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RUSSIA'S BAIKAL

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COVER: Russian children find seat-of-the-pants fun on the icy shore of Lake Baikal. Photograph by Sarah Leen.

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RUSSIA'S LAKE BAIKAL

The World's Great Lake

Crown jewel of Russia's natural inheritance, Baikal is the world's oldest and deepest lake—an environmental battleground and a godsend in hard times.

By DON BELT
NATIONAL GEOGRAPHIC SENIOR STAFF

Photographs by SARAH LEEN
MATRIX

SERGEI VASILIEV, captain of the *Albatross*, still wonders if he would have found the courage to speak his mind that fateful July in 1954. But not once during their mysterious two-week cruise around Lake Baikal did the government officials ask his opinion of their plan—and to volunteer one would have been unthinkable. Barely a year had passed since Stalin's death, and the dictator's lifeless hand still lay heavy on the land.

All this came up one afternoon as Vasiliev, a slight and gentle-spoken man widely known as the greatest of the Lake Baikal ship captains, was reminiscing about his career on *Albatross*, a scientific-research ship. In the middle of a long, hair-raising story about a great storm south of the Ushkani Islands, his memory turned a corner, taking his narrative into deeper and more troubling waters than he had intended.

"I remember too clearly for my own good," he said sadly, shaking his head.

And he began to explain. He knew little about those officials at first—only that they were "very serious, very powerful men," who had arranged to use his vessel for their first look at Lake Baikal. They were, of course, well informed about the great lake in south-central Siberia. All Soviet schoolchildren were taught that Baikal is special: It is the most ancient lake on earth and the deepest, measuring 1,637 meters from top to bottom, more than a mile. It holds one-fifth of the planet's fresh water and 80 percent of the former Soviet Union's—more water than all of North America's Great Lakes combined. In school these men traced the lake's elegant shape, like a sliver of moon, and learned to call it the Pearl of Siberia or the Sacred Sea, as Russians have for generations. But nothing in their education would have given them the sweet, pure taste of the real Baikal. No, that was for Vasiliev to deliver.

Yet as days passed, he overheard enough of their conversation to know that they weren't admiring the lake so much as evaluating it, probing its shores for a place to put something. That worried him, knotting his stomach like the sight of sea gulls flying pell-mell along Baikal's western cliffs—portents of a fast approaching storm. The sparkling clear water of Baikal impressed *(Continued on page 8)*

FISHERMAN SLAVA BASOV SETS NETS AS HIS TEN-YEAR-OLD SON, TOLYA, PULLS ON HOMEMADE OARS.

Sheathed in ice, Lake Baikal surrounds a rocky promontory (left) off Olkhon, largest of the lake's 27 islands; on the nearby Ushkani Islands (above) Baikal seals come ashore to molt. Olkhon was once the domain of religious shamans, whose bones—and perhaps this skull—went unburied. Baikal itself is huge: More than 1,600 meters deep, it holds a fifth of the world's fresh water.

(Continued from page 2) these men, though not in the way Vasiliev had hoped. The group included experts who believed that these nearly mineral-free waters, when heated and run through the pulp of robust Siberian pines, would produce "super" cellulose, which could then be used to make exceptionally durable tires for jet aircraft—a matter of great importance to the Soviet Air Force. Some chemical pollution of Baikal would result. But that was the price of keeping up with the Americans, who were known to be making such cellulose at a plant in Foley, Florida. When presented with the group's intelligence, Soviet leader Nikita Khrushchev is said to have declared, "Baikal too must work."

I tell you all this now, at the beginning of my story, to help you understand why the Baikalsk Cellulose-Paper Plant was ever built on the shores of this great lake. And how it is that a strong man like Sergei Vasiliev, 36 summers after he ferried a commission around Lake Baikal on a ship called *Albatross*, might be haunted still by the sight of a pulp mill in the middle of Siberia.

"Helping to bring this monster to Lake Baikal," he said, gazing across the lake at the tiny plume of factory smoke rising against the blue summer sky—"this is the one great regret of my life."

THE SNOWS OF SIBERIA come to Lake Baikal in early October, showering its uneasy gray waters with an inconsequential hiss, even as they drape the surrounding mountains with white and lay a thin wafer of ice over the streams that drain a watershed roughly the size of France.

