a new Wanxian will rise above the reservoir. A railway, the city's first, will tie Wanxian into the major east-west trunk line, 90 miles to the north. A riverside highway linking Shanghai with Chengdu, the capital of Sichuan, will cut through the city. An airport capable of handling jumbo jets will be built atop a mountain on the south side of the river. Tying the airport to the city, one of the world's longest single-arch bridges, now under construction, will span the Chang Jiang.

At the bridge site I met Zhang Mingtai, general manager of SOTE Ltd., the region's largest industrial complex. Zhang is one of a new breed of Chinese entrepreneurs, a salesman for "market socialism." We stood at the edge of a precipice above the river, and Zhang swept a hand across the vista—the doomed city, the Chang Jiang running red with iron-rich soil, the immense valley reaching back into distant mountains. "This is central China," Zhang said over the wind. "The resources here are unknown to outsiders. We're enormously rich in coal, salt, and natural gas. Right here we'll have a population of 570,000 hardworking

people. When the dam is built, the opportunities here will be limitless!"

"Without the dam?" I asked.

"Without the dam," he said brusquely, "we'll have nothing."

If Zhang embodies Wanxian's future, young, exuberant Li Liang bears responsibility for its past. Li's grandiose title is Director, Sichuan Work Station, Cultural Relics Preservation Team, National Cultural Relics Bureau. His resources do not match his desk plaque. Li has but five men, no certain budget, and precious few years to find and excavate the region's relics along a 300-mile stretch of the river valley.

Li's team has discovered 1,208 historical sites that face certain inundation—more than 300 of them in Wanxian alone. Among these are temples and other structures dating back to the Ming dynasty; stone carvings from the Han dynasty, around the time of Christ; more than 30 Stone Age sites 30,000 to 50,000 years old; and what appears to be the seat of a little-understood people known as the Ba, who settled in the region some 4,000 years ago.

Li took me to one of the sites: a small pagoda beside a stone slab surrounded by a shallow moat right in the midst of Wanxian's busy downtown. There, a thousand years ago, Tang dynasty poets gathered beneath the moon and sipped wine from floating cups. I thought of time and the river flowing—time that was, for sites such as these, swiftly running out. The Beijing government, reluctant to spend money to salvage these relics of China's glorious history, is doing little more than minimizing the losses. "So many places cannot be saved," Li said. He gazed off in the direction of the river. "In less than a decade, they'll be gone."

evidence that a city called Juren, celebrated in story, actually existed. A few above-ground treasures, like Yunyang's Zhang Fei Temple (opposite), will be relocated. Completed in the 12th century and restored in the late 1800s, it honors General Zhang Fei, who died nobly in the third century. Temple pilgrims seek good luck by offering incense and candles on his birthday.

IT IS IMPOSSIBLE to summarize all that the Chang Jiang has meant to the millions of Chinese who have lived and died beside it and its tributaries over the years. Its watershed encompasses 700,000 square miles, a fifth of China's total land area. It irrigates more than a third of China's agricultural output and carries three-quarters of China's internal waterborne commerce. It divides the country north and south in matters as fundamental as culinary taste and religious perspective.

Only recently have scholars recognized that the Three Gorges region represents one of the true seats of Chinese civilization. In the demiworld where history intersects with myth, it's said that the gorges were created by the ingenious folk hero Yu, who—with the help of a troop of dragons—reconfigured China's hills and valleys to drain the land and make it habitable for humans.

On a hot summer night, travelers at Fengjie wait for the next ferry. A major trading port, Fengjie was an important communist base in the 1940s during China's civil war. But modern times are a mere scrap of the history of the central Yangtze, which historians consider one of the cradles of Chinese civilization. It is a center of the Tujia people (below), thought to be descendants of the Ba, who settled here at least 4,000 years ago. Loyal warriors, they were also skilled artisans and used a unique script. The dam will flood more than a hundred Ba sites. "Other periods lost to the dam we can study elsewhere," says one archaeologist. "This is the only place we can study the Ba."

"But for Yu," goes an old Chinese saying, "we should all have been fishes."

The gorges made Sichuan a nearly impenetrable redoubt for the kingdom of Shu during China's Three Kingdoms era 1,800 years ago—and did so again for Chiang Kai-shek's Nationalist government when Japan invaded in 1937. With pinnacles soaring up to 4,000 feet, the gorges have inspired China's greatest landscape artists, moved poets to reflect on the insignificance of humans in the face of nature, and offered the modern traveler some of the most spectacular scenery on the planet.

A few miles below Wanxian the Chang Jiang narrows, runs ragged between giant slabs of black rock. Scattered farmhouses rise from lush green promontories shrouded in mist. A sign proclaims: "The new site of Yunyang County welcomes you!"

But for me, old Yunyang city was all there was just then. And Yunyang was a page out of time gone by. Cooks sold deep-fried *doufu* from charcoal-fired woks at the river's edge. Narrow alleys twining off the steps were crowded with stalls displaying straw sandals, cheap metal kitchen utensils, plaster Mao busts. Old men smoking foot-long pipes lolled in old-fashioned slat chairs outside old-fashioned teahouses. The first sound I heard came from a loudspeaker in a tree—China People's Broadcasting Station, the same dawn-to-dusk instrument of propaganda harangue I'd heard in China 20 years ago.

I also heard the first voices of discontent among people scheduled for resettlement—a sense of outrage that would grow sharper as I neared the dam. I hailed a cab to Bao Ta (Precious Tower), a village on the city's outskirts

scheduled for resettlement. When that would happen was uncertain, the driver told me. "Some officials invested the resettlement money in other projects," he said. I asked him who the officials were. "I don't know their names," the driver said, "I'm only *laobaixing*"—the Chinese term for common people. "Officials don't care about the laobaixing."

IN BAO TA VILLAGE, beside a vegetable patch redolent of orange blossoms, the local people crowded around, eager to voice their anger. "We're supposed to get 5,000 yuan [$600 U.S.] a head for resettlement," a farm woman shouted. "The central government gives the money to our provincial officials. They give it to the county, and the county gives it to the city bosses. But as it goes down the line, each official takes his cut. Who knows what will be left by the time it gets to us?"

Another woman spoke up: "They're supposed to give us jobs, but if you don't have connections, you can't get one." How do you acquire connections? I asked. "You want connections, you give them cigarettes and wine," she replied.

Then an old man spoke with the courage of years. "There is corruption here," he said with a resigned, ironic chuckle. "And the more money there is, the more corruption there'll be."

Not all the villagers along the river were as disenchanted as Bao Ta's residents. Some expressed simple resignation, in the centuries-old tradition of the Chinese common man who has learned to accept whatever card fate—or the state—might deal. In Zigui, farther downriver, I met an orange grower named Qu Zharun, who claimed *(Continued on page 28)*

Bearing the Burden

Sacrificing for the Three Gorges Dam, farmers and villagers are losing some of China's most fertile land. Close to the dam the ordeal of relocation has already begun. At the small village of Xiling, east of Zigui, the Zheng family prepares to move from their ancestral home by lugging belongings to the river, where a boat waits to move them to Dongshi, a village 90 miles downriver. Though the Zhengs' home is situated slightly above the eventual waterline, Zheng Xinnian, village leader and local Communist Party secretary, decided to move as an example to the family's neighbors.

The Trials of Moving

Salvaging what they can, a Xiling family pulls down their house, a government requirement to discourage returnees. After Zheng Xinnian counts his payment of $3,125, he and his family load their belongings—even stacks of firewood—on a sampan for hauling to their new home. Friends comfort his daughter Zheng Cui. Says Mr. Zheng, "I will forever miss the place we have lived for generations. But we must sacrifice personal interest for the good of the country."

to be a direct descendant of Qu Yuan, the third-century B.C. poet revered to this day. But not even Qu's august lineage was going to save his farm and the mud house he'd built for his wife and sons 34 years ago. His plight exemplified that of so many elderly in the Chang Jiang Valley. "Where will I go?" Qu asked, passing a bowl of fresh-picked cherries. "I'm old. I can't read. I have no skills. I'll have to decide which son to live with." He smiled wryly. "Or maybe I'll become a doorman at one of our fancy new hotels."

Options are likewise limited for Long Zhiyi, a barrel-chested innkeeper in the village of Dachang, some 50 miles up the Chang Jiang's Daning River tributary. He views the dam in the context of China's economic reforms and newfound prosperity. "My name means 'one-knowing dragon,'" Long boomed. "The one thing I know is how to make money! Before the reforms it was illegal to own your own business. We were poor. I worked in the field. Now? I'm rich! I have six guest rooms. Tourists and big shots come!"

And the dam?

"For me? No good!" he roared. "I was born here. I built this house with my own hands. I'll lose my inn! My goldfish pond! My street! For me, it's terrible!" Then he put his arm around his 18-year-old daughter and gave her a fatherly hug. "But for her, it's wonderful! After the dam we'll have a fish farm beside the reservoir! Maybe a bigger inn and a restaurant!"

The prospect of rising waters has already improved the lives of some displaced families. Consider the case of Li Chenling, a former farmer now resettled in a new high-rise apartment. Before the move, her family had lived in a mud-walled, dirt-floored house in an impoverished river village of some hundred households. They had no glass in the windows, no heat in the winter, an outdoor privy. Until she became pregnant, Li worked in the field alongside her husband, growing their own food. But when the Southwest Synthetic Pharmaceutical Factory relocated from the Chongqing riverfront to the higher ground of her village, the couple were given the apartment to compensate for the loss of their land, and Li's husband qualified for a factory job as a chemical machine operator.

The couple moved in the day their daughter was born. "We've become city people now," Li told me. "We pay 15 yuan [$1.80] a month rent, including water, gas, and electricity." What of their newfound lifestyle most delights her? "Tap water," she replied happily. "And an indoor toilet!"

Still waters equal foul waters, say dam opponents, warning that the Three Gorges reservoir will quickly turn into a huge cesspool. With its powerful current the Yangtze now flushes pollutants—like these from a paper plant at Fuling—to the sea. Builders claim the dam's design addresses the problem.

QUTANG, the first and shortest of the three gorges, was almost hidden in rain, but I sat snug and dry in the pilothouse of a creaking old river ferry. Through mists tumbling over the north bank, I could see Baidicheng—the White Emperor City—with its stately mountaintop temple dating back almost 2,000 years.

For a moment it seemed that the river had reached a dead end, that the boat would smash head-on against a charcoal-streaked, copper-colored cliff at the entrance to Qutang Gorge. The pilot put the wheel hard over. We sluiced sidewise into the racing current of a watercourse barely 350 feet wide—the narrowest point in the gorges. There was no room for error. The pilot wheeled hard right. Our old bucket shuddered and slid into the gorge. Precipitous sandstone cliffs soared above us, leaving but a splinter of sky.

High on one wall hung a cedar coffin, a burial of the ancient Ba people whose unstudied ways will be obliterated by the reservoir. On the other wall the remains of a recessed towpath ran like a scar. On it as many as 300 brute trackers, naked and roped together like animals, once hauled cargo junks of a hundred tons and more upstream against the surging current. That time ended in the 1950s when Chinese engineers blasted out the riverbed boulders that had made their arduous toil up the gorges necessary.

Now, in the pearl gray dawn, one could almost hear echoes of their soulful cadence, "Ayah . . . ayah!" And looking up at gnarled pines clinging to the cliffs, I could imagine the once abundant monkeys crying "ceaselessly on both banks," as the poet Li Bai described them 1,200 years ago.

Rich sediment deposited by the river from Sichuan to the delta at Shanghai have made the Yangtze Valley China's most fertile region. Near Wanxian bamboo-and-plastic greenhouses allow intense cultivation of eggplants and peppers. Dam supporters say that sediment buildup in the reservoir can be offset by dredging. How the reduced sediment flow will affect the delta is debated.

Then, as quickly as we had entered Qutang Gorge, a scant five miles downriver we were out of it. The river broadened, the current slowed to a muddy pace, and life on shore resumed its eternal pattern. A sampan with a lattice cage of ducks lay up on the riverbank. A woman knelt on the rocks beating her laundry with a stick. The land beyond the shore opened out in verdant farms. Ahead of us, still more cliffs crowded the gray sky, and behind them the jagged peaks of Wu Xia, Witches Gorge.

Twenty-five miles long, this gorge is perhaps the most foreboding of the three. A dozen 3,000-foot limestone peaks with names like Climbing Dragon and Flying Phoenix soar from the river to shut out the sun. During our passage, eddies whirled across the water and gusts of wind hooted through the narrows.

Human conveyor belts haul coal to barges in Fengjie for delivery to power plants downriver. China relies on its huge deposits of high-sulfur coal for three-quarters of its electricity. Consequently, its air is among the foulest in the world. A quarter of all deaths in China are

from pulmonary disease, and the nation's carbon dioxide emissions
figure prominently in the threat of global warming. The advantages
of hydropower over fossil fuels are self-evident, argue dam supporters.
The dam's power will first feed the coast; locals will still rely on coal.

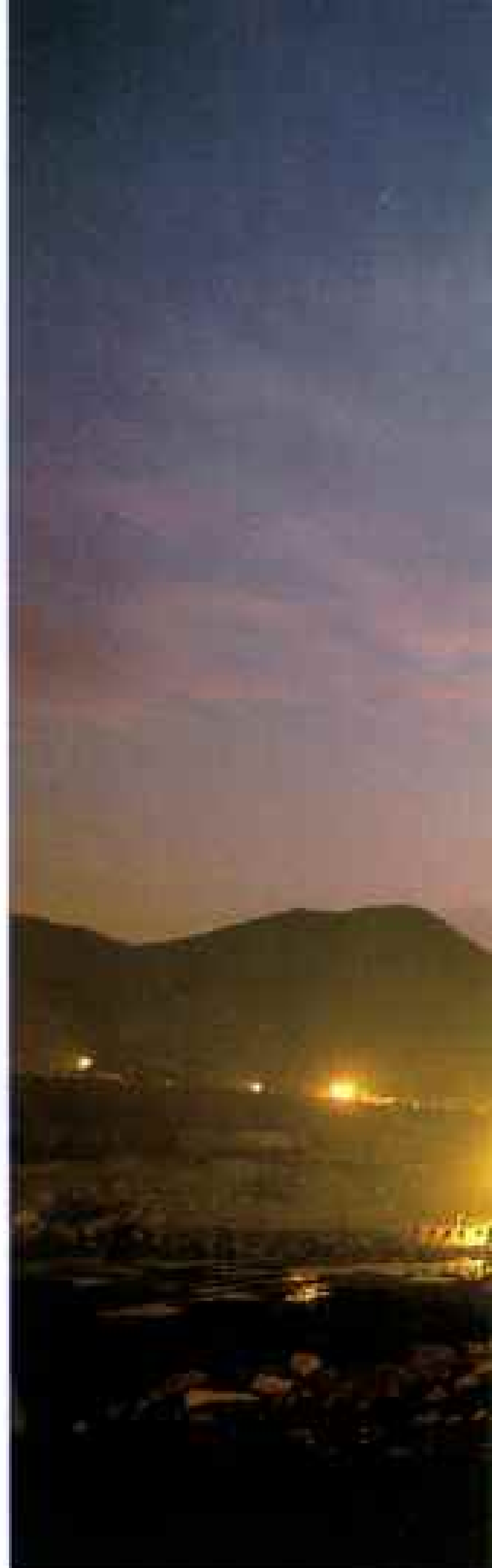
I felt a touch of relief when we emerged into a stretch of open river valley.

Ahead lay Xiling Gorge, the last and, at 47 miles, longest of the three gorges. Once Xiling's threatening shoals all but closed the river. Junks running downstream at 20 miles an hour often splintered apart on submerged boulders. Dredging and blasting have eased much of that danger. But landslides continue to break off huge chunks of unstable shale; only a few months earlier half the face of a mountain fell on a south shore village. Fortunately a seismic warning evacuated the residents from harm's way. But the rubble we saw from the river was unsettling. Where whitewashed farm buildings once stood, rocks the size of houses huddled in the deep shadows, massed one upon the other.

Chinese seismologists who support the dam say that it is safe from rock slides and earthquakes. But at this village we were only 40 miles from what will be the world's most powerful dam athwart one of the most powerful rivers ever dammed. And China's dambuilding record on far lesser waterways has included a number of tragic failures.

THE NEW AND THE OLD strike an ever more disquieting contrast the closer one comes to Three Gorges Dam. A twisted pine gripping a riverine cliff, a lone fisherman casting his net from a rock-strewn shore, an old man sitting in silent meditation atop a misty crag—such vignettes evoke poetic visions of China's past. But then you see the freshly minted cities rising to replace the towns doomed by the reservoir.

What impact might these changes have collectively on the river? Opponents of the dam, such as Probe International, a Canadian environmental group, have described the chemical poisoning of the river that will come from industrial toxics—arsenic, cyanide, methylmercury, among others—leaching out of drowned factories. For their part, government officials in China point to strict environmental laws governing industrial pollution, including stiff fines for repeated violations. But an environmental control officer at a pharmaceutical factory dismissed these safeguards with a shrug. "It's cheaper to pay the fine than to build a treatment plant," he told me. Moreover, right now, fully 80 percent of China's cities have no sewage treatment—and nowhere in the plans for these brave new cities did I find mention of building any.



The concrete mountain of the cofferdam, built to divert the river during the dam's construction, already dwarfs man and machine. Like so much along the central Yangtze, this structure will be submerged after the dam's scheduled inauguration in 2009. The Three Gorges Project is a high-stakes gamble and a monument to nature-taming now shunned by most of the world. Yet if the dam generates even half the benefits claimed, supporters will call it a triumph for development in China.

Such matters are of little concern in Sandouping, the once tiny village where the great dam will rise. The single goal of the 60,000 workers assembled there is to build the thing. I stood in a driving rain on the damsite's highest point, looking out across the river. Directly below, men and machines were digging a trench for the five-stage lock system. Giant drills had sliced almost 300 feet straight down into solid granite. Beyond, dump trucks and bulldozers, tiny as toys in the distance, scurried up and down a maze of gravel roads. And this was only the cofferdam—a kind of giant river-spanning bowl due for completion in November and inside of which work will then proceed on the permanent dam and its hydroelectric

hardware. I tried to imagine what the dam would look like when completed: a gleaming concrete barrier, almost a mile and a half long, holding back an unimaginable weight of water; the river's thundering spill; power lines singing overhead; great ships gliding through the locks; and untold millions of homes and farms downstream, presumably secure at last against the ravages of flood. What price, I wondered, could anyone put on such an achievement? And what cost in human terms?

I found at least part of the answer to that a few days later, below the damsite at a riverside village called Zhicheng in the flat central China rice lands. There, Zhu Guobing and his wife, Gao Yuren, had just resettled after being forced from their home in the gorges—one family among the hundreds of thousands of households the dam will eventually displace.

Generations of Zhus had lived in the mountains above Xiling Gorge. On moving day the couple had loaded their meager possessions—two pigs, five chickens, several bags of grain—aboard a crowded government boat and gathered with friends and relatives for a farewell dinner. "We told them to tear down our house and take anything worth taking," Zhu told me. "I couldn't bear it. I was crying in my heart."

So I came to the end of my journey—left to ponder this dam that spawns such patriotic fervor and furious opposition. Time will tell which side is right. But for all the controversy that attends construction of the Three Gorges Dam, one fact seems indisputable. Unless changes in national leadership bring anti-dam forces to power, the dam *will* be built. For better or worse, colossal, timeless China is rising at last to join the modern world. □

ROMANCING THE ROAD

Editor's Note: To celebrate the extraordinary breadth, diversity, and vitality of our cultural landscape, we will occasionally publish articles on uniquely American subjects. This is the first of the new series.

Tired of the interstate's green-sign, fast-food sameness? Head for Arizona where a long stretch of old Route 66 survives, offering a nostalgic journey through one slice of Americana. The storied road once linked big towns and small from Chicago to Los Angeles. In Kingman a roadside motel proclaims itself with a brash neon beacon.

By David Lamb
Photographs by Vincent J. Musi

66
ROUTE 66

Clown prince of Arizona eateries, Juan Delgadillo of Seligman serves monkeyshines at his drive-in, the Snow Cap. After you dine, he'll grab your billfold and hand your change to strangers—just for kicks.

HISTORIC
ROUTE
66
D CHICKEN

The great adventure was getting there,

THE ROAD that carried generations of Americans west—Route 66 from Chicago to Los Angeles—became a relic of sweeter, calmer, slower times in 1984 when the last stretch of Interstate 40 was completed outside Williams, Arizona. Though a parade was held to celebrate the occasion, something precious was taken from us that day: the serendipity of travel. What romance could there be in speeding from the Great Lakes to the Pacific Ocean on five connecting superhighways? How could we dream if there wasn't even time to dawdle?

But for me, and other wanderers whose souls are held captive by the open road, Route 66 never really died, no matter what the maps may say. The ribbon of tar and dirt that John Steinbeck called the Mother Road lives on in our memories of an era when the great adventure was *getting* there, not just *being* there, and nights on the road were full of neon signs and round-the-clock diners and the melancholy exhilaration of being alone and rootless and going someplace, anyplace.

So coming back onto my favorite stretch of the old ghost road—the 158 miles in Arizona from east of Seligman to Topock on the California border—I feel as though I have returned to the embrace of a friend. This is one of the longest drivable segments left of the original Route 66, designated now as a historic state highway, and over nearly 40 years it has called me back time and again and revealed to me a deep secret: Part of my youth and some of its dreams are buried here.

I first traveled this long, legendary road in 1959 as a teenager, hitchhiking with my best boyhood pal from Boston to California. Neither of us had been west of the Mississippi before, and I remember being frazzled by weariness and giddy with excitement. Never

DAVID LAMB, a correspondent for the *Los Angeles Times*, has been traveling the world—and the byways of America—for nearly 40 years. VINCENT J. MUSI, a freelance photographer, became adept at dodging rattlesnakes while covering this story.

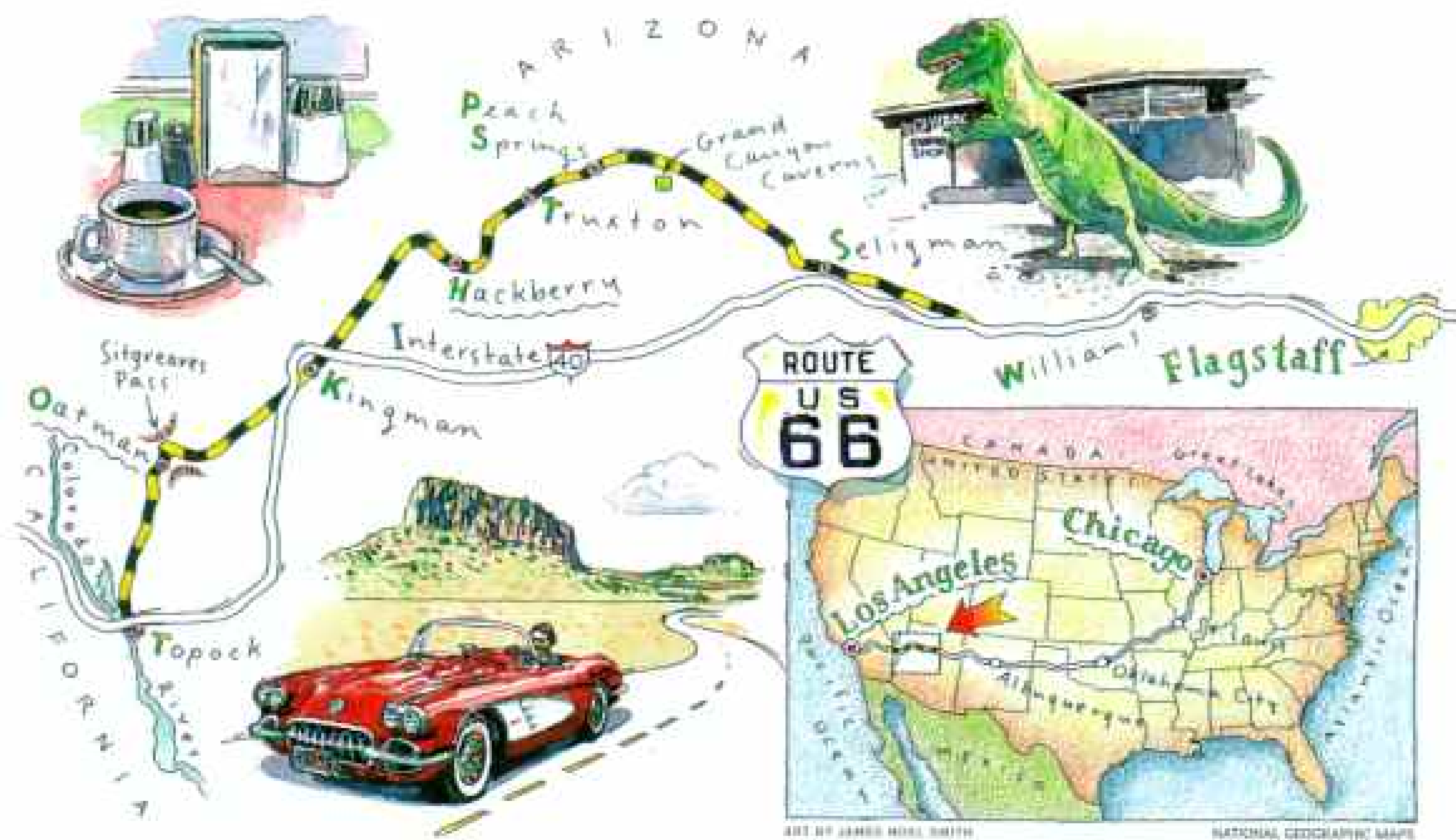
had I felt so free, so liberated from parents, whom, now gone, I wonder why I ever wanted to leave in the first place. Sarah Vaughan was singing "Broken-Hearted Melody" that summer, and to this day I cannot drive alone through the night without hearing her voice and feeling my friend's presence, and for a moment, in my mind's eye, the calendar slips back to when life seemed forever and all things were possible.

SINCE THEN I have been drawn back to this stretch of 66 like a fisherman returning to his favorite trout stream. I have traveled it in Greyhounds, trailer trucks, cars, a motor home, once even on a bicycle, pedaling alone from Virginia to California. And, wanting to roam one more time over the road that used to be America's main route west—in our imaginations, Route 66 always seemed to carry us west, not east—I arranged a grand present for my 56th birthday: To meander in a Corvette through Seligman and Truxton and Hackberry and the other way-station towns that the world abandoned when the interstate went through.

The temperature was holding steady at 100-plus degrees the afternoon I pulled out of Phoenix in my rented 1960 red Corvette, top down, radio blaring—feeling for all the world like a million bucks. The Vette was reminiscent of the one Martin Milner and George Maharis drove in the 1960s *Route 66* TV show, and I rolled like thunder up the Black Canyon Highway, headed for 66 just past Flagstaff. Then my temperature gauge shot up; steam and smoke poured from the engine. I braked to a halt on the shoulder and turned off the ignition. When I switched it back on, I got only a lifeless *click, click* in response.

An 18-wheeler pulled over a hundred yards down the road, and the young driver ambled back. "Got problems?" he asked. "I sure do," I said. He opened the hood and confirmed my fears. "Looks dead to me," he said. "I can run you into the truck stop in Flag if you like. You

not just being there, and . . .



Those who love wind in their hair relish the straightaway west of Seligman (facing page). The perfect ride? A snappy Corvette, icon of the 1960s TV series *Route 66*. Why stop? Perhaps for a jolt of java at a roadside diner. Or to behold the *Tyrannosaurus rex* at Grand Canyon Caverns. Fans work to save remnants of the road and its trappings in all eight states along its route.

Whimsical warnings fit right in with the quirky style at the Snow Cap. Like other roadside stops, it serves locals and truckers —but mostly tourists, whether in a car, RV, or tour bus or on a Harley-Davidson hog.

POSTED NO HUNTING
SELIGMAN ANTELOPES
NO SMOKING
WARNING!
SECURITY DOG

can get the Vette towed and rent a car." I grabbed my suitcase from the trunk and climbed into his lumbering Peterbilt.

And that's how, on a blistering July afternoon, I ended up in a sedate Buick sedan, westbound on Interstate 40, traffic rushing by me in a blurted *whoosh*. I passed a sign that said NEXT SERVICES 60 MILES and turned onto the ramp for exit 123. The road ahead was empty and quiet and beautiful. Seligman and Route 66 were just around the bend.

ANGEL DELGADILLO, the barber in Seligman, remembers when traffic moved through his little town bumper to bumper. He recalls the Okies fleeing the Dust Bowl in the thirties, their Model T's piled high with everything they owned ("If they were carrying two mattresses, we figured they were rich," he said); and in the forties, convoys of servicemen, some going home, some to war; and finally, people like me, the ones in spiffy cars, windows rolled up, air conditioners humming—a new generation of Californians motoring west past drive-in theaters, Mohawk filling stations, motor courts with names like Round-Up, Wigwam, and Palomino, and Burma Shave signs that advised: BUYING DEFENSE BONDS MEANS MONEY LENT. SO THEY DON'T COST YOU ONE RED CENT.

"Come on, I'll show you around," Delgadillo said. We walked out of his shop and stepped into the past. No trace remained of the three car dealerships and the department store that once graced Seligman. The canopy that hung over the sidewalk was gone too, and the insurance office and the beauty salon were boarded up. We sauntered down the middle of what once was U.S. 66, not a car in sight. We stopped at the shuttered adobe pool hall on Railroad Avenue. Delgadillo took out a ring of keys and tried to open the padlock but couldn't find a key that fit. "I don't know why I wanted to show it to you anyway," he said. "It's just full of my sister's junk now."

Beyond a vacant lot, occupied only by a

nights on the road were full of neon

Four-legged traffic is a sightseer staple in Oatman, population 100. Feral descendants of pack animals used in the early 20th-century gold rush, burros troop in daily for handouts. Hand in hand in hand, newlyweds Scott and Kim Lutteke snuggle up in Seligman's OK Saloon.

signs and round-the-clock diners . . .

1948 Plymouth, the steam-heated Harvey House hotel still stood, in pretty decent shape, next to the railroad tracks. I half-expected to see blue-suited conductors in the lobby and to hear Nat King Cole on the restaurant's jukebox. But the Harvey House, closed since 1954, was as eerie and still as a graveyard, its courtyard overgrown with weeds, its windows boarded up. It has been years since a passenger train has called at Seligman, and even longer since locals dressed in their best clothes to mingle with travelers and crew on the now-deserted platform. "This was our Times Square," Delgadillo said.

I asked him why he thought so many travelers were still smitten with the romance of 66, and Delgadillo, who is 70, said: "Golly gee, I know we're living in yesterday here, but people love the old road because this is where you go looking for who we used to be."

The road west out of Seligman dips into Arizona's high-desert plateaus, dotted with junipers and mesquite, red rock cliffs on the horizon. Along it is written a requiem for the nation's westward migration, on a highway that spanned nearly 2,500 miles from the corner of Michigan Avenue and Jackson Boulevard in Chicago to Ocean Avenue in Santa Monica, California, reaching across three time zones, eight states, and hundreds of towns. Parts of the old highway followed the ancient Osage Indian Trail and the first telegraph lines to penetrate the Southwest, and over the years sections of the route had many names, among them Postal Highway, Will Rogers Highway, Wire Road, National Old Trails Road—but only one stuck: the mellifluous 66, bestowed by the federal government in 1926.

THAT WAS THE YEAR Mildred Barker was born, and Mrs. Barker, who runs the Frontier Cafe and Motel in Truxton, likes to say, "I'm as old as the road itself." She has lived her entire life in towns along 66, in Arizona, Oklahoma, and New Mexico, and now that her husband, Ray, has died and the

Images of a waning day blend with the reflection of a TV at a Seligman motel. First called the Navajo, it opened during the 1930s when demand for rooms soared as paving of the route was completed.

HISTORIC
ROUTE
66

and the melancholy exhilaration of

Frontier is no longer a busy place, one day, she says, she may just close up and go on back to her roots in Oklahoma, where her brother has left her a home near 66.

"I'd hate to leave this highway," she said. "I hang on, I suppose, mostly for Ray. You know, the memories and all. He put so much work into keeping the road alive. No one ever guessed one day you'd be going coast to coast without a stoplight. We thought 66 would be here forever."

Outside the wind blew. A sign by an abandoned gas station swayed and squeaked on its support. Tumbleweed scudded across the wide, empty road, and the Frontier's marquee said VACANCY. I got to thinking: We have eulogized Route 66 in song and film and written word, yet for the desperate Okies who passed this way, for the gritty townspeople who today choose not to forsake "America's Main Street," surely there's little real romance here. This is a highway of survival, and it's a tough, lonesome place. Maybe what always mattered most was not Route 66 itself but the dream that lay at journey's end. It was our road of escape, the route the disenfranchised traveled in search of a new and better life that awaited just over the next hill. Old 66 lingers in the mind's eye as the symbol of our love affair with going instead of just being. It is the road that transformed me from an Easterner into a Westerner.

THE LAST TIME I traveled 66 my rear bicycle tire had gone flat as I pedaled into Hackberry, and I passed the very spot, near the closed-up one-room schoolhouse, where I had cursed and sweated and wrestled a new tire into place. That was only two years ago, yet now, in the security of a car as comfortable as my living room, it seemed the memory belonged to another lifetime.

Hackberry has been virtually deserted, but on the outskirts an old gas station remains, identified today by a sign outside as the Old Route 66 Visitor Center. I pulled off the road

and went in. The place appeared empty, but all about, floor to ceiling, were stacks of old license plates, Burma Shave signs, typewriters and a piano, photographs of Edward Abbey, shelves with books by Mark Twain, Thomas Paine, Mahatma Gandhi. Two 55-gallon oil drums had been turned into a wood heater. The repair bay had become an artist's studio, and a salvaged shower door was being used as a solar-heating panel. On one wall a sign said LOS ANGELES 400 WEST, on another, CHICAGO 1900 EAST.

From somewhere in the back a voice called out: "You want some coffee, just help yourself. It's on the table. It's not piping hot, but it'll be OK." A moment later Bob Waldmire walked out. He was bare-chested, gray-bearded, shoeless. He wore a red bandanna and cutoff jeans. "Welcome to the crossroads of the world," he said in greeting.

For more than 20 years Waldmire had traveled America as an itinerant artist, living in a Volkswagen van and peddling his work wherever he could. Then, hooked on Route 66, he started drawing wonderfully detailed sketches of life along the road and decided to settle down. He bought the abandoned gas station, filled it with his stuff, and when the names of visitors from 60 nations had lined his guest book, he wrote old friends:

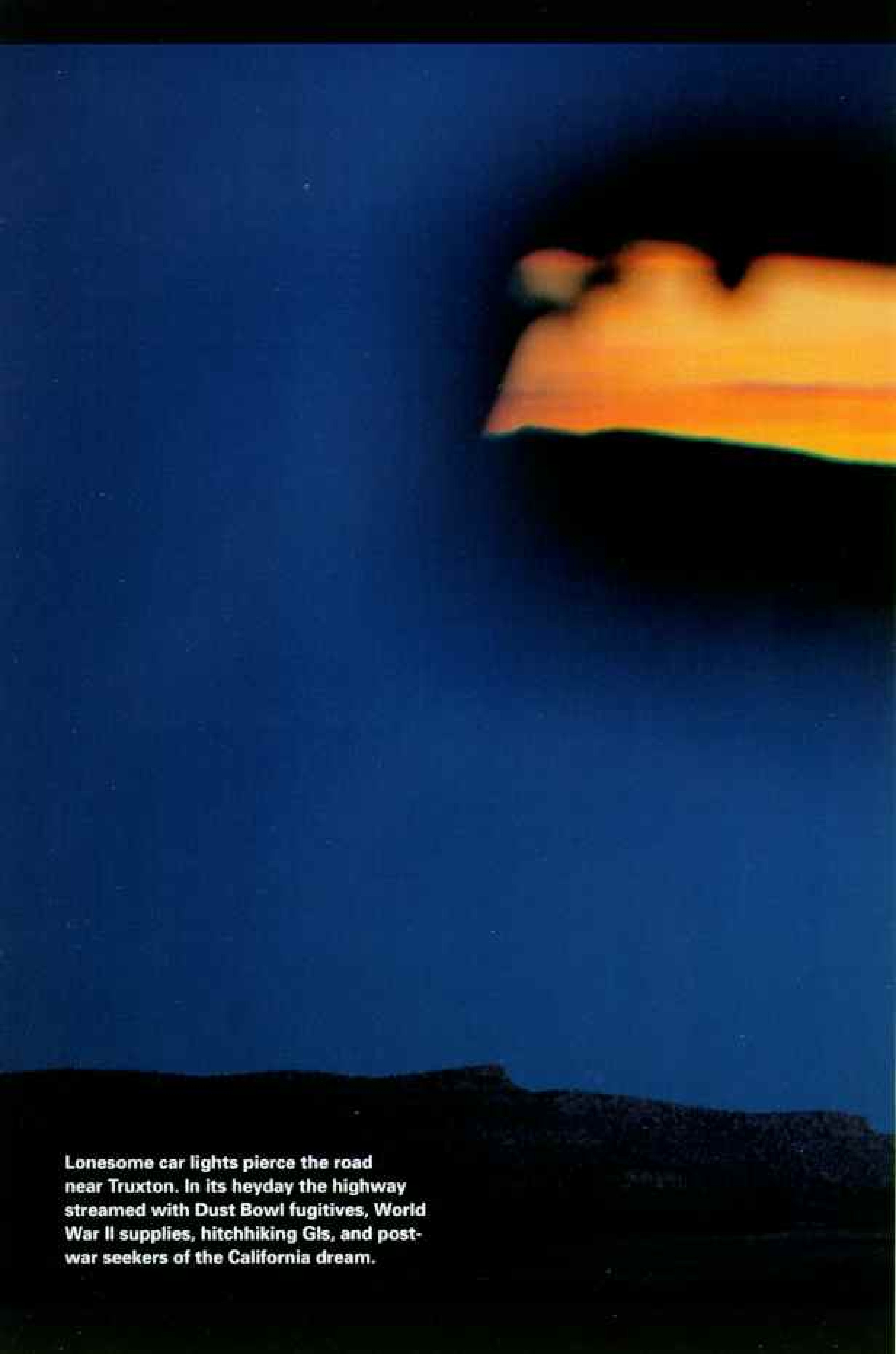
"An endless parade of fascinating folks from around the world have dropped in here, having funneled onto 66 much as the migrants from the Dust Bowl did. They are modern-day pilgrims and are the most excited, happiest bunch of people I've ever met. Their enthusiasm is contagious."