By November the lake itself, a great crescent 635 kilometers (395 miles) long and 80 wide, has begun to freeze. Ice forms first in the muskrat marshes at Baikal's northern tip, then steals south, chasing the last of the big ships that move reluctantly ahead of the season.

The fish of Baikal bite better in winter, they say, and each of the roughly 40 lakefront towns sprouts a suburb of ice-fishing shacks, many of them mounted on sled runners and heated by a wood stove. With the average winter temperature around minus 20°C (0°F), the ice gets thick enough—well over a meter—to support truck convoys laden with supplies for the more remote towns along Baikal's shore. In 1904, during the Russo-Japanese War, sections of railway track were even laid across the ice to transport more than 2,000 flatcars and 65 locomotives to the battlefront.

By mid-April the ice begins to thaw and break apart, hacked to pieces by furious squalls that roar down river valleys on winds reaching 160 kilometers an hour. Then in May, after a scout plane confirms that it is clear enough of ice, several hundred ships—tugboats, timber barges, research vessels, and fishing boats—resume their labors on the world's great lake. So huge and volatile is Baikal that sailors here talk in spring of "going to sea."

I arrived in late June and got my first glimpse of Lake Baikal at daybreak, from the patio of a hilltop hotel overlooking Listvyanka, a busy little port on the southwestern shore.

Reflecting a clear summer sky, the lake that day was luminous and blue, framed against granite crags and evergreens. I had heard Baikal likened to America's Grand Canyon, an apt comparison: Baikal's scale is too vast to imagine, its beauty and character too subtle to define. Renowned Russian author Valentin Rasputin,

Newlyweds Natasha Shirobokova and Igor Karpov pose for a portrait with Baikal in the frame—a tradition observed even in the dead of winter.

The couple will make their home in the nearby port city of Ust Barguzin, among the largest of the 40 or so towns that dot Baikal's 2,000-kilometer (1,245-mile) shoreline.

Despite the hardships of

Siberia, most here consider living on the lake a privilege. Often referring to it as the Pearl of Siberia, or the Sacred Sea, citizens of the former Soviet Union revere Lake Baikal as Americans do the Grand Canyon.

"For everyone I know," observes one visitor from Kazakhstan, "a trip to Baikal is the dream of a lifetime."

who has written his best fiction in a cabin on Lake Baikal, once told me, "I still encounter Baikal and feel my own deafness and dumbness, my own inability to describe what I see before me. Man does not have enough feelings to respond to this wonder."

The hillside I stood on was in the Irkutsk Oblast, a region dominated by ethnic Russians, while the rugged mountain range on the far shore, the Khamar-Daban, rose from Buryatia, land of the Buryat people. Buryat are Mongols who made their home here long before Genghis Khan swept through during the early 13th century. They were living in Russia when the frontier between Russia and Mongolia (then part of China) was drawn in 1727. Since 1923 they have occupied their own autonomous republic on the eastern and northern shores of Baikal.

Through field glasses I surveyed the lake. Just below Listvyanka its one outflowing river, the Angara, funnels the waters of Baikal west, through the hydroelectric turbines at Irkutsk, then hundreds of kilometers north to run a gantlet of colossal dams built by Khrushchev during the 1960s. Beyond, the Angara's waters rendezvous with those of the Yenisey, which in turn sweep north to the Kara

Sea 4,100 kilometers away. So immense is Lake Baikal that if all its 336 tributaries dried up tomorrow, its volume—some 23,000 cubic kilometers of water—could keep the Angara River flowing close to 400 years.

On a distant shore I detected, after a long binocular search, the telltale cloud rising from the cellulose plant at Baikalsk.

In 1957, when the public first heard about plans for this factory, people who had mutely obeyed the Soviet government for 40 years finally howled in protest. Local scientists, writers, fishermen, and ordinary citizens banded together to fight the plant, igniting an environmental movement that was a direct forebear of all Soviet activism to come. Their protests were mostly ignored. Yet at a time in the Soviet Union when the fires of free speech were being stamped out wherever they appeared, a small flicker burned fiercely in the Siberian wilderness, on the very shore I was seeing.

After years of protest, the lake's defenders were rewarded in April 1987, when the Soviet government issued a comprehensive decree protecting Lake Baikal. Among other things, it abolished logging anywhere close to the lakeshore and decreed that the cellulose plant be "reprofiled" for activities harmless to the environment by 1993.