So was Waldmire's. He bubbled on about the beauty of the desert, the lure of 66, and how just the other night he had jogged two miles down the deserted road at 3 a.m. But although his original plan had been to stay here forever, he has concluded that one day he will pack up again and move on.

"No road is forever," he said. Nor is man's permanence if he has been both cursed and

being alone and rootless . . .

"Just horsing around," cook Anne Lowe (facing page) takes a break at the Frontier, a café and seven-room motel in Truxton. A bus driver from the forties—painted in 1991 on Kingman's Hotel Beale for a movie shoot—casts a parting glance at the fabled highway.



Lonesome car lights pierce the road near Truxton. In its heyday the highway streamed with Dust Bowl fugitives, World War II supplies, hitchhiking GIs, and post-war seekers of the California dream.

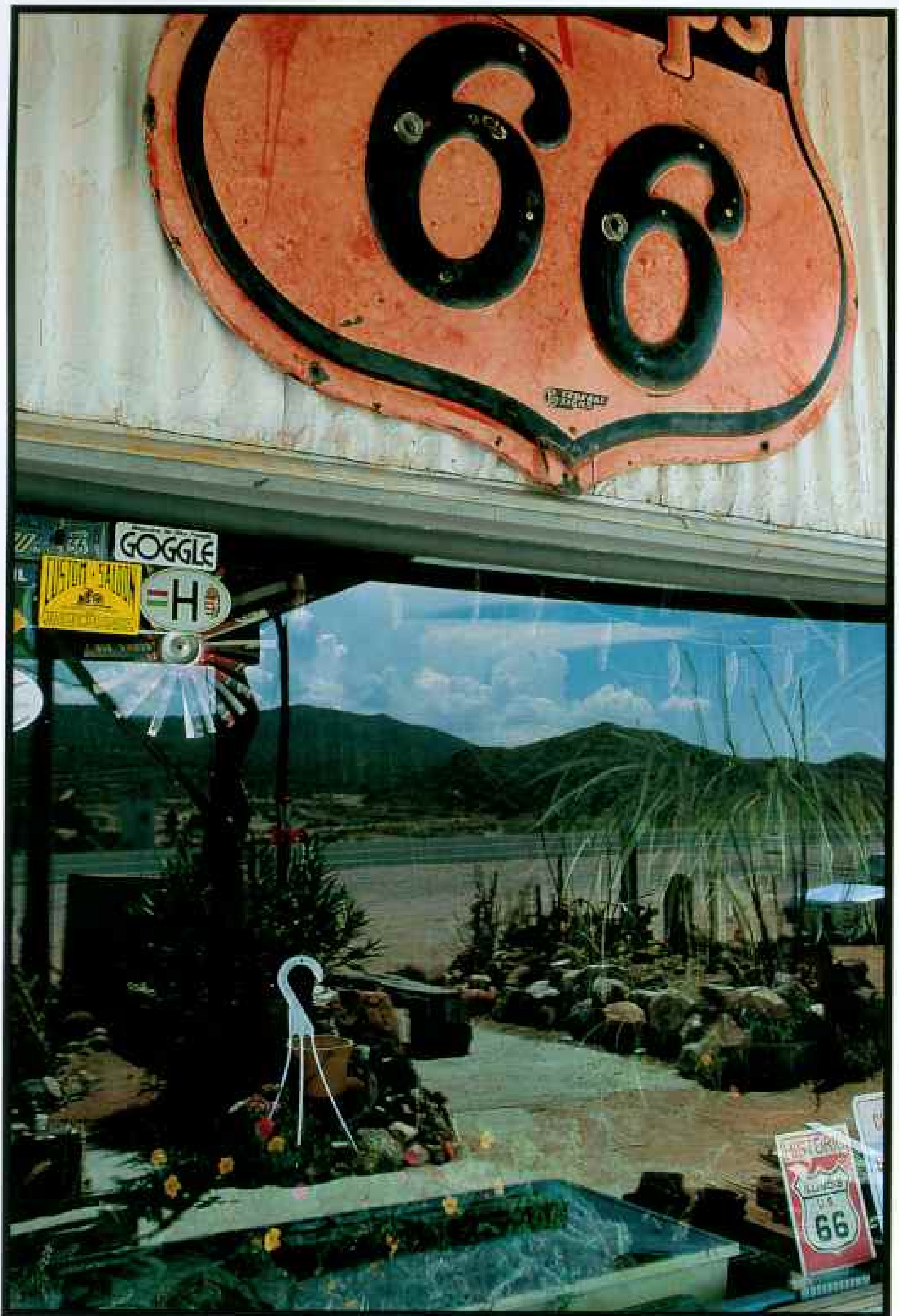
and going someplace, anyplace.

blessed by the call of the highway, and Waldmire has learned what he has always really known in his heart: Like a lot of us, he is destined to wander.

I TOOK MY TIME, as I always do on 66, meandering through Kingman, up over Sitgreaves Pass with its view of Arizona, California, and Nevada, past the crumbled stone ruins of homes and stores, and into Oatman, where the feral descendants of burros that prospectors turned loose when the mines closed during World War II still ambled along the street and over the wooden sidewalks. The two-story Oatman Hotel was temporarily closed, but the front door was open. I climbed the stairs and looked into Room 15, where Clark Gable and Carole Lombard had spent their honeymoon night in 1939.

By all rights, I knew, these little towns along 66 should by now have been reclaimed by the desert, because towns, like people, are born, evolve, die. But the Angel Delgadillos and Ray and Mildred Barkers of Route 66 had kept them alive by lobbying the state to turn the road into a historic highway, thus luring wanderers like myself off the interstate to spend a little time in the America that was. I was thankful to the saviors of Route 66.

Route 66—at least this stretch of it in Arizona—ends near a bluff overlooking the Colorado River. I stopped there and sat for an hour, amid silence and shimmering heat. Only the stone foundation remained from the old Red Rock Bridge, the first railroad trestle over this length of the Colorado. The steel Trails Arch Bridge, which carried some 300,000 Okies into California, hadn't survived as part of the road west either. It had been painted white and now supported a natural gas pipeline. There weren't any markers around to retell the history of a restless nation's journey. But reaching across the river was a new wide span, part of I-40, and over it sped a stream of cars and trucks to remind us how much times have changed. □



Weathered like the Black Mountains beyond, an old lumber company building survives in Oatman (facing page). In Hackberry, the Old Route 66 Visitor Center reflects the road that draws a fraternity of gypsy-souled drivers, along with European and Japanese fans of *Route 66* reruns. Bypassing the bland comfort of the superhighway, they choose the slower, grittier, stop-and-go journey along "America's Main Street."

Racing With the

ROUND-THE-WORLD HOPEFUL *SOLO SPIRIT* LIFTS OFF FROM BUSCH STADIUM IN ST. LOUIS, MISSOURI. MICHAEL FORSBERG AND JAMIE VALET

Wind

Three teams compete for the century's last great aeronautical prize: first around the world nonstop in a balloon.

By RICHARD CONNIFF

THE DREAM—to fly a balloon nonstop around the world—hovers on the hairy edge between glory and madness, and the odds are on madness: You climb into a box surrounded by explosive fuel tanks and suspended by wires from a delicate, oversize Christmas ornament of a balloon. Burners above your head send a jet of blue flame roaring skyward, and suddenly you rise above the cheering throng.

RICHARD CONNIFF's latest book is *Spineless Wonders: Strange Tales of the Invertebrate World.* This is his 12th story for NATIONAL GEOGRAPHIC.

Getting around the world nonstop by balloon will be the last great achievement of the aviation century, say the men attempting to accomplish it. No one has ever done it by balloon, the oldest form of human aviation—possibly because ballooning is also the oldest form of aviation disaster. A balloon, as one flight director remarks shortly after sending his team aloft, is "a flying emergency."

On a bone-cold night last January 13 in St. Louis, out where second base lies hidden under the snow in Busch Stadium, a balloon named *Solo Spirit* rocks on its moorings. Propane tanks and assorted gear hang from the capsule like bags on a homeless person's shopping cart, and when the wind kicks up, they bang and grind together in a cacophonous din. During the past week two rival balloons, a British effort costing more than two million dollars and a Swiss entry worth an estimated 1.5 million dollars, took off, promptly ran into technical glitches, and tumbled ingloriously back to earth. Only *Solo Spirit* is left to salvage the reputation of long-distance ballooning.

All the pilot has to do is get the winds to sail him over mountains, across oceans, past thunderstorms, through

Trudging into history, Steve Fossett heads for his balloon, *Solo Spirit,* sharing a last few moments with his wife, Peggy. Inflated to just 65 percent at ground level, the balloon will swell to full size at 18,000 feet as atmospheric pressure drops.

hostile nations, and with luck, after three weeks and roughly 25,000 miles, into history.

Out on the field a motley gang of volunteers tends to final details. They mean to circle the world for $300,000, without commercial sponsorship. They have deliberately chosen to forgo fancy, breakable high-tech gear. The pilot's capsule is an austere little box and unpressurized, which means he will have to fly at relatively low altitudes, in the thick of winter weather. A reporter has described this approach as "crude," and the American team has latched onto the word like a battle cry. Among the fripperies on the Swiss balloon, for instance, is a Teflon-coated stainless steel toilet with an air-lock flush. On *Solo Spirit* the fanciest thing about the toilet is its name, "the lucky bucket."

But the simplest, scariest thing about *Solo Spirit* is the solo part. The other teams use crews with two or three men to share the workload for a flight that could last as long as three weeks. *Solo Spirit* will carry one pilot, a businessman with thinning gray hair, a thickish waist, and a mild, unfailingly polite manner. His name is Steve Fossett, and in a crowd you could mistake him for a bystander.

Just then, Richard Branson, the British billionaire and rival balloonist, sweeps into Busch Stadium. He's fresh from his own aborted flight and from yesterday's launch of the Swiss balloon in the Alps, and he beams with the glorious camaraderie of it all. A cameraman stays close to record the swashbuckling details—purple jumpsuit, swept-back golden mane, grin parting his wolfman beard. Branson delivers a sound bite about the incredible bravery of the American pilot about to fly off in this tiny capsule.

"Yeah, we're getting ready to go," a nondescript man standing beside him says.

"I was just saying what an adventure Steve's going to have," Branson remarks.

"I *am* Steve," the man says, and a few minutes later, grinning with boyish delight, Steve Fossett ascends into the heavens.

FOSSETT and the other round-the-world (or RTW) teams have all chosen Rozière balloons, a design that combines gas and hot-air technologies (diagram, pages 60-61). The Rozière gets its name from the first human ever to fly, Jean-François Pilâtre de Rozier. As it happens, he was also the first human to die in flight. De Rozier's ingenious idea was to combine the maneuverability of hot air with the buoyancy of gas

"My expectations as I took off were quite a bit lower than a round-the-world flight," admitted Fossett. "There's just too much that can go wrong with a balloon." He carried his passport and cash "to facilitate my exit from some country."

MICHAEL TORSBERG (ABOVE AND OPPOSITE)

With a ceremonial send-off from Moroccan horsemen, the endorsement-laden *Virgin Global Challenger* prepares for takeoff in Marrakech January 7. An oversight by the ground crew scrubbed the ill-fated flight hours after launch.

for an attempt to cross the English Channel in 1785. But the gas he used was hydrogen, and he died in a fiery plunge from 1,600 feet. The modern Rozière balloon, introduced 19 years ago, uses nonflammable helium.

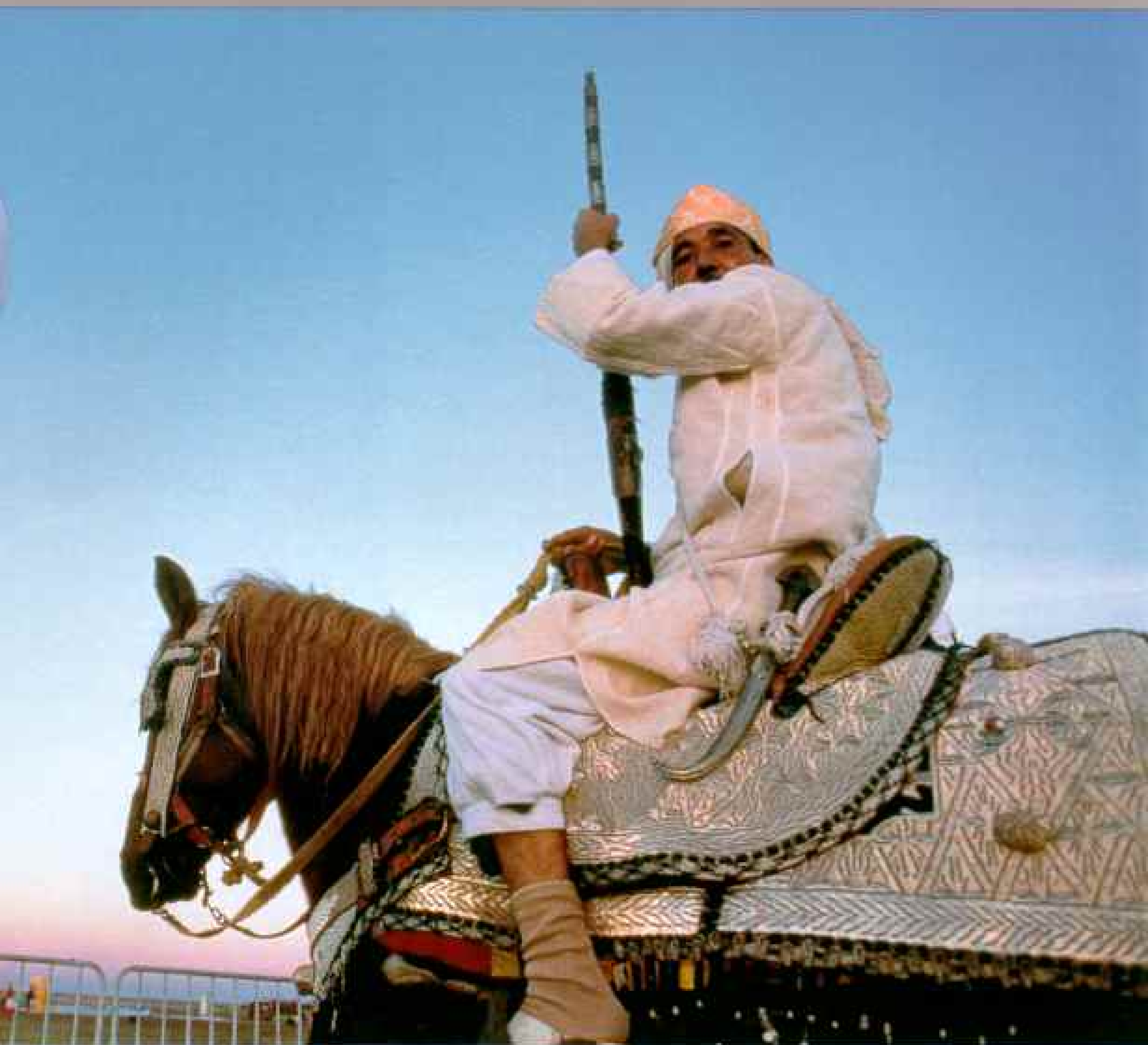
Rozières tend to be big (this year's crop ranges from 13 to 20 stories in height), pricey (*Solo Spirit's* envelope alone cost $100,000), and fragile (you generally get to fly it just once, even if you're lucky). Steve Fossett is one of the most experienced Rozière pilots in the world, having completed four previous distance flights. But he had never been in any balloon, much less a Rozière, before he decided, four years ago, to become the first person to fly one around the world.

By profession Fossett is a stock-options investor. He manages his Chicago trading company by long distance, from a home in Colorado ski country or a sailboat out in mid-ocean. At the age of 52 his real occupation is the methodical accumulation of athletic achievements. He has climbed the highest mountains on six continents (Everest having eluded him in two attempts), swum the English Channel (on his fourth try) and the Dardanelles (both ways), completed the Iditarod dogsled race and the Ironman Triathlon, and established eight current world records in sailing.

When a friend suggests that Fossett, who is an Eagle Scout, is still collecting merit badges, he laughs and says, "I've never gotten tired of logging another achievement." The word on Fossett is that he is part android, part overgrown kid, a sunny, likable fellow who can overcome extreme difficulties, endure incredible discomfort, and make it all sound about as exciting as a day on a park bench. He has no interest in publicity. He disdains thrill seeking. "I actually don't like being scared," he says. On the other hand he is willing to accept certain unavoidable risks. Having been denied permission to fly over one country known for picturesque guerrillas armed with Stinger missiles, he remarks, "It's the kind of country one might be able to sneak over. They don't have very good radar cover."

Now in the early hours of *Solo Spirit's* first day, Fossett is, as always, quietly confident. He e-mails a concise message back to mission control in Chicago. *Decision is to continue across Atlantic.* He is 18,000 feet up, sailing at 50 miles an hour toward the North Carolina coast, with his silvery Mylar envelope luffing and fluttering in the rising sun.

All through December the three rival teams have tinkered with their hardware and watched the weather. The season for RTW ballooning is mid-November to the middle of February, when the sun retreats from the Northern Hemisphere and the forces of winter nudge the polar jet stream south to about the latitude of North Africa and southern China. The jet stream is a great river of wind, hundreds of miles wide, at between 20,000 and 40,000 feet. Using aircraft-style pressurized capsules, the European teams hope to ride this wind as fast as 200 miles an hour. Fossett plans to ride just under the jet stream and never attain such speeds.



THIERRY BOCCON-GIBOD, GAMMA LIAISON

As they wait, the rival teams also gossip, mostly about Richard Branson and his pilot, Per Lindstrand. In England, where Branson has built up a vast retail and airline empire under the Virgin brand name, often with the help of flamboyant publicity stunts, the press regards this as Branson's flight. But within the ballooning community it belongs to Lindstrand, a chunky, understated Swede who designed the balloon, built it, and must keep it aloft. The *Virgin Global Challenger* is the most technically sophisticated of the balloons, and the joke being told is that it requires a crew of two men and a dog: Lindstrand to fly the balloon, Branson to feed the dog, and the dog to bite Branson if he gets near the controls.

In truth all the RTW teams are relying upon Branson's ability to turn everything he touches into an international media event. All that publicity makes it less likely that some hostile nation will shoot down a balloon—as happened to two Americans over Belarus in 1995. None of the teams have permission yet to fly over Russia or China. They hope things will clear up once they get airborne, a bit like relatives who phone from the highway: "We'll be there in an hour. And could you leave the shotgun in the closet?"

Branson's *Virgin Global Challenger* takes off first, from an air base in Morocco, on January 7. But in the rush to launch, the ground crew inadvertently leaves couplings

on the fuel lines in the locked position. So if Lindstrand tries to drop a one-ton fuel tank to lose ballast in an emergency, the tank will simply dangle from its hose.

By the time Lindstrand gets word, the balloon is at 30,000 feet. Owing to the capsule's design, it will have to drop back below 10,000 feet before the crew can depressurize, open the hatch, and get out to make the fix. Lindstrand waits till the balloon begins its natural descent as the sun dwindles in late afternoon. But somewhere just beyond the Atlas Mountains, they suddenly encounter violent winds known as rotors, and the balloon begins falling much too fast.

Lindstrand fires the burners to slow the fall, but the balloon continues down. He orders the others to open a side hatch and begin dumping ballast: food, water, anything not tied down. "More, more, more!" he shouts. Standing in the open hatchway, Branson hurls things into the darkness and believes that the balloon is plunging them toward their death.

Finally, the third crew member—not a dog, after all, but an engineer named Alex Ritchie—straps on a parachute and climbs out into the frigid air. He stretches out over the edge, twists open two couplings, then drops back into the capsule.

"At about a thousand feet before we were to hit the ground," Branson recounts afterward, "we dropped a ton. The only way to avoid colliding with the ground was to get rid of that fuel tank. The whole capsule ricocheted to one side . . . steadied, and started shooting up again."

With inadequate supplies, Lindstrand chooses to land the next morning in the Algerian desert. The *Virgin Global Challenger* flight has lasted 20 hours and covered a total of 400 miles.

Back in London the press gives Branson a hero's welcome. He stammers with likable modesty, disparages his own role, and casts Ritchie as the hero for saving their lives. But the photographers persuade Ritchie and Lindstrand to lift Branson up like a winning football coach. "What is this?" Branson protests, beaming, delighted, holding out his open palms to receive their acclaim. "You act as if we actually went around the world."

A WEEK LATER, out over the Atlantic, Fossett has moved up to 22,000 feet, firing his burners for 12 hours straight. This is about as high as he can fly in an unpressurized capsule without wearing an oxygen mask. His mask goes unused, except when he is moving equipment around or going up through the hatch to switch fuel tanks. Mostly, he sits on a bench along one wall, with his instruments and his laptop computer in

(Continued on page 64)

After shrugging off the Atlas Mountains (above), the *Virgin Global Challenger* nearly crashed in swirling winds called rotors. Just 400 wild miles downwind, relieved sponsor/survivor Richard Branson rang support crew from his Algerian desert landing spot (right). His gondola's six fuel tanks, painted in the likeness of soft drinks sold by Branson's British conglomerate, inspired the nickname the Flying Six-Pack.

THIERRY BOCCON-GIBOD, GAMMA LIAISON (BOTH)

The Mechanics of Racing With the Wind

ALL THREE TEAMS fell short in their 1997 round-the-world efforts but will try again next winter in Rozière-style craft. The *Virgin* and *Breitling* balloons will ride high, fast jet-stream winds. Steve Fossett's will fly lower and slower. A fourth entry, an enormous, high-altitude research balloon called *Dymocks Flyer,* will attempt a global transit on east-to-west winds at the edge of space.

ART BELOW BY DOUG STERN

Mylar outer skin moderates thermal exchange

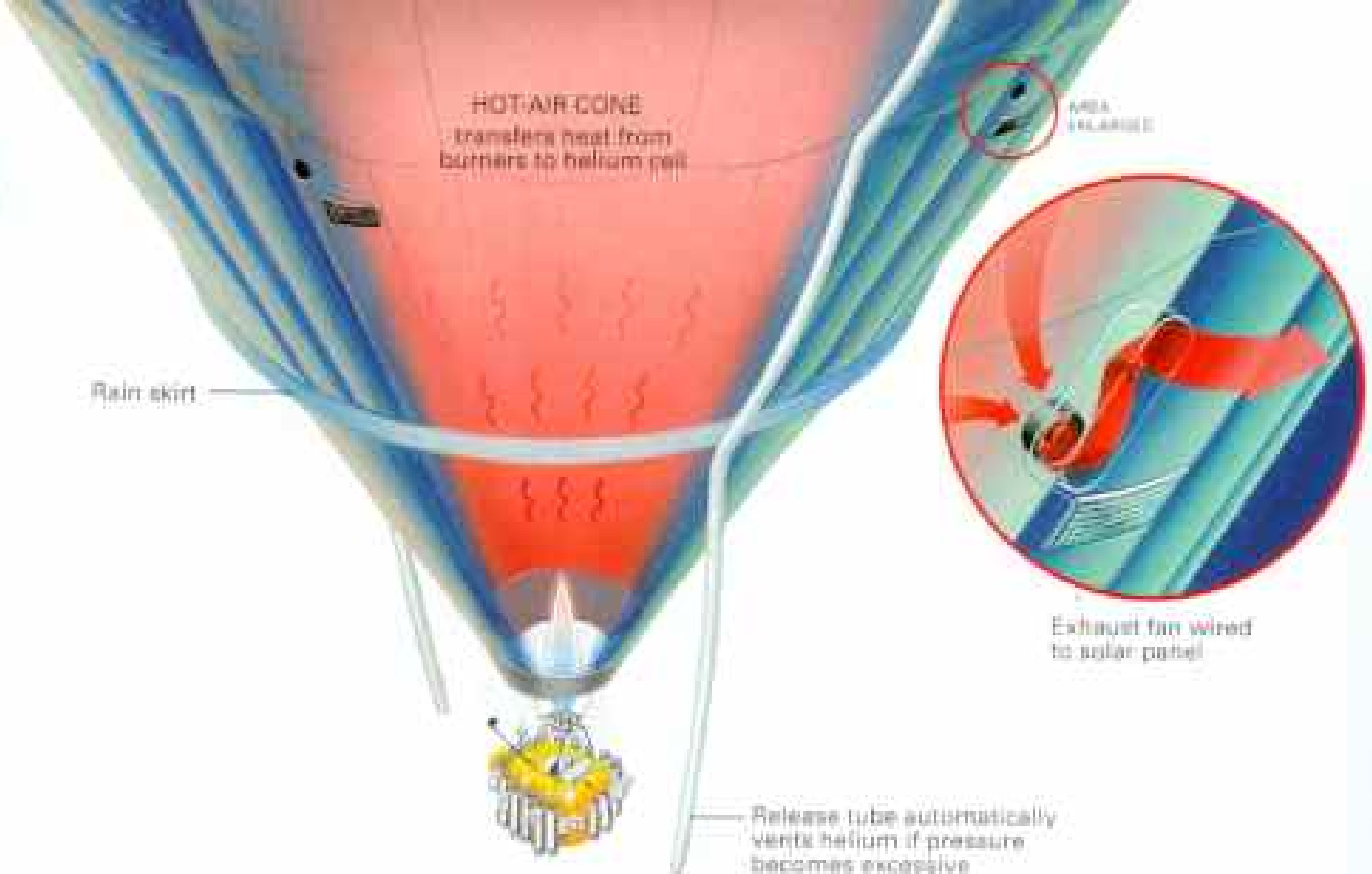
HELIUM BALLOON supports tent

Tent air vent

Tent fan

TENT provides air barrier to insulate helium cell

HELIUM CELL provides lift



TOWERING 130 FEET above its gondola, a Rozière balloon uses hot air and helium to solve a problem that is both vexing and as simple as night and day. In sunlight, balloons can overheat, causing precious helium to expand and escape through vents. At night the gas cools and contracts, causing the balloon to drop. The Rozière solution places a helium cell inside an envelope of hot air. On this model a smaller helium balloon supports a tent that shields the main helium cell from the sun. Solar-powered electric fans whir all day, venting warm air from the envelope and preventing overheating. At night a ten-foot propane flame is fired up atop the gondola to keep the temperature up. The challenge for the balloonist—operating in cramped quarters like Steve Fossett's Kevlar-and-carbon-fiber capsule (left)—is to keep helium from venting and propane from running out.

ART BY DALE GUSTAFSON

Solo Spirit's Worst Day

By Steve Fossett

I HAVE MY HANDS FULL as I enter Algerian airspace on January 17, 1997 (below). Air traffic controllers want me to report my position every 15 minutes. Faxes keep coming in over my laptop computer from mission control in Chicago. I am trying to track my route on aeronautical charts. And I can't figure out how to keep my cabin heaters working. The worst problem is Libya, which so far has denied me permission to enter its territory. Unless the wind changes, I am headed right for its western border. The following messages, faxed between Chicago and me, document the events as they unfold.

STEVE FOSSETT

Friday, 1/17/97, 1:42 a.m. (Greenwich mean time) *Just entered Algeria at Med Shore,* I tell launch co-director Bruce Comstock at mission control. I'm flying at 23,000 feet now, and it's well below freezing in the capsule. I've had little sleep for most of four days.

5:58 a.m. Bruce informs me that Lou Billones, our chief meteorologist, and his team have found a weather pattern that will steer me south around Libya (map, facing page). *Someone up there is smiling down on us,* Bruce says.

10:07 a.m. Now I'm worrying about Libya's neighbors. We never expected *Solo Spirit* to cross Africa. We had planned to fly over Europe. *Do Chad and Sudan defend northern borders?* I ask project manager Bo Kemper.

11:00 a.m. Standing in the open hatch to check my position and the terrain, I look down on dunes in every direction. No roads, no trails, no villages.

11:12 a.m. My weather team sends an update on possible routes beyond Africa.

3:01 p.m. Bo has bad news: Our latest request for permission to enter Libya has been denied. We begin making plans for a detour. Do not go below 10,000 feet in Niger, Chad, or Sudan, Bo adds. Military groups may have Stinger missiles. *Do not land in Sudan. It is a tough place.*

3:34 p.m. *Congratulations on breaking the existing world distance record in the last five minutes by my calculations. Yahoo!* writes Nick Saum, launch co-director. We set our sights next on the world duration record of just over six days in the air.

4:21 p.m. My weather team wants flight data from me to plot a new course: *You may be up to your waist in alligators, but if ever we needed hourly reports, it is now,* they say.

4:24 p.m. Decision time: Should I try to fly around Libya? If the winds don't take me far enough south, I'll be forced to land in Chad rather than enter Libya. *Any landing is a total loss of equipment,* I tell Bo. *I would need a helicopter to get out. There are no roads down here. I say we go for it.*

8:00 p.m. A CNN news editor in New York receives a fax from Libya. *Solo Spirit* has been denied permission because of the U.S. embargo on Libya, it says. *Contact your government and ask them to lift the embargo,* the Libyan official suggests.

9:45 p.m. I go outside to switch hoses on the fuel tanks. Standing on top of the capsule, I notice it's quiet and calm, since I'm traveling at the same speed as the wind. I burned too much fuel over the Atlantic. Bruce figures at the rate I'm using fuel I'll run out in 4.6 days—midway across the Pacific!

10:02 p.m. I'm falling. Can't start either of my burners. The altimeter needle is spinning. My heart is pumping. I go outside again to check fuel lines and see that I had kicked loose an electrical plug earlier. I plug it in and fire up the burners. My descent is halted. I had fallen 2,000 feet in just a few minutes.

Saturday, 1/18/97
2:11 a.m. After crossing into Niger, I get big news: With help from the Branson team and CNN, we've gotten the green light from Libya! I immediately drop two empty fuel tanks and shoot up into the bottom of the jet stream at 24,500 feet. Taking a shortcut across southern Libya, I'm on my way now to India at 128 miles an hour.

Solo Spirit's Record Breaking Route

❶ **Day One**
Takeoff from St. Louis. Cabin heater problems begin almost immediately. U.S. military monitors flight through restricted airspace off North Carolina.

❷ **Day Two**
Passes over Hamilton, Bermuda; sets sights on Europe.

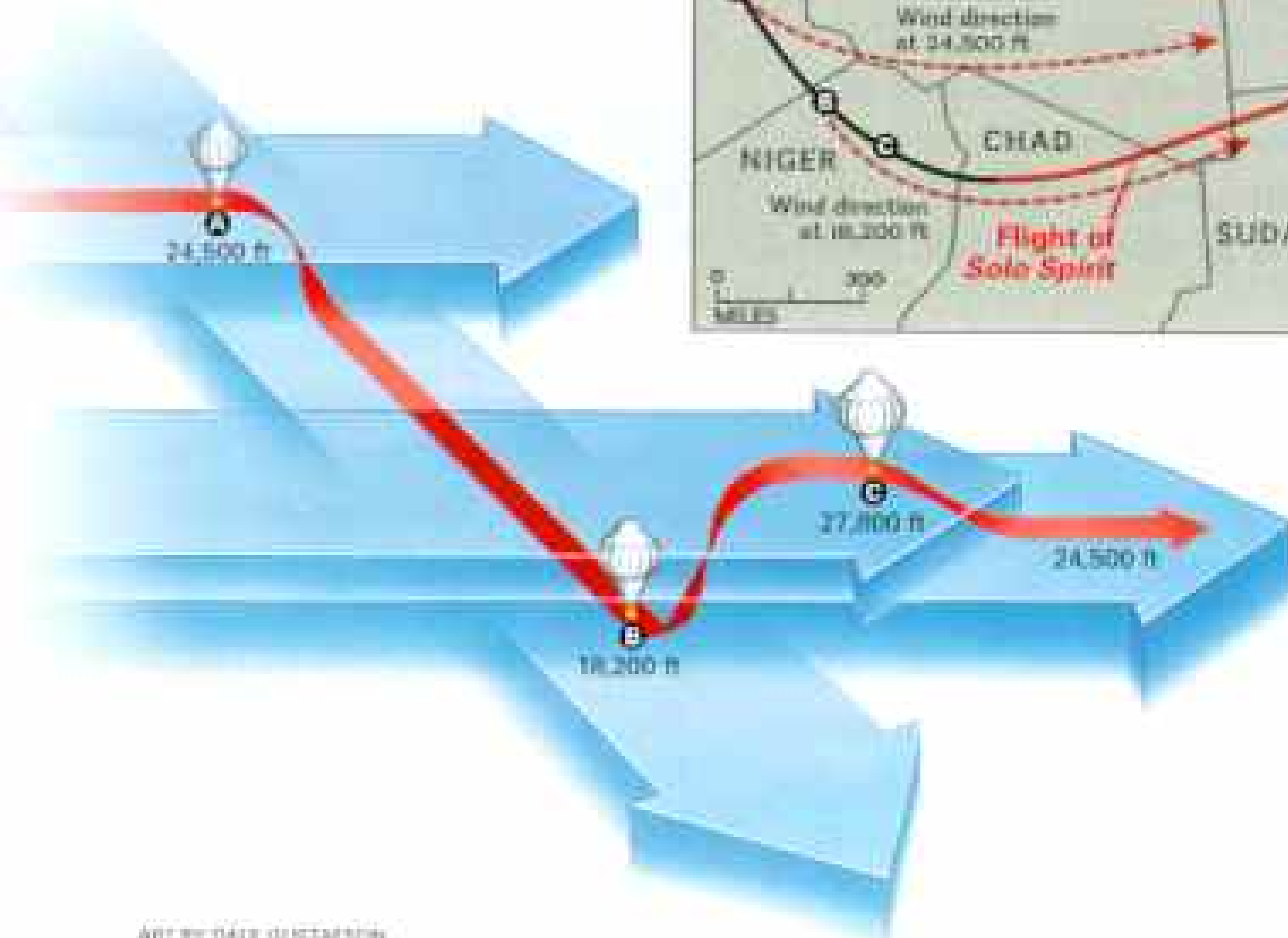
❸ **Day Three**
Steers south of Europe, bypassing a storm system but heading toward North Africa, where overflight permissions have not been granted.

❹ **Day Four**
Over southern Algeria, sets balloon distance record; maneuver around Libya costs precious time and fuel.

❺ **Day Five**
Becomes first balloon to cross Africa; reaches Persian Gulf.

❻ **Day Six**
Flies over Strait of Hormuz; reaches central India.

❼ **Day Seven**
Sets balloon endurance and distance records; lands near Sultanpur, India.



ART BY DALE GUSTAFSON

Second Wind

When *Solo Spirit* is refused permission to fly over Libya, team meteorologist Lou Billones studies global wind patterns for a detour. If Fossett stays at 24,500 feet **(A)**, prevailing winds will carry him into Libya. So he vents off helium to drop to 18,200 feet and pick up a slower breeze that's blowing southward. After drifting 308 miles, Fossett gets word that Libya has finally acquiesced. He heats the balloon **(B)** and rises, making up some lost time on fast winds at 27,800 feet. After about 150 miles **(C)** he descends to a more comfortable 24,500 feet. He sails across Chad, nips Libya's southeast corner, and flies on toward yet another record: first to cross Africa by balloon.

Ballooning Firsts and Records

November 1783
First Flight
Pitchforking straw into a fire at the neck of their balloon, Jean-François Pilâtre de Rozier and the Marquis d'Arlandes cover about five miles over Paris in 25 minutes.

July 1897
Arctic Attempt
Expecting winds to carry them across the North Pole, three Swedish balloonists survive a crash—but die, possibly from eating bad polar bear meat.

November 1935
Altitude Record
The National Geographic/U.S. Army-sponsored *Explorer II* lifts two airmen and more than two tons of equipment 72,395 feet. The record stands for 21 years.

August 1960
Highest Jump
U.S. Air Force paratrooper Joseph Kittinger rides to 102,800 feet—and steps out. His free-fall speed reaches 614 mph before he lands safely in the New Mexico desert.

August 1978
Atlantic Transit
Maxie Anderson, Ben Abruzzo, and Larry Newman succeed where 13 previous attempts had failed, flying from Maine to France in 137 hours, 6 minutes.

January 1997
Longest Flight
Solo Spirit pilot Steve Fossett sets dual records for distance and duration: 10,360.61 miles in 6 days, 2 hours, 44 minutes.

NICOLAS LE CORRE (ABOVE) AND WITH PATRICK AVENTURIER (BELOW), BOTH GAMMA LIAISON

***Breitling Orbiter* was launched in the Swiss Alps (right), but it was all downhill from there. Six hours later the airtight capsule was bobbing in the Mediterranean, its crew nearly overcome by leaking kerosene fumes. Bertrand Piccard (above, at left) and Wim Verstraeten plan to try again after fuel-line modifications to their solar-powered capsule (below).**

(Continued from page 58)
front of him studying weather maps and staying in touch with air traffic control. He detects no headaches or other hints of altitude sickness. His appetite is good, though his military rations aren't. He eats them with a side order of antacids.

So far Fossett's main problem is that the cabin heaters work only sporadically. At night the temperature inside drops to 15°F. Fossett is wearing his dogsled boots, long underwear, and a polar fleece jumpsuit. He has a sleeping bag, but the bench is barely long enough to stretch out, and one shoulder hangs off the edge. Taking 15-minute catnaps, he averages just two hours of sleep a day. The secret, uncertain ingredient in the crude approach is how much of this Fossett can take.

Solo Spirit is also burning more fuel than expected. Fossett crosses Gibraltar headed straight for Libya. His control center is on the phone asking everyone from CNN to Louis Farrakhan to beseech Libya for overflight permission. Richard Branson faxes a plea on Fossett's behalf to Col. Muammar Qaddafi in the spirit of "sportsmanship" and offers to visit in person.

Early on day four Fossett sends a message to his control center: *Getting trashed by cold and short sleep. . . . Starting to think about a less than RTW flight.*

JUST BEFORE DAWN on January 12, a day ahead of Fossett's liftoff, the *Breitling Orbiter* team, sponsored by a watch company, prepares to launch from the Swiss resort of Château-d'Oex. Bertrand Piccard, one of the two pilots, is a 38-year-old Swiss psychiatrist with gleaming, visionary eyes under a domed forehead. The son of a great undersea explorer and the grandson of a pioneering balloonist (see Flashback, page 136), he has no fear of grand gestures. The balloon, he says, is a vehicle for human hopes: "In the balloon you are prisoners of the wind, and you go only in the direction of the wind. In life people think they are prisoners of circumstance. But in the balloon, as in life, you can change altitude, and when you change altitude, you change direction. You are not a prisoner anymore."

The Alpine peaks have become pale silhouettes as Piccard and fellow pilot, Wim Verstraeten, pry themselves loose from loved ones for what could be the last time. So far no one has been killed in the round-the-world competition. But one team, called *Earthwinds*, crashed once in five failed attempts from 1992 to 1995, and in the race to be first across the Atlantic, 13 balloons ditched and five pilots died before a successful crossing in 1978.

Ten minutes after launch, at 1,500 feet, the *Orbiter* bounces off an atmospheric inversion as if hitting a ceiling and circles back toward the launch site. The capsule sweeps down toward a high Alpine ridge fast enough to smash itself against the jagged rock. But it clears the first ridge, then circles back to the west, dipping and rising perilously among the cliffs. It looks like a bathtub toy dancing on a whirlpool over the

STEVE FOSSETT

drain. Verstraeten stands in the open hatch, firing burners, spilling black plumes of sand ballast and riding this toy for life or death. At last the balloon breaks through the barrier of cold air, and they soar up out of the valley.

Then calamity: With the capsule sealed tight and pressurized, kerosene begins seeping into the cabin. A clamp like the ones on a car radiator hose—price tag $1.16—has failed. Piccard e-mails a message to his control center: *Kerosene's coming through each pipe on both inside tanks and we cannot tighten them anymore. It is a nightmare. . . Answer quick.* The control center suggests that they descend, open the hatch, and hang on till they reach the Algerian coast. But the pilots are too sick with fumes to go on. After just six hours they splash down in the Mediterranean off the coast of France.

One Swiss paper calls it "Un saut de puce," a flea leap. But Piccard is undaunted. "Even if it was only a dream, I don't care," he says afterward, "because people need dreams, they need adventure. We need to have dreams that carry us forward."

OUT IN A SMALL HOUSE amid the snow-covered cornfields of Nebraska, *Solo Spirit* chief meteorologist Lou Billones is up to his bushy eyebrows in weather maps and the latest computer modeling systems. He uses algorithms originally conceived during the Cold War to predict the path of radioactive dust from a nuclear explosion. In this case the particle of dust is a balloon 24,000 feet over Algeria carrying Steve Fossett at 80 miles an hour toward Libya, which so far has denied overflight permission. It isn't a country even Fossett would choose to sneak through. But Billones has a scheme, and he flashes it by satellite from Nebraska to *Solo Spirit.* Fossett need not be a prisoner of the winds but their willing partner: By lowering his altitude, Billones says, he can change direction and scoot around Libya as deftly as a taxi making a detour on a city street (diagram, page 63).

Fossett begins the maneuver on schedule. After skirting the country for some 300 miles, word finally comes that the Libyans have relented. But the detour burned up time

"I got your damn picture," *Solo Spirit* pilot Steve Fossett e-mailed a persistent NATIONAL GEOGRAPHIC editor from his gondola. "Strait of Hormuz. . . . A very cold pilot in the foreground." It was actually minus 16°F, warmer than Fossett expected.

and fuel, and Fossett is sleep deprived and oxygen short. His team waits and naturally wonders if he can possibly be thinking clearly. And just about then, this businesslike e-mail comes scrolling across their computer screen:

RTW is no longer feasible. Excess fuel consumption leaves us only 5 1/2 days for a distance which would take 10 days. . . . Objectives are now restated.

He's already broken his own record for long-distance ballooning, and now he wants to pile on the miles. He also means to break the duration record of six days, 16 minutes, and, incidentally, complete the first balloon crossing of Africa ever. RTW will have to wait for next year.

Two days later the winds have lofted him across India, and almost halfway around the world from his launch site. Without enough fuel to cross the Pacific Ocean, Fossett opts to drop down out of the strong winds and "park" at low altitude over India for the half day he needs to beat the duration record. At dawn the air is a blanket of smoke and fog, and he cannot see the ground from a thousand feet up. The control center crew warns him of "TSMS"—thunderstorms—and advises him to get the hell on down and forget the record. An hour later Fossett replies, *First line of TSMS didn't kill me.* Another six hours after that something blows up, and the capsule fills with thick smoke. But it turns out to be a minor problem, and Fossett stays up to break the record by two hours, 28 minutes.

Then he vents helium to begin his descent for landing. He comes in too fast at first and has to pull out at a hundred feet. On another attempt he bounces off the ground, back up to a thousand feet. Finally, on the fourth try, he comes in across a field, snags the balloon in a tree, and, having traveled 10,360.61 miles, makes a safe landing among astonished villagers near Sultanpur, India.

When Fossett finally gets through to his control center, ten hours later, he can't talk long. He's at a pay phone. "People are looking at me." He still hasn't slept or eaten. He is mostly concerned about packing up his equipment. He has flown his battered, crude little low-budget capsule five times now; it ought to be good for another try next year.

His friends in Chicago interrupt to tell Fossett that he has made newspaper and television news around the world. The Smithsonian Air and Space Museum in Washington, D.C., actually wants to display the capsule.

"Really?" says Fossett. "I didn't think it was that big a deal." □

"Some Indian press said that villagers thought I was a Hindu god," says Fossett of his landing near Sultanpur. "But I think that's just good copy." *Solo Spirit's* hot-air cone was ruined (right), but its helium cell is fit for another try.

BALDEV, SYGMA

A dream called **Nunavut**

BY **MICHAEL PARFIT**
PHOTOGRAPHS BY **JOANNA B. PINNEO**

Dancing a fine line between new and ancient ways, the Inuit of Canada's vast northern landscape of tundra, fjords, and ice will soon have a chance to overcome a troubled past. In 1999 they will take over what will become the country's third official territory, Nunavut—"our land." Like Susie Arnauyumayuq, here dancing with snowflakes after a seal feast, the Inuit at last have reason to celebrate.

The cold sunlight of early March brushes grave markers above Igloolik, one of Nunavut's 28 isolated towns. Winter night lasts seven weeks, and July heat averages just 43°F. "It's a hard life in the north," says resident Emile Immaroitok. Even so, human artifacts found on Igloolik Island go back 4,500 years, and Inuit leaders have drawn on that legendary tenacity to win their new territory.

DAVID SERKOAK'S FATHER was trying to dance away the hard times when the policeman burst in.

It was 1959, back when northern Canada's Inuit were still called Eskimos. David Serkoak was seven. The Inuit who lived west of Hudson Bay were starving. Serkoak remembers a day when his mother tried to catch a ptarmigan by stretching a fishnet between two shrubs. He remembers gnawing a bone all day to get something good out of it. He remembers death in the tent next door. But the memory of the policeman is the worst, because it's a memory of shame.

"My father was dancing, playing the drum," Serkoak told me recently in his home on Baffin Island, remembering when his family had been moved by the government to a settlement closer to food. One evening a few of the families gathered in a tent for a traditional drum dance, to reassure themselves that something familiar would survive those terrible times.

The Inuit drum is a skin stretched over one side of a wooden hoop tied to a handle. Serkoak's father danced in the center of a circle of singers, holding the drum in one hand and hitting the hoop to make the skin boom. The rhythm was patient, like the legendary patience

Wet and cold, Matthew Nakashook fights a swift September freeze to haul in his catch of arctic char near Cambridge Bay. The fish will be flown to restaurants as far away as San Francisco. As with tourism and Inuit art, commercial fishing is one way Inuit hope to add cash to a subsistence economy.

of the Inuit themselves. Even as a child Serkoak loved the way it made him feel.

Suddenly there was a commotion at the tent flap. A policeman burst in, one of the white men—*qallunaat*—yelling something like "Bloody Eskimos!" in English. Either he was tired of listening to music he couldn't understand, or—like some religious whites—he thought the drumming was evil. He grabbed Serkoak's father and shook him like a dog.

"My father was a small and silent man," Serkoak remembered. "The policeman pushed him around. Then when he was done pushing my dad around, he tried to break the drum. He just ripped the skin to shreds." Serkoak is a cheerful, good-natured man, but after nearly 40 years he has not forgotten that night. "I still resent it," he said.

That memory is symbolic of the worst of four decades of white dominance in the north. But the legacy of conflict may soon be vanquished by something entirely new that is shameful to neither qallunaat nor Inuit. In just a year and a half the Inuit, who were so recently poor, pitied, or disdained, will take back control over their own lives and homeland.

On April 1, 1999, Canada will turn about 770,000 square miles—more than half of the Northwest Territories—into a new territory called Nunavut, which means "our land" in the Inuit language, Inuktitut. Unlike a reservation system, this will be an open democracy with no racial quotas, just like any provincial or territorial government in Canada. But the split will be like a congressional district whose boundaries are drawn to emphasize a particular group: Since Inuit dominate the population in Nunavut, they will be in charge.

This piece of land is larger than Alaska and California combined and has a total population of only 26,000 people. The settlement also gives the Inuit direct title to 136,000 square miles (an area bigger than New Mexico) in Nunavut and annual payments that will equal 1.148 billion Canadian dollars (840 million dollars U.S.) paid over 14 years. It is one of the largest native-claims settlements ever made in the world.

As I saw recently while traveling from village to village across the expanse of tundra, rock, and stormy shore that is Nunavut, this experiment is far from a sure bet. The Inuit are wracked by social problems, poverty, and a low level of formal education; the Canadian government, on whose financial generosity Nunavut depends, is watching its budget. In 1999, as the lines on the map change with a profound clang of permanence, all the people

of the north—from bureaucrat to teacher to visionary, from teenage drifter to skilled hunter—will be taking the chance of their lives, leaping with hope but great uncertainty into something many of them thought could never come true.

"In the beginning it was unreal," Serkoak told me. "I thought Nunavut was crazy. But when you see your own people in charge, you begin to believe reality is here."

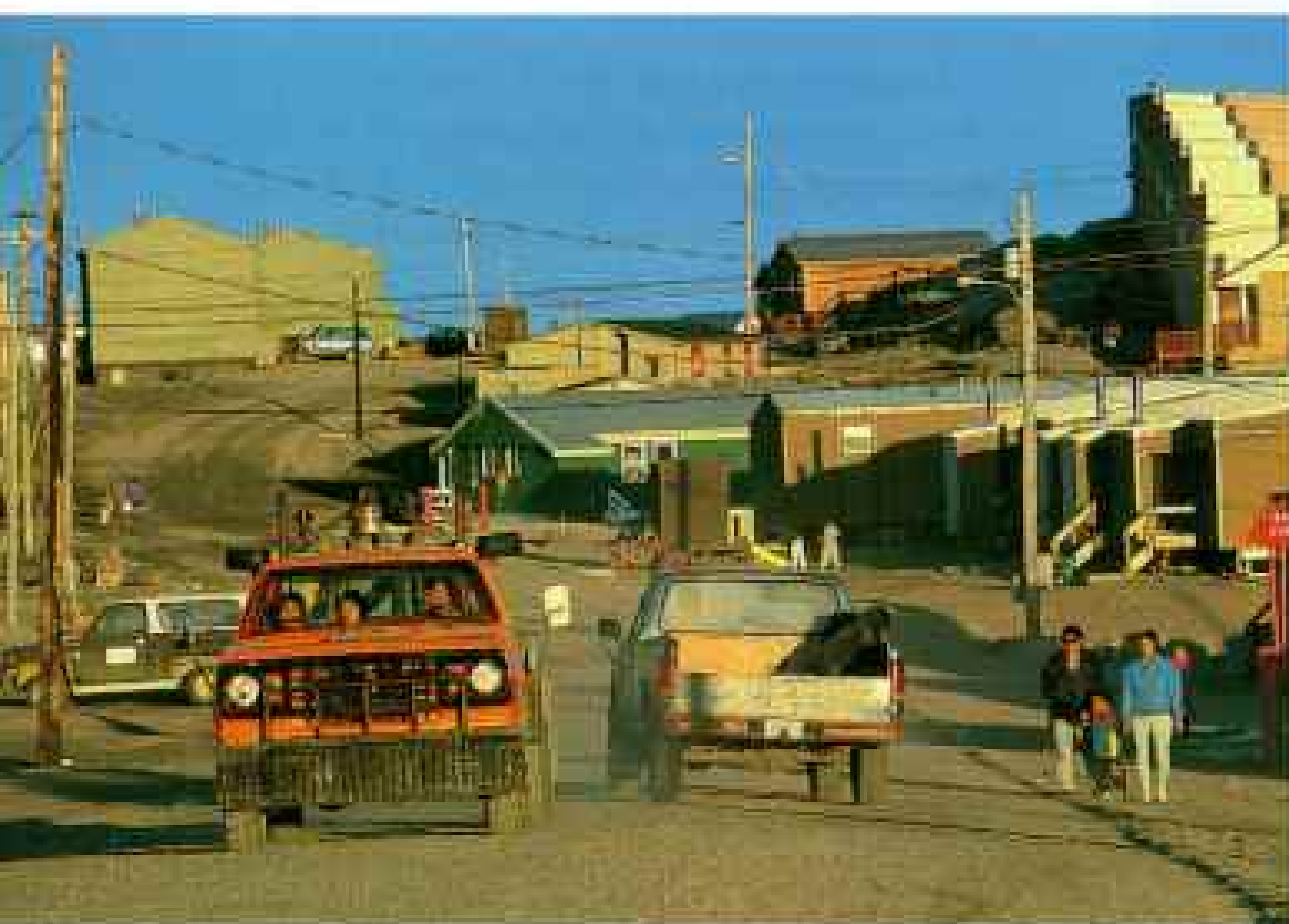
What will that reality be? Is Nunavut a dream of human progress realized or just another hopeless effort to soothe the so-familiar troubles—represented by the night the policeman broke the drum—that inevitably explode between different ways of life?

ONE NOVEMBER DAY, just after the sun had made it up over the horizon for a brief crawl along the edge of the world, I took off in my single-engine airplane from the village of Igloolik, where I had been visiting for a few days. Igloolik is a community of 1,200 people on an island in the Foxe Basin, north of Hudson Bay. I flew east at a thousand feet across the edge of the island and crossed a maze of broken ice floes. In places sheets of ice had slid up upon one another and looked like splayed decks of glass cards. Between floes were cracks of black water. The air temperature was about minus 5°F. Vapor swirled like smoke across the patches of open water.

Far from Igloolik, on a windblown ridge, two rows of old oil drums outlined a short airstrip. Snowdrifts lay in stripes across rough gravel. I circled, wondering if I dared land.

I had already flown thousands of miles across this austere landscape. I'd crossed the vast rumpled plains of western Nunavut north of Yellowknife, where wandering ridges left by ancient glaciers still shelter snowdrifts in midsummer and blue-green water pools in every dip. I'd climbed thousands of feet past the knife-edged cliffs of Ellesmere Island, part of Nunavut's northeastern archipelago, where ice still crowns the country and laps in gray tongues down to the frozen sea.

Traveling among the 28 towns of Nunavut was like flying from planet to planet across empty space. I would leave one tiny cluster of boxy government-built houses and fly for hours across icebound bays, glaciers, or frozen swampland before the next little village showed like a handful of pebbles on the horizon. One day I flew about as far as the distance between Seattle and Los Angeles and crossed just four villages, which had a total population of 3,700.

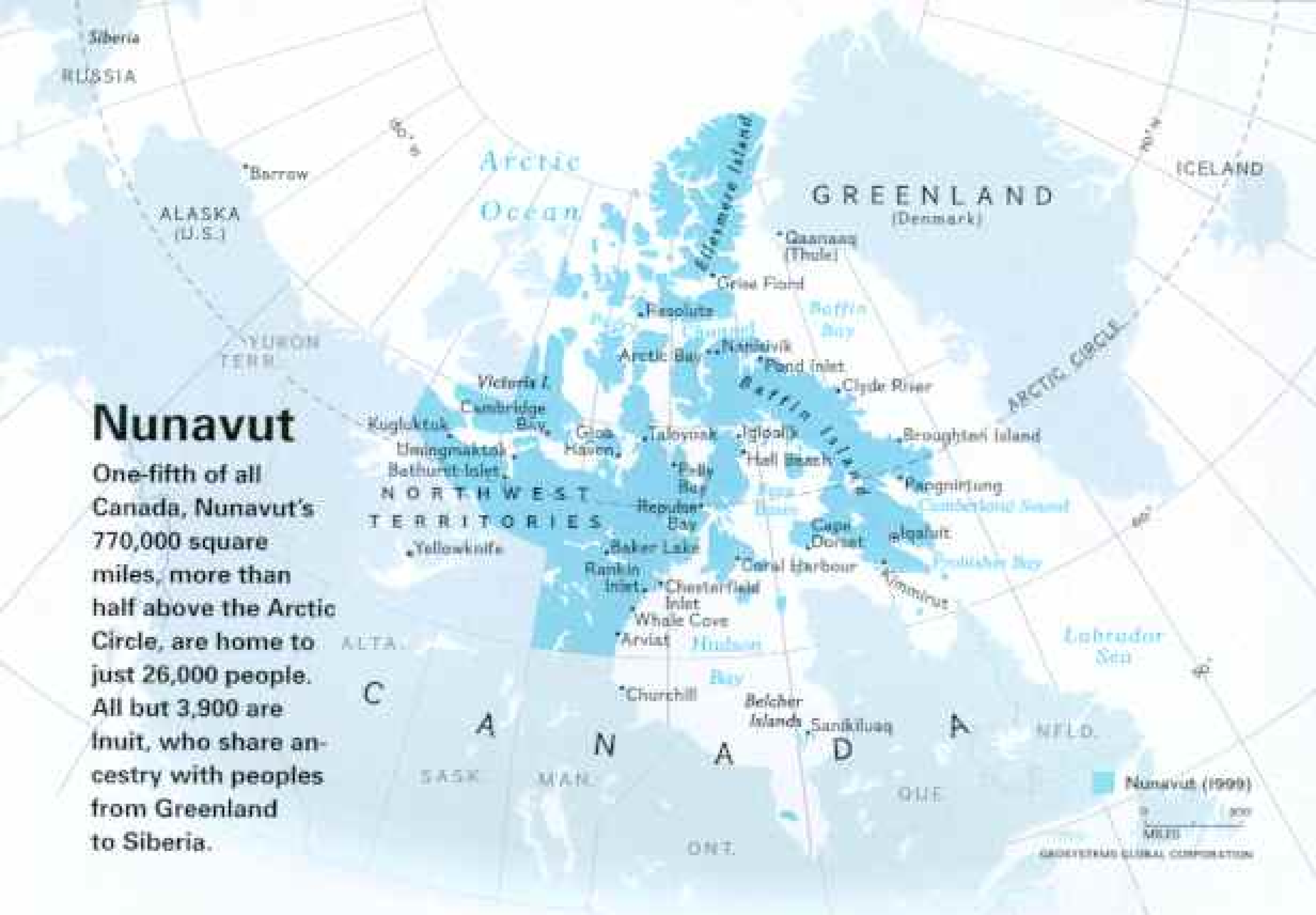


"Not ostentatious," says town administrator Sara Brown in describing the homes of Nunavut's future capital, Iqaluit. This growing government town of 4,400 people supports 2,500 vehicles—on a bare 15 miles of road. Iqaluit's 34-bed hospital is the only one in the entire territory.

As I circled the little airstrip, I thought of Nunavut as the ultimate idea of the Arctic—enormous, timeless, encased in bitter cold, a place where no human being could survive.

But people were waiting for me down there. I circled the airstrip once more, put down the flaps, and landed. The plane lurched through the shallow snowdrifts and stopped in a white cloud.

At the end of the strip was a cluster of men, women, children, and dogs. The people wore caribou-skin parkas and sealskin boots and carried babies on their backs. They had been living off the land here for months, sleeping in



Nunavut

One-fifth of all Canada, Nunavut's 770,000 square miles, more than half above the Arctic Circle, are home to just 26,000 people. All but 3,900 are Inuit, who share ancestry with peoples from Greenland to Siberia.

canvas tents, wood shacks, or snow houses, eating caribou, fish, seal, and walrus. Their faces were smooth and brown and polished like masks I had seen in museums. Their eyes were squinted to slits against wind and light.

I had come to fly a woman and her children to Igloolik for a funeral. The family quietly brought me their gear from a long sled called a *qamutiik*. As I loaded a caribou skin into the plane, I felt as if I had flown back in time. Were these the Dorset people, whose stone tent rings from 2,000 years ago can still be found? Or were they Thule people who took their place a thousand years ago and were the direct ancestors of today's Inuit?

The family climbed in. The plane fought the drifts and took off toward Igloolik with an Inuit baby on her mother's lap in the copilot's seat beside me. The child wore a fur baby suit and knit cap and kept reaching for the plane's controls, and I realized I was not the only one who was traveling in time. So were they.

THIS ANCIENT WAY OF LIFE is one piece of the reality of Nunavut: Until Europeans came north, the Inuit and their forebears had lived on the land this way for about 4,500 years. For all those years hunting was the ultimate skill. There was no such thing as the accumulation of wealth, rules were made by the family, and, as one middle-aged man told me, "you didn't have to worry about your retirement plan."

Remnants of this life remain, preserved at what the Inuit call outpost camps, like the one to which I'd flown. In these camps people live almost year-round far from the established villages. The life looked difficult but deeply satisfying. Near another village I once met a 13-year-old girl named Susie, who had grown up in an outpost camp. She was competent, ebullient; I watched her help butcher a seal with practiced sweeps of a knife, then dip her fingers into a concoction of brains and blood chopped up on the seal's warm blubber, which she ate with gusto. Then, as a soft snow began to fall, she jumped to her feet and danced with the big flakes, one bloody hand held high, her face all agrin, a child happy and at home in what to me was a hostile world.

But the simple life of snow and seal meat is mostly nostalgia. The other part of the reality of Nunavut is change: The people have traveled so swiftly in time that for most Inuit only the basic pieces of their older life—ice and sea and the short thaw of summer—remain.

The hard edge of winter shreds into June's warming seas near Canada's northernmost town, Grise Fiord, 720 miles above the Arctic Circle. Seals, whales, walruses, and birds gather along this floe edge, where Inuit go for food and renewal. "In the spring I take my whole family there," says Larry Audlaluk, "because it's so beautiful."

As both jails and hospitals of Nunavut show, the past century and a half has brought increasing complexity—and trouble—to the Arctic. Southern habits and technology started to percolate north with explorers and whalers from about 1820 on, and the Inuit found much useful—firearms, the fur trade, canvas. Then, in the middle of the 20th century, the white presence grew with missionaries and the military, and starvation, always a danger in the north, combined with tuberculosis to hit the Inuit hard. Milton Freeman, a noted biologist and anthropologist who has worked with the Inuit since the 1950s, remembers feeling anguish for his Inuit friends. "I'd go back in the spring," he told me, "and I'd meet an old guy who'd looked hale in the fall, who now looked like something out of Auschwitz. Babies would die because the mother's milk had dried up, and that was all they had. I thought, People shouldn't be living like that in Canada."

Driven by those concerns and by a Cold War need to show that it possessed its northern possessions, Canada built villages with heated houses and schools for the Inuit and, in both subtle and obvious ways, forced them to abandon their nomadic life and settle down.

This in itself wasn't so bad. "In the old days we had to make ourselves better," said Ann Meekitjuk Hanson, a low-key but much respected Inuit leader. "Now we have doctors and nurses to make us better." She smiled. "They also make us live longer."

But with warm houses and doctors came something the Inuit found much harder to understand: money.

"THE BIGGEST CHANGE IN LIFE is the power of money," said Jotah Muckpa. We were sitting on a dead snowmobile on melting sea ice ten miles north of Arctic Bay, a village of about 670 people, which is 260 air miles north of Igloolik—close in Arctic terms. The snowmobile had run out of gas on our way to Jotah's father's hunting camp.

Jotah, a slight man with a heavy load of anxiety, was profoundly embarrassed. "I can't understand it," he kept saying. "It ran all day yesterday on one tank." So to keep his mind off his chagrin while we waited for rescue, I asked him about modern Inuit life.

"The money brings greed," he said. "Ever since I started talking to my parents and realizing who I am, I have felt bad about where we're going. Money is dividing up the family."

There was no cash in early Inuit life. People traded and shared. So stature among the Inuit had nothing to do with wealth. A male Inuk (singular for Inuit) was highly regarded for hunting skills, calmness under stress, the ability to make decisions, and how abundantly he shared meat.

But when the Inuit were moved into communities, cash became necessary. And since there were far more Inuit than jobs, along came welfare. To help these nomads survive in their new half-urban life, Canada offered them cash assistance. "Wow!" Ann had said to me. "People were amazed that somebody could receive money for doing nothing." What were they doing to earn this cash? It wasn't hunting. It wasn't working. The Inuit called it "waiting."

On the dead snowmobile Jotah and I waited, hoping someone would come by with fuel. Around us the sea ice—still six feet thick on this June day—was pooled with luminous blue ponds of meltwater. Far to the north the cliffs of Baffin Island rose like pale red ramparts in pellucid air. A waterfall dropped in a clean line from the top of one cliff. A white gull flew overhead; in the reflection of the wet blue ice its wings were turquoise.

Jotah looked miserable. Other than the fuel problem, his reason for anxiety was clear: He wanted desperately to be a better Inuk.

Jotah was born in 1961. His generation was unlucky. When the Inuit moved into towns, the money, the welfare, and influences like alcohol turned them away from the land.

"My parents didn't do much camping when I was a kid," he said. "Hardly anybody was camping then. They even abandoned that." So Jotah and his contemporaries had little training in traditional Inuit ways. They didn't do so well in Canadian-style schools either. "I only got grade 9," Jotah said. "If I stayed more in school, I probably could talk better."

And without the Inuit standards of hunting excellence to draw him and others into a responsible life, many young Inuit just

---

MICHAEL PARFIT, a frequent contributor to NATIONAL GEOGRAPHIC, flew his Cessna 7,000 miles around the Arctic for this story. Photographer JOANNA PINNEO and her cameras braved Arctic temperatures that dropped to minus 60°F. She learned how to build an igloo on hunting trips with the Inuit.

Anguish is shackled in the Iqaluit jail (above), where officers work to save a suicidal Inuit youth. Even traveling to the Iqaluit hospital was a struggle for Mina Ishulutak, who had to be flown 190 miles to deliver son Jerry, with help from an Ontario doctor. High suicide and birth rates, limited social services, and a shortage of modern skills among Inuit all complicate Nunavut's future.

drifted—drinking, using drugs, and waiting for something better than a welfare check. "It's not a lost generation," a teacher told me, "but it's a wandering generation."

The result is a society that most people acknowledge is deeply troubled. The day after I arrived in the north on one of my journeys, I attended the funeral of a 13-year-old Inuit boy, one of five young people who killed themselves in Nunavut that month. And yet, for all this disturbing change, things are not ending here. Things are beginning.

"As a young lad I walked around by myself and sang by myself," said Pauloosie Muckpa. "I walked all over, singing away."

Jotah had borrowed gas from a passing friend, and now I was in a big canvas tent at his family's camp talking to the man Jotah seems to respect most, Pauloosie Muckpa, his father.

The tent was floored with beach flagstones. Blankets and sleeping bags were lined up against one wall. A Coleman stove hissed quietly under a stew pot. In the pot a mixture of caribou chunks and Lipton powdered soup mix simmered gently. A two-way shortwave radio, connected to a long wire antenna outside, crackled continuously in Inuktitut, carrying news and gossip up and down the region people call "the Baffin." Taped to the radio as decorations were two Sun-Maid raisin maidens cut carefully from boxes.

Pauloosie spoke only Inuktitut. He was quiet and shy. I remembered an anthropologist's description of one Inuit leader: He was considered dynamic to his own people but "somewhat withdrawn" to whites. Jotah translated for him. Pauloosie's wife, Komangapik, who had a deeply sorrowful look, poured tea.

Camped out in an igloo he helped build, Paul Nangmalik is lost in thought before a dawn bear hunt. Like many young Inuit, Nangmalik at 24 alternates between pessimism and wild hope for Nunavut. "It's going to go broke," he asserts, but he has gone back to school to prepare for anticipated jobs. "After I get out of high school," he says when his mood changes, "everyone will have everything . . . I hope."

"In the past hunting was so important," Pauloosie said. "My family had to live on it. People kept watch on others; if you'd see someone not catching animals, you would move to that camp and share your food."

I thought about the young Inuk that Pauloosie once was, striding around on the tundra or on the snow, raising his voice to that implacable north, singing of beauty and freedom. The low sunlight of 2 a.m., helped by a kerosene heater, gave the tent a golden mood of somnolence. I felt sleepy and sad and elegiac, under the impression that I was watching a way of life dying. I asked Jotah if his father still sang. I thought I knew the answer. Surely the songs had gone out of the Inuit.

Pauloosie's wife looked up. A big grin broke out on her face. She giggled. Pauloosie looked embarrassed, then grinned.

"Oh yes!" his wife said. "He's worse than ever! He sings even more now; he knows so many more tunes."

SO, JUST WHEN you think everything's falling apart, you meet unexpected joy. Although hammered by what could have been an utterly debilitating onslaught of change, the Inuit have staggered, but they have not collapsed.

"This is a story of hope," said John Amagoalik, a quiet and almost shy man who is a dynamic leader to his people. "It's a story of people climbing out of a hole."

Amagoalik is chairman of the Nunavut Implementation Commission, which is charged with making detailed recommendations for the design of the new government. He does not seem daunted by the horde of thorny issues to be resolved as the government takes shape. The list goes on and on. How do you encourage Inuit businesses while still allowing fair competition? How can you get enough trained Inuit to provide government staff? If Inuktitut is the working language of government—as expected—how do you interact with the rest of the world, and how do you teach your children to be fluent in both Inuktitut and English so they can cope if they need to work or study outside the territory? How do you regulate hunting and fishing to reflect the Inuit need for food, the profound Inuit attitude toward animals, and the Inuit skill with modern weapons? How do you adapt a southern justice system to the very different systems of Inuit social control? And how do you create a viable cash economy in a society just one generation away from a subsistence way of life?

This is the toughest. Though the billion-dollar settlement payoff looks like a lot for a small population, even that kind of money won't go far in the expensive north. Unless that money is invested in economic development, it'll soon be gone, but what are you going to invest it in? Tourism, which involves such things as expensive polar bear hunts and adventure travel, is limited by weather and cost; small crafts industries have been marginal; mining is exciting but unpredictable; and resource-based businesses like fish-processing plants have not shown much economic success. In Greenland, just a few miles from Nunavut, the government must continue subsidizing communities because the *(Continued on page 88)*

Fatally struck by a single shot, a polar bear roars in final agony on the frozen sea near Igloolik. The bear is the Inuit hunter's most feared and esteemed rival, and hunter Jaipity Palluq's success conveys stature more valuable than dollars. Although southern sportsmen will pay as much as $17,500 to seek this moment, last year Igloolik's Inuit sold only five of their 16 bear-hunting permits.

Hunting for **bear**

For three days in March's subzero cold, two hunters—Jaipity Palluq and Daniel Qanatsiaq (center, in wolf-ruff parka)—followed polar bear tracks, but the great white animal eluded them. The men built an igloo each night—a comfortable shelter big enough for them and photographer Joanna Pinneo. Seeking clues, Palluq stuck his head into a seal's breathing hole to see if the bear had grabbed its favorite prey. On the third day tracks were fresh, and the hunters moved swiftly to the kill.

"After all that time," says Pinneo, who had followed other, unsuccessful, hunters for weeks, "I could not believe the bear was dead so suddenly." Neither could Palluq, who first touched the bear gently, with a bear-fur boot, then cooked a small piece of it for a meal that Pinneo realized was as much an act of reverence as an act of sustenance.

(Continued from page 81) fish-processing plants are not paying their way.

Many of the younger Inuit I talked with were worried. "It's going to go broke," several said. Others were afraid that elders and leaders would get most of the settlement money and that young Inuit would not be able to compete with well-educated whites for middle-echelon executive jobs in the government. "There's going to be a generation of growing pains," said one teacher. And yet most Inuit acknowledged that what they are getting—for better or worse—is the same thing that has inspired others to bloodshed or Boston Tea Parties for hundreds of years: the right to make their own decisions. "Now," said an Inuit councilman in Igloolik, "you can make things happen the way you want them to."

"WE'RE SEEING the continued revival of our culture," John Amagoalik said. "We are starting to recover." I talked to him in the town of Iqaluit, which is on the edge of Frobisher Bay in southern Baffin Island. This town of 4,400 people, a chaotic clutter of boxy, small-windowed buildings built on the site of an old World War II air base, will be the new territory's capital.

It's tempting to hope that a newly designed government will have new insights to help democracy work better. But so far most of the structures will be largely patterned on the existing Northwest Territories structure—a legislature elected by the people and a premier selected by the representatives. "One of my biggest disappointments is that everything is mirrored so far," said one young adviser.

There has been one major attempt to avoid this mirroring. The exception became the subject of a long debate one afternoon in a meeting in Iqaluit. Since the meeting was attended by 25 of the key politicians of Nunavut, I thought it might resemble the future government.

The meeting looked a lot like a gathering anywhere else, except for the cubes of frozen raw caribou that were served with coffee, cookies, and tarts during breaks. The group met in the new parish hall of the Anglican church—one of the structures that must serve until actual government buildings go up. People spoke in either English or Inuktitut, and interpreters gave simultaneous translation through electronic headphones. The subject of most debate was an idea that the Nunavut government could be the first in the world to build gender equality into its legislature by electing one man and one woman from each district. Inuit say that their old society always maintained a balance of responsibility and stature between men and women, and some leaders wanted to apply that to modern politics.

At the day's end John Amagoalik described the meeting as having been "very emotional." You could have fooled me. To me it seemed about as emotional as a geology lecture. It began with a request for agreement from an Inuit elder: "If we argue among one another, we will not accomplish anything," he said.

Elsewhere in the democratic world, where vehement, polarized argument leads to compromise in which all sides end up cranky and spoiling to fight again, this would have sounded naive. Here the politicians appeared to take him seriously. People argued from strong positions, but each speech was neither hyperbolic nor strident and seemed genuinely aimed at persuasion. "This is how they work," a Canadian bureaucrat whispered to me during the debate. "Inuit don't have to get an acknowledgment of a win or loss in discussion. They just float an idea and sit back."

As the meeting wore on, several of the speakers changed their minds and didn't mind saying so. It struck me that this calmness and civility must have worked well in the small nomadic groups. Even if you disagreed fiercely with your neighbor, you still had to trust him with the harpoon at the ice edge.

Late in the day John Amagoalik, who had moderated, made a quiet, persuasive speech: "Our society has been in a mess. In the camps the work of the father and mother was considered to have equal value. When we moved into communities that cohesion was disrupted."

The next day 72 percent of the leaders voted to approve the idea of the gender-equal legislature. (It was later defeated in a Nunavut-wide vote.) But it seemed to me that the dramatic concept was not the most important story here. The other thing that this meeting had shown was that it is possible for politicians to engage in thoughtful public discussion of an emotional subject and make a genuine effort to find agreement. That might be the real gift of the Inuit to democracy.

While children watch TV, Tam Akittirq works on a sealskin she'll make into warm boots known as *kamiit*. After more than a century of contact with outside culture, Inuit have woven a pragmatic mix of old and new. While visiting a modern elder center in Iqaluit, Naqi Ekho (below, at right) and Ningeogapik Sheupiapik enjoy fresh seal meat, which is donated regularly by Inuit hunters.

BUT WHAT MATTERS most to the Inuit is blood of the land. Their deepest wish is to maintain the profound way in which they differ from their southern neighbors: their powerful relationship to wild animals.

"Our hunters are our farmers," Amagoalik told me once. "Gold and diamonds and mining will come and go, but our wildlife will sustain us." He's supported by statistics: For most Inuit, meat from wild animals—called "country food"—makes up 40 to 70 percent of their diet. But in another way he was talking about the overall spirit of the Inuit, and that was most visible out on the sea ice with Jotah Muckpa. There it seemed clear that the creation of Nunavut has given people like him enough confidence to rebuild that tradition.

During our time on the ice Jotah had talked to me anxiously about how much of the Inuit way he had lost. But then he did something that made me think maybe his Inuit instincts were more alive than he had thought.

It happened when he and I left camp to go back to Arctic Bay. A group of teenagers and young men went with us, and about halfway home we suddenly came upon a seal that had accidentally strayed from its hole.

It was a young seal, a perfect age for eating. When Jotah and I and five young Inuit surrounded it, it grew terrified. It scratched at the ice with the claws on the ends of its flippers. It made plaintive squealing noises and hopeless high-pitched barks and grunts. It was going to die and knew it.

The kids laughed and darted in close to make it squeal. The seal looked ridiculous, trying to be fierce when it was just tubby, big-eyed, and clumsy. It barked, and the kids laughed.

A young man named Jina went back to his

Death is vivid in the Arctic but is not wasted. Florence Barnabas, who helped stalk this caribou, carries its head back to Pauloosie Muckpa's camp near Arctic Bay. Antler tips make a crunchy snack, and brains will be savored by elders. "We used to be ashamed of what we ate," says Muckpa. "But now we're not. White people can eat only their food, but Inuit can eat anything. Today we are not ashamed of who we are."

sledge and got a harpoon. The brains of this seal would soon be lunch.

I waited for the strike and the death. But for some reason Jina paused. Jotah moved away from the seal and sat down on his snowmobile. Something was wrong.

"We do not kill animals this way," Jotah said to me. "We kill them suddenly, before they know. I do not like to kill something that is suffering." He paused. The seal squealed. "It is suffering right now."

I remembered something Freeman had told me. "There are strong sanctions against causing animal suffering," he had said. "A hunter never kills an animal without thinking about what it means for the animal."

Jina approached the seal. He raised the harpoon, heavy end out, as a club.

Jotah spoke.

His voice was very quiet. What he said in Inuktitut was short.

Later he told me: "I said that I was not going to kill it, because it was suffering."

There was a long pause. Everyone suddenly grew serious.

The seal grunted and pawed the ice.

Jotah just sat there on the snowmobile, waiting, looking worried and patient.

Jina lowered the harpoon, unused. Slowly and without saying much, as if something important had happened, we climbed back on our machines and drove away.

At the end of my visit to Nunavut I caught up with David Serkoak. He was teaching a class of second and third graders—kids about the same age he was when the cop broke his father's drum.

Serkoak sat in front of the class with a guitar, smiling and singing. He was having fun. The kids sat in a semicircle in front of him and sang "Amazing Grace" in Inuktitut, then a version of "Old MacDonald" that went something like this: "Old Man Moses had a qamutiik, and on that qamutiik he had a *qimmiq* [dog]. . . ." Then Serkoak got out a little accordion and played a Scottish tune, and two of the kids danced a reel, which the Inuit had picked up long ago from homesick whalers. All this multicultural good cheer made me think of an Inuit poem I'd read recently, which seemed to catch the spirit of amazement that has helped this strong people get through the hard times:

And yet, there is only
One great thing,
The only thing:
To live to see in huts and on journeys
The great day that dawns,
And the light that fills the world.