Exactly what those activities might be has not been decided. Nor has the fate of this decree, in light of recent political upheavals. Meanwhile the dumping of industrial waste into Baikal continues, and bilious smoke still rises from the plant 24 hours a day.

The big chill lasts deep into spring on Baikal. Ice a meter or more thick can accumulate between December and April, when the lake begins to thaw. In the lake's northern end, ice floes often linger until June.

FROM MY HILLTOP HOTEL at Listvyanka I could also see ships passing hypnotically on the smooth blue water far below. Most were working vessels painted a business-like charcoal gray or black. More striking were the fine white scientific ships that carved the water like a fin, leaving faint trails of foam in their wake. I paid close attention; I was about to spend the next month of my life on one of them.

There were nine of us aboard *Obruchev*, the research vessel that photographer Bill Curtsinger and I used to explore Lake Baikal. Our group included Sasha Timonin, a 35-year-old wildlife biologist; interpreter Barbara Skinner; and the ship's Russian crew, whose names were Victor, Slava, Yuri, Wovchek, and Galya.

We planned first to explore the remote upper reaches of Baikal—a breathtaking region rarely seen by foreigners until a few years ago—then to work our way toward the cellulose plant, 635 kilometers to the south.

This would have been impossible without support from the Limnological Institute in Irkutsk, which sponsors most of the scientific research conducted on Baikal and which had provided us with the 18-meter-long *Obruchev* and its first-rate crew. The institute also granted us the freedom to travel when and where we pleased.

We were able to dock our ship, then walk to the nearest road and

The Pearl of Siberia

Many peoples have marveled at this great inland lake, among them the Buryat—ethnic Mongols who had settled its shores long before the 13th-century conquests of Genghis Khan. Russian fur traders arrived in the 1640s.

Still remarkably clean, Baikal nevertheless feels the effects of air and water pollution from various sources, including industries around Irkutsk and from the Selenga River, which provides half the water flowing into Baikal. Most controversy centers on the effluent from a cellulose plant at Baikalsk.

Recent construction of a railroad, the Baikal-Amur Mainline (BAM), caused erosion of the north shore and clogged streams with debris.

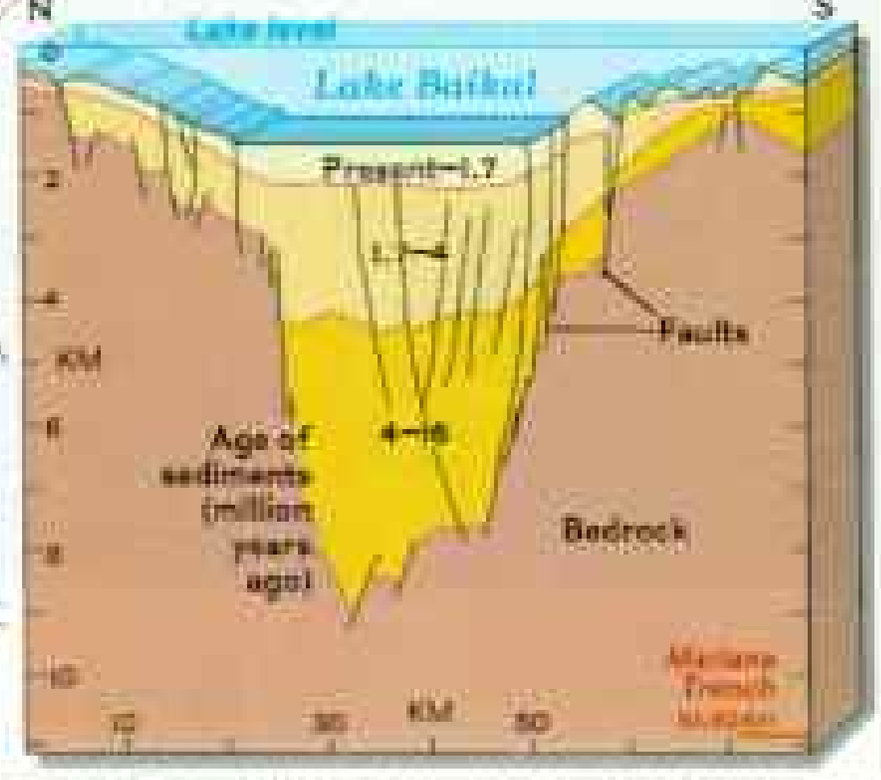
Water pollution
Airborne pollutants deposited on surface
National park
Nature reserve
▲ Soviet-American expedition research site, 1990
Bathymetry in meters

0 50 km
0 50 mi

NGS CARTOGRAPHIC DIVISION

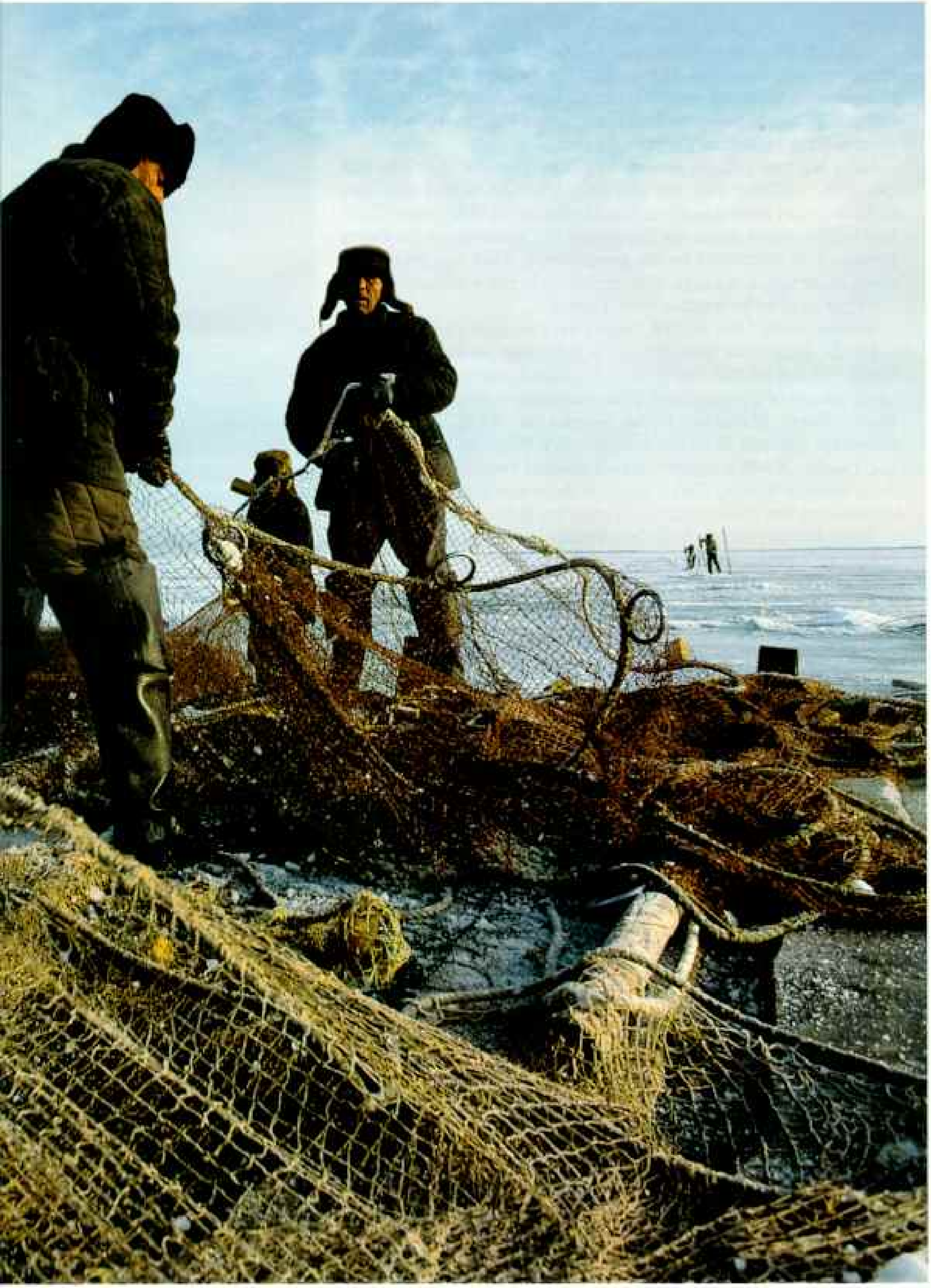
Compared with the lakes of Europe and North America, pollution levels in Baikal are still low. Concentrations are heaviest in the south basin.