The small classroom window sparkled with fronds of frost. The low winter sun shone through it and lighted up the side of Serkoak's face as he picked up a hand drum. The light filled the world as he gave the drum to a boy. The children formed a circle and began to sing.

The little boy danced seriously in the center of the ring, bending his knees in time, and Serkoak watched him with affection and who knows what memories and hopes as the kid hit the hoop of the drum and made the skin boom to the patient rhythm of the long Inuit song. □

Tracking the First

By RICK GORE SENIOR ASSISTANT EDITOR Photographs by KENNETH GARRETT

IN THE CALM following a violent rainstorm 117,000 years ago, a lone figure trudged down a steep dune on Africa's southwest coast, leaving a trail of footprints in the wet sand. We'll never know why this ancient African, very possibly a female, walked down the slope. Perhaps to inspect the beach for dead seabirds or seals the storm might have washed up. Or perhaps to enjoy a brilliant sunset. Within a few hours the dune dried out, and the wind filled the footprints with sand, gradually encasing them.

RESEARCH PROJECT
Supported in part by your Society

On a spring afternoon tens of thousands of years later, I walk the shore of this same lagoon with a team of scientists. Several months earlier one of my companions, Lee Berger, a paleoanthropologist at the University of the Witwatersrand in Johannesburg, phoned me with the news that two fossil human footprints had been discovered along Langebaan Lagoon, about 60 miles north of Cape Town. Berger was seeking support from the National Geographic Society to preserve and make casts of the footprints, which date from one of the most important but poorly known eras in human evolution—the time of the emergence of modern *Homo sapiens*, or people anatomically like us. The prints evoke controversial questions about our origins: Where did modern humans first arise? How did they live?

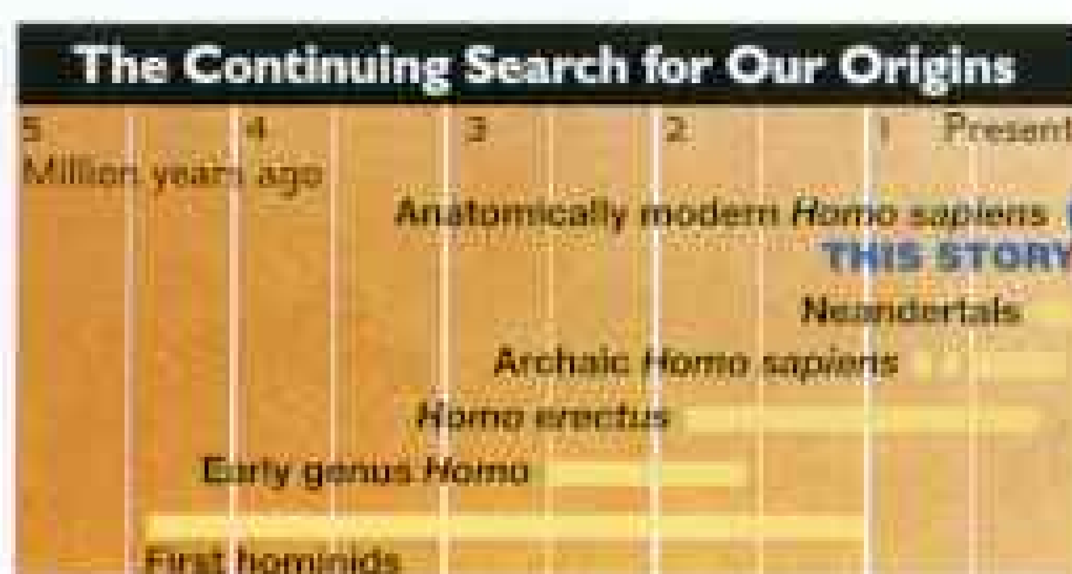
Pressed into an ancient dune that became rock, tracks discovered in South Africa preserve the shape of feet like our own. The rock has been dated back to 117,000 years ago, placing these footprints among the oldest known fossilized traces of anatomically modern humans.

# of Our Kind

When did they begin thinking the way humans do today—in the words and other symbols that define our world?

"Whoever left these footprints has the potential of being the ancestor of all modern humans," Berger told me. "If it was a woman, she could conceivably even be Eve."

Berger wasn't talking about the biblical Eve. To paleoanthropologists, Eve is a hypothetical female who lived somewhere in Africa between 100,000 and 300,000 years ago. She carried a particular type of mitochondrial DNA (mtDNA)—genetic material that is passed only through females. Scientists measuring the range of variation in mtDNA in different populations today have concluded that we all descend from one common female ancestor—Eve.



Articles in this series focus on early members of our own genus and the hominids that preceded them. Much of this research was supported by your Society.

"It's highly unlikely, of course, that the actual Eve made these prints," Berger said, "but they were made at the right time on the right continent to be hers."

Archaic forms of *Homo sapiens* appeared half a million years ago, but they looked different. More robustly built, they had bigger faces, weaker chins, and protruding browridges above the eyes. The fossil record in Africa has a frustrating gap during the critical years when modern humans finally emerged. Arid conditions in Africa brought on by an ice age beginning 186,000 years ago may have forced humans into isolated pockets that had enough water for survival. By the time lusher conditions returned 120,000 years ago, modern *Homo sapiens* had appeared, and Langebaan Lagoon may have been in the area where their feet first struck the ground.

"THE LAGOON BACK THEN probably looked a lot like it does today," says Berger, an enthusiastic 31-year-old American, as we hike the beach, scrambling over slippery rocks to avoid the incoming tide. The clear water is still, and the air smells of the sea. "The marine resources here have attracted people for millennia."

Besides Berger, our team includes David Roberts, the geologist who discovered the footprints; Stephan Woodborne, the archaeologist who determined their age; and George Collaros, an artist who specializes in making casts. Soon we stop at a block of gray sandstone protruding from the 30-foot cliffs lining the shore.

"The footprints are still here," Roberts says with a hint of relief. He begins to brush sand from the rock. "We keep them covered to hide them. Someone could easily vandalize them."

"Here's the first print," Berger says as Roberts clears away enough of the sand to reveal a petrified footstep that looks as if it could have been made by one of us earlier that day. "See the big toe." He runs his hand lovingly over the imprint. "Here's the imprint of the ball of the foot. Here's the arch and the heel."

I remove my shoes and socks and lightly place one of my own feet into the print. At ten and a half inches, my foot is two inches longer. By modern standards it is not the print of a big strapping male. As my toes touch the rock, I feel an almost electric connection to the past.

After Roberts clears the sand off the second footprint, George Collaros paints them both with detergent, then applies silicone to make precise molds.

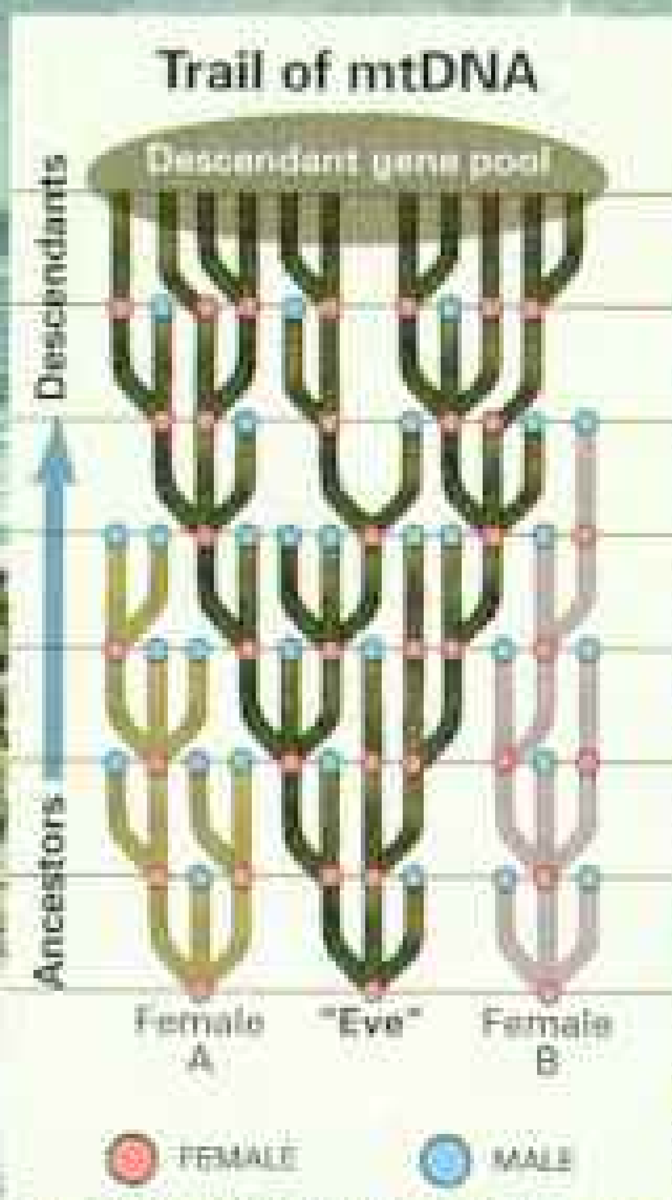
As Collaros works, Berger explains his conviction that this part of Africa was the cradle of modern humans. Most specialists agree that modern people probably emerged in Africa. Bone fragments that appear modern and date from about 120,000 years ago have been found in both Ethiopia and southern Africa.

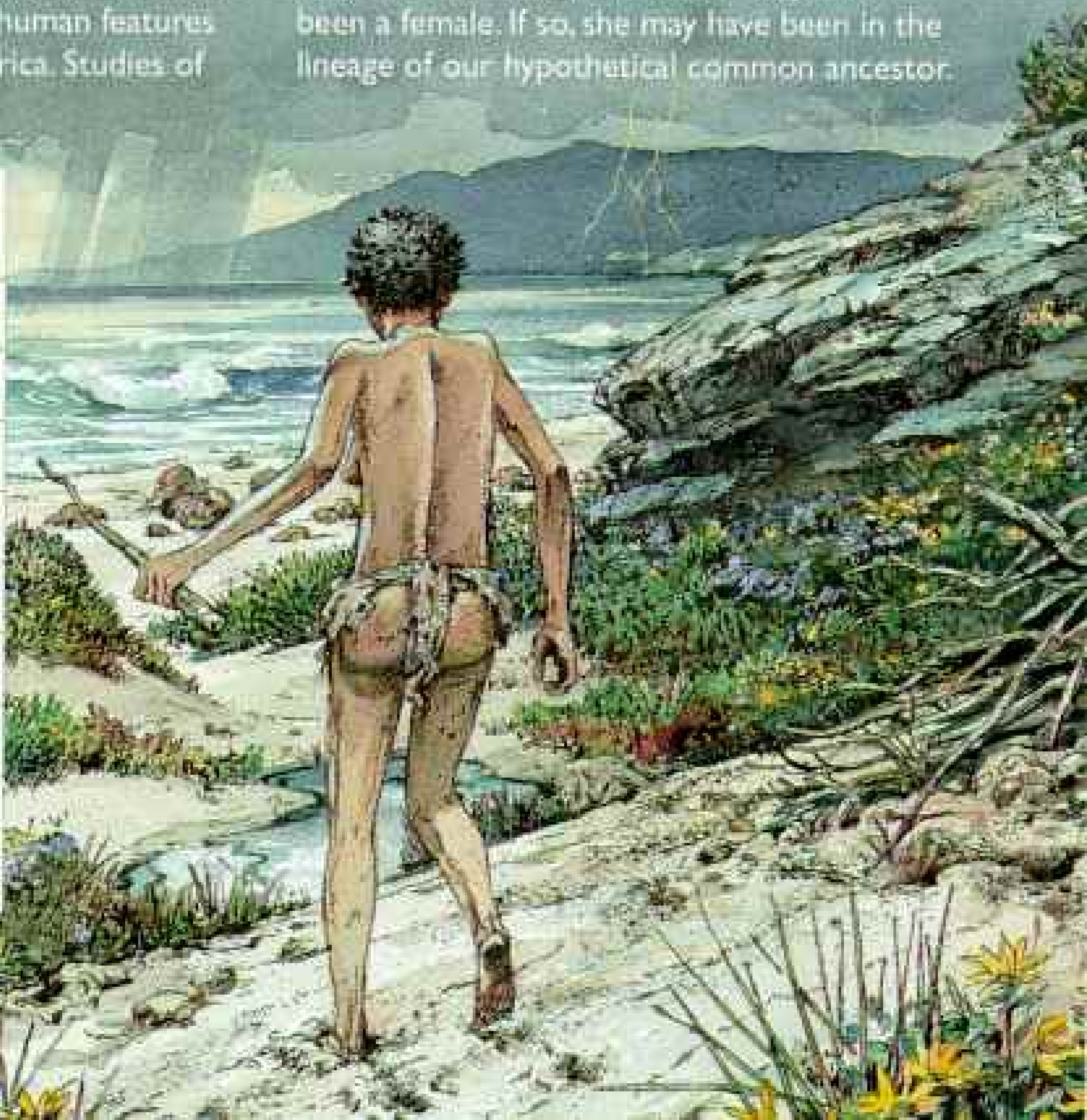
Berger points out that South Africa's coast and central region could well have provided refuge during ancient dry spells. Genetically isolated, the inhabitants would have developed the distinctive traits we view as modern—jutting jaws and high foreheads with barely visible browridges. South Africa, he argues, has

KENNETH GARRETT specializes in archaeological subjects. His photographs appeared most recently in the July 1997 article "The First Europeans."

Our First Homeland?

Ancient humans probably found South Africa's fynbos and grasslands hospitable. Desert and karroo, harsh today, would have been even more forbidding in drier glacial periods. Mountain ranges and arid terrain likely sequestered some bands of early *Homo sapiens* from others in the region. Many of the oldest skeletal fossils with modern human features have been found in South Africa. Studies of mitochondrial DNA (mtDNA) suggest to some researchers that modern humans have lived in Africa longer than elsewhere. This genetic material passes only through females; its transmission ends if a woman has no daughters. Over time many such gene lines die out; eventually an entire population may trace its descent from a single female (diagram, below left). The small footprint-maker may have been a female. If so, she may have been in the lineage of our hypothetical common ancestor.





ART BY RICHARD SCHLECHT

Did They Think Like Us?

A deep archive of early modern behavior is preserved about 375 miles from the footprint site at Klasies River Mouth. Archaeologist Hilary Deacon (in the entrance of cave 2, left) believes that the people who periodically sheltered here between 60,000 and 120,000 years ago not only looked modern but were capable of modern thinking and behavior too. A spearpoint lodged in an extinct giant buffalo's vertebra (magnified above) proves that Klasies hunters were advanced enough to vanquish a creature armed for counterattack with horns (top) more than nine feet across. Hearths and trash piles show consistent patterns in domestic activity. Red ocher "crayons" have been interpreted as evidence of symbolic use of color. Deacon even suggests that some tools were manufactured specifically to appeal to neighboring groups with whom the Klasies humans may have traded.

produced the best, albeit still sparse, fossil evidence showing the shift from primitive to modern features.

SCIENTISTS DEBATE whether the first anatomically modern people could think the way we do. Some believe the dune walker would not have been nearly as good at strategic thinking. For instance, she could have scavenged a dead bird on the beach, but planning how to snare a live one might have been too complex a task. Others argue that she had the potential to think like us but did not need to develop the same complex strategies our society demands.

She may have painted her body with ocher pigment and danced in rituals. At nearby Hoedjiespunt, John Parkington of the University of Cape Town and Berger have found pieces of ocher between 80,000 and 125,000 years old. The ancient occupants most likely used the pieces as crayons to paint themselves.

Other clues to the dune walker's world come from a site called Klasies River Mouth, several hundred miles to the southeast. Caves there were visited repeatedly by hunter-gatherers starting about 120,000 years ago—around the same time the dune walker lived. Over the next 60,000 years they left behind mussel shells, animal bones, and the ashes of countless hearths, indicating they could make fire at will.

"They probably came here for two or three weeks at a time to collect shellfish, seals, and penguins," explained Hilary Deacon, an archaeologist at the University of Stellenbosch. "They organized their living spaces much as later cave dwellers did, with hearths in one place and garbage heaps in another."

To compare the mental skills of humans like the dune walker and Klasies cave dwellers with those of later people, Richard Klein, a paleoanthropologist at Stanford University, analyzed faunal remains left at Klasies before 60,000 years ago and those from other sites in southern Africa dating from about 20,000 years ago. (Arid conditions in between had so reduced human populations in the region that their remains are virtually nonexistent.)

"Before 60,000 years ago the Klasies people couldn't fish," Klein says. "There's not a fish bone in the deposits. When people returned to the area about 20,000 years ago, the deposits were filled with fish bones." Moreover, Klein points out, the animal bones found in the older layers were mostly eland, a docile antelope. Later deposits abound with the bones of dangerous animals, such as wild pigs and buffalo.

Klein attributes the dramatic change in

Preceding the footprint-maker, a robust cranium between 400,000 and 500,000 years old from Saldanha (left) shows heavy browridges, while the 260,000-year-old Florisbad skull (right) approaches the modern *H. sapiens* form. These fossils may represent the line from which people like us had evolved by about 100,000 years ago.

fishing and hunting abilities to the emergence of symbolic thinking, which many specialists believe occurred between 40,000 and 60,000 years ago. Symbolic thought allows us to think abstractly, analyze the past, and anticipate the future. It lets us make plans, create art, and develop complex language. We build our cultures around symbols.

But Hilary Deacon cautions that the change in animal bones does not necessarily reflect increased intelligence. He believes that the earlier occupants at Klasies were just as capable of modern thinking; they lived when food was plentiful, so they simply didn't need to fish or risk encounters with dangerous animals.

WHATEVER THE REASON, the dune walker's descendants did eventually begin to hunt more challenging prey. Our team finds startling new evidence of that. While waiting for the Langebaan footprint casts to dry, Berger leads us off to explore a Sahara-like landscape several miles away. Tireless, he strides ahead and vanishes behind a dune. Soon we see him waving his arms and shouting: "It's a huge butchery site! It's spectacular!"

We rush to a valley littered with stone tools and the bleached bones of large animals.

"There are acres of bone here," says Berger, wandering around looking dazed. "A lot of these animals are now extinct."

Berger bends over the pelvis of a large antelope cemented into the rock beneath the sand. Cut marks scar the pelvis. "Those marks show how humans cut at the ligament to release the femur and pull the shank away."

Soon Stephan Woodborne finds the pelvis of a giant buffalo, an extinct animal whose horns spanned more than nine feet. "An animal that size," he says, "could probably kill five people in a blow. To take it on would have required serious planning."

Woodborne collects rock samples and within a few weeks determines that the site, now known as Geelbek, is 40,000 years old. Those animals had been butchered about the same time humans are thought to have been completing their great leap forward into symbolic thinking. By then they had left Africa and reached northern Australia, where they were carving symbols into the walls of rock shelters. They had just braved the colder climates of Europe and would soon be painting masterpieces in the caves of southwestern France.

I think of the long journey modern humans have made as our team returns to retrieve the mold of the footprints at Langebaan Lagoon. When George Collaros carefully pulls the rubber sheet away from the rock, we can see that he has captured every nuance of the dune walker's steps. We cover the prints with sand again and head back down the beach. I turn and conjure a parting image of that lone figure standing atop the dune, hair blowing in the breeze, dark skin aglow in the sunset. In my mind she will forever be Eve. I know that's romantic, but I'm a modern human, and I need my symbols and stories to make sense of this world. I imagine her taking that first step down the dune. It's a small and tentative step, latent with curiosity, and 117,000 years later we still don't know where it ultimately will lead. □

Beirut Rising

Battle lines have yielded to tan lines at the yacht club adjoining the war-scarred Hotel St. Georges—symbol of Beirut's glamorous past and ground zero in Lebanon's 15-year civil war, which ended in 1990. Peace and a drive to prosper now unite many former foes in efforts to rebuild.

Tangled as the war's causes, wires strung to private generators are a reminder of wartime outages—and Beiruti adaptability. Full-time power has yet to be restored. "I hope I'll get a clear view soon," says Abu Abed Nahas.

A seaside workout on his Arabian mount is as invigorating as Beirut's recovering skyline for riding teacher Naji Rachid, at left. "Everything is new and exciting," says Rachid of this city with a historic passion for horses and gambling. Today's gamble: Will peace last?

By PETER THEROUX
Photographs by ED KASHI

STROLL ALONG THE CORNICHE, Beirut's palm-lined seaside avenue, and you can revisit some of the most dramatic moments of Lebanon's 15-year civil war. There is the Riviera Hotel, whose guest, hostage negotiator Terry Waite, was kidnapped by pro-Iranian terrorists. Yards away is the American University of Beirut, where terrorists assassinated the school's president. Nearby is the site of the former United States Embassy, where a bomb exploded in 1983, killing 63 people.

But on this same boulevard, seven years after the end of the war, there are signs of Beirut's rebirth: sleek office towers, glass-fronted apartment blocks, and upscale hotels.

Even at dawn the Corniche is filled with people these days. One early morning I watched a blond UN peacekeeper chatting on a cellular telephone, joggers running on sturdy legs, a young woman in a pearly silk head scarf striding briskly, and elderly couples shuffling by, holding hands. On the surf-washed boulders beyond the sidewalk, fishermen cast their lines into a Mediterranean of shimmering turquoise, sapphire, and amethyst.

Before the war Beirut's reputation rested on the appeal of such images. The word "Beirut" suggested lovely beaches, dazzling sunlight on graceful Roman temples, nightclubs that rivaled Monte Carlo's, and skiing in the mountains visible from the warm sands of the city's shore. The bustle of central Beirut was so legendary that Arabs who had never seen it could enumerate its neighborhoods. Martyrs' Square was known for its outdoor cafés and street life. Rue des Banques held half the wealth of the Arab world. The suqs, or market areas, were a shopper's paradise; Nizar Qabbani, an Arab poet, wrote that no businessman ever visited Beirut without his wife's shopping list. Swedish backpackers rubbed elbows with millionaires from the Arab oil countries, and life was led with a Mediterranean vitality.

But in 1975 this cosmopolitan capital, known for its tolerance, disintegrated in a conflict that came to involve numerous Muslim and Christian factions, the armies of Israel and Syria, and the Palestine Liberation Organization (PLO), which functions as the Palestinian government in exile. No other city in the modern battles of the Middle East sustained more damage than Beirut. By the time a peace accord went into effect in 1990, an estimated 700,000 people had fled Lebanon, 85,000 had died in the capital alone, and Beirut had become synonymous with death and ruin.

I lived in the Middle East from 1978 to 1985 but put off visiting Beirut until 1994. My Lebanese friends had always cautioned me to wait another month, sure that peace was imminent. By the time I arrived, the city was calm, but the downtown was bombed out and deserted, and the beaches were piled with debris.

On my more recent visit I saw construction everywhere. Mountains of sand and stone on the shore just north of downtown are the hallmark of a land reclamation project that will increase the size of the financial district by more than one-third. Some 500 battle-scarred buildings have been razed to make way for redevelopment. Lebanese and Syrian workers in hard hats mob the scaffolding around art deco and Ottoman-era buildings, whose arches and delicate columns are a reminder of 400 years of Turkish rule.

A semblance of ordinary life has returned to this city of 1.2 million. Honking car horns have replaced the sounds of gunfire. The barricades of the Green Line, a strip of wild vegetation that pushed through pavement and physically divided the city into Christian and Muslim sectors, are gone, and the city's 18 religious

PETER THEROUX is the author of *The Strange Disappearance of Imam Moussa Sadr* and *Sandstorms: Days and Nights in Arabia*. He and ED KASHI, a frequent contributor based in San Francisco, collaborated on "Syria Behind the Mask" (July 1996).

Coffee, conversation, and Beirutis of all backgrounds again mix freely on Rue Hamra. Once a sectarian battleground and the site of several kidnappings in the 1980s, the Hamra District is regaining its status as a commercial hub. "Everyone believes the war is over," says hotel sales executive Khalil Murad. Today the only battle is for parking and patrons.

sects—Maronite Catholic, Greek Orthodox, Shiite, Sunni, and Druze Muslim, among others—mingle freely. The Green Line was the site of a recent fashion show featuring ghostly models strutting down a block-long catwalk bathed in an eerie blue light.

I set out across the city searching not only for physical signs of recovery but also for the more elusive restoration of harmony and tolerance. I discovered that the same tenacity that had helped Beirutis survive the Middle East's longest and deadliest civil war was now reviving the city's body and spirit.

One morning on the Corniche, Mohamed Ashi, my jogging partner, suggested that we end our daily run sooner than usual. His designated turnaround point was in front of the Hard Rock Cafe, where about 60 men and women were busily running in place.

"No, let's keep going," I said, not seeing why Mohamed, at 19, half my age, should be tired. I turned right, onto Rue Ahmed Chaouqi, only to stop in my tracks. Ahead of us was a landscape of dirt and refuse, an immense junkyard that was once Beirut's beautiful Hotel District. The Hotel Alcazar was in ruins, its entrance covered by a wall of concrete blocks. The towers of the Phoenicia Hotel stood empty and blackened. Higher up the slope, the 17-story Holiday Inn rose in empty silence.

"I didn't want you to see this," Mohamed muttered. My friend was ashamed of the devastation, but even here were the beginnings of recovery. I would soon learn that the Hotel District and the adjacent downtown—the primary battleground of the war—had become

Hotel
Church
Mosque
Former Green Line

Scale varies in this perspective.

METN HILLS
CITY LIMITS
ACHRAFIYE
CHIYAH
GHOBEIRI
BEIRUT CENTRAL DISTRICT
Martyrs' Square
St. George's Greek Orthodox Cathedral
Former shoreline
RECLAIMED LAND
Phoenicia Hotel
KANTARI
Holiday Inn
Hotel St. Georges
HOTEL DISTRICT
Hotel Alcazar
A.U.B. Medical Center
HAMRA
KOREITEM
American University of Beirut
RAOUCHE
MANARA
RAS BEIRUT
Riviera Hotel
AVENUE DU GÉNÉRAL DE GAULLE (CORNICHE)
N

Mediterranean Sea

the focus of Lebanon's rebirth. To bring Beirut back to life, the government and private investors will spend some three billion dollars for restoration over the next decade.

"THERE WAS OPPORTUNITY in the tragedy," said Fady Badawi, a lawyer who works with Solidere, the corporation overseeing the rebuilding of the Central District. "No one has ever demolished a fifth of Rome or Athens to allow archaeologists to look underneath. But there are nearly a hundred excavations going on." These digs have revealed 5,000 years of civilization, including the foundations of an Ottoman palace and a crusader castle and the walls of a Phoenician fortification from the first millennium B.C. The remains of a Roman forum, Badawi said with delight, were discovered under the rubble of the Banco di Roma.

Badawi was giving me a tour of downtown. "This was Martyrs' Square," he said, waving at a vista of ditches, weeds, and desolation. "The Rivoli Building was there. The ancient Phoenician city of Beirut was found right behind it."

All the postcards sold in Beirut still show the Martyrs' Square of the early 1970s: palm-lined streets crowded with taxis and buses, smiling pedestrians, cinemas, an old police station with high, arched windows, and a grassy promenade featuring the Martyrs' Statue—four heroic figures, one holding a torch aloft, to honor the memory of Lebanese who were executed because they opposed Ottoman rule—with the sea glittering in the background.

Now only the sea remained. The rest was a barren landscape of sand dunes crisscrossed by access roads and dotted with construction equipment. The four martyrs, riddled with bullets from the most recent war, were undergoing repair at a nearby university. But Solidere envisions a future downtown of sleek hotels, an archaeological promenade, a grassy park, and a glass-sided office development, as well as the reconstruction of the market area and the transformation of the 40-story Murr Tower, the war's legendary sniper's nest, into the Beirut Trade Center.

"This area will be more modern than ever before," Badawi said. "But best of all is the Intabli ice-cream parlor they have designed in

For more on Beirut join our online forum at www.nationalgeographic.com.

A Fractured Mosaic

Framed by mountains and Mediterranean blue, the 5,000-year-old city was known to the Phoenicians as "Bride of the East." Though separated by war into Muslim west and Christian east, this capital of 1.2 million people may foster the healing of Lebanon—a nation essentially ruled by Syria, at war with Israel, and seeking a national identity.

the new Martyrs' Square complex. In the old days every mother taking her children shopping downtown bought them juice or ice cream at Intabli. Now they have invited this little business to reopen there. That is the proof that this city is being rebuilt by people who love it."

A measure of this devotion is the gradual return of the 300,000 Beirutis who fled during the war. Bechara Nammour, a restaurateur and one of Lebanon's most successful entrepreneurs, is one of them. "What can I say? Some people believe in Lebanon," Nammour said, easing into the buttery soft folds of a leather sofa in his living room. Walnut paneling, buffed to a glossy finish, glass-fronted bookshelves, and fresh daffodils brightened this room on an upper floor in Achrafiye, a Christian neighborhood in East Beirut.

Nammour was born in Sidon, but with his flair for business and attachment to the capital he is a classic Beiruti. "I worked here for seven years as a lawyer," he said. "In '75 I got out. I worked in Paris and London. Then I moved to Washington, D.C., and ran a few restaurants. I made plenty of money and came back here. I missed Beirut."

Despite U.S. advisories against travel to Lebanon, Nammour had no qualms about bringing his wife and three children back home in the early 1990s. Since then he has opened 12 successful restaurants and invested in three upscale hotels. He laughed at the idea of someone doubting the wisdom of investing in Lebanon.

"I'm not putting money into Lebanon," he said. "I'm making money! Taxes are low. Everything is done in cash here—no debt. And this is a small country—a few million dollars in the economy makes a big difference."

When I asked how Lebanon was successfully rebuilding itself, Nammour offered a pragmatic assessment. "At last we are being Lebanese," he said. "We tried everything else. We tried to be French. We tried Arabism. Other models and influences—Iranian, for example—came and are on the wane. Nothing works except accepting our national identity."

BEIRUT'S RECOVERY is in large part due to the resiliency of Beirutis who have placed national identity ahead of sectarian loyalty. "We never accepted the war as normal," said Mona Nacouzi, as the sun poured through the windows of her apartment in Achrafiye. "We never accepted 'East Beirut' and 'West Beirut.' "

Mona and her husband, Charles, refused to leave their home when the war broke out. Their apartment building is pocked and perforated from shellfire and the distinctive spattering of mortar explosion. It stands on the Rue de Damas, part of the Green Line.

"At least a thousand bullets hit our apartment the first night," said Charles. "That night the apartment was almost totally ruined," Mona added. "But we came back and repaired everything. We did that many times, always coming back. We never left Beirut."

Charles is a podiatrist who has a clinic in West Beirut. When a Muslim militia occupied the clinic, he made house calls on both sides of the line. The Nacouzis have no regrets over their decision to stay. "We have Palestinian friends who fled Palestine in 1948," Mona said. "They left the radio on in their house. They thought they'd be coming right back! Fifty years later and they still haven't. I vowed that would never happen to us."

Christians such as the Nacouzis represent less than half the city's population, though Beirut—unique among Arab capitals—bristles with churches, even in the mostly Muslim western neighborhoods. When the modern state of Lebanon was created by French mandate in 1920, it had a slight Christian majority. By the 1970s a high Muslim birthrate and Christian emigration had resulted in a Muslim majority, which demanded a greater political and economic role in Lebanon's affairs.

Mona, who had generously laid out a table of coffee, nuts, and pastries, said many Christians were uneasy about how they would be treated by the Muslim majority after the war. But she pointed out signs of religious harmony in the city—little things, such as Muslim

Ravaged buildings march like wounded soldiers along what had been Beirut's Green Line, de facto boundary between warring east and west. Such ruins still house thousands of squatters either displaced by war or hoping to receive government payouts to relocate. Says an elderly resident of this building: "Living here is unbearable, but what else can we do?"

Mother of ten, Zaynab Daher, at far right, faces prospects as bleak as her surroundings in Shatila (bottom), site of an infamous 1982 massacre by a Christian militia and one of four shabby camps in Beirut where Palestinians live without citizenship or hope. "Jobs, health care, housing, everything is difficult," says Daher, whose family may have to move because Shatila is slated for redevelopment.

stores respecting the Christian Sabbath by closing on Sunday.

THE HEART of Beirut's Christian northern suburbs is Harissa, where a mountaintop view of the sea is crowned by a statue of the Virgin Mary: Our Lady the Protectress of Lebanon. Even here Muslims and Christians mix genially, and on the day I visited, tourists from Syria showed up in busloads.

"We come once a month for shopping on Rue Hamra in West Beirut and a half-day trip to the Virgin," said a cheerful woman from Damascus, in town with four friends. All were dressed from head to toe in navy blue coats and dresses and wore modest Muslim head scarves. They joined a line of pious Lebanese and dozens of workers from Sri Lanka, the Philippines, and Senegal on the staircase that led to the pediment. Two thousand feet below, an amethyst sea sparkled in the sunlight. To the southwest, Ras Beirut, the northwestern tip of Beirut, lay white against the sea, small and silent.

When my turn came, I read inscriptions in French, Arabic, and English that the devout had written on the oval base under the Virgin's feet: *Protect my family; Intercede for Lebanon at the Throne of Grace; Bless our Beirut.*

The Maronite Catholics, whose shrine this is, see Lebanon as their unique homeland because of their 1,100-year history here, but they and many other sects turned Beirut into one of the world's great crossroads.

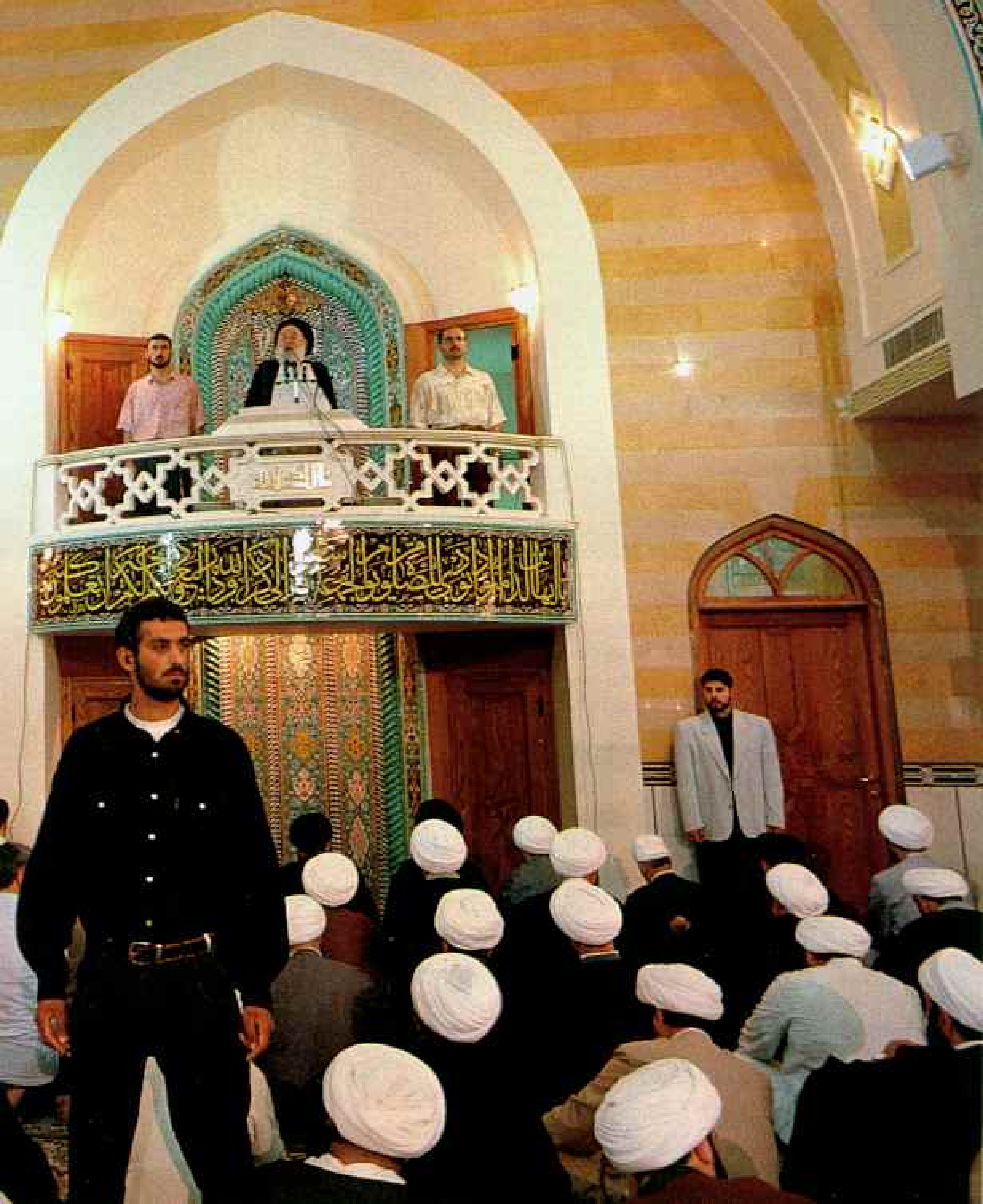
"Beirut was a Sunni Muslim and Greek Orthodox city," said Youssef Soubra, an elderly Sunni aristocrat, as we sat in his sitting room one morning. We were in Koreitem, the neighborhood adjoining the prime minister's residence. "Beirut was just seven families a hundred years ago. It was very small."

Youssef, a retired lawyer and a descendant of one of those seven prominent families, was greeting his neighbors as they dropped in for Sunday breakfast. Soberly dressed in a suit and tie, he rose to welcome his Druze and Christian friends, wishing the latter a pleasant Sabbath.

"Sunni merchants were the backbone of Beirut," Youssef said. "They bought from everyone and sold to everyone. Of course, Beirut is now a far more diverse city, and that's good. In fact it's a blessing." Youssef took a long sip from his tiny eggshell-thin cup of Turkish coffee and set it down on its delicate saucer.

"Beirut was never one of the truly great cities of antiquity. Lebanon was known for Tyre and Sidon, not Beirut. But those cities did not have openness and exchange. Beirut flourished because of its *(Continued on page 118)*

At Friday prayers in Beirut's impoverished Shiite southern suburbs, Sheikh Fadlallah preaches support for Hezbollah. The "party of God," backed by Iran and Syria, provides schools, clinics, even water for Shiites—Lebanon's largest sect—and fights Israel in the south.