The 1,637-meter-deep lake sits atop a rift extending down nine kilometers. This rift has collected some seven kilometers of sediment for at least 16 of its 25 million years.



SOURCES: RUSSIAN ACADEMY OF SCIENCES AND U.S. GEOLOGICAL SURVEY

Untangling frozen nets, workers from the fishing cooperative in Ust Barguzin prepare to drag them beneath winter ice for perch, grayling, and omul, *an*



endemic whitefish considered a delicacy throughout Russia. Though officially caught for shipment, many Baikal fish these days go to feed family and friends.

hitch a ride Russian style, with an outstretched arm pointed at the road, into nearby towns. Unescorted, we would strike up conversations with ordinary people—like Lena Vilchinskaya, a young woman we met in Severobaikalsk, a city that looks more like a construction site on Baikal's northwest shore.

Lena is a pediatrician who moved here from the huge Siberian city of Novosibirsk with her physician husband so that their two children could grow up next to Lake Baikal ("we didn't want them to think the world was made of concrete")—and because they were promised an apartment by the government. That was more than three years ago, Lena says, and her family is still waiting.

"How long is the waiting list?" I asked.

"Seven years," she replied, rolling her eyes in exasperation.

In the meantime they live in a *schitovye doma*, or "shield house," slang for the shacks most families have thrown together using scraps of plywood and other materials scavenged from the Baikal-Amur Mainline. Better known as BAM, this 3,145-kilometer railroad links the resource-rich Siberian wilderness to the Pacific. BAM's construction attracted thousands of people from western Russia. Today many of them live in the old railroad cars sent up the line long ago as temporary housing for workers.

What 30,000 people will do for a living now that BAM is finished is anyone's guess, Lena says. Few wish to start over somewhere else, and most, it seems, prefer to take their chances at Lake Baikal, where at least the air is fresh and fish can be caught to supplement the meager groceries in the stores.

In the past two centuries Baikal has received its share of Russian exiles (nearly every member of our crew can trace his ancestry to some banished soul), but people find life here less confining than in many Russian cities.

"It's funny," Lena said. "Everybody talks about how terrible Siberia is, but nobody ever wants to leave."

WHILE WAITING for us to return, the crew of *Obruchev* had been fishing from the ship's stern. Fish are among the few things both abundant and free for the taking here, and our crew spent every spare moment in gleeful pursuit of grayling, pike, perch, or *omul*. The latter, an arctic whitefish endemic to Lake Baikal, accounts for two-thirds of the annual commercial catch.

We arrived just after someone had landed a whopper of a pike. Slava, the ship's chief engineer, hooked his finger into the fish's gill and posed like a sportsman displaying a trophy catch. "Beeeeeel," he called, summoning photographer Bill Curtsinger. "Camera, Beeeeeeel."

The others crowded around, and soon Curtsinger was taking Polaroids of the crew, each posing with *his* trophy fish: Shirtless and bony Slava, his thin Tatar face split by a mad grin, squinting through bloodshot blue eyes; his assistant Yuri, a barrel-chested Buryat dressed, pixie-like, in the crew's standard black tights and deck slippers; Wovchek the deckhand, a moody gnome, cigarette clenched in what once were teeth; and Victor, *Obruchev*'s young captain, lean and self-possessed, as handsome as a fellow can be with a couple of gold teeth and a crudely drawn mermaid tattooed on his arm.

Hedge against hardship, ice fishing is a practical necessity and a favorite pastime in lake towns. Unlike commercial fishermen, who often haul their nets by horse-drawn sleigh (above), amateurs drive cars onto the ice and stay in tents or makeshift huts centered over fishing holes. When talk turns to pollution, such folk are the lake's most ardent defenders. "We must take maximum care of Baikal," explains the mayor of one lakefront town, "because Baikal takes care of us."

The fifth member of the crew, Galya, watched this nonsense with a shy smile. At 25 she was the youngest person on board, but with a six-year-old son (who stays at home with grandma) and her calm, matronly ways, she seemed somehow the most mature.