Newly planted palms along the Green Line look as forlorn as gutted buildings. Yet Prime Minister Rafiq Hariri (below, at left, with French President Jacques Chirac) has faith in Beirut's rebirth. He believes that Solidere, the firm he founded, will help transform Beirut's flattened Central District into "a financial, commercial, and cultural center for the Arab world."

This costly vision of wide boulevards and gleaming skyscrapers has its critics. "It will be a ghetto for businessmen and rich people," says Beiruti lawyer Nawaf Salam, "done at the expense of the city's social fabric." Others complain that too many Syrians have been hired to build the city's new structures (far right), taking jobs from Lebanese workers.

Still, Beirut has long overcome adversity caused by both man and nature: Archaeologists have found traces of at least 15 cultures here, dating from the Canaanites of 3000 B.C.

ARESCO CENTRE

diversity and open-mindedness. When these qualities fail, Beirut fails. Don't you hope we have learned this by now?"

During the war years the American University of Beirut (AUB) was perhaps the only area of the city that retained those qualities. The school continued to educate every sect, and its hospital treated the wounded of every militia. Densely shaded by oaks, cedars, and banyans, the campus is the jewel of the neighborhood of Ras Beirut and perhaps of the entire city.

"This place holds Beirut together," said Sana Murad, a college administrator, as we passed the new College Hall, which was under construction. The original structure, built in 1873, had been destroyed in 1991 by a car bomb. "The war wiped out downtown Beirut and every place that Lebanese of different religions and backgrounds could meet," she said.

Sana epitomizes the ideal Beiruti: An educated woman, fluent in three languages, she is a serenely nonsectarian Druze whose passionate loyalty is to Lebanon as a whole. And yet her dedication to the university surpasses her passion for city and nation because the school symbolizes the best attributes of both.

"AUB is totally mixed," Sana said. "Lebanon is a small country, but it is very compartmentalized still. Many Shiite students have their first conversation with a Christian here. There are Christians from Christian-only regions who tremble at the thought of meeting a Muslim, but here their son or daughter will make Muslim friends.

"But do you know what the most beautiful thing is?" Sana asked. "Graduation. That is when these students bring their families together. Their parents meet, and in minutes they are all inviting each other to their homes. Some days it's hard to have hope for this country, but when I see that, I can never feel pessimism."

THE OPTIMISM at the university and in downtown Beirut isn't evident in the poorer, outlying neighborhoods of the city, especially in the southern sprawl called the Dahia. This area is made up of crowded Muslim districts along the Green Line. All still show the scars of war.

Several of these neighborhoods were once small Christian villages, but the only signs of the former inhabitants are two old padlocked churches. Now the Dahia is mainly home to Palestinian refugees, who have been coming here since the first Arab-Israeli war in 1948, and to Lebanese fleeing Arab-Israeli fighting along Lebanon's southern border.

"This used to be a lemon grove," said Majid Rizk, a Lebanese resident of a shell-pocked apartment block in the district of Chiyah. He gestured from his balcony down to a construction site and makeshift housing on Rue Ayn al-Rummaneh. "I passed through here when I was a boy. Even driving by in the car, it smelled like a pitcher of lemonade."

Now huts made of aluminum, wooden planks, and plastic sheets fill the muddy expanse, though nearby an office building is going up. The corrugated aluminum topping some shacks twinkled in the morning sun, and the bright blue plastic was puddled with dew.

"Do you know who lives there now?" Majid asked. "Syrian workers. The man putting up this building owns that land, and he had their shanties destroyed just two weeks ago. Look, they're already rebuilt. There are two million Syrian workers living in Lebanon, and they all live like that. They send home all the money they earn. Just think, if every one of them earns a dollar a day and saves it, that's two million dollars Lebanon has lost."

Majid's figures were double most objective estimates, but even so, most Beirutis see the drain as serious, given the city's 30 percent unemployment rate among Lebanese. This resentment is compounded by Syrian dominance of Lebanese politics and the presence of Syrian troops, who have enforced peace between rival sects since the end of the war. Though the average wage is less than $300 a month, it is unlikely that the Syrian workers will leave for even poorer paying jobs at home.

Majid and I had met by chance when I was exploring his neighborhood, which was crowded with makeshift buildings and an eccentric street plan. He and his wife fled here in 1982 from their home in the southern town of Marjaayoun after Israelis invaded Lebanon in an attempt to expel the PLO, which had been based in Beirut since 1968.

Majid's son Ahmad joined us, his infant son in his arms. Ahmad was born before his parents settled here and is one of the new generation of Beirutis with roots in the Shiite Muslim south. The capital once had a very small Shiite population, but the ongoing conflict between

the Israelis and local resistance generated an exodus north that has made this sect the largest in Beirut.

The landings of Majid's building were decorated with portraits of young martyrs who had died fighting Israel. Alongside the portraits were posters proclaiming, "For your sake we resist, we liberate, we build a just nation." I asked Majid and Ahmad whether they had served in a militia, and like everyone I asked, they said no. To admit having participated was to admit having helped ruin Lebanon.

"But we haven't forgotten that we're southerners," said Ahmad. "We go back there on weekends and bring my grandparents up here to spend the whole winter. Most of us in the Dahia are southerners."

With this influx of Shiite refugees, the government had little influence in southern Beirut until it began to reassert its presence last year. Many Shiite locals have deferred instead to Hezbollah, a militant Islamic organization that is waging a guerrilla war against Israel in the south and providing social services here.

In the neighborhood of Ouzaai, for instance, stands Hezbollah's Imam al-Mahdi School, one of seven such elementary schools in Lebanon. Only a few decades ago a militant school such as this would have seemed exotic. But because of the dislocations of the war and the fast growth of Shiite families, here it stands, reflecting the influence of the Shiite world's superpower, the Islamic Republic of Iran. "For You We Resist" posters covered Ouzaai like wallpaper. A photograph of the Ayatollah Khomeini hung in the office of Ali Bazzoun, the school's director.

"It's still registration week," Bazzoun said as we passed freshly scrubbed pupils, many of whom clutched U.S. hundred-dollar bills they would turn over for tuition. In the hall a homesick sobbing boy was being comforted by a teacher dressed in a black chador. Pictures of bright yellow ducks with parasols, mice playing jump rope, and even friendly snowmen decorated the halls. Beside them were posters of Islamic slogans such as "Dear God, please hasten the advent of the Imam al-Mahdi," a descendant of the Prophet Muhammad, who the Shiites believe will usher in Judgment Day.

Bazzoun said that his school serves a need that the city government cannot meet. "This part of Beirut is poor in services," he said. "There are 100,000 students in the Dahia, and 75,000 of those are in private schools. Here we

With the patience of saints, restorers try to stabilize paint on a bullet-riddled mural in St. George's Greek Orthodox Cathedral. Rifts among the nation's 18 religious groups are also on the mend. Says the cathedral's bishop, "All Lebanese share a common destiny."

Evoking the grandeur of Beirut's past, restored arches enfold a fashion-show crowd drawn to celebrate the city's chic—and its salvation. "We are a sophisticated people," says boutique owner Soha Farah, who held the show in the damaged downtown to honor its revival.

have 1,100 pupils. All are Muslims." Water is distributed to much of the district via large portable tanks, supplied and filled by Hezbollah and painted in green, white, and red—the colors of the Iranian flag.

Faced with persistent accusations that the group is an instrument of Iran's efforts to export its revolution and Syria's resolve to battle Israel, Hezbollah tries to clean up its tarnished image by founding schools where they are badly needed. The schools indoctrinate children with a strict Islamic curriculum.

"We serve the whole city," Bazzoun said. The tuition is 1,230,000 Lebanese pounds a year (about $800 U.S.). "That's high," said Bazzoun, "but worth it for a good moral and academic Hezbollah education."

THE BLOODINESS of the Lebanese conflict, largely fueled by outside powers, showed the fragility of hope and tolerance. These qualities have begun to return, but there were times during my recent visit when Beirut's newfound peacefulness struck me as almost eerie. The Beirutis seemed to be suffering from collective amnesia. In conversation, people preferred not to look back at the war. No one admitted to having served in any of the militias that had shredded the city. Hezbollah denied ever terrorizing anyone. And, in truth, everyone seemed to get along. How could one tell whether the lesson of tolerance had been learned or whether it was the effect of the Syrian troops still stationed in the city to enforce the peace?

A stroll on the Corniche is shadowed by tension after police quell a protest against Israel and the U.S. The right to assemble is one of several civil liberties recently curbed in Lebanon, where peace is a mix of coercion and resolve. Faced with a shaky economy, social inequities, and regional unrest, Beirut will need all its resolve to sustain a lasting peace.

Samir Khalaf, a professor of sociology and anthropology at the American University, provided a practical answer. "Real estate values," he suggested. "Land values are higher in mixed areas, regardless of the quality of the area. Ras Beirut is higher than Achrafiye. The Metn Hills, which are mixed, are more expensive than Kesrouan, which is strictly Christian. The economy is sending a message that exclusion is harmful, that people want to live and work in a diverse and tolerant ambience."

We were standing on Khalaf's balcony overlooking the Corniche, watching a rosy sunset flood over the sea and the companionable throngs below us. The view from this most desirable vantage point, in the mixed neighborhood of Ras Beirut, exemplified Beirut's gradual return to tolerance and harmony.

"Look, this lyrical light brings out so many lovers," Khalaf said. "The early morning crowd is affluent and sports-minded. The evening crowd is very mixed—families on outings, the afterwork crowd, and the street vendors who cater to them. It's an inviting space."

The congenial atmosphere of the Corniche was so inviting that I was drawn there almost every morning, often just before sunup. It wasn't just the beauty of this four-mile-long avenue that attracted me; it also offered me the opportunity to exercise away from home.

"All the way down, Madame Zaynab. That's great," Nizar Sultani, an aerobics instructor, shouted to one of his students. His class of about 50 fitness buffs had fanned out across the Corniche and were doing slow, deep knee bends. The rising sun added highlights of honey and red to the waves in the background.

I had joined this class within a week of arriving in the city. Women in full Muslim drapery ran in place next to dowagers in costume jewelry and flashy sunglasses. Teenagers in Chicago Bulls caps did jumping jacks next to older men. I recognized the nephew of a Lebanese reporter I knew. And some mornings I saw African students from the American University.

Nizar started teaching the class in 1977 and has missed only a handful of mornings since then, mostly during the Israeli invasion in 1982. "At the maximum I had 120 people," he said, "but we are growing again."

When the class came to an end, the sun had risen, bathing the scene in gentle apricot light. Before the war destroyed the center of Beirut and left its ugly scars, the city had been known mostly for its glamour and beautiful natural setting. But Nizar and his students have revealed the true strength of their city—the cosmopolitan Beirutis, who have survived years of conflict, their can-do attitudes intact. □

THE SIREN SONG OF EVEREST

BY DAVID F. BREASHEARS

Once the exclusive domain of elite mountaineers, the roof of the world now lures scores of amateurs, reports the author —a veteran of four ascents to the summit—on returning to Everest to film a documentary. These climbers seek a challenge that begins as high drama but can end abruptly as tragedy.

DAVID F. BREASHEARS, MACGILLIVRAY FREEMAN FILMS

OF ALL THE ICY SLOPES on Mount Everest, the Lhotse Face is not particularly difficult. A steep incline of hard blue ice, it slants 3,700 feet down the mountainside, requiring little more than competent skills on a fixed rope. I was astonished to hear that someone had just died there.

It was late afternoon May 9, 1996, during my tenth expedition on Everest. The radio call came from Jangbu Sherpa, the head of my camera-carrying team, who had come across an injured Taiwanese climber at Camp III at 24,000 feet. The climber, who had fallen into a crevasse, hadn't complained of serious pains. Yet as Jangbu and two other Sherpas helped him down the Lhotse Face, he collapsed.

"We think he's dead," Jangbu radioed.

I instructed Jangbu to feel the climber's neck for a pulse, to take off his glacier glasses and hold them right under his nose to see if there was any breath.

"No, he's dead."

Superstitious and unwilling to move the corpse, the Sherpas resumed their descent, leaving the body tethered to the fixed rope 1,700 feet above me. I decided to go bring him down. Ed Viesturs and Robert Schauer went with me. Ed, an American climber, was making his fourth ascent of Everest, his second without bottled oxygen. Robert, an Austrian cinematographer, was on the mountain

On May 9, 1996, the author, foreground, and his film crew retrieved the body of Chen Yu-Nan, who died after falling into a crevasse. The next day a storm struck that killed eight more climbers. Two of the frozen bodies were spotted as the team headed for the summit. "Luckily," says Breashears, "hypoxia and the concentration needed to advance each step for 12 torturous hours don't allow for strong emotions."

ROBERT SCHAUER

"My darling, this is a thrilling business altogether. I can't tell you how

for the second time. They were part of a team under my direction making an IMAX film about climbing Everest.

It took us two hours to reach the body. Gasping for breath in the thin air, I kicked the points of my crampons into the slope and slumped back in my harness on the fixed rope to rest. My eyes were riveted on the figure dangling above me. I felt drained, overcome with sadness. The climber's eyes were wide open, his mouth agape, and his face ashen. I later learned he was Chen Yu-Nan, a 36-year-old steelworker from the city of Kaohsiung. When I reached to close his eyes, they had a look of bewilderment, as if from the shock of dying so suddenly.

A few days before in the Icefall, that gargantuan jumble of tilted ice blocks on the Khumbu Glacier, I had watched Chen and his companions as they gingerly placed their feet on the rungs of an aluminum ladder across a crevasse. Their awkwardness showed inexperience. Until recently, I had known most of the climbers on Everest, at least by reputation. They were part of the tightly knit community I had grown up in. But now the routes were crowded with amateurs and guided clients, some of whom had plunked down $65,000 to be led up and down the mountain.

So much has changed since 1983, when I was part of a team transmitting the first video images from the summit. Back then our expedition was the only one on the South Col route. Last year 14 expeditions—French, Nepalese, Norwegian, Spanish, Swedish, and Taiwanese, among others—shared fixed ropes, camps, and a common obsession to reach the top. Base Camp, once a makeshift staging area at 17,600 feet, has been transformed into a bustling village of more than 300 people, packed with kitchen tents, dining tents, satellite dishes, boom boxes, VCRs, offerings of burning juniper, sputtering generators, and hundreds of prayer flags streaming in the wind. Up above at 26,000 feet, the South Col has been turned into the world's highest garbage dump, with more than a thousand empty oxygen bottles littering the snow alongside torn tents, abandoned stoves, and other refuse.

More than 150 people over the years, including many excellent climbers, have perished on Everest, tumbling from cliffs, being swept away by avalanches, or succumbing to exposure, exhaustion, or altitude sickness. Many of the bodies are still up there. In 1985 I collected body parts from two climbers I had known, who had died the year before. Their corpses had frozen solid on the mountain and shattered when they fell to the glacier below.

Last year was the most tragic. In the days that followed Chen's collapse, eight more climbers died in a storm, five on the south side and three on the north. Two were my friends Rob Hall and Scott Fischer, talented guides who knew the mountain well.

ROYAL GEOGRAPHICAL SOCIETY LONDON

ROBERT SCHAUER

Snow business

Capt. John Noel, seen above during a 1922 expedition, paid 8,000 British pounds (nearly 350,000 current U.S. dollars) for exclusive photographic rights on the 1924 Everest expedition, but no one reached the summit and two died in the attempt. Last year a film producer risked two million dollars on the author and his team (above), who made it to the top.

it possesses me, and what a prospect it is. And the beauty of it all!"

—GEORGE LEIGH MALLORY, 1921
DISAPPEARED DURING A 1924 SUMMIT ATTEMPT

NORTH
TIBET
Mount Everest
29,028 ft
Hillary Step
Southeast Ridge
CHINA
NEPAL
South Col
Camp IV (26,000 ft)
Camp III (24,000 ft)
Lhotse Face
Western Cwm
Author's 1996 route
Camp II Advance Base Camp (21,300 ft)
To Camp I (19,500 ft) and Base Camp (17,600 ft)
NATIONAL GEOGRAPHIC MAPS
SWISSAIR PHOTO + SURVEYS

Since the first ascent, in 1953, more than 700 climbers have summitted Everest. Some of them reached the top but never made it back. In all, the mountain has claimed more than 150 lives, including 15 in 1996 and 8 in the spring of 1997. Most expeditions follow the South Col route, but increasingly climbers approach from the Tibetan side. Climbers now compete to set records as the youngest, the oldest, the fastest on Everest.

In a dark and mysterious way, the deadly nature of the place has only strengthened Everest's grip on the world's imagination. Because the dangers are so obvious, Everest has come to symbolize for many people the ultimate in personal ambition and achievement. Thomas Hornbein, who took part in the first American ascent, in 1963, describes climbing Everest as "a great metaphor for human striving." This explains, in part, why otherwise rational people will pay handsomely to tag the top.

ROYAL GEOGRAPHICAL SOCIETY

Even veteran Himalayan climbers like myself can find ourselves firmly in the mountain's grip. The risk of death is enticing, because it reminds you that you are alive. "The fact that either you or one of your companions may have the possibility of dying," Sir Edmund Hillary once said, ". . . not only doesn't stop you doing it, but it's almost one of the things that keeps you going." But for me, it's also about the cold, the fatigue, and the challenge of good climbing. It's about the way snow crunches on a minus 10°F morning but squeaks on a minus 20°F morning. It's about climbing around a corner and seeing the pink granite of neighboring Makalu glowing in the first rays of dawn.

Everest has this immense psychic gravity that pulls you into its orbit. When George Leigh Mallory and the British reconnaissance team of 1921 set out to find a route up the mountain, it was no more than a set of coordinates on a map. The hulking monster they discovered came as a surprise. "Suffice it to say that it has the most steep ridges and appalling precipices that I have ever seen," Mallory wrote to his wife, Ruth. "I can't tell you how it possesses me." Three years later, climbing from the Tibetan side, Mallory and his partner, Andrew Irvine, disappeared

On the edge

Climbers in 1953 used aluminum ladders to cross dangerous crevasses (above). So, too, do modern climbers (bottom), who know that one false step could be their last. Yet it is that fatal attraction that increases the psychic reward. "Unlike any other sport," writes journalist Bruce Barcott, "mountaineering demands that its players die."

DAVID F. BREASHEARS

conjures up all manner of strange desires or horrifying apparitions."

—PETER HABELER, 1979

MADE FIRST ASCENT WITHOUT SUPPLEMENTARY OXYGEN, 1978, WITH REINHOLD MESSNER

into the clouds near the summit, never to be seen again. The pair were immortalized by the British press, adding a layer of mystery to the Everest myth.

By the time Tenzing Norgay and Hillary became the first climbers to reach the summit, on May 29, 1953, the Everest story had taken on the hoopla of an international race for the "third pole." Ten expeditions had failed, and 13 men had died. The year before, Tenzing and a Swiss climber had been forced to turn back just short of the summit. News of the British team's dramatic success was flashed to London just as the city was poised to celebrate the coronation of Queen Elizabeth II. "The Crowning Glory: Everest Conquered," the *Daily Mail* proclaimed.

ROYAL GEOGRAPHICAL SOCIETY

Tenzing's son Jamling was part of our team. Despite his father's urgings not to take up climbing as a career, Jamling had grown up to be an experienced mountaineer and expedition organizer in Darjiling, India. But he had never climbed Everest, and he was determined to reach the summit as part of a lifelong dream and as a tribute to his father, who died in 1986.

I remember as a boy taking a book off the shelf in my family's apartment and turning to the famous photograph of Tenzing standing on the summit. Something fused in my 11-year-old brain as I stared at the Sherpa's thick down suit and overboots, and the ice ax and flags he held aloft in exultation and triumph. I was struck above all by the unwieldy oxygen mask obscuring his face. What kind of place was this, I wondered, where a man needed to carry oxygen to survive?

Today I know the mountain as an environment so extreme there is no room for mistakes. After the May 1996 storm,

ROBERT SCHAUER

Making the grade

Taking tea, Tenzing Norgay and Edmund Hillary celebrate the first ever ascent of Everest in 1953. They had been selected as part of a British expedition based on their age, physical makeup, desire, and alpine experience. Now, on slopes littered with empty oxygen canisters, commercial guides insist their clients have at least some alpine skills—and the ability to pay fees as high as $65,000.

members of our film team climbed to Camp III to help nearly a dozen survivors and later assisted with a helicopter rescue near Camp I. Now, back at Base Camp we were emotionally drained. As we attended an informal memorial for the lost climbers, the summit was flying its pennant-like plume of clouds from the jet stream. At night we lay in our tents listening to the wind on top roaring like a 747 on takeoff. When Jamling called his wife, Soyang, she was deeply worried about his going back up. Ed Viesturs' wife, Paula, our Base Camp manager, was also afraid. She had listened in tears to Rob Hall's last radio calls from the summit ridge and knew that Ed would be climbing without bottled oxygen past the spot where Hall had died with bottled oxygen. Yet we all knew as professionals that we had obligations to make the film, and we were confident in our climbing skills. We agreed to go back.

Just before midnight on May 22, a dozen of us set out from the South Col, climbing by our headlamps and the dim light of the stars. Ed broke a trail for us in the knee-deep snow, a herculean effort. Because we were suffering from the physical effects of the thin air at high altitude, we hadn't slept for more than a few hours in the past three days or eaten more than a few crackers. Our bodies were dehydrated. Our fingers and toes went numb as precious oxygen was diverted to our brains, hearts, and other vital organs. Climbing above 26,000 feet, even with bottled oxygen, is like running on a treadmill and breathing through a straw. Your body screams at you to turn around. Everything says: This is cold, this is impossible. Two hours into the climb, we passed Scott Fischer's body. Later we found Rob Hall. We kept climbing. By 11 the next morning, we reached the top.

"We can't go any farther," Ed radioed happily to Paula.

"The party drifted out of camp towards us, not knowing if we had been successful or not. When [they saw] the thumbs up signal of success they rushed towards us and soon we were embracing them all, and shaking hands, and thumping each other on the back. It was a touching and unforgettable moment; and yet somehow a sad one too."

—SIR EDMUND HILLARY

As the others celebrated, Robert and I set up the 42-pound camera. Using my bare hands in the frigid air, I threaded the film through the intricate movement, then looked up to see the photograph from my boyhood coming to life. Holding his ax above his head, Jamling was striking the same pose his father had 43 years before. I was humbled to think of the many journeys I had made to this mountain inspired by that scene.

Several days later, at the bottom of the mountain, I rested on the trail in the rhododendron forest above Tengboche Monastery. In years to come, I knew, the lessons of the tragedy on Everest would be all but forgotten. Climbers would take the same risks, make the same mistakes, and some of them would die, as climbers have been doing for more than seven decades. But smelling the earth and the fragrant trees, I realized in the deepest sense my own good fortune. I had survived Everest once more. I wondered if I would be wise enough to stay away.

Six months later I agreed to make a film on Everest about the effect of high altitude on the body. I would climb the mountain again.

DAVID F. BREASHEARS has received four Emmys for mountain filmmaking. His 1996 expedition is the subject of a National Geographic book, *Everest: Mountain Without Mercy*, by Broughton Coburn, to be published in October.

ROYAL GEOGRAPHICAL SOCIETY (TOP); NEAL BEIDLEMAN, WOODFIN CAMP & ASSOCIATES

Nothing like the first time

"For ten minutes I photographed Tenzing holding flags, the various ridges of Everest and the general view," wrote Sir Edmund Hillary of their historic ascent. Yet he never bothered to ask Tenzing to take a picture of himself. In May 1996, when the scene at the summit looked like a rugby scrum, climbers documented their deeds with photos, films, and radio dispatches filed on the World Wide Web. Soon after this photograph was taken, a storm killed eight climbers as the world tuned in from a safe distance.

NEAL BEIDLEMAN

Approaching the wind-battered Hillary Step, photographer Neal Beidleman follows Anatoli Boukreev to the summit.

"Right or wrong," says Beidleman, "people congratulate you for climbing it, which creates a superficial separation between you and others. But in a deeper sense, did the mountain make me a better person? No."

Yet climbers keep coming, not because Everest is the point of exploration, but because it is the path, the ultimate route for an inner journey that leads, they hope, to self-discovery.

Everest rarely delivers such big personal change. "It's like they say," notes Beidleman, " 'wherever you go, there you are.' " □

For more on Everest join our online forum at www.nationalgeographic.com.

THE NEW 1997 WIDE

Wider Is Better.

©1996 GM Corp. All rights reserved. Always wear safety belts, even with air bags.

TRACK GRAND PRIX

Passing Shot.

A wider hitting area makes for better ground strokes. Introducing the new 1997 WideTrack Grand Prix® from Pontiac. Its wheels are set wide to connect all of its available 240 supercharged horses to the road for better control on your passing shots. Choose coupe or sedan and see for yourself: Wider is Better.

C A L L
800-2PONTIAC

C R U I S E
www.pontiac.com

USA
32
Stegosaurus

Licking a Special Edition Stegosaurus Stamp is a futile primordial urge. It won't be around forever, so what will you gain by mailing it?

The World of Dinosaurs, and all Special Edition Stamps, should be saved and cherished.

PLEASE BEHAVE LIKE THE EVOLVED HOMO SAPIEN YOU ARE AND KINDLY REFRAIN FROM LICKING.

They're tiny works of art, rich with color and detail. Frame them, stick them in a stamp album, or let them roam in a drawer. Just don't be a Neanderthal and slap them on an envelope.

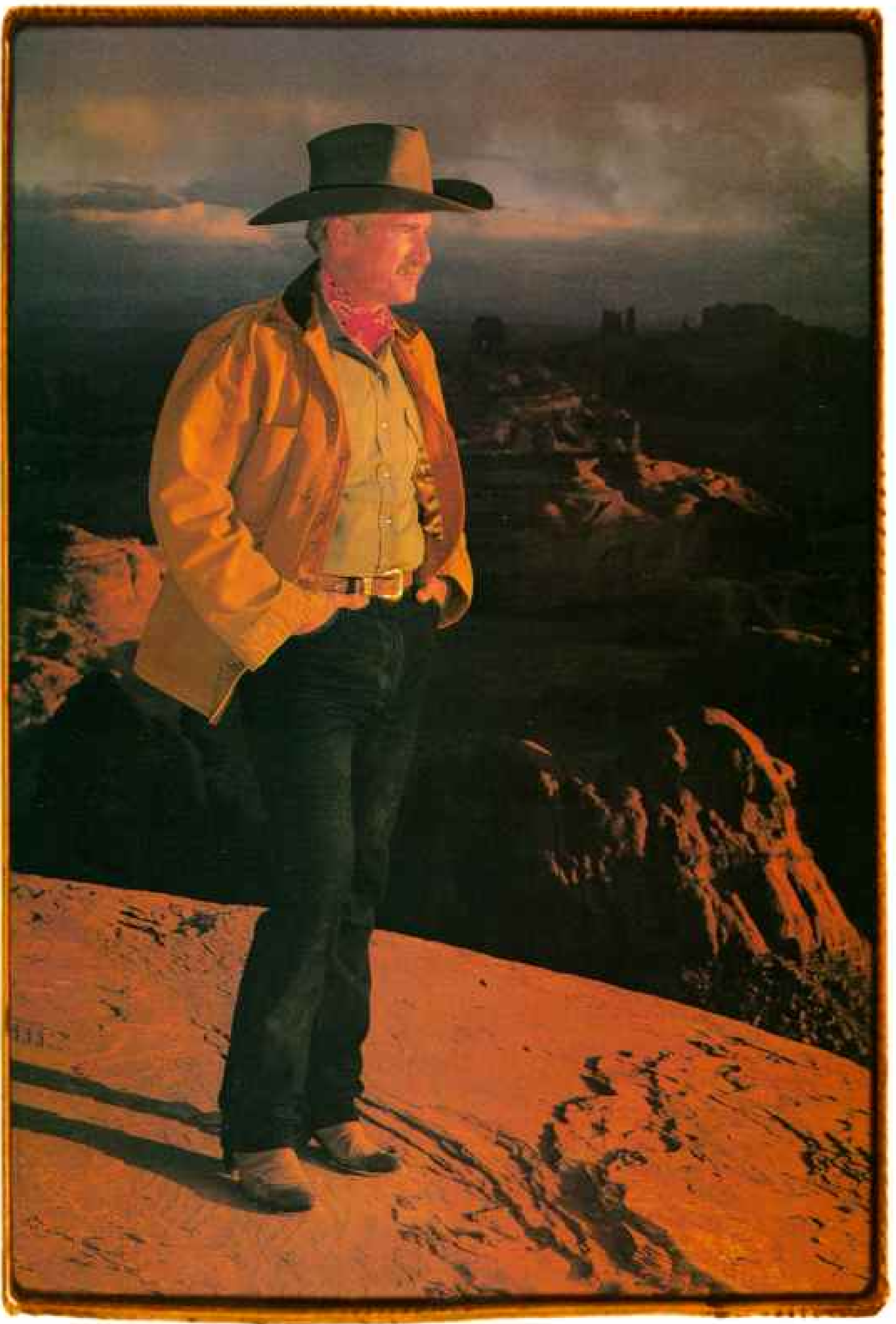
Matted Stamp Sheet $16.95 (frame not included)

To get the Stegosaurus and other Special Edition Stamps, call 1 800 STAMP-24. You could also stop by the post office, if you're feeling civilized.

Some Stamps You Just Can't Lick.

www.stampsonline.com

©1997 USPS. All rights reserved. 6505



Visit our website at www.toyota.com or write Toyota Motor Corporate Services, 9 W. 57th St., #900-C26, New York, NY 10019 ©1997.

PEOPLE IN ARIZONA ARE TESTED BY HARSH RUGGED CONDITIONS

So naturally

OUR VEHICLES ARE TESTED BY PEOPLE IN ARIZONA

Blistering hot days. Freezing nights. A landscape that in some places resembles the surface of the moon.

It takes a special type of person to live in the Arizona desert. And we're proud to say that some of those special types are working at Toyota's

multi-million-dollar Arizona Technical Center and Proving Ground.

Here, local scientists, engineers and drivers put Toyota vehicles through the kind of torture most of us will never experience in a lifetime of driving.

Arizona is just one part of Toyota's global family of operations. A network that encompasses technical centers and design studios on three continents. And manufacturing facilities in 26 countries from Venezuela to the UK.

As a company doing business in the global marketplace, Toyota recognizes the need to invest locally, to ensure that the products we sell answer the special needs and standards of all of our customers. In the U.S., there are Toyotas designed in California, tested in Michigan and built in Kentucky, California, and soon in Indiana.

All around the world, Toyota is committed to investing in local people. And, even out in the desert, it's proving to be a fertile investment.

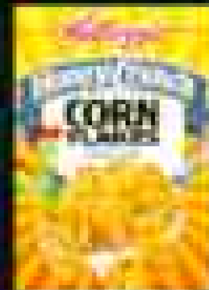
TOYOTA People Drive Us

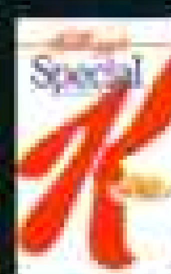
Adults Who Eat Cereal Consume Less Fat Each Day.

Maybe it's because cereal eaters eat healthier the rest of the day or maybe it's because they exercise more and take better care of themselves. Whatever it is, there's a good chance you'll see the same link between eating cereal and fat consumption that nutritionists have seen—that adults who eat cereal for breakfast also consume less fat each day. For more information on the nutrition of cereal, call us at 1-800-468-9004.

Cereal. Eat it for life.™

Kellogg's®



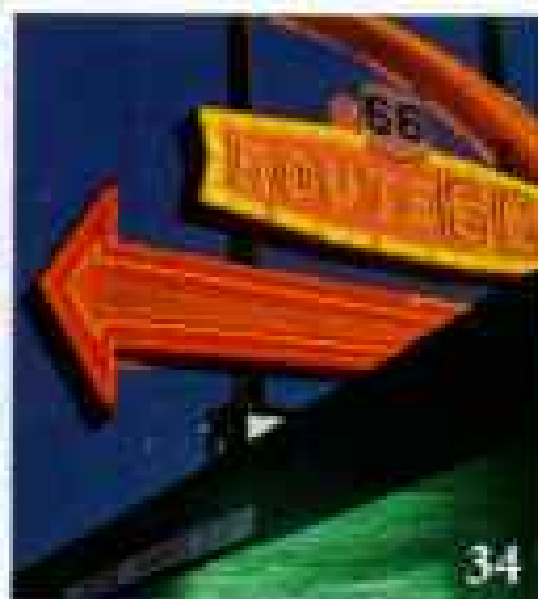


TM, ® Kellogg Company

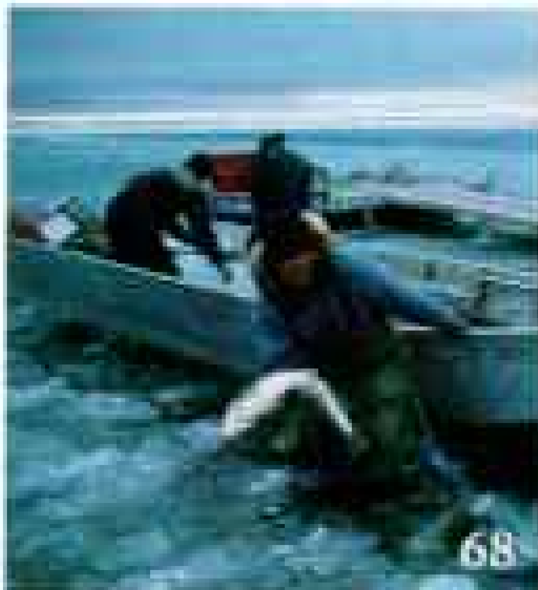
©1997 Kellogg Company

SEPTEMBER 1997

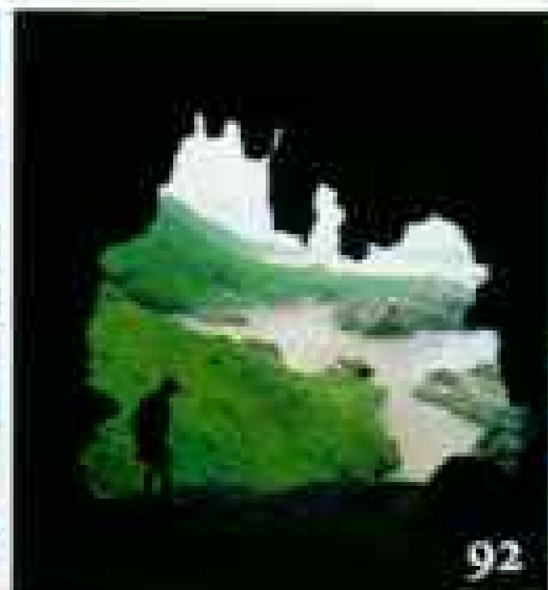
2



34



68



92

100

124

2 **China's Three Gorges** *The world's mightiest dam is rising on the Yangtze River. Gains: electric power and flood control. Losses: wild canyons and hundreds of thousands of homes.*

BY ARTHUR ZICH PHOTOGRAPHS BY BOB SACHA

34 **Route 66** *Rattling through Arizona, this remnant of a historic highway returns travelers to two-lane America and the auto's golden age.*

BY DAVID LAMB PHOTOGRAPHS BY VINCENT J. MUSI

52 **Racing With the Wind** *Competitors from three nations last winter attempted the first nonstop girdling of the globe by balloon.*

BY RICHARD CONNIFF

68 **A Dream Called Nunavut** *In 1999 Canada's Inuit will land their greatest catch—770,000 square miles to call their own.*

BY MICHAEL PARFIT PHOTOGRAPHS BY JOANNA B. PINNEO

■ *Double Map Supplement: Canadian North*

92 **The Dawn of Humans** *Around 117,000 years ago in southern Africa an early member of our species left footprints in a sand dune. Could it have been the "Eve" some scientists are seeking?*

BY RICK GORE PHOTOGRAPHS BY KENNETH GARRETT

100 **Beirut Rising** *A war-torn ruin after 15 years of civil strife, Lebanon's capital is rebuilding itself physically and socially.*

BY PETER THEROUX PHOTOGRAPHS BY ED KASHI

124 **The Siren Song of Everest** *Amateurs crowd the perilous slopes of earth's highest mountain, seeking the adventure of a lifetime.*

BY DAVID F. BREASHEARS

Departments

Behind the Scenes
Forum
Geographica
From the Editor

Flashback
On Television
Earth Almanac
Interactive
On Assignment

The Cover

Drenched in spray, a boatman on a turbulent tributary of China's Yangtze River steers through spectacular gorges soon to be inundated by a colossal dam. Photograph by Bob Sacha

Cover printed on recycled-content paper.

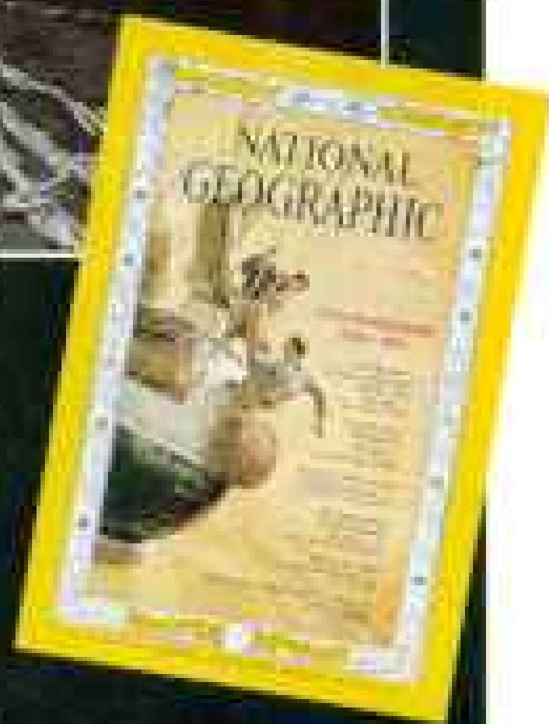
For membership please call
1-800-NGS-LINE

Special device for the hearing-impaired (TTD) 1-800-548-9797

Behind the Scenes

PETER TURNLEY

RICHARD H. STEWART (ABOVE AND BOTTOM)



Up, Up, and Away With NGS

This issue's *Solo Spirit* article reflects only the most recent Society support of ballooning. Our history with that aircraft began with a July 1907 report on Swedish explorer S. A. Andrée, who died attempting to balloon to the North Pole. Perhaps our most dramatic balloon stories covered stratospheric expeditions co-sponsored by the Society and the U.S. Army Air Corps in the 1930s. *Explorer I*'s gasbag failed disastrously in 1934; the escape of its three aeronauts from a crashing gondola was captured by artist Tom Lovell on the cover of the January 1963 issue (right) for a retrospective on Society exploration. *Explorer II*, sent aloft in 1935 (below), fared better, reaching a record altitude of 13.71 miles and then landing safely (top right). Another record breaker was Joe Kittinger's craft *Rosie O'Grady* (top left). Our February 1985 story marked its historic flight, the first single-occupant transatlantic balloon passage and the longest solo balloon flight until *Solo Spirit*. It seems we've always looked up to balloons.