She was also recently divorced. "Now I have one child to care for instead of two," she offhandedly told Barbara, with whom she shared the galley as a sleeping cabin. As we ate our usual breakfast of black bread, our lunch of black bread and potato soup, or our supper of black bread, potato soup, and fish, Galya watched us with a Mona Lisa smile.

"OK?" she'd ask as we slurped down yet another bowl of potato soup. "*Dva raza* OK," I'd say—two times OK—lacking the heart to kid Galya about a meal she'd worked so hard on. There's only so much one can do, after all, with potatoes on a Russian ship.

Also present at our table, in a sense, was the bearded, hawk-eyed man this ship was named for—Vladimir Obruchev, the father of Siberian geology, who observed us from a framed photograph on the bulkhead.

Obruchev first came to Baikal in 1888 to do fieldwork for his definitive geology of the Russian Empire. His conclusion—that

Local citizens raised a national outcry three decades ago over construction of the Baikalsk Cellulose-Paper Plant (right) on the lakeshore. The plant pollutes only a tiny portion of the lake, but that does not mollify many Russians. "Baikalsk has become a national symbol," explains one official, "of the dangers facing our environment." Less publicized but just as threatening are coal-fired power plants in towns like Slyudyanka (below), which may do as much harm by causing acid rain.

Baikal was formed by faulting of the earth's crust—scandalized his peers. Today geologists regard Obruchev's ideas, formed some eight decades before plate tectonics, to be the first modern theory about the formation of Lake Baikal.

Baikal sits in the planet's deepest land depression, a rift nine kilometers deep, located in one of the most complicated and least understood fault zones on earth. Here at least three tectonic plates interact; as these plates scrape past one another, they tear apart the crystalline bedrock underlying Baikal, which, some scientists believe, makes the lake ever deeper and wider.

The region around Baikal is rattled by an earthquake every few hours. Most are too weak to feel, though not all: In 1861 a huge quake sank 310 square kilometers of the Selenga Delta into the lake. Even as I was touring Baikal, a Soviet-American submarine expedition co-sponsored by the National Geographic Society was investigating hydrothermal vents on the bottom near Frolikha Bay—warm-water springs that indicate powerful tectonic forces at work in the rift.

THIS RIFT BENEATH BAIKAL has been opening for 25 million years or longer, and judging by the seven-kilometer thickness of sediment at the bottom, there has been a lake here for much of that time, which makes this the world's oldest body of fresh water. Compared with other lakes, which rarely live longer than a million years before filling with sediment, Lake Baikal is like a dinosaur that lived through mass extinction.

"Imagine what science could learn from a 100,000-year-old man," says Mikhail Grachev, director of the Limnological Institute in Irkutsk, where more than a hundred scientists study every aspect of the lake. "That's what Baikal is like to a biologist—a natural laboratory for the study of evolution."

Grachev's dream is to open that laboratory to scientists from around the world—no small trick for a man whose rubles are worthless outside Russia, whose "brand-new" building is already

Substitute classroom, a clinic in Pokrovskoye houses fourth-grade students after their school's heating system broke down. Though times are hard, food runs

short, and their nation unravels, people look ahead. "Tomorrow things will be better," says a local man. "This is the thought that keeps our hope alive."

in disrepair, and for whom phoning the United States is like trying to call the moon. But Grachev is nothing if not resourceful, and recently, with support from foreign academic institutions, he cofounded the Baikal International Center for Ecological Research. Each field season brings more scientists from abroad, to study what many consider the world's most interesting lake.

"Compared with Baikal, Lake Tahoe is a desert," says Grachev's colleague Charles Goldman from the University of California at Davis. "Tahoe is 10,000 years old and has two endemic species. Baikal is over 25 million years old, with 1,500 endemics."

Baikal is indeed a living museum of aquatic plants and animals that have evolved during its life span. It's also incredibly rich in life at all depths. Unlike lakes in hot climates, Baikal mixes thoroughly; as its cold waters sink, they carry oxygen even to the deepest parts of the lake.

Fifty-two species of fish inhabit these waters, and more than 250 species of freshwater shrimp, including the endemic *Epischura baicalensis*, a tiny crustacean that renders the water of Baikal strikingly pure by straining out algae and bacteria. In summer millions of *Epischura* amass in the water column, maintaining a purity so great that water collected from the center of Baikal in a laboratory beaker becomes tainted by the glass.