Parenthood Incognito.

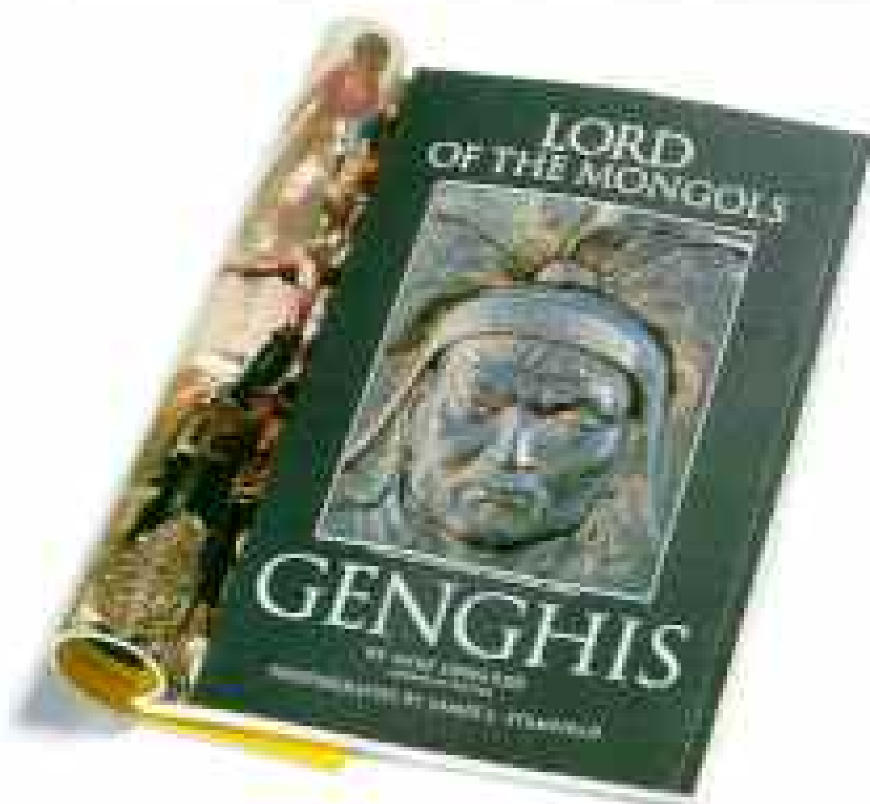
Lumina LTZ Just because you've got kids doesn't mean you've got to drive a car that screams parenthood. Not when you can drive a Chevy Lumina LTZ. Sure, it takes care of the kids. The fact is, no six-passenger car in its class* offers you as many safety features for the money. On top of that, Lumina LTZ also looks after you. It's designed to perform and look like the car you'd have driven before you needed four doors and room for everyone and their stuff. And now that you do, well, Lumina LTZ just gives you one less thing to worry about.

Call 1-800-950-2438 or visit www.chevrolet.com *Excludes other GM products. Lumina is a registered trademark and Chevy is a trademark of the GM Corp. ©1997 GM Corp. Buckle up, America!

MARK THIESSEN (TOP LEFT); GAIL CLEERE (RIGHT AND TOP RIGHT); LT. STEVE MARTIN (ABOVE)

He's Not In Kansas Anymore

You never know how far a frog might jump. Inspired by the Society's Geographic Alliance Network, teacher Don Everhart's fifth grade class at Rolling Ridge Elementary in Olathe, Kansas, sent Fred the Frog on a trip. The students plotted his wanderings on a map as he was handed from one traveler to the next. During his 69,750-mile tour over five continents, Fred saw Japan with Navy Comdr. Rob Lawson (top right) and the South Pole with Rear Adm. Paul Tobin (above left). He visited Wales (above) and met his congressman on Capitol Hill—but still made it back to Kansas in time for the end of school. There's no place like home.



So What Were Your Top Ten Stories Last Year?

Of the 80 articles published in NATIONAL GEOGRAPHIC in 1996, the favorites of our U.S. members were:

1. Genghis Khan (December)
2. Emperor Penguins (March)
3. Orbit (November)
4. Neandertals (January)
5. Wildlife Refuges (October)
6. The Anasazi (April)
7. Xinjiang Mummies (March)
8. Antarctic Ice (May)
9. People of the Trees (February)
10. Gobi Fossils (July)

THIS ISN'T JUST A COURSE IN ART, IT'S A COURSE IN LIVING.

While most art classes teach us how to express life, it is a rare one indeed that teaches us how to live it. But that's what Darcy Swope aspires to in her art classes at The Potomac School in McLean, Virginia.

In addition to teaching her students the fundamentals of drawing and painting, Darcy incorporates lessons that instill lifelong habits and values. Classwide projects, like the creation of a gigantic rainbow, become opportunities to show the importance of sharing and cooperation. Group discussions about individual works of art teach the children to see things from different perspectives and to critique with sensitivity.

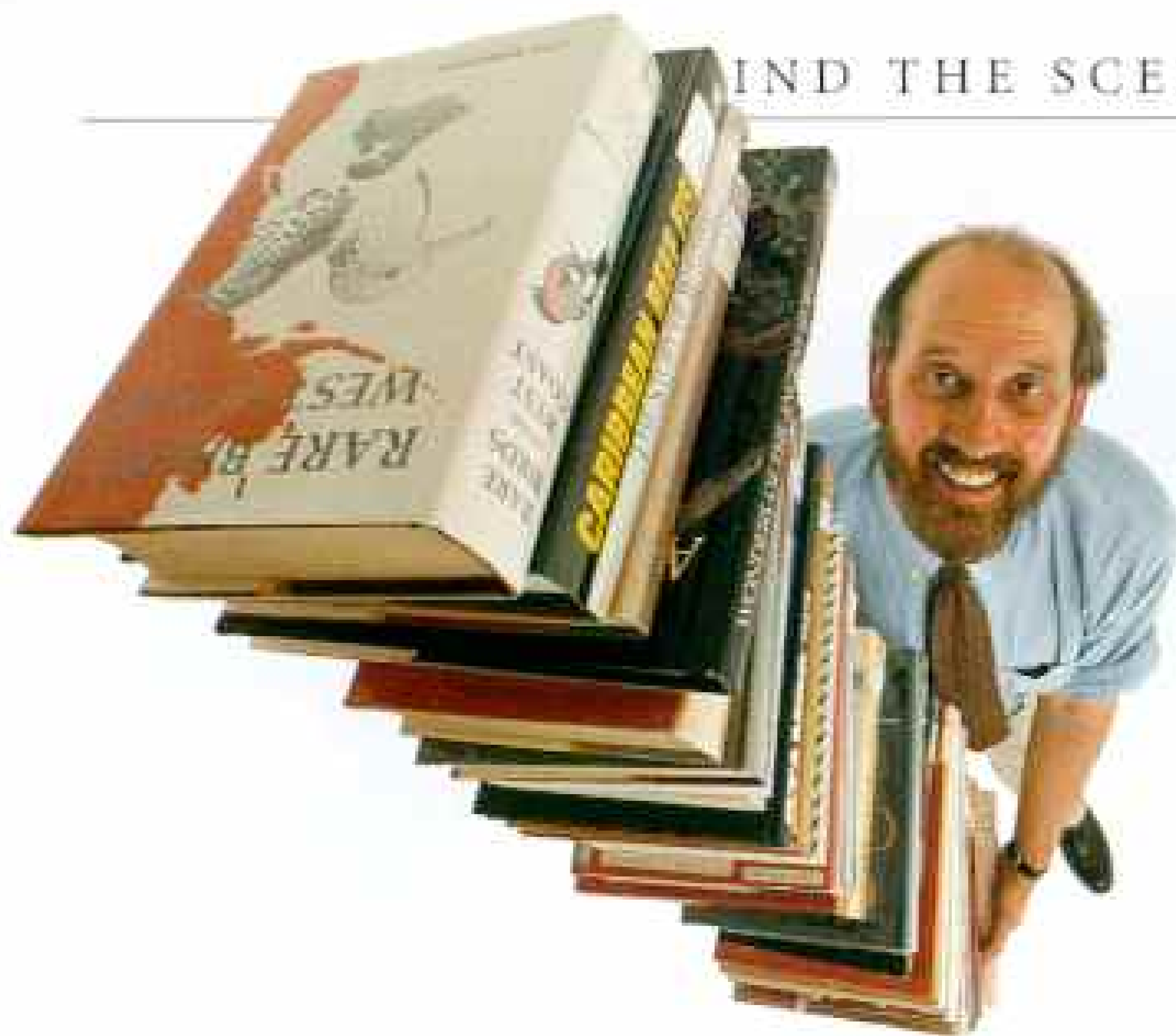
There's even a lesson in the simple act of cleaning a paintbrush. By attributing human feelings to the children's art supplies, Darcy turns cleaning "Mr. Brush" into a metaphor for treating others with respect and kindness.

For showing us how art not only imitates life but offers lessons in it, we are proud to honor Darcy Mason Swope as our newest Good Neighbor Award winner. State Farm is pleased to contribute $5,000 in her name to The Potomac School.

GOOD NEIGHBOR AWARD

STATE FARM INSURANCE COMPANIES
Home Offices: Bloomington, Illinois
www.statefarm.com

The Good Neighbor Award was developed in cooperation with the National Art Education Association.



The Road Worrier

Author David Lamb wanted to drive Route 66 in a Corvette convertible like the ones featured in the namesake sixties television show; magazine researcher Chris Scaptura (below) had to find out which models were used—and where to rent one. The National Corvette Museum in Kentucky yielded the answer, and an invitation to the interment of the car's chief engineer. Chris located a vintage Vette near Phoenix, which promptly overheated. "I'd want a big air-conditioned sedan myself," he says.

Our Library Really Stacks Up

National Geographic has had a library since shortly after the Society's founding in 1888. Our bylaws dictate that a library "suitable for the Society's research, educational, and editorial needs" should be maintained, and that it should "be made available to the general public." Welcomed by staffers like Bob Radzyminski (above), Washingtonians and out-of-town visitors use our library by appointment. Now our library's catalog of 50,000 books and more than 300 periodicals is available to thousands of readers instantly if they are wired to the World Wide Web. Clicking on NGS Library in the Resources area of our website, you can see what titles are on hand. Unfortunately Bob cannot bring you the books.

MARK THIESSEN (ABOVE AND TOP)

Old Gold Available

Complete your shelf of NATIONAL GEOGRAPHIC magazines: For a limited time we're offering rare issues from 1889 through 1914 to collectors. Condition and prices vary. Call toll free 1-800-424-9420, or write the Society at P.O. Box 98031, Washington, D.C. 20090-8031.

Sending Our Spin to the White House

It was a really wild morning when Spin, the host of our *Really Wild Animals* children's TV show, visited this year's White House Easter Egg Roll. "All the kids knew Spin! And some wanted autographs, which is rough when you're wearing a big four-fingered glove," says Sue Lytton of our Film Library, who played Spin. "It's so hard to move in that outfit. I needed a handler to help me walk around." Would that be Spin control?

TEXT BY MAGGIE ZACKOWITZ

JODI COBB, NGS

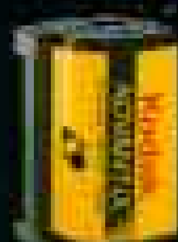
■ FOR INFORMATION

Call: 1-800-NGS-LINE
(1-800-647-5463)
Toll free from U.S., Canada
8 a.m.–midnight ET, Mon.–Fri.
9 a.m.–5:30 p.m. ET, Sat.
Special device for the hearing-impaired (TDD) 1-800-548-9797

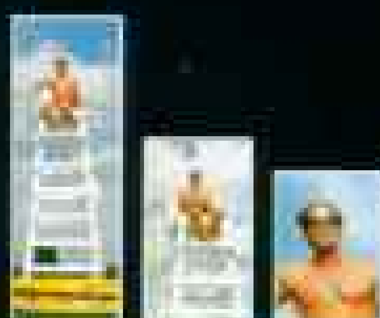
Write:
National Geographic Society
P.O. Box 98199
Washington, D.C. 20090-8199

Internet:
www.nationalgeographic.com

drop-in loading



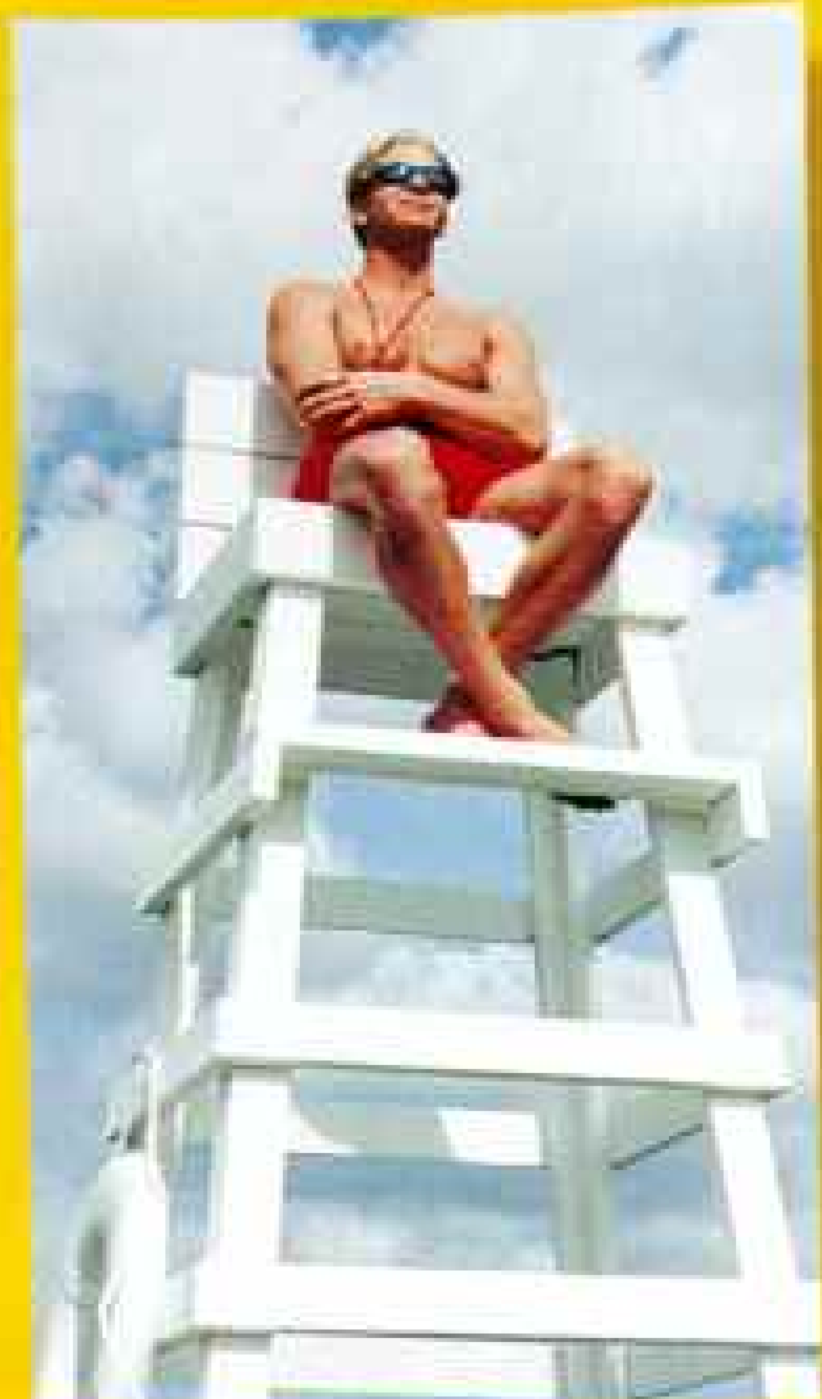
extraordinary film



3 sizes

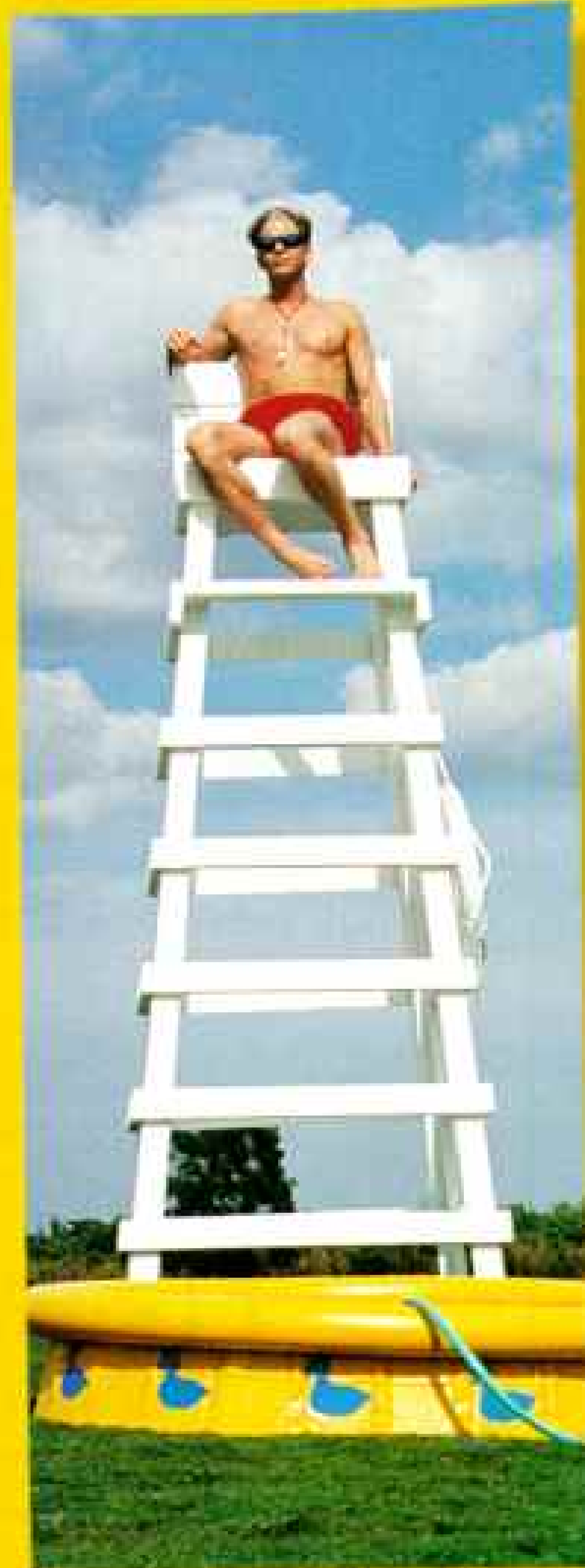
index print

Group



Classic

Panoramic



In photography, the image is the thing. With Kodak Advantix cameras, it's three things.

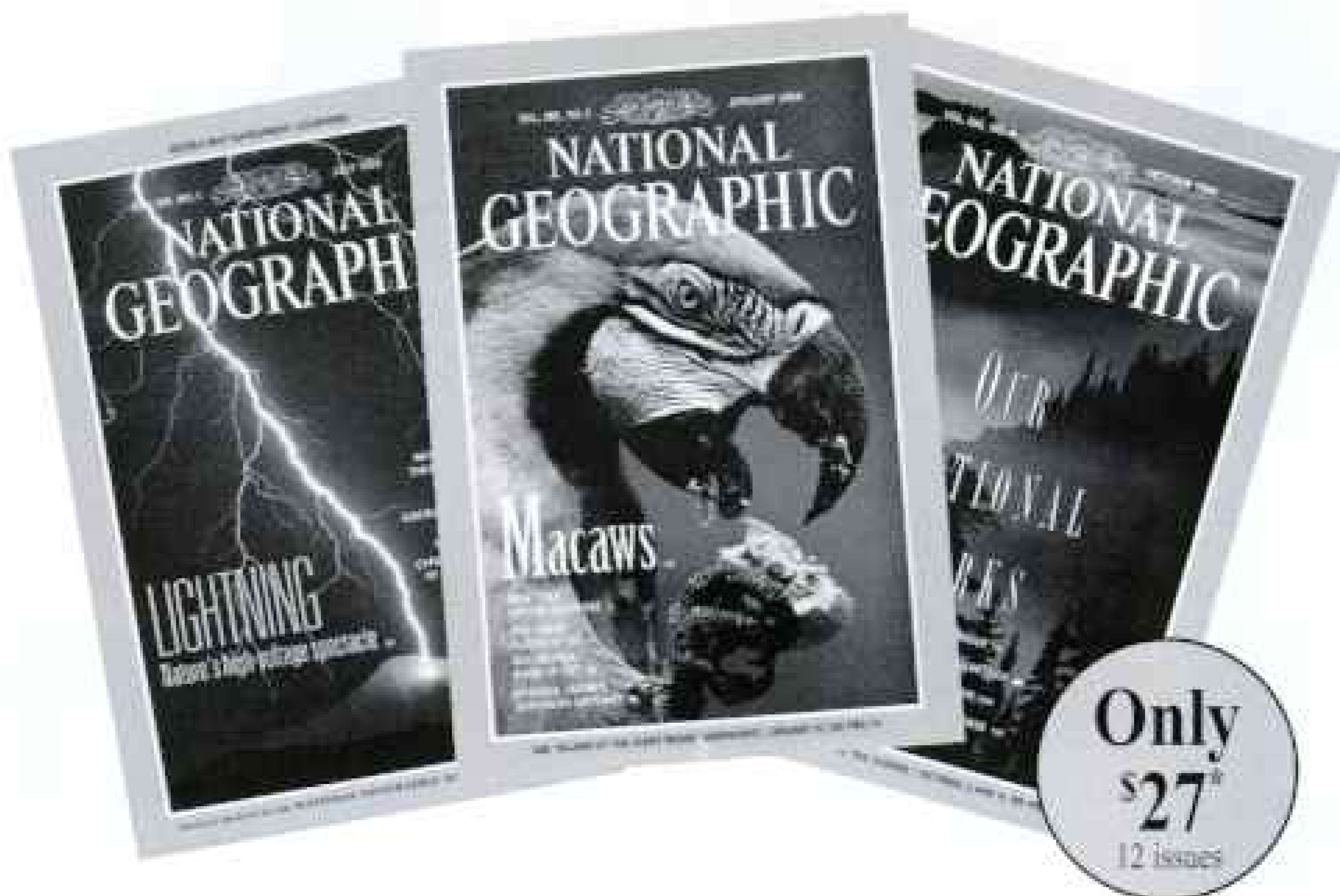
Advanced Photo System cameras let you choose among three different formats for each picture as you shoot. Classic format is perfect for portraits, group format lets you tell more of the story, and panoramic gives you the big picture. Now that you can frame shots in three ways, taking great pictures is easier than ever.

TAKE PICTURES. FURTHER.™

Visit us at http://www.kodak.com/go/advantix

© Eastman Kodak Company, 1997. Kodak, Advantix and "Take Pictures. Further." are trademarks.

Give new worlds to discover with NATIONAL GEOGRAPHIC.



Delight your friends–or yourself–with membership in the National Geographic Society. It's the perfect gift for any occasion!

Every month, readers circle the globe with NATIONAL GEOGRAPHIC magazine to enjoy breathtaking sights...meet fascinating people...unlock age-old mysteries...keep up with science and technology.

Members also receive as many as five full-color wall maps in selected issues of the magazine. And we'll send gift cards to you to sign and present or mail to your gift recipients.

Call today for a world of adventures!

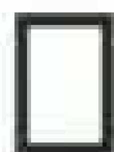
1-800-NGS-LINE

(1-800-647-5463)

M-F, 8 a.m.-midnight ET; Sat., 9 a.m.-5:30 p.m.

TDD only: 1-800-548-9797

U.S. and Canada only


NATIONAL GEOGRAPHIC SOCIETY

P.O. Box 63001, Tampa, FL 33663-3001

*U.S. rate. To Canada, US$31 (C$42). Elsewhere, US$37. Add 5% sales tax for memberships sent to MD. Canadian dues include 7% GST. While all dues support the Society's mission of expanding geographic knowledge, 80% is designated for the magazine subscription, and no portion should be considered a charitable contribution. To enroll by mail, use the bound-in form found in the magazine.

NGZANB0

Forum

Reaction to our May 1997 article on India was voluminous. Many Indians living in the United States lauded our coverage but lamented the absence of such subjects as India's modern cultural and artistic scene and traditional village life. About our article on emerging humans one reader wrote, "Man did not evolve from animals; man IS an evolving animal."

India Turning Fifty

As an Indian from India, I was especially pleased to see a frank and almost unbiased perspective on India. The fact that author Geoffrey Ward had visited regularly over many years makes his account more believable. The country is so vast, with so many peoples and cultures, that attempting to express one Indian feeling is quite impossible. I thought the article tackled that issue bravely.

VISHAKHA APTE
Blacksburg, Virginia

No mention is made of the tremendous progress in South India. Cities like Bangalore have shown exponential growth. I lived there from 1979, when it didn't have TV and was called the retirement city of India, to 1991, when it was dubbed the Silicon Valley of India and had become very cosmopolitan.

ASHOK PRABHU
Santa Clara, California

Since I am co-director of a program that takes students to Madras (now Chennai, India's fourth largest city), where the East India Company built its original fortified factory, I can attest that the traditionally Hindu and ethnically Dravidian South has its own great claims on India's past and her future.

CHARLES WETZEL
Drew University
Madison, New Jersey

The credit line under the photo of Nehru and Gandhi on page 19 is incorrect. That photo was made by my brother, Max Desfor, at the All India Congress Party convention in Bombay in 1946. He was a staff photographer for the Associated Press, and the photo is still the property of AP. In 1973 the government of India issued a commemorative stamp based on this photo.

SIDNEY DESFOR
Bronx, New York

Our sincere apologies to a much admired colleague, Pulitzer Prize winner Max Desfor, and to AP.

I spent almost half my life in India, and the article enriched my recent trip back. I encountered environmental and social decay in all cities. Yet amid pollution and chaos I found happiness, serenity, and stressless energy. My logic cannot explain it.

BELA R. BOWLEY
Marion, Ohio

You presented the same old one-dimensional view of Calcutta. In that city the Bengal renaissance of the past century took place, and the vision of modern India was dreamt of. While showing an ancient Calcutta tram, you could have noted that this is the only city in India with a new underground railway.

SRABANI MUKHERJEE
Calcutta, India

I was born and brought up in an Uttar Pradesh village, and I agree that much of the change is essentially an urban phenomenon. The greatest Indian success, however, has been the Indian farmer. Illiterate, ill equipped, with poor resources, many farmers have adopted modern methods to make the country self-sufficient in cereals—no mean achievement. The agricultural universities, many with generous help from American land-grant universities, also contributed to this success.

DINESH SINGH RATHORE
Morgantown, West Virginia

Zero population growth and a new generation of responsible leaders are what India needs to survive and progress into the 21st century.

VIDYARANYA SHASTRI
Kent, Washington

Only a negligible 5 percent of the Indian population speaks English. Hindi is understood and used for communication by almost 65 percent of the total population. Learning Hindi along with one's own regional vernacular is considered the literacy passport in India.

TARUN ROY
Chester, Virginia

La Salle's Last Voyage

I was fascinated to read of the excavating of the *Belle* using a cofferdam. This solved the problem of Matagorda's muddy waters for the archaeologists. A similar cofferdam was used to excavate the Yorktown shipwreck, as you reported in the June 1988 issue.

JAMES ASHWELL
Gisborne, New Zealand

The Dawn of Humans

As an anthropologist, I found Rick Gore's coverage of the debate about *Homo erectus*'s wanderings informative. The subject is complex and the question of diversity a central one. Consider an analogy, a hypothetical case in which scientists a million years from now unearth the fragmentary remains of a contemporary Caucasian, an Aboriginal, a Chinese, and an African of Pygmy stature. How might these data be interpreted? Shouldn't the notion of *erectus*'s diversity hold equal validity?

DAVID BATHGATE
Krefeld, Germany

EVERYTHING WILL BE BETTER IN THIS CENTURY.

(Camry drivers take special note.)

Seating for Six

3100 V6 with Automatic Transmission

Dual Zone Climate Control

Battery Rundown Protection

Air Filtration System

©1997 GM Corp. All rights reserved. Century is a registered trademark of GM Corp. Always wear safety belts, even with air bags.
*Maintenance needs vary with different uses and driving conditions. See Owner's Manual for details. **Mid-size car class as defined by U.S. EPA Interior Volume Index.
†MSRP including dealer prep and destination charge. Tax, license and optional equipment additional. MSRP slightly higher in CA, WA, OR and ID. Competitive MSRPs as reported Feb. 1997.

INTRODUCING THE ALL-NEW CENTURY BY BUICK.

Taurus and Accord drivers, you might want to take note too. Because this Century is vastly different from the last — redesigned from top to bottom, bumper to bumper and every place in between. Its 3100 V6 can go 100,000 miles* without a tune-up. And it's filled with so many luxurious touches like remote keyless entry, dual zone climate control and an air filtration system that removes most allergy-causing pollens. Hey, the new Century is so bright, it even turns its own lights on and off.

	Buick Century Custom	Camry LE V6	Taurus GL V6	Accord LX V6
EPA Interior Room (cu ft)	118.5	111.0	116.8	107.7
Dual Zone Climate Control	Incl.	N/A	N/A	N/A
Remote Keyless Entry	Std.	Opt.	Opt.	Opt.
Air Filtration	Std.	N/A	Incl.	N/A
Price	[illegible]	$22,588	$19,625	[illegible]

EVERYTHING WILL BE MORE COMFORTABLE IN THIS CENTURY.

More spacious too.** Century has more room than Camry, Accord, Taurus and just about every other mid-size car you can think of (we're told there's a Rolls-Royce that's roomier). It genuinely seats six people comfortably.

EVERYTHING WILL BE QUIETER IN THIS CENTURY.

An advanced system of sound barriers makes the new Century remarkably quiet. A trait which has been winning it accolades from the press and passengers alike. And one last point, because we're serious about changing what you park in your garage, we gave this Century something else you'll like: a surprisingly down-to-earth price — very well equipped for under $19,400.† To find out more, visit our Web site at www.century.buick.com or call 1-800-4A-BUICK.

Century

Discover a little luxury in this Century.

Dual Air Bags

Four Wheel Anti-Lock Brakes

Remote Keyless Entry

Very Well Equipped For Under $19,400.

By Buick

I take issue with the idea that *Homo erectus* was likely not "capable of reasoning or imagining." Come on! Here is a creature that is more like us than anything else now alive, with a developing society, hunting in groups, spreading out in transcontinental migrations, developing tools, and we are asked to believe they could not reason or imagine? Gorillas and chimpanzees can learn American Sign Language and express spontaneous, complex sentences, solve problems, and express emotion. Certainly *Homo erectus* was more human than these primates.

DON WILLIAMS
Lutz, Florida

I noticed a slight anatomical error. The T7 vertebra is not, as you state on page 94, the lowest in the thorax. Also the picture on page 92 shows C7, the lowest cervical vertebra, whose narrow spinal foramen might limit finely controlled breathing and thus speech. Personally, I doubt this, though I would agree that *Homo erectus* probably wasn't quite up to singing opera.

ERIK KRONVALL
Lund, Sweden

If the spinal canal in the Turkana boy fossil is narrower than modern man's, the more logical conclusion to me as an osteopath might be that he could not send and receive neural messages to his lower extremities as well as *Homo sapiens*. This would argue against Dr. Walker's statement that Turkana was "built to run around catching prey."

ANNMARIE MACKWAY-GIRARDI
Collingswood, New Jersey

Some scientists argue that hand-ax technology was too complicated to be passed on by grunts and physical gestures. Obviously none of these scientists have ever learned complex modern skills like house painting and boatbuilding from the people I learned from.

CRAIG HOHM
Penn Yan, New York

Looking at the map (pages 88-9), one can wonder if the hominid migration from Africa to Europe took place through Gibraltar instead of the Middle East and Caucasus. The Strait of Gibraltar was possibly narrower than today. Many years ago I found in Torremolinos a hand ax similar to the one pictured on the upper left-hand side of the map. And in Atapuerca and Orce, hominid remains as old as 780,000 years have been found.

LORENZO MARTÍNEZ-GÓMEZ
Malaga, Spain

Hunting the Mighty Python

The article depicting local people slaughtering the large pythons is quite disturbing. Rather than voicing concern about the continuing depredation of animals, you indicate approval. You wasted a great opportunity to help save these creatures. In a few years all the wildlife will be gone.

RONALD WEST
Spokane, Washington

The pictures were truly amazing. Photographer Gilles Nicolet must be very brave to get that close to such a huge creature. The article was a good example of family traditions being passed on from one generation to the next. Catching a snake can be easy, but the way Sambo and other Gbaya do it requires great skill and patience.

ROBERT JAMES
Madison, Georgia

Biking Across the Alaska Range

As an avid mountain biker, I thank you for this article by Roman Dial. Most mountain bikes are never taken off-road. I hope this will show people what mountain bikes are really made for and how much bikers are missing by not taking their bikes off-road and into nature.

DARIO VARGA
Baltimore, Maryland

I had thought that the old-time ethic of believing the wilderness was something to be conquered had long since been supplanted by the idea that humans are stewards of the earth and its creatures. Though some photographs effectively depict the full glory of nature, the emphasis is on the triumph of man and his bicycle over some self-imposed risks and hardships. The last photograph of the view over the handlebars shows it all. Nature is speeding by out of focus, and the rider's view is of cold steel. Is that a metaphor for life in the late 1990s?

CHRISTINA R. OLDENBURG
Mill Valley, California

Flashback

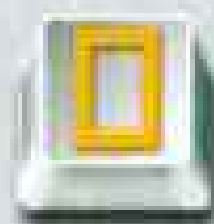
The ridiculous suit of armor shown in your archival photograph was made as a joke by the palace armorer of one of the former princely states for an extraordinarily large man who was not—nor ever was there—a state executioner. I should know, having been equerry to the maharaja of that state. When I left just a few years ago, the suit was still in the palace armory, where the present maharaja and I used to play with it. We called it the Porcupine Man.

TERENCE WALTON
Gateshead, England

Our description was taken from the records of the British Museum. Apparently the joke is on us.

Letters for Forum *should be sent to National Geographic Magazine, Box 98198, Washington, D.C. 20090-8198, or by fax to 202-828-5460, or via the Internet to ngsforum@nationalgeographic.com. Include name, address, and daytime telephone. Letters may be edited for clarity and space.*

NATIONAL GEOGRAPHIC ONLINE



Features, maps, questions, contests. Join the rest of the Geographic family in an electronic adventure. Shop the NGS Store. Visit our World Wide Web site at *www.nationalgeographic.com.*

The most important job of your life just might be your first.

As a member of Teach For America, you will be part of the national teacher corps of outstanding recent college graduates from diverse cultural backgrounds who commit two years to teach in America's under-resourced urban and rural public schools.

You don't have to be an education major. Teach For America is seeking talented, dedicated individuals from every academic major who want to ensure that all children in this nation have the opportunity to attain an excellent education. There is a particular need for people of color, bilingual speakers, and math, science, and foreign language majors.

To get information and an application before the deadline, call us, reach us online, or contact your career placement adviser on campus.

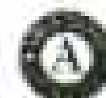
This is your chance to become part of the nationwide movement of dynamic individuals who have joined Teach For America and assumed leadership roles in classrooms and schools across the country. Your decision will affect not only the rest of your life but the lives of many others.

1-800-832-1230

http://www.teachforamerica.org

TEACHFORAMERICA

AN AMERICORPS PROGRAM



I NEVER FOUND THE COMPANION THAT WAS SO COMPANIONABLE AS SOLITUDE. – Thoreau

Chevy™ Tahoe,® the one sport utility vehicle whose vast size and comfort make it perfect for self-discovery. www.chevrolet.com 1-800-950-TAHOE

Geographica

Thor Heyerdahl: At 82 He's Still Exploring

In 1947 a young Norwegian set out from Peru on a balsa-log raft to show that ancient South Americans could have reached Polynesia. When Thor Heyerdahl and *Kon-Tiki* completed that Pacific journey, both became household names.

But GEOGRAPHIC readers already knew Heyerdahl from a 1941 account of a year with his bride on the Polynesian island of Fatu Hiva. He also chronicled for us later voyages on reed ships—*Ra II* (below), which sailed from Morocco to the West Indies, and *Tigris*, which journeyed from Iraq to Pakistan, then across the Indian Ocean to Djibouti.

Now 82, Heyerdahl returned to the Society this year to give lectures marking *Kon-Tiki*'s 50th anniversary. He lives on Tenerife in the Canary Islands, where he is investigating stone pyramids that he believes are similar to those in ancient Mesopotamia and Mexico.

JODI COBB, NGS (ABOVE); GEORGES SOURIAL

Age is not slowing him down: "This planet is not fully explored yet," he says. And he has created a foundation to fund archaeologists. "You must know what was before to have a feeling of what will be coming," he says.

A Wolf Haven in New York?

The howl of the eastern timber wolf may be heard in New York's Adirondack Mountains if wildlife advocates have their way. Defenders of Wildlife urges a scientific feasibility study to learn if wolves captured in southeastern Canada could survive in the six-million-acre region without posing a threat to campers, dairy farmers, and other landowners. State officials are cautious. "No species will survive if the land doesn't support it or if people living on the land don't want it there," says one. Wolf biologist L. David Mech, who says he'd love to see wolves in the Adirondacks, nevertheless warns that some would kill cattle and would themselves have to be killed. "It's better to understand that from the beginning," he says.

JIM BRANDENBURG, MINDEN PICTURES

GREEN GRASS. ROLLING HILLS. FRESH AIR. OPEN SEVEN DAYS A WEEK.

www.timex.com

For retailers U.S. call 1-800-[illegible] or Canada 1-800-[illegible]. Water-resistant leather straps.
©1997 Timex Corp. Indiglo is a registered trademark of Indiglo Corp.

The watch you wear out there.

TOMAZ LAUKO, NATIONAL MUSEUM OF SLOVENIA, LJUBLJANA

Sound of Music Rang in a Neandertal Cave

Music's breast-soothing charms extended, apparently, even to Neandertals.