Samples taken from the southern end of the lake tell a different story. Around Baikalsk, bacteria discharged by the cellulose plant pollute some 200 square kilometers; the effluent has also devastated bottom-dwelling organisms over a smaller area. Biochemists such as Grachev are especially alarmed by the presence of chlorinated organic compounds—waste chemicals from the pulp bleaching process that take centuries to biodegrade and may one day accumulate to toxic levels in the food chain.

Less insidious, perhaps, but far more extensive is pollution from the Selenga River, a 1,480-kilometer-long tributary that rises in northern Mongolia and supplies half the water flowing into Lake Baikal. Its brown surge arrives laden with sediment and wastes from three Mongolian cities, as well as human and industrial wastes from Ulan Ude, the Buryat capital 130 kilometers upriver. The survival rate of omul spawned upstream has recently plummeted, which may have triggered a lakewide decline.

Government funding for the study of such problems has slowed to a trickle with the Russian economic crisis—one reason Grachev so warmly welcomes foreign scientists armed with high technology. "Maintaining international standards of science," he says, "can keep us from wasting billions of rubles on nonsense."

ONE GREAT MYSTERY about the lake is how *nerpa*, the Baikal seal, managed to wind up here and nowhere else on earth, fully adapted to fresh water and separated by 3,220 kilometers from its nearest relative, the Arctic ringed seal.

The most plausible theory argues that a population of ringed seals was pushed southward by advancing polar ice during the Pleistocene, eventually moving up the Yenisey and Angara Rivers to Lake Baikal. Another hypothesis envisions a Siberia flooded by ice dams, which might have changed the course of rivers and brought nerpa to Baikal along other routes—including the giant

Instant city, Severobaikalsk was built to support construction of the Baikal-Amur Mainline, a 3,145-kilometer rail line that passes Baikal on its way to the Pacific. The station (above) overlooks government-built apartments—too few for the city's 30,000 people, who often live in converted railroad cars or scrap-wood shacks. Now that BAM is completed, many adults here, like their children (right), have too much time on their hands and too little money in their pockets.

Offering vodka to the ancient shamanist god Burkhan, whom they revere as god of the lake, seal hunters appeal for safe passage on a month-long hunting trip across melting April ice. For their families such trips are filled with dread: Vera Bobova (below, at left), with her daughter-in-law and granddaughter, bids her son Vanya a sobbing farewell. Her eldest son, also a hunter, drowned when his truck plunged through the ice. Sailors, too, implore Burkhan for protection, since dozens lose their lives on the lake yearly.

Lena River. Today the Lena rises just west of Baikal but instead of flowing into the lake turns north to the Arctic Ocean.

Slightly smaller than the ringed seal, nerpa grows about one and a half meters long, and can weigh as much as 130 kilograms (286 pounds). It hunts both night and day, diving in pursuit of Baikal fish such as the weird, translucent *golomyanka*, an endemic oilfish that bears live young and resembles a cross between a flying fish and a pink plastic eel. Golomyanka's fatty flesh, abundantly available, is responsible for nerpa's unctuous, well-fed look.

Seals live throughout Baikal but favor the remote and tranquil Ushkani Islands near the center of the lake—an archipelago of four white marble outcrops capped in green, crisp against the pastel hues of Baikal.

Our guide from the Limnological Institute, Sasha Timonin, specializes in the Baikal seal. When *Obruchev* passed through these islands, Sasha led us to his favorite seal-watching spot—a cliff on the north end of Tonkiy Island, one of the four Ushkani. Perhaps a hundred seals were sunning themselves on the white boulders below, their silver fur shining in the hard morning light.

When they saw us, the animals seemed more curious than alarmed. But a peal of thunder triggered panic—and in a great thrashing flurry they tumbled into Baikal and were gone. They had mistaken the sound, Sasha explained, for the report of a rifle.

Commercial hunters are permitted to take some 6,000 seals each year, mostly in April and May, when the pups born in February begin to venture onto the ice. Most hunters use high-powered rifles or nets and work for a cooperative, which processes and sells the meat, oil, and fur. The animals number perhaps 60,000—though Sasha, who helps take the census by counting air holes in winter ice, warns that these figures could be off as much as 50 percent.