Archaeologists working in a cave in Slovenia found this flute (above)—the oldest known musical instrument—fashioned from the leg bone of a cave bear. Ivan Turk, who has been excavating the cave called Divje Babe for 14 years, punched holes in modern bear femurs with stone tools similar to those found at the site. His holes and the flute's were identical, showing that it could have been produced with implements used by the early humans.

"This is the first evidence of anything both musical and Neandertal," says Bonnie Blackwell, a geologist at Queens College in New York. Using a technique called electron spin resonance, she dated the flute at more than 40,000 years old. Previously known instruments came from sites frequented by anatomically modern humans no more than 25,000 to 35,000 years ago.

Homage to a "Queen" of a Time Long Past

Women of South Africa's Venda people employ a traditional sign of respect called *losha*, placing their palms together under the left temple. Thus when this skeleton of a high-ranking 16th-century woman (left) was found at Thulamela, in Kruger National Park, with hands so positioned, the Venda named her Queen Losha.

MARIUS LOOTS, UNIVERSITY OF PRETORIA (BOTH)

Thulamela was occupied from the 1200s to the 1600s, says archaeologist Sidney Miller, excavating the site for the National Parks Board. Miller's team also unearthed a 15th-century grave of a chieftain with several gold bands (bottom). The site yielded Chinese porcelain and a West African double gong, signs of long-distance trade before Europeans arrived. Stonework, gold, and pottery link Thulamela with the bygone trading capital of Great Zimbabwe, 200 miles away.

Italy to Return Spoils of Modern War

In 1937 Italians who had conquered Ethiopia hauled away this early fourth-century obelisk from the northern city of Aksum and re-erected it in Rome. Now Italy has agreed to send it back.

VITTORIANO RASTELLI

The granite obelisk, some 80 feet tall and covered with intricate carvings, dates from the Aksum empire, a major power in the Red Sea region between the first and sixth centuries A.D.

Ethiopians have waged a spirited battle for the looted pillar's repatriation, pointing out that treaties between the two nations in 1947 and 1956 called for its return. "It is Italy's duty to respect them," says a high Italian foreign ministry official. Experts are studying the obelisk to determine how to move the structure without endangering it. It could be sent home to Aksum by year's end, to rejoin other monuments from the empire's golden age.

As I See It, #7 in a series
Joyce Tenneson
"Renaissance Redux"
Polaroid Polacolor Photography

THE BOLD LOOK OF **KOHLER**.

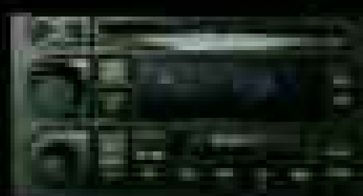
You remember the Renaissance, don't you? That's when art was art and the living was too. So we fashioned our Northern Italian™ Vanity Ensemble of the period in rich woods, opulent marble and exqusite hand detailing. See the Yellow Pages for a KOHLER® Registered Showroom, or call 1-800-4-KOHLER, ext. QE9 to order product literature. www.kohlerco.com

© 1997 by Kohler Co.

Totally REDESIGNED. TOTALLY *Reengineered.* *Totally* RETHOUGHT.

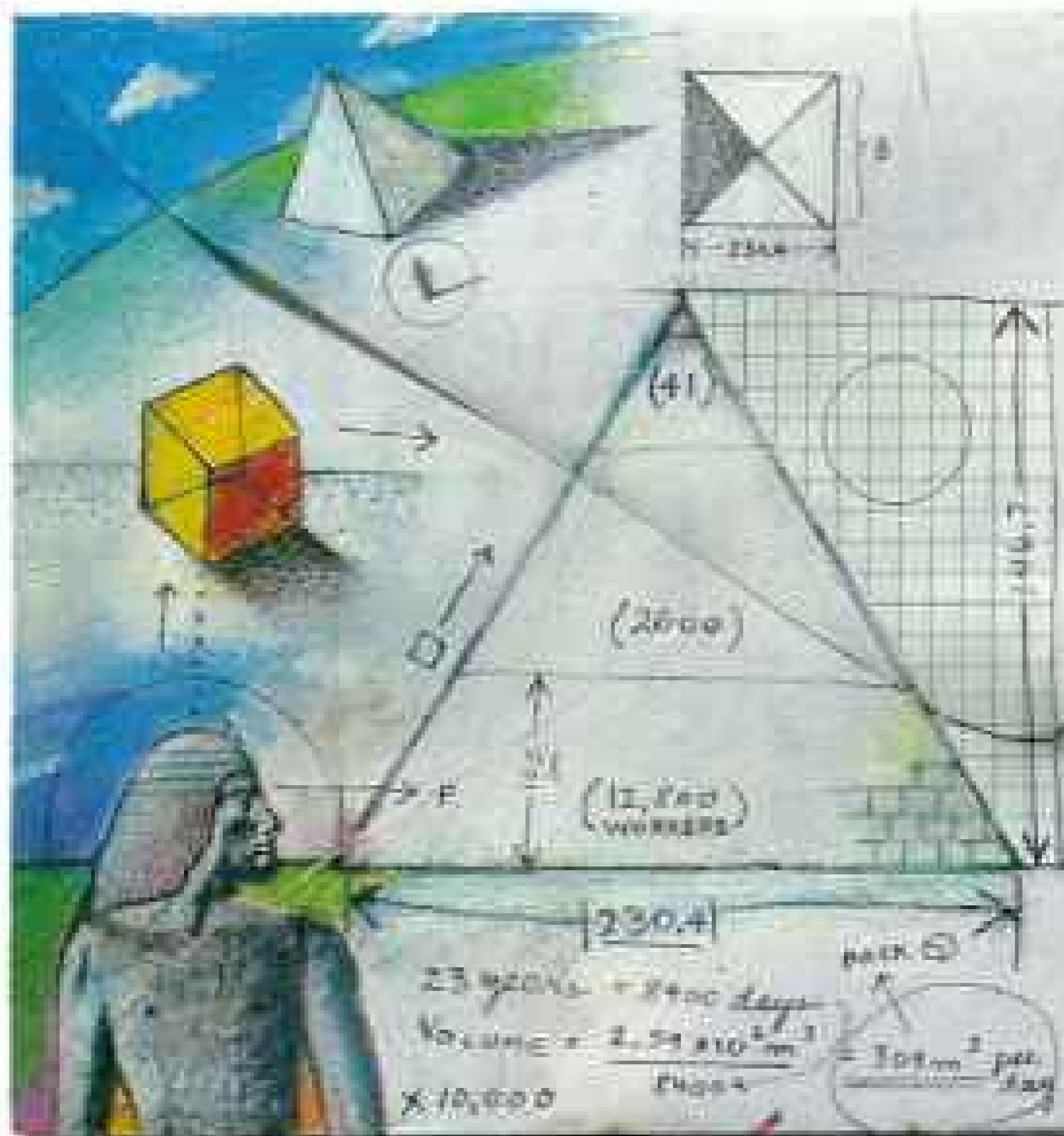
(Did we mention totally redesigned?)

One look at the all-new Cutlass™ GLS and you may do a double take. Because only the name remains the same. To begin with, a cleanly styled body houses a powerful V6 engine. Power driver's seat, anti-lock brakes, remote keyless entry and comfortable leather seating areas come standard. The trunk space is one of the largest in its class. A split-folding rear seat provides even more cargo room. And the controls on the instrument panel are easy to read and reach. Add to this a host of other thoughtful features like a CD player, conveniently placed cupholders, cruise control mounted on the steering wheel and a coat hanger that holds more than one shirt, and you have quite a nice package for a totally unexpected price: under $20,000.* The all-new Cutlass. As you can see, we've rethought just about everything.



The New Cutlass

GM ©1997 GM Corp. All rights reserved. Buckle Up, America! *Under $20,000 includes optional CD player. Tax and license extra. www.cutlass.com 1-800-255-OLDS



ART BY DAVID LESH

Sizing Up Pyramid Labor

How many workers did it take to erect an Egyptian pyramid? The Greek historian Herodotus told of a 100,000-man force for the pyramid of Khufu at Giza. But Stuart Wier, a geophysicist and amateur Egyptologist, applied principles of physics and geometry to the problem in a "back-of-the-envelope" approach. He reckoned "how big the pyramid is, how much it weighs, how much lifting and pulling a man can do in a day." He knew it took about 23 years to build the pyramid, 756 feet along each side of its square base with a 481-foot peak. He knew how far the stone blocks had to be hauled. His conclusion: About 10,000 semiskilled workers laboring year-round did the job.

GÖRAN BURENHULT (BOTH)

Different Tombs, Different Folks

In the mid-1970s Swedish archaeologist Göran Burenhult began excavating tombs in northwest Ireland at Carrowmore, the world's oldest known megalithic cemetery. Last year he found that a lone tomb only a mile and a half away at Primrose Grange (above) dates from the same period yet holds very different remains.

Most of those buried at Carrowmore were cremated, while bodies at Primrose Grange were simply buried. And most artifacts at Primrose Grange, like this chert arrowhead, have no counterparts in the cemetery. Primrose Grange dates from 4000 B.C. Carrowmore was in use from 4800 to 3200 B.C.

"This opens up a much more complex picture than we could have imagined," says Burenhult. "It's as if two separate peoples with different social or religious traditions lived very close together at the same time."

Chimps Find a Way to Eat in Comfort

Chimpanzees that live in northern Sierra Leone's forests spend hours feeding on the fruit and flowers of the kapok tree. But the sharp thorns covering the tree can make the process painful. So some ingenious chimps have devised a solution: They break off thornless sticks and grip them with their toes to create a barrier between their feet and the annoying thorns as they move around. Or they sit on the sticks while they eat, turning them into seat cushions.

"This is the first time chimps have been seen using a tool for comfort," says Rosalind Alp, who studied them with Society support. "Chimpanzees seen with tools elsewhere have used them only for subsistence, weaponry, or play."

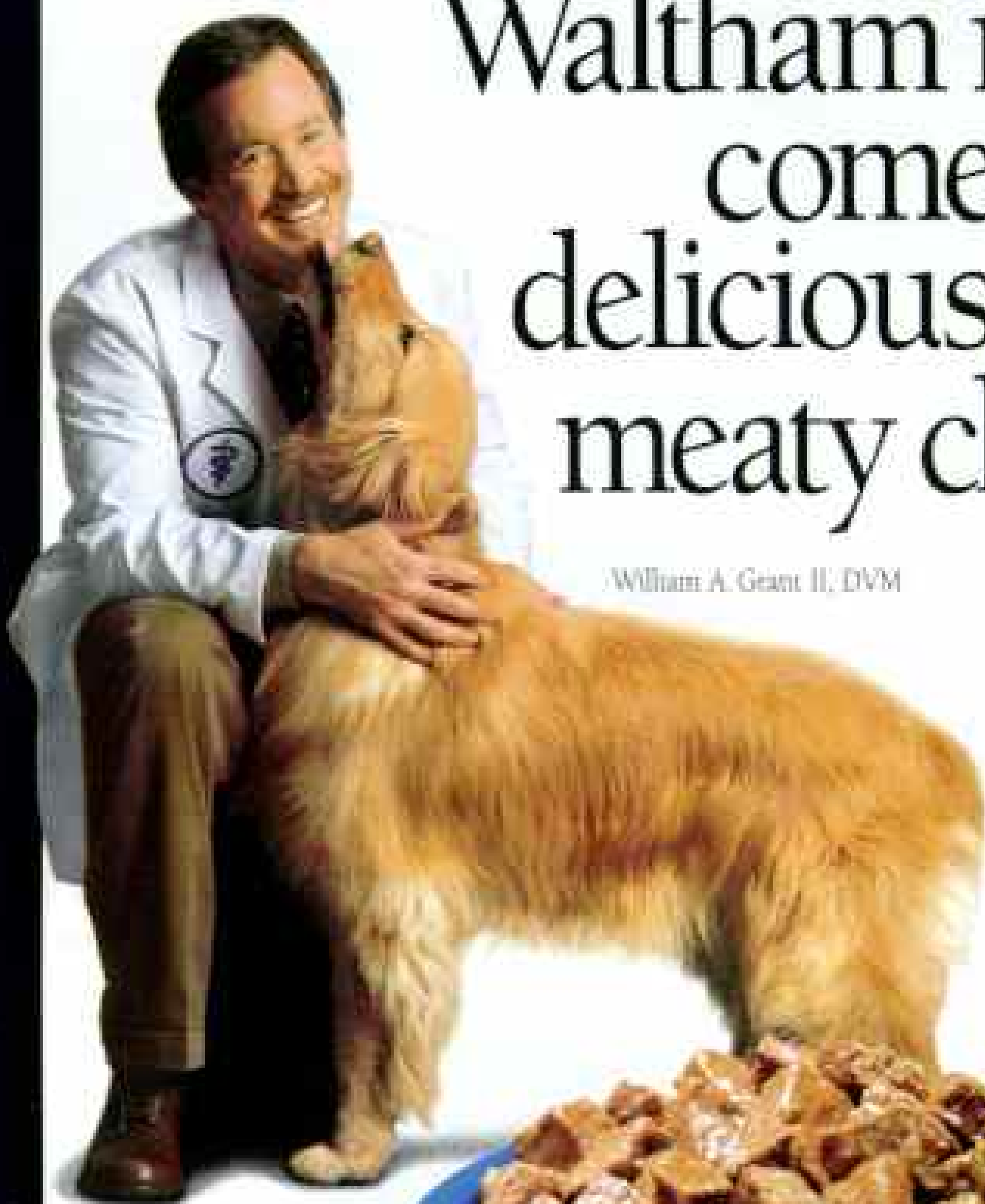
Only 8 of the more than 25 chimps in Alp's study group created the "stepping-sticks" and "seat-sticks." But that was enough to convince her that she had seen them use "not only a new tool but a new type of tool."

TEXT BY BORIS WEINTRAUB

WALTHAM® FORMULA

Now, Waltham nutrition comes in delicious, low fat, meaty chunks.

William A. Grant II, DVM



We believe low fat, healthy foods are beneficial to all pets, not just overweight ones. Our new CHUNKY FORMULA IN SAUCE varieties are made with real lamb and real beef in meat broth that's enriched with vitamins and minerals. We don't use fatty gravy to enhance our taste, or to provide our skin and coat conditioning. Our high quality ingredients make it unnecessary. All our formulas are developed and tested with the vets and pet nutritionists of WALTHAM, *the world's leading authority on pet care and nutrition.*™ And all our formulas deliver exceptional nutrition and digestibility with great taste and no unnecessary fat.

WALTHAM FORMULA®- THE HEALTHY ADVANTAGE™

NATIONAL GEOGRAPHIC MAGAZINE

WILLIAM L. ALLEN, *Editor*

Associate Editors

ELIZABETH A. MOIZE, ROBERT M. POOLE

SENIOR ASSISTANT EDITORS

ROBERT BOOTH, *Production* • WILLIAM T. DOUTHITT, *Special Projects*
RICK GORE, *Science* • DAVID JEFFERY, *Legends* • THOMAS R. KENNEDY, *Photography*
PETER MILLER, *Expeditions* • JOHN G. MITCHELL, *Environment*
BERNARD OHANIAN, *International Editions* • OLIVER PAYNE, *Manuscripts*
CONSTANCE H. PHELPS, *Layout and Design* • LESLEY B. ROGERS, *Research*
W. ALLAN ROYCE, *Illustrations* • CHRISTOPHER P. SLOAN, *Art* • GEORGE E. STUART, *Archaeology*

EDITORIAL

Assistant Editors: Don Belt, Judith Brown, Mike Edwards, Alice J. Hall, Joel L. Swerdlow, Jane Vessels. **Senior Writers:** John L. Eliot, Cathy Newman, Priit J. Vesilind. **Senior Editorial Staff:** Larry Kohl, Lisa Moore LaRoe, Carol B. Lutyk, Alan Mairson, William R. Newcott, Thomas O'Neill, Katherine Ozment, Peter L. Porteous, Jennifer Reek, Cliff Tarpy, Meg Nottingham Walsh, Boris Weintraub, A. R. Williams, Margaret G. Zackowitz. *Production:* John L. McIntosh. **Editorial Staff:** Cassandra Franklin-Barbajosa, Glenn Oeland, Kerri Westenberg. **Research:** Michaeline A. Sweeney, *Assoc. Director; Senior Researchers:* Carolyn H. Anderson, Judith F. Bell, Kathy B. Maher, Barbara W. McConnell, Jeanne E. Peters, Abigail A. Tipton. *Researchers:* Eva P. Dasher, Alice J. Dunn, Christopher Scaptura, Robin Tunnicliff. **Legends:** Victoria C. Ducheneaux. *Planning Council:* Mary McPeak, David W. Wooddell

ILLUSTRATIONS

Photography: Kent J. Kobersteen, *Assoc. Director;* Susan A. Smith, *Asst. Dir.;* Sam Abell, William Albert Allard, Jodi Cobb, Chris Johns, Michael Nichols. **Illustrations Editors:** Dennis R. Dimick, *Asst. Dir.;* John A. Echave, *Research Grant Projects;* Elizabeth Cheng Krist, Bruce A. McElfresh, Kathy Moran, Kurt F. Mutchler, Richard Olsenius, Susan Welchman. **Layout and Design:** David Griffin, *Assoc. Dir.;* Lisa Lytton-Smith, William H. Marr. *Typography:* Betty Clayman-DeAtley, Kay Kobor Hankins, Douglass M. McKenney. **Art:** Christopher A. Klein, *Artist;* Hillel J. Hoffmann, *Research.* **Engraving and Printing:** Janet C. Evans, *Director;* Judy L. Garvey, Randal G. Sluss

EDITORIAL SERVICES

Administration: Neva L. Folk, *Asst. to the Editor;* Maria-Teresa Lawrence, *Business Manager;* Sara L. Anderson, Sandra M. Dane, Marisa Domeyko, Artemis S. Lampathakis, Rebecca Martin, Karen Dufort Sligh, Charlene S. Valeri. *Control Center:* Carol L. Dumont, Alicia M. Schaner. *Travel:* Ann C. Judge, *Director.* **Audiovisual:** Ronald S. Altemus, *Director.* **Communications:** Mary Jeanne Jacobsen, *Asst. Vice President, Public Affairs;* Barbara H. Fallon, Barbara S. Moffet. **Information Services:** *Correspondence:* Joseph M. Blanton, Jr., *Director;* John A. Rutter. *Image Collection:* Maura A. Mulvihill, *Asst. Vice President and Director;* William D. Perry, *Image Sales;* Carolyn J. Harrison. *Library and Indexing:* Susan Fifer Canby, *Director;* Ann C. Benson, Ellen D. Briscoe, Barbara Penfold Ferry, Carolyn Locke. *Records:* Mary Anne McMillen, *Director;* Ann E. Hubbs. *Translations:* Kathryn A. Bazo. **Lectures and Public Programs:** P. Andrew van Duym, *Director;* Scott A. Brader, Gregory A. McGruder

ADMINISTRATION

Asst. Vice Presidents: Christina C. Alberghini, Carolyn F. Clewell, Joseph S. Fowler, Angelo M. Grima, Douglas E. Hill, Robert E. Howell, Robert V. Koenig, Carol E. Lang, Jennifer Moseley, Stephen R. Vick. **Asst. Treasurer:** Barbara J. Constantz. **Asst. to the Chairman:** Karen S. Marsh. **Asst. to the President:** Marilyn J. Williams. **Accounting:** Michael J. Cole, *Asst. Vice President;* Chia-Chyi Cheng, Larry E. Dowdy, Barbara A. Finn, Janet C. Yates. **Administration:** Mary L. Blanton, Delores J. Granberg, Carol A. Houck, Carolyn W. Jones, Myra A. McLellan, Kristin S. Scott, R. Miles White, Barbara A. Williams, Kathy Williamson. **Circulation:** Kathleen A. Gallagher, *Asst. Vice President;* Elizabeth M. Safford. **Development Office:** Margaret Sears, *Director;* Betsy Ellison. **Educational Services:** Robert L. Graham. **Explorers Hall:** Susan S. Norton, *Director;* Nancy W. Beers, Susan A. Bellinger, Richard McWalters. **Geography Education:** Robert E. Dulli, *Asst. Vice President and Director;* Mary Lee Elden, J. Joe Ferguson, Karen E. Gibbs, Roger B. Hirschland, Kimberly H. Hulse. **Human Resources:** Barbara Duckworth Case. **Information Systems:** Scott Bolden, Fred R. Hart, George F. Hubbs. **International Publications:** Robert W. Hernández, *Asst. Vice President.* **Promotion:** Joan M. Anderson, James V. Bullard, Robert L. Feige, Charles F. Herrmann III, Deborah A. Jones

PRODUCTION SERVICES

Hans H. Wegner, *Asst. Vice President.* **Imaging Services:** Robert E. Allnutt. **Manufacturing:** George V. White, *Director;* John T. Dunn, *Assoc. Director.* **Pre-Press:** Geoffrey T. McConnell, *Director;* Martin G. Anderson, James C. Pflieger, Phillip E. Plude, Bernard G. Quarrick. **Printing:** Joseph M. Anderson, Sherrie S. Harrison, Diana L. Yates. **Quality:** Bill M. Aldridge, *Director;* Peg M. Crawford. **Administration:** Joan S. Simms

ADVERTISING

J. Scott Crystal, *Vice President and Director;* Andrea Vaughan, *National Sales Manager;* Ron Bottorff, *Western Manager;* Laurie L. Kutsche, *Chicago Manager;* Sherburne F. Naulty, *Eastern Manager;* John Patten, *Southeast Manager;* Philip G. Reynolds, *Special Accounts and Southwest Manager;* Michel Siegfried, *International Director,* 90 Champs-Élysées, 75008 Paris; David D. Woodruff, *Detroit Manager.* Washington: Sarita L. Moffat, *Asst. Vice President, Operations;* Pandora B. Todd, *Director, Marketing Services;* Gail M. Jackson, *Production Manager*

EDUCATIONAL SERVICES OF THE SOCIETY

Book Division: William R. Gray, *Vice President and Director;* Charles Kogod, *Asst. Director;* Barbara A. Payne, *Editorial Director;* John G. Agnone, Leah Bendavid-Val, Martha C. Christian, Elizabeth Newhouse, *Senior Editors.* **Traveler:** Richard Busch, *Editor;* Paul Martin, *Managing Editor.* **World:** Susan Mondshein Tejada, *Editor;* Scott S. Stuckey, *Managing Editor.* **Education Products:** David Beacom, *Director.* **Administration:** Suzanne R. McDowell, *Asst. Vice President*

NATIONAL GEOGRAPHIC VENTURES

National Geographic Television: Timothy T. Kelly, *President;* Todd Berman, *Marketing/Distr.;* Susan Borke, *Business Affairs;* Lowell Soffer, *CFO;* Andrew Wilk, *Programming/Production;* Patricia Gang, *Film Library;* Nicolas Noxon, *Exec. Producer, Specials;* Michael Rosenfeld, *Exec. Producer, Explorer;* Kathleen F. Teter, *Public Relations*

National Geographic Enterprises: Interactive: Lawrence R. Lux, *Managing Dir.;* Dave Beveridge, *Business Development; Online:* Mark R. Holmes, *Editor;* Chris Ward, *Dir.; CD-ROM:* Robert W. Madden, *Editor;* Thomas J. Stanton, *Dir.* **Maps:** Allen Carroll, *Managing Dir.;* Kevin P. Allen, *Map Services;* Steven D. Lownds, *Finance;* Daniel J. Ortiz, *Map Ventures;* John F. Shupe, *Geographic Standards;* Richard Bullington, Martin Golden, Juan Valdés, *Project Managers*

Administration: Frances A. Marshall, *Vice President, Finance*

Copyright © 1997 National Geographic Society. All rights reserved. NATIONAL GEOGRAPHIC and Yellow Border: Registered Trademarks ® Marcas Registradas. NATIONAL GEOGRAPHIC assumes no responsibility for unsolicited materials.

NATIONAL GEOGRAPHIC SOCIETY

"For the increase and diffusion of geographic knowledge."

THE NATIONAL GEOGRAPHIC SOCIETY is chartered in Washington, D.C., as a nonprofit scientific and educational organization. Since 1888 the Society has supported more than 5,500 explorations and research projects, adding to knowledge of earth, sea, and sky.

REG MURPHY, *President and CEO*
JOHN M. FAHEY, JR., *Executive Vice President and COO*

Senior Vice Presidents
GENE FERRONE, SANDRA H. GILL
NINA HOFFMAN, DALE A. PETROSKEY
ROBERT B. SIMS

Vice Presidents
SUZANNE DUPRÉ, *Secretary and Counsel*
H. GREGORY PLATTS, *Treasurer*
JOHN D. BLODGER, KITTY CARROLL COLBERT
DONNA L. HASSLINGER, JAMES P. KELLY
CHRISTOPHER A. LIEDEL, GEORGE E. NEWSTEDT
JIMMIE D. PRIDEMORE, EDWARD A. RENO, JR.

BOARD OF TRUSTEES

GILBERT M. GROSVENOR, *Chairman*
JOE L. ALLBRITTON
Chairman, Riggs Bank N.A.
WILLIAM L. ALLEN
THOMAS E. BOLGER
Chairman, Executive Committee, Bell Atlantic
FRANK BORMAN
Chairman and CEO, Patlex Corporation
LEWIS M. BRANSCOMB
Kennedy School of Government, Harvard University
J. CARTER BROWN
Director Emeritus, National Gallery of Art
MARTHA E. CHURCH
President Emerita, Hood College
MICHAEL COLLINS
President, Michael Collins Associates
JOHN M. FAHEY, JR.
A. LEON HIGGINBOTHAM, JR., *Former Chief Judge for the Third Circuit, U.S. Court of Appeals*
NINA HOFFMAN
JOHN JAY ISELIN
President, The Cooper Union
JAMES C. KAUTZ
Limited Partner, Goldman, Sachs & Co.
J. WILLARD MARRIOTT, JR.
Chairman and CEO, Marriott International
FLORETTA DUKES McKENZIE
Former Superintendent of Schools, District of Columbia
REG MURPHY
PATRICK F. NOONAN
Chairman, The Conservation Fund
NATHANIEL P. REED
Businessman-Environmentalist
WILLIAM K. REILLY
Former Administrator, Environmental Protection Agency
ROZANNE L. RIDGWAY
Former Assistant Secretary of State
B. FRANCIS SAUL II
Chairman and President, B. F. Saul Company
ROBERT B. SIMS

TRUSTEES EMERITUS

Owen R. Anderson, Robert L. Breeden, Lloyd H. Elliott, George M. Elsey, William Graves, Caryl P. Haskins, Mrs. Lyndon B. Johnson, Wm. McChesney Martin, Jr., Laurance S. Rockefeller, Robert C. Seamans, Jr., Frederick G. Vosburgh

RESEARCH AND EXPLORATION COMMITTEE

George E. Stuart, *Vice President and Chairman;* Richard S. Williams, Jr., *Vice Chairman;* Steven S. Stettes, *Secretary;* H. J. de Blij, Bernard Q. Nietschmann, David Pimentel, Peter H. Raven, Robert C. Seamans, Jr., Charles H. Southwick, John H. Steele, Hans-Dieter Sues, George E. Watson, Henry T. Wright

EDUCATION FOUNDATION

Lanny M. Proffer, *Executive Director*

"Lifetime Guarantee?
What do you think this is…
GM Goodwrench Service Plus!?"

If it were, you'd get a
lifetime guarantee on
parts *and* labor.
Plus up-front pricing.
Plus courtesy transportation.
For the select
GM Goodwrench Service Plus
dealer near you, call 800 96 GM PLUS.

THE *Plus* MEANS BETTER.

www.gmgoodwrench.com *See dealer for details of limited lifetime guarantee on select parts and labor.* ©1997 GM Corp. All rights reserved

© 1997 FNC., P.O. Box 8545, N.Y., N.Y. 10150

"Grab life by the beans."

The richest coffee in the world.

BMW offers you guidance from above. We'd be the first to admit our single-minded determination to perfect the ultimate driving machine has left us slightly behind in the space race. Until now. Our recently launched, fully integrated satellite navigation system harnesses 24 satellites orbiting the earth. It allows a BMW to determine its exact location to within 10 metres. ABS sensors then monitor the car's speed and distance travelled while an electronic compass monitors the direction the car is facing. You can then be directed practically anywhere within the M25 and many places beyond. Just enter the town, street and house number (useful addresses from hotels to petrol stations are also listed) and the computer calculates the shortest route. Even if you stray, it quickly issues you with a new set of directions. And because instructions are audible as well as visual you can give the road your undivided attention. Satellite Navigation. Boldly go where you've never been before.

The Ultimate Driving Machine

Apartment hunting

Moscow

18 March
1500 hrs

THE GOOD NEWS IS THERE'S MORE CHOICE THAN EVER IN RUSSIA.
THE BAD NEWS IS THERE'S MORE CHOICE THAN EVER IN RUSSIA.

Capitalizing on the pent-up demand for consumer goods and services in emerging economies promises high rewards, but it also carries high risks.

Often these markets don't have the communications or distribution infrastructures businesses take for granted. For companies who want to succeed in overseas markets, a partner familiar with the political, business, regulatory and cultural climate of the target country is a necessity.

Fortunately, AIG is uniquely positioned to help companies guard against the many risks entailed in doing business abroad.

If you are investing in overseas markets, AIG can help you protect your employees, your operations and your balance sheet on a local, regional and global basis through its unmatched breadth of insurance and financial services. Services like directors and officers coverage, employee benefit plans, foreign exchange management and travel accident coverages. And we've got the top financial ratings to back us up. So your company won't be left wondering which way to turn next.

AIG

WORLD LEADERS IN INSURANCE AND FINANCIAL SERVICES

American International Group, Inc., Dept. A, 70 Pine Street, New York, NY 10270

When you were little, flying was special.

It still can be.

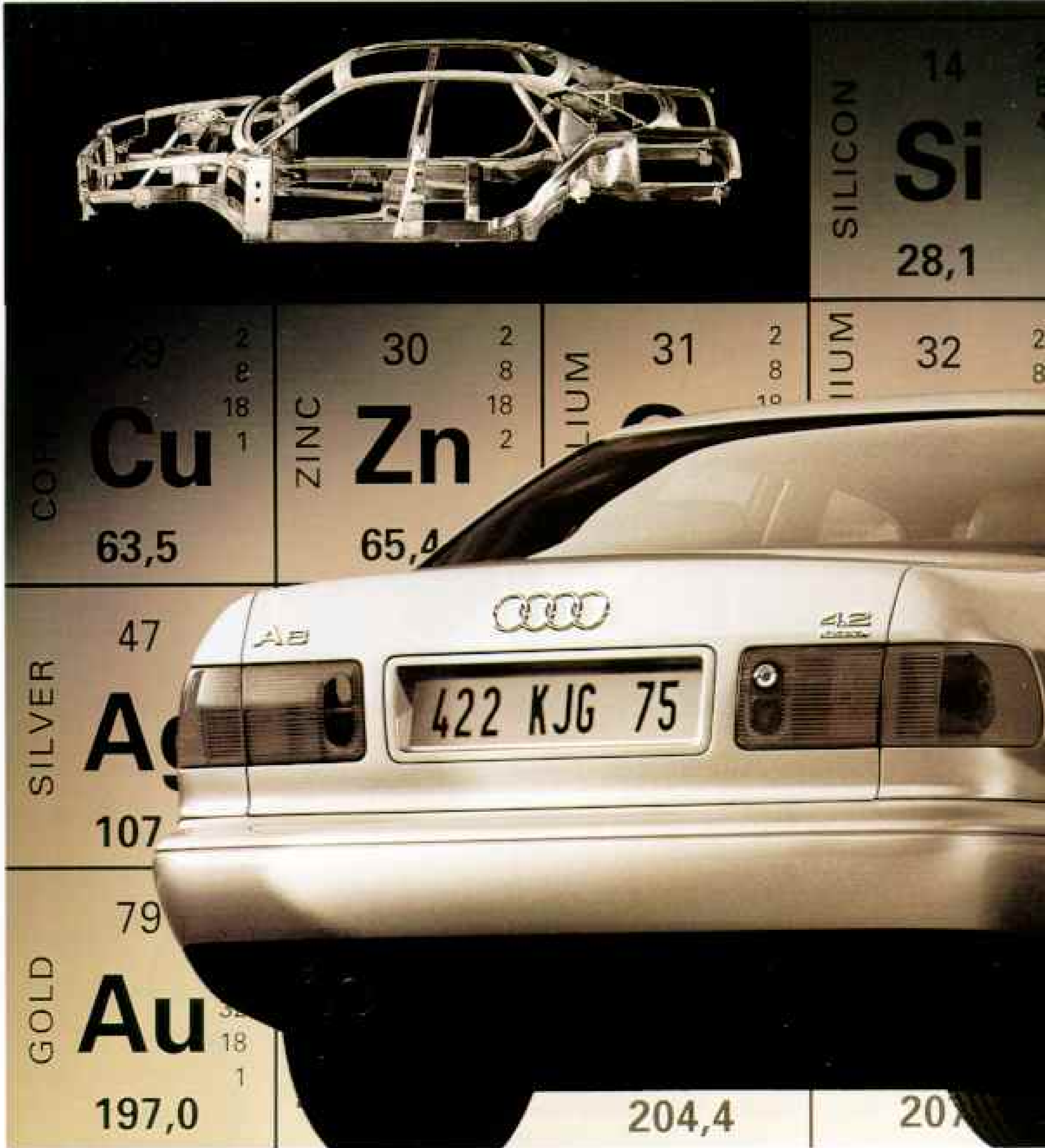
You may not find yourself giggling like a little child. But we will make every effort to treat you in a way that makes you feel on top of the world. Introducing Asiana's Sleeper First Class and Premier Business Class. Both offer amenities and service that are truly special. We also offer one of the youngest, most modern fleet in the world. Every one of our flights is non-smoking. And our generous Frequent Flyer Program is affiliated with Northwest Airlines. So put yourself in our hands and you won't just be travelling. You'll be flying. Again.

Asiana Airlines

THE JEWEL *of* ASIA

LOS ANGELES · NEW YORK · SAN FRANCISCO · HONOLULU · SEATTLE · DETROIT · SEOUL · PUSAN · CHEJU · TAEGU · KWANGJU · ULSAN · POHANG · CHINJU · YECHON · MOKPO · YOSU · KANGNUNG · KUNSAN · HONG KONG · MACAU · BANGKOK · HO CHI MINH CITY · SYDNEY · CAIRNS · GUAM · SAIPAN · CHANGCHUN · GUANGZHOU · BEIJING · SHANGHAI · MANILA · SINGAPORE · VIENNA · KHABAROVSK · TOKYO · OSAKA · NAGOYA · FUKUOKA · SENDAI · HIROSHIMA · TAKAMATSU · OKINAWA · TOYAMA · MATSUYAMA

Bolivia, Brazil, Central America, Chile, Colombia, Equador, French Guiana, Mexico, Paraguay, Peru, Uruguay, Venezuela and Caribbean Islands. (Not all models available in all markets).



The symbol of Aluminum is no longer AL.

Audi A8.

The Audi A8 combines all qualities of Aluminum. Thanks to Aluminum, the A8 is light. To be more specific, up to 400 kg lighter than other cars in this category. It is so light that it goes from 0 to 100 km/h in only 7.3s, and will provide a maximum speed of 250 km/h. The ASF (Audi Space Frame), body of Aluminum gives the A8 very high energy absorption and is therefore very resistant. And the A8 was also selected as the world's best car by England's Car Magazine. Audi A8. Thanks to this car, Aluminum may one day be considered a noble metal.

It's A8.

The start of a new era.

Audi

Vorsprung durch Technik

THE RANGE ROVER TOOK EVERYTHING IN ITS STRIDE. BUT WHAT I FOUND IN THE CABIN STOPPED ME IN MY TRACKS.

MY FATHER HAD TWO LADIES IN HIS LIFE. MY MOTHER AND THE BOAT HE NAMED IN HER HONOUR. THE QUEEN MARY.

In March 1952, a week short of my first birthday my father was in the Coral Sea along with another woman. Cyclone Bertha.

Bertha proved a much tougher woman than the Queen.

We'd spent the last two years planning the recovery mission. Right down to picking up my new Range Rover. We'd secured all the necessary clearances, from National Parks to Marine Parks.

The Range Rover also had all the clearance it needed. Thanks to its unique, variable ride height, which varied to suit the landscape.

The Peninsula Development Road still carried the scars of a damper than usual wet season. Some scars ran deeper than others.

The Range Rover took to them like a duck to water. Smooth and graceful on the surface, with the electronic air suspension working twenty to the dozen underneath, quietly maintaining power and traction to all four wheels.

With all its luxury and sophistication, we could have been riding in any European luxury car. We could have, but we wouldn't have got this far.

We turned off and headed north-east. Travelling alongside the McIlwraith Ranges. Past the Wenlock ruins. Then along the

Range Rover's variable ride height

Features refer to the 4.6 HSE priced at $114,500, 4.0 SE available from $99,500 (now including leather upholstery and electrically adjustable front seats as standard). Limited edition 4.6 Autobiography available from $149,750. Prices include sales tax but exclude statutory and on-road costs.

Pascoe River, to its destination. And ours. Weymouth Bay.

First light saw us taking in the eerie beauty of the bay.

The morning dive was planned to locate the Queen and mark the recovery site.

Visibility was better than I'd hoped for. What I hadn't planned on was the overwhelming emotion I felt at 30 metres. There she was. I couldn't resist the urge to swim into the cabin, sit in my father's chair and take the wheel.

The current proved a little stronger throughout the afternoon dive, but not enough to dampen our spirits.

We secured the flotation devices to the boat. We checked our gauges. And our watches. It was time for the queen of the sea to meet the king of the road.

After 45 years under the sea, the Queen emerged with some extra ballast. And a little help from Range Rover's electronic traction control.

On the beach, fifteen minutes later, I inspected my father's cabin. And it was there that I discovered the treasure. A rusted, metal box revealed a small, watertight bottle containing a miniature Queen Mary.

And a note.

I'd waited a long time to get my first birthday present.

The trip home was as easy as the trip up. Even with two Queen Marys on board, the Range Rover's 4.6 litre V8 took everything in its stride.

A bit like my father, really.

RANGE ROVER
BEYOND THE LUXURY CAR

A full range of finance options are available from Land Rover Finance.

Introducing the all-new Navigator from Lincoln. The first full-size sport utility vehicle to take luxury deep into the great outdoors. With four standard bucket seats trimmed in leather. Large center storage consoles in both front and second rows--exclusive in its class.

And rich wood accents throughout. Even on Navigator's leather-trimmed steering wheel. For more information, call us toll-free at 1 888 2ANYWHERE (1 888 226-9943), visit our web site at www.lincolnvehicles.com or see an authorized Lincoln Navigator dealer.

(FIGHT BLINDNESS)

95% of blindness is caused by eye diseases like Glaucoma, Trachoma and Conjunctivitis. These and other related diseases can lead to complete blindness if they are ignored.

Nobody understands this better than Lok Kalyan Samiti. This is why, we do all we can to fight them. For the last forty years we have been conducting eye care camps where thousands of operations are performed.

Today, more than ever, we carry forward our mission with the utmost enthusiasm.

From Monday through Saturday, every week hundreds of underprivileged eye patients recieve check-ups, laboratory tests, medicines and spectacles, all delivered free of charge.

This is made possible by people like you.

For a small sum you can sponsor the eye care of a patient for whom there would be no help otherwise

To find out more about sponsorship, or to send a donation, please write to the address below.

We are sure you would agree that nothing works better than the right preventive measures taken at the right time.

Mr. K. S. Gupta, General Secretary,
Lok Kalyan Samiti, 11-A, Vishnu Digamber Marg.
New Delhi - 110002 (INDIA)

Lok Kalyan Samiti

A Voluntary, non-political, non-profit, health & family welfare organisation

Enjoy.

The new Ericsson GH688 offers full data and fax compatibility, so now you can do your business wherever you like. 100 hours of stand-by time with the High Performance Battery, SMS and alarm clock lets you do your business whenever you like. All wrapped in a unique lightweight metal frame, so you can do your business however you like.

The new Ericsson GH688.
Made for business. Good for life.

48° reclining seats.

ADVICO YOUNG & RUBICAM

We know how to get you to your destination refreshed. And it's not by splashing mineral water in your face. On our long-haul MD-11s, we are installing new 48° reclining seats in Business Class, up from 27°. Lest the passenger behind you gets his knees crushed: seat pitch grows to a full 47 inches. Which makes it easier to raise the legrest to almost horizontal. So just lean way back and relax. And hold your glass straight. http://www.swissair.com

CADILLAC CATERA
AS EXCEPTIONAL AS THE CADILLAC TRADITION.

TRADITION

The great Cadillac tradition is confirmed once again by its commitment to leading the way and setting the standards for a new and exceptional design: CADILLAC CATERA.

CADILLAC CATERA is a detailed combination of exquisite elegance and innovative technology, evidence of an exceptional vision.

Cadillac

EVOLUTION

The CADILLAC CATERA is a confirmation of the constant development and evolution of Cadillac's breakthrough technology.

◂ Powerful 3.0 liter, 200 HP, V6 engine.

Speed sensitive ▸ power steering.

◂ All the luxury and comfort you expect in a Cadillac.

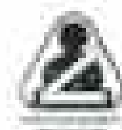
Visit your participating Cadillac Dealer. Call 329 08 00 in Mexico City or Toll-Free 01 800 50 80000.

Cadillac
CATERA

THE NEW CAR FROM A GREAT TRADITION

http://www.gm.com.mx

GM General Motors



A seamless network with a difference. It has no seams.

Let's talk. *Surviving today's global marketplace means having a truly global communications network. And there are a lot of people out there offering it to you.*

Or, rather, there are a lot of people claiming to offer it to you.

What they might provide is a single contact, but they don't own and manage their whole network, so it's harder for them to deliver consistent levels of performance. BT on the other hand, has real control over its entire network.

That's because we are responsible for building and maintaining much of it, through joint ventures and alliances.

To date, there are 69 such partnerships, and the biggest is just round the corner.

The proposed merger of BT and MCI to form Concert PLC will be one of the largest corporate mergers in history.

And that will mean seamless solutions on a truly global scale.

Global Communications

Call us on +44 1179 217721 (Europe), +61 2 9269 1279 (rest of the world) or visit our website at www.btglobal.com

Good news for other airlines in the year 2003.

ADVICO YOUNG & RUBICAM

This ad could appear in 2003. We've just replaced a large portion of our fleet, so our planes are on average six years young. The competition is delighted to get them because we take loving care of them: our pilots all but carry them through the heavens, our engineers nurture their complex souls. Naturally, we do this for our passengers. But why shouldn't our competitors' passengers enjoy a touch of flying Swissair, too? http://www.swissair.com

Norwegian Railway, Arc

WITHSTANDING TEMPERATURES FROM -[illegible]C TO +[illegible]C. REPLACING TRACK FROM BERGEN TO BODØ. SPECIAL 40 METRE RAILS FROM BRITISH STEEL.

British Steel. World Beaters

Always wear safety belts, even with air bags.
©1997 GM Corp. All rights reserved.
Cadillac® Eldorado® Northstar® StabiliTrak™

Your heart is telling you something.

To unleash your spirit.

To get behind the wheel of an
Eldorado Touring Coupe with the
Northstar System.

To feel the 300-horsepower V8
weld your back
to the leather of the seat.

To take control of the only
luxury coupe with the astonishing
handling advantages of StabiliTrak.

Your heart is telling you something.

Are you listening?

Eldorado

Live Without Limits™

Call 1-800-333-4CAD or visit our
Web site at www.cadillac.com

fast off the mark

up to 7.00% per annum and easy access

Join the race to open an Abbey National Offshore 180 Savings Account and run into award winning interest rates.

Interest is paid annually either on 31st December or the last day of the month of your choice. The more you invest, the higher the rate of interest. What's more, you may make up to two withdrawals in each calendar year, without the need to give notice and without penalty. Each withdrawal may be up to 10% of your account balance. Further withdrawals will require 180 days' notice, although funds can be made available immediately subject to a penalty of 180 days' interest.

OFFSHORE 180 STERLING SAVINGS ACCOUNT

INVESTMENT	RATE
£20,000 - £49,999	6.50%
£50,000 - £249,999	6.80%
£250,000 - £999,999	6.90%
£1,000,000 +	7.00%

All rates are subject to change without prior notice

VOTED BEST OFFSHORE DEPOSIT TAKER 1997 BY INVESTMENT INTERNATIONAL MAGAZINE

Abbey National, one of the world's strongest banking groups

The Abbey National group is rated AA by Standard & Poors

This advertisement is issued by Abbey National Treasury International Limited which is registered under the Banking Business (Jersey) Law 1991 and which has its principal place of business at #1 The Parade, St Helier, Jersey. Abbey National Treasury International Limited's reserves and paid up capital exceeded £90m as at 31st December 1996. Copies of the latest audited accounts are available on request. All deposits carry the full and unconditional guarantee of Abbey National plc which had reserves and paid up capital in excess of £3900m as at 31 December 1996. Abbey National Offshore is a registered business name of Abbey National Treasury International Limited.

Please send me full details of your Offshore 180 Sterling Savings Account and your other offshore accounts along with current interest rates.

Name (Mr/Mrs/Miss/Ms) ____________________

Address ____________________

____

Telephone ____________ Fax ____________

To:

Julie O'Hanlon, *Marketing Assistant,*

Abbey National Treasury International Limited, PO Box 545, Jersey JE4 8XG, Channel Islands.

Fax +44 1534 885050

In 1996, LG invested over US$9 billion to grow its business.

Dr. C. S. Yu, Monument Valley, U.S.A.

We put people first.

Chan-Su Yu has created something unbelievable.

Imagine a device that combines the functions of a computer, a fax machine, a modem, a web browser, an electronic organizer and more—so small it rests comfortably in the palm of your hand.

What Chan-Su likes most about LG Electronics' new Handheld PC is the freedom it gives you to work how and where you like. Freedom from the expense and inconvenience of the long line of machines it replaces.

LG's other many technologically-sophisticated products include one-time programmable microcontroller units and digital mobile telecommunication systems. Everything we make exists because we listen to you.

Now, how can we help you?

http://www.lg.co.kr/

(There's a steel beam inside
this velvet glove.)

Actually, inside you'll find a hot-rolled, high-tensile, boron-steel, triple-fluted forming, engineered to the world's

INFORMATION LINE: 0345 186 186.

toughest standards. And you thought all we dreamt about was walnut and leather.

RELAX.

The New

It outcorners. It outbrakes.

Heck, it even outsunroofs the

Subaru Outback Limited

First, it whipped the Blazer in a test of turning stability. Then it topped the Explorer in a test of braking. Soon thereafter, it beat the Cherokee with its superior fuel economy. Now, the Subaru Outback® outshines the competition in yet another arena: luxury. Our new Outback Limited offers all the creature comforts of your finer sport-utilities, like soft leather seating, woodgrain patterned trim and alloy wheels. It also offers something our competitors don't: the added luxury of two sunroofs. To test-drive this outstanding All-Wheel Drive vehicle, stop by your nearest Subaru dealer, call 1-800-WANT-AWD or visit our website at www.subaru.com

competition.

The Beauty of All-Wheel Drive.

Your head.

Your heart.

Your voice.

Your phone.

The new Ericsson GF 788.
It fits your life the way it fits your hand.

Once this was the only performance vehicle with room for seven people.

This is Chrysler Voyager. This is now.

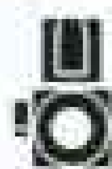
Once in a generation, a vehicle comes along that breaks all the rules. The new Chrysler Voyager, with its unique cab-forward design, is a case in point. Its smooth 3.3-litre V6 engine delivers sporty performance, but always with luxury car refinement. The suspension is finely tuned, not just for comfort, but also for driving enjoyment. Yet beyond the revolutionary dual sliding doors, there's seating for seven passengers. And, when the Easy-Out Roller Seats® are removed, a vast load space becomes available. It's features like these that have made Voyager the best selling vehicle of its type in the world. Why not take a test drive and discover why rules were meant to be broken.

For your nearest Chrysler Jeep dealer call 1800 814 440

NATIONAL
GEOGRAPHIC
CHANNEL

Coming to satellite and cable 1 September.
Call Sky on 0990 979797.

MAGIC FRAMED BY ANTON CORBIJN



HASSELBLAD

At the moment of creation, the artist wants a camera which is totally reliable. Hasselblad is made especially for moments like this. It's the natural choice of the best photographers on earth, and of astronauts in space. Not only for the sake of quality and perfection. But for the sake of art.
Victor Hasselblad AB, Box 220, S-401 23 Göteborg, Sweden. http://www.hasselblad.se http://www.hasselblad.com

ARE YOU DRIVEN BY OTHER PEOPLE'S OPINIONS?

Or are you in the driving seat?

Call 0800 34 34 34
www.lexus.co.uk

GS 300 Sport

The more we recycle, the less we waste. This simple idea inspired NEC to create the Zero-Waste Campaign in 1985. It's a comprehensive effort
more than 80% while recycling has increased some 42%. NEC's 3R (Reduce, Reuse, Recycle) Campaign targets general waste. One result

http://www.nec.co.jp/english/profile/kan/index.html

NEC'S ENVIRONMENTAL PRINCIPLES: NEC will contribute to a sound environment and a livable society through technology that harmonizes with nature and production that is environmentally friendly. Our vision is a world where our natural environment is preserved, enabling all people of the world to pursue their full potential.
For further information, please contact: **NEC Corporation**, Overseas Advertising Division, 7-1, Shiba, 5-chome, Minato-ku, Tokyo 108-01, Japan

Recycling increases, waste decreases. It's only natural.

that involves every employee and continues to bring about great reductions in waste. Since 1990 alone, NEC has reduced industrial waste by
is that non-synthetic packing materials are now used whenever possible. Recycle more, waste less. It's the nature of NEC.

just imagine
NEC MULTIMEDIA

NEC

Go OBLIFLEX and Travel Light

Lombard Odier Mutual Funds
Steadfast Excellence

Good Value in World Bonds

OBLIFLEX Limited

An open-ended investment company incorporated in Jersey, Channel Islands

---

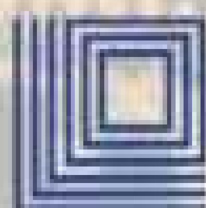
Bond Fund

FOUNDED IN 1798, LOMBARD ODIER & CIE IS ONE OF THE OLDEST AND LARGEST PRIVATE BANKS IN SWITZERLAND.

THE LOMBARD ODIER GROUP SPECIALIZES IN ASSET MANAGEMENT.

BASED IN GENEVA, IT HAS BRANCHES AND SUBSIDIARIES ELSEWHERE IN SWITZERLAND AND ABROAD.

Lombard Odier & Cie
11, rue de la Corraterie
1204 Geneva - Switzerland
Tel.: (4122) 709 21 11



Lombard Odier & Cie

Private Bankers since 1798

MINOLTA

Just what do 400 dots-per-inch and 256 color gradations look like up close?

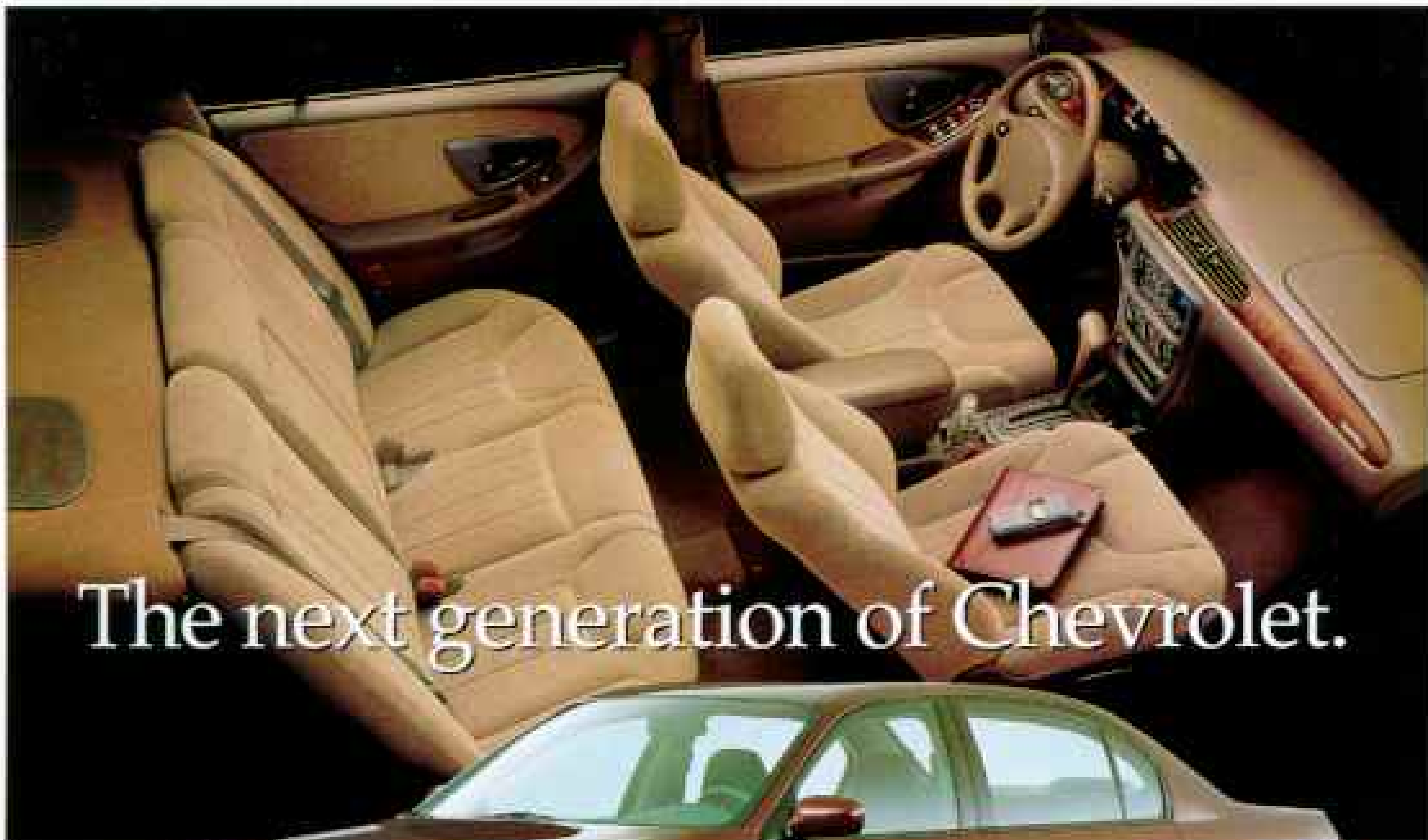
MINOLTA CF900

Minolta. First to put you first.

Astonishingly crisp, exceptionally life-like colors. That's how best to describe the results you get from Minolta's Enhanced Screen LIMOS, our innovative and exclusive laser beam technology. Concentrating the CF900 full-color copier's laser beams into finer, more precise areas and individually controlling each beam's intensity produces extraordinarily fine grain characteristics and heightened resolution – even in highlighted and low density areas. Yet again, the unparalleled performance you can expect from Minolta.

SEA TC ZC

Minolta Co., Ltd., 3-13, 2-Chome, Azuchi-Machi, Chuo-Ku, Osaka 541, Japan



VERSION LS.

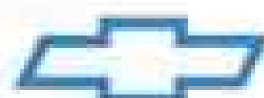
With the new Chevrolet Malibu, you can now enjoy driving pleasure at its best, with a carefully crafted balance of design, power, safety and subtle luxury.

The new Chevrolet Malibu, Motor Trend 1997 Car of the year, puts together the best of space and comfort. Ample room for five passengers and a big trunk. Driver and front-passenger air bags, as well as 4-wheel ABS brakes are standard safety features. The new Malibu includes power windows and lock doors. The LS, in addition to many other features, has power driver's seat and a stereo with both CD and cassette players.

Visit your General Motors dealer and see it for yourself. You and your family belong in the new Chevrolet Malibu. And don't forget that it comes with the Roadside Assistance program which now covers the Mexican Republic, the United States and Canada.

NEW CHEVROLET

Malibu



GENUINE CHEVROLET

http://www.gm.com.mx

CHEVROLET, PONTIAC AND CADILLAC ARE QUALITY BRAND VEHICLES MANUFACTURED BY GENERAL MOTORS

Thanks To Us, This Sweet Old Lady
Is Giving High School Students All Kinds Of Problems.

Tutoring and educational assistance are just two of the more than 130 programs the United Way supports. Programs that are working to help people in Wayne, Oakland, and Macomb counties. So, please, give generously. Because when you support the United Way, you help not only the children but also the poor, the abused, and countless others in need.

Touch a life. The United Way.

"I prefer Olympus.

So light…so compact…so beautifully designed.
And its all-weather construction keeps it humming
along even in the rain."

Powerful and petite, the μ[mju:]-II features a bright, high-resolution 35mm F2.8 lens, multi-beam autofocusing, and an auto colour-balancing flash that ensures natural colours even under artificial lighting conditions. So if you want a camera of compact beauty and intelligence, you'll prefer Olympus.

μ[mju:]-II

OLYMPUS®

FOCUS ON LIFE

OLYMPUS OPTICAL CO.,LTD. San-Ei Building, 22-2, Nishi Shinjuku 1-chome, Shinjuku-ku, Tokyo 163-91, Japan

Now, getting on the Internet is so easy, even an adult can do it.

Fig. 1 - Place on TV.

Fig. 2 - Plug in.

Fig. 3 - Click remote.

Fig. 4 - You're on the Web.

Bingo. You're getting sports scores, travel info, typing e-mail* and printing† like a regular genius. And with WebTV from Philips Magnavox, the required monthly service subscription gives you unlimited access to the Internet. So you can continuously demonstrate it for friends, family, and all the kids in the neighborhood. What's more, it's all yours for a fraction of the cost of a computer. Want more information? (Who wouldn't?) Call 1-800-WEBTV26 or reach us at www.philipsmagnavox.com.

Let's make things better.

PHILIPS MAGNAVOX

Some televisions may require an RF modulator. Optional *wireless keyboard, †printer and printer adapter (not shown) are available at an extra charge. WebTV is a registered trademark of WebTV Networks, Inc.

© 1997 Philips Electronics North America Corporation

WIDE WORLD PHOTOS

■ FROM THE GEOGRAPHIC ARCHIVES

Basket Cases

Wicker baskets and seat cushions doubled as crash helmets "in case of a sudden landing," according to "Ballooning in the Stratosphere" in our March 1933 issue. Though temperatures in the spherical aluminum gondola sometimes topped 100°F, Swiss physicist Auguste Piccard (right) and his assistant, Paul Kipfer, stayed cool enough to conduct their studies of cosmic rays as they ascended nearly ten miles above Augsburg, Germany, on the morning of May 27, 1931. The pair landed safely on an Austrian glacier that same evening. A previous try had been less successful. "I was the target for derisive stories," wrote Piccard of that attempt. "The absent-minded professor had made an error in his calculation, and consequently the balloon, instead of ascending ten *miles*, rose only ten *feet!*"

Park and 47th. Attraction.

Park and 61st. Flirtation.

Park and 59th. Conversation.

There are few places in this world where you can feel so much in one afternoon. Welcome to Park Avenue. The orchestral acoustics, superior seating and all the subtle pleasures and conveniences confirm it: there is no more intimate place on Park Avenue than Park Avenue.

97 Park Ave

Park Avenue Ultra shown. ©1997 GM Corp. All rights reserved.
Park Avenue is a registered trademark of GM Corp. Buckle up, America!
For information, visit our Web site at http://www.parkavenue.buick.com or call 1-800-4A-BUICK.

PARK AVENUE By BUICK
THE POWER OF UNDERSTATEMENT

Gold American Eagle

Because it has historically moved in the opposite direction of stocks and bonds, gold is a vital asset to hold in conjunction with paper investments in order to reduce risk and volatility.

In the U.S., more investors choose the American Eagle gold bullion coin than any other bullion coin in the world. American Eagles are the only bullion coins backed by the U.S. Government for weight and content. Guaranteed.

Blanchard and Company is one of America's largest and most respected precious metals dealers. We sell American Eagles at just 1% above our cost. **Call 1-800-880-4653 to order.**

1-800-880-4653

Please Ask For Extension 194

BLANCHARD

Take a deep breath.

For someone with asthma or other serious lung disease, it's easier said than done. So help us help millions breathe easier.

1-800-LUNG-USA

AUTHORS WANTED

A well-known New York subsidy book publisher is searching for manuscripts. Fiction, non-fiction, poetry, juvenile, travel, scientific, specialized and even controversial subjects will be considered. If you have a book-length manuscript ready for publication (or are still working on it), and would like more information and a free 32-page booklet, please write:

VANTAGE PRESS, Dept. NA

516 W 34th St., New York, NY 10001

Send your kids on a *Swinging Safari* video adventure!

Hosted by Spin™!

Kids will love meeting the amazing animals of Africa in *Swinging Safari*, a fun-filled National Geographic video for kids ages four to ten. Young viewers will be captivated by the exotic cast of characters they'll meet: lions, rhinos, chimps crocodiles, meerkats, cheetahs, and others!

And *Swinging Safari* is packed with original animal music videos, dazzling animal footage, fascinating facts, learning games, and lots of humor.

Preview it free for 10 days. If you like the video, it's yours for only $4.95.*

This is just the first in a series of award-winning kids' videos!

If you like *Swinging Safari*, other delightful videos in the *REALLY WILD ANIMALS*™ series will arrive at your home every other month for only $14.95* each. Enjoy the same 10-day, free preview. Call today!

To order your copy, call toll free.

1-800-627-5162

Monday through Friday, 9 a.m. to 8 p.m. ET

Order code 7HNSK1

1145 17th Street, N.W.
Washington, D.C. 20036-4688

*Plus shipping and handling. Orders to CA, DC, MD, and MI will be billed applicable tax. VHS video is 45 minutes. Please allow 30 days for delivery.

NATIONAL GEOGRAPHIC

On Television

CHUCK DAVIS

■ EXPLORER, SEPT. 7, 7 P.M. ET

Down We Go Into the Deep Blue Under

"The dream is to fly underwater," says British-born engineer Graham Hawkes (above), inventor of a winged submersible that promises unprecedented mobility at abyssal depths. The story of his prototype, *Deep Flight I*, from a napkin sketch eight years ago to today's oceangoing vessel is the subject of a new EXPLORER film.

The 15-foot-long, 2,860-pound fiberglass craft is the first of a class of submersibles intended to plunge humans to the deepest spot on earth, some 36,000 feet down in the Mariana Trench in the western Pacific off Guam.

Deep Flight I does not rely on ballast to sink. Instead, it is powered by thrusters that propel it through the water much as an aircraft moves through the air. *Deep Flight I* can roll 360 degrees, race with a pod of dolphins, or breach the surface like a whale, all at the touch of a joystick.

The project was funded in part by National Geographic Television, which supports research and exploration in addition to filming such scientific endeavors.

"We know more about the outer reaches of the solar system than the depths of the sea," says Hawkes. "There's a whole inner universe waiting to be explored."

■ PROGRAM GUIDE

National Geographic Specials
NBC. See local listings.

National Geographic EXPLORER
TBS. Sundays, 7 p.m. ET.

Children's Programming
Really Wild Animals
Disney Channel. Weekends.

National Geographic Videos and Kids Videos
Call 1-800-627-5162.

BOB CAMPBELL (ABOVE AND BOTTOM)

Thirty Years of Care for Mountain Gorillas

"Exactly at 4:30 p.m. on September 24, 1967, I established the Karisoke Research Centre," wrote Dian Fossey, shown poring over her notes two years later (above).

For 18 years Fossey used these simple wood-and-sheet-metal buildings as a base to study and introduce to the world one of Africa's rarest treasures—mountain gorillas. She exposed the peril from poachers, a main reason, along with habitat loss, that the gorillas now total only some 650; about half live near Karisoke, in Rwanda.

She entwined her life with the great apes (right), as have many researchers who built upon her work. Much of it was supported by National Geographic until her brutal murder in 1985.

DIAN FOSSEY GORILLA FUND

Badly damaged during Rwanda's civil war, Karisoke (left) has been closed since 1994. Although trackers and antipoaching patrols make daily hikes into the area, officials of the Dian Fossey Gorilla Fund, which operates the center, have twice been forced to retreat to a safe distance. Only one resident gorilla has been killed, probably by accident. With the Rwanda conflict ebbing, the army has removed thousands of land mines buried in the gorillas' rain forest.

"I think Dian would be very proud of these efforts and very moved," says Dieter Steklis, the U.S. fund's scientific director.

We won the award.

But you take home the prize.

Sierra wins IntelliChoice® award for the best overall value in its class.

The GMC Sierra has just added an important honor to its stable. The IntelliChoice award is particularly meaningful because it's based on the true value of a pickup: the cost of owning it for five years. Purchase price, depreciation, insurance, maintenance, fuel costs and more were all calculated. And our Sierra was judged best in its class. Combine that award-winning value with the strength, power and style of a Sierra, and you'll know why it's the thoroughbred of pickups. To learn more, contact* ***www.sierra.gmc.com*** *or* ***1-800-GMC-8782.***

SIERRA

GMC COMFORTABLY IN COMMAND™

*IntelliChoice Inc., Campbell, CA, *The Complete Small Truck Cost Guide™*, 1997, www.intellichoice.com, Sierra C1500 extended cab, full-size pickup class.
©1997 GM Corp. All rights reserved. GM, GMC, Sierra and the GMC logo are registered trademarks of General Motors Corporation. Buckle Up, America!

Our financial expertise comes in many varieties.

Whatever your financial challenge, The Principal Financial Group® can help.

We provide quality investment, retirement and insurance solutions that adapt to the changing needs of businesses, families and individuals.

But what you'll really savor is our performance. The way we service every customer. Simplify complex financial matters. And help people get the most out of their money.

Look at our retirement accounts for example. Besides outperforming big name mutual funds, we also deliver unparalleled service, making the administration of retirement plans easier than ever.

World-class expertise. Consistently exceptional performance. In everything we do. No wonder *Fortune*® magazine named The Principal® as one of the top three Most Admired Life & Health Insurance Companies in America.*

To learn more, contact us at www.principal.com on the Internet. Or give us a call at 1-800-986-EDGE.

Life, Health, Dental and Disability Insurance • Annuities • Home Mortgages
401(k) and Pension • HMO/PPO • Mutual Funds • Securities

©1997 Principal Mutual Life Insurance Company, Des Moines, IA 50392. *Ranking according to Fortune magazine's 1996 list of Most Admired Life & Health Insurance Companies. Products and services offered through Principal Mutual Life Insurance Company (The Principal) and its subsidiaries. Mutual funds distributed through Princor Financial Services Corporation (member SIPC). Securities through Principal Financial Securities, Inc. Securities and health care products not available in all states.

Preserving Plants—Putting Money in a British Seed Bank

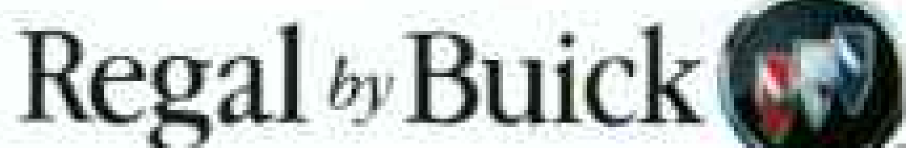
ROYAL BOTANIC GARDENS, KEW (BOTH)

Within 50 years a fourth of earth's 250,000 flowering plant species could vanish because of habitat loss, some scientists predict. To preserve them, the Royal Botanic Gardens at Kew has since 1974 operated a seed bank now containing more than 4,000 species, like these in airtight containers cooled to minus 4°F (right). Kew's collectors, such as Hew Prendergast in the Central African Republic (left), work worldwide. The goal: to store samples of most of the U.K.'s 1,600 flowering plants by the year 2000 and 25,000 global species by 2010. The seeds don't just sit there—it's a working bank. Upon request, samples are sent to researchers in universities and agricultural institutes. One donation of a Mediterranean vetch yielded a protein that has helped detect rare human blood disorders.

Image not available

Just strolling along won't get you far these days. With the all-new supercharged Regal GS, a supercharged family like yours can cover a lot more ground. It has the most standard safety features in its class, and 240 horsepower—so you'll always have power when you need it. And babies of all ages will be soothed by its quiet interior—which incidentally rivals the Mercedes C230.***

The new supercharged Regal GS by Buick. For those who want performance and plenty of room...it's the perfect pacifier.



*Based on R.L. Polk mid-size class. Excludes other GM products. **Based on independent testing of overall interior noise levels.
©1997 GM Corp. All rights reserved. Regal is a registered trademark of GM Corp. Buckle up, America! For our new video and brochure, call 1-800-4A-BUICK.

The All-New Regal

Official Car of the Supercharged Family.

Recycled Sneakers Rebound on the Court

Old sneakers and scrap tires are being transformed into a playing surface that may reduce basketball players' injuries and put a spring in their step.

A Washington State company called SATECH has ground up shoes and tires into fiber and rubber particles to create a urethane-coated pad that substitutes for a hardwood court. Installed at Puget Sound Christian College in Edmonds, Washington, the cushioned floor has been tested by researchers and five National Basketball Association teams. Most players liked the surface.

"I feel it has an excellent chance to succeed," says Eddie Johnson of the Houston Rockets.

MARK THIESSEN

Photo Message: Don't Feed Wildlife

"A Fed Animal Is a Dead Animal." Printed in four languages, that's the slogan on a card distributed by photo processors near Canada's Banff National Park to customers whose photographs show people feeding wildlife.

The card depicts similar scenes photographed by Parks Canada, which had 40,000 cards printed after learning that one exasperated photo shop manager had begun including warning notes to its customers. Park authorities report positive feedback and plan to include the same message in hotel brochures.

How Will China's Huge Dam Affect River Life?

Not only will a tide of people be affected by the Three Gorges Dam—the lives of other Yangtze dwellers will change too. The dam and another downstream threaten several aquatic species.

Endemic and endangered, ten-foot-long Chinese sturgeon swim hundreds of miles up the Yangtze to spawn. Their journey is already blocked by the Gezhou Dam 25 miles downstream. There, workers measure an adult at a hatchery where hundreds of thousands of sturgeon larvae are released each year. "Colder water from the Three Gorges Dam may prevent some female sturgeon from spawning and may also cause mortality in the larvae," says Boyd Kynard, a U.S. Geological Survey fisheries specialist.

BOB SACHA

The dam will also flood spawning sites of paddlefish, which reach 1,000 pounds. Perhaps 300 remain. The rare Chinese river dolphin, already at risk from collisions with ships, will face increasing traffic.

TEXT BY JOHN L. ELIOT

Piping Plover *(Charadrius melodus)* **Size**: Length, 18 cm **Weight**: 43-63 g **Habitat**: Open beaches, alkali flats and sandflats in the USA and Canada; winters in the USA, Mexico, the Bahamas and the West Indies **Surviving number**: Estimated at 2,660 breeding pairs

Photographed by Arthur Morris

WILDLIFE AS CANON SEES IT

Sharing in parental duties, piping plovers incubate their four-egg clutch for 24-28 days. The nest is a shallow scrape on open beach, but the cryptic coloration of both the eggs and the birds provides protection against predators. Within hours of hatching, the downy chicks can run to safety, or crouch down and become invisible against the sand. Scurrying along the water's edge, piping plovers feed on insects and small marine invertebrates. Habitat protection and management have helped restore some populations, but the survival of these little shorebirds depends on continued conservation efforts. As a global corporation committed to social and environmental concerns, we join in worldwide efforts to promote greater awareness of endangered species for the benefit of future generations.

60th Anniversary

Color Laser Copier

With its superb color quality and printing speed of 31 copies per minute, the CLC1000 creates new possibilities in color copying as well as in on-demand and multiwork-station network printing.

Watch "NATURE" on PBS. This program is funded in part by Canon U.S.A., Inc.

Canon

THE ANSWERING MACHINE FOR THE CALL OF THE WILD.

From a rugged mountain vista to deep in the plush forest, nature calls out for us. And the 1997 Toyota 4Runner, available in either 2-wheel or 4-wheel drive, is one of the only machines capable of answering that challenge. With a powerful 183-hp V6 engine* and the highest ground clearance in its class, you'll be able to handle almost anything nature may throw at you. And with 4Runner's roomy interior and available leather-trimmed seats, civilization's never really that far away. The 1997 Toyota 4Runner. Your answer for the call of the wild.

Call 1-800-GO-TOYOTA or visit our website at: http://www.toyota.com for a brochure or full-line CD-ROM plus the location of your nearest dealer. ©1996 Toyota Motor Sales, U.S.A., Inc. Buckle Up! Do it for those who love you. Toyota reminds you to Tread Lightly® on public and private land. *183-horsepower V6 engine standard on 4Runner Limited and 4Runner SR5 models. Vehicle shown with optional equipment.

I love what you do for me

■ CD-ROMs

Play Games, Travel the World, Report on Wild Adventures

Kids can roam the world on the magic carpet of a computer screen with two new CD-ROMs from National Geographic. *GeoBee Challenge,* a quirky, irreverent game show, poses more than 2,200 questions, most from our National Geography Bee. BuzzBee, a character with attitude to spare (above), is the wacky host. *GeoBee* gives players colorful maps, brainteasing puzzles, and fascinating facts. Kids choose a lively playing piece, such as Schnoz Worm or Turbo Squirrel, and they're off—playing on their own or against one or two opponents. Players are learning even as they laugh at the antics of BuzzBee and answer questions such as: "The Hawaiian Islands are formed by what physical process?" Gain points with your bonus question, and whiz into the final lightning round for a chance to be admitted to the Hall of Fame.

When you're answering questions about the world, it helps to experience it. The CD-ROM titled *Really Wild Animals Swinging Safari: Explore and Print* takes you to Africa to go on assignment or wander at will. With a click of your mouse, you can take pictures of animals (left) and store them in your field notebook. The publishing center lets you drag and drop photos and text into templates, then print comic strips, postcards, even magazine articles. On this safari everything is packed for a successful field trip except the bug spray. Activities related to the CD-ROMs can be found on our website at: *www.nationalgeographic.com/geobee* and *www.nationalgeographic.com/features/97/rwa.*

NATIONAL GEOGRAPHIC INTERACTIVE (ALL)

■ FOR INFORMATION

Internet: www.nationalgeographic.com

E-mail: ngi@ngs.org

CD-ROM: Call 1-800-881-9919, U.S. and Canada; elsewhere call 1-916-939-1004

NATIONAL GEOGRAPHIC

On Assignment

VINCENT J. MUSI

■ ROUTE 66

Top Down, Spirits Up in Arizona

"I was at one with the road in that car," sighs photographer Vince Musi, here giving a lift to Hualapai traditional dancers in Peach Springs, Arizona. Vince drove his rented purple convertible some 2,000 miles back and forth over the state's longest stretch of Route 66. "For a story like this you shoot a lot from the car, and you need to see everything around you without a roof in the way." And Vince did see a lot in his travels besides miles of desert scenery—including a pool hall scuffle between a group of locals and some German bikers. "Somebody threw a cue ball, and there I was standing in the middle. But," he admits, "not for long."

■ THREE GORGES DAM

Taking a Look Before the Waters Rise

On a slow boat—"and sampan, horsecart, and broken-down bus,"—through China, writer Art Zich plied the Yangtze to learn about the planned dam's impact on the region. Early in his career Art reported on the Vietnam War for news magazines, then won a journalism fellowship at Stanford. Now he freelances from his base in California and—proficient in Chinese—often covers Asia.

BOB SACHA

NATIONAL GEOGRAPHIC (ISSN 0027-9358) IS PUBLISHED MONTHLY BY THE NATIONAL GEOGRAPHIC SOCIETY, 1145 17TH ST. N.W., WASHINGTON, D.C. 20036-4688. $27.00 A YEAR, [illegible] A COPY. PERIODICALS POSTAGE PAID AT WASHINGTON, D.C., AND ELSEWHERE. POSTMASTER: SEND ADDRESS CHANGES TO NATIONAL GEOGRAPHIC, P.O. BOX 63002, TAMPA, FLORIDA 33663-3002.

INTRIGUED? YOU LOOK FOR CLUES. SLEEK LINES. SUPERBLY DESIGNED INSTRUMENTATION. YOU FIND THAT CONTOURED LEATHER-TRIMMED SEATS SURROUNDED BY AN 8-SPEAKER PREMIUM BOSE® SOUND SYSTEM ARE AVAILABLE. STILL, ONE CLUE ELUDES YOU. THE FEEL OF THE 195HP V6 THAT CAN ONLY BE FOUND BY DRIVING ON THE OPEN ROAD.

INTRIGUE

A SOPHISTICATED TWIST ON A SPORTS SEDAN

GM

© 1997 GM Corp. All rights reserved. Buckle Up, America!

Oldsmobile

www.intriguecar.com