Our seals later returned, and within the hour Sasha and I were splashing through icy, waist-deep water to rescue one old female entangled in a hunter's net and being cut to death by a thick cord wrapped around her neck. I held the nerpa, which must have weighed as much as a large man, while Sasha cut away the net with his pocketknife.

To my surprise the seal struggled only briefly, then lay passively beneath me, head back, her large black eyes displaying the calm of a condemned soul. The rest of the colony, which had bolted, slowly crept back to watch. When Sasha finished, we hoisted the seal onto the nearest boulder, then climbed back up the cliff. Within moments the others moved in to investigate, cautiously sniffing the air around the wounded one—as if amazed to find her still alive after this strange encounter with man.

IT WAS A FEW MINUTES PAST SIX in the morning when I knocked on the door of Nikolai Kolbasov. He and his family live in the last house on the last street on the outskirts of a Baikal fishing village named Kurbulik, on the Chivyrkuyskiy Gulf.

This was the kind of close encounter I hadn't expected to have in the Soviet Union. Kolbasov and I had met by chance the night before, when he and a friend paddled up to *Obruchev* in a soot-encrusted orange motorboat. They were having engine trouble, they said, and needed Slava's help. A little later we opened one of our precious bottles of vodka (rationed to two liters per person per

Prisoner on ice, a young Baikal seal, or nerpa, *awaits its fate in a pen built by the hunters who captured it. Prized for their fur and blubber, these endemic seals number perhaps 60,000; hunters are allowed to take 6,000 a year.*

month) to toast the rehabilitation of Kolbasov's boat, which is called *Cherepakha*, the Turtle.

Like many of the Russians I met, Kolbasov was astonished to find himself talking freely with Americans, the people he had once been taught to fear. He shook his head, disbelieving, when I drew a map showing my hometown in relation to his. And as we parted with a back-pounding Russian bear hug, he invited me, with touching ceremony, to go fishing with him the next morning.

He greeted me with a whisper—his family was still asleep—and poured me a glass of hot tea. I drank it while he wrapped his feet in rags, then pulled on a pair of the black rubber hip boots worn by all professional fishermen on Lake Baikal.

Two hours later we had cleaned out the fish traps he operates with a partner, shoveling the catch of perch, pike, and grayling into a second boat using a long-handled net. Most of the fish would be turned in to the cooperative at Kurbulik, but a few dozen he loaded into a battered metal box in his boat. He winked as he covered the box with a canvas tarpaulin. These fish would feed his family.

Half an hour later we pulled alongside *Obruchev*, and I prepared

A close relative of the Arctic ringed seal, nerpa may have migrated to Baikal from the Arctic Ocean, 3,220 kilometers away, during a past glacial advance. Nerpa is the only species of seal that lives in fresh water year-round.

to board. Just then he peeled back the canvas, opened the box, and hauled out the biggest catch of the day, a fat pike more than a meter long. In a time of food shortages, such a fish was precious indeed.

"For you, this present," Kolbasov said.

"*Nyet, nyet, nyet,*" I started to protest. *Obruchev* was running low on eggs and flour and meat, but we had plenty of fish. Then I saw the look in his eyes and thought again. "*Spasibo bolshoye,*" I said. A big thank you. "*Ogromnoye spasibo.*" Enormous thanks.

He handed me the fish. I cradled it in my arms for a moment, then passed it up to the onlooking crew. Kolbasov took my hand in a leathery grip, squeezed it hard and steady, looked me deeply in the eye.

"Go back to America," he said quietly, kissing me stiffly on both cheeks. "Tell everyone you know that Kolbasov is their friend."

EVERY SMALL-TOWN CEMETERY on the shores of Lake Baikal is dotted with the graves of seal hunters and fishermen and sailors (many of whom gaze eerily back from framed photographs on their headstones) who died on the lake. I mentioned this one day to Victor as storm clouds gathered on the horizon. The west wind called *sarma,* which has killed more than its share, had picked up sharply, and things were getting bumpy. Victor was at the wheel, vigilant as always, casually twirling his mustache with one eye on the ship's barometer.

"You should have been here in May," he said with a laugh.

I'd heard the story. *Obruchev* nearly sank on May 16, during a hellacious storm that came up suddenly from the west, pummeling the lake with hurricane-force winds. When the storm hit, the crew was halfway across, giving some seal hunters a lift from Turka to Olkhon Island. Mountainous seas nearly capsized the ship.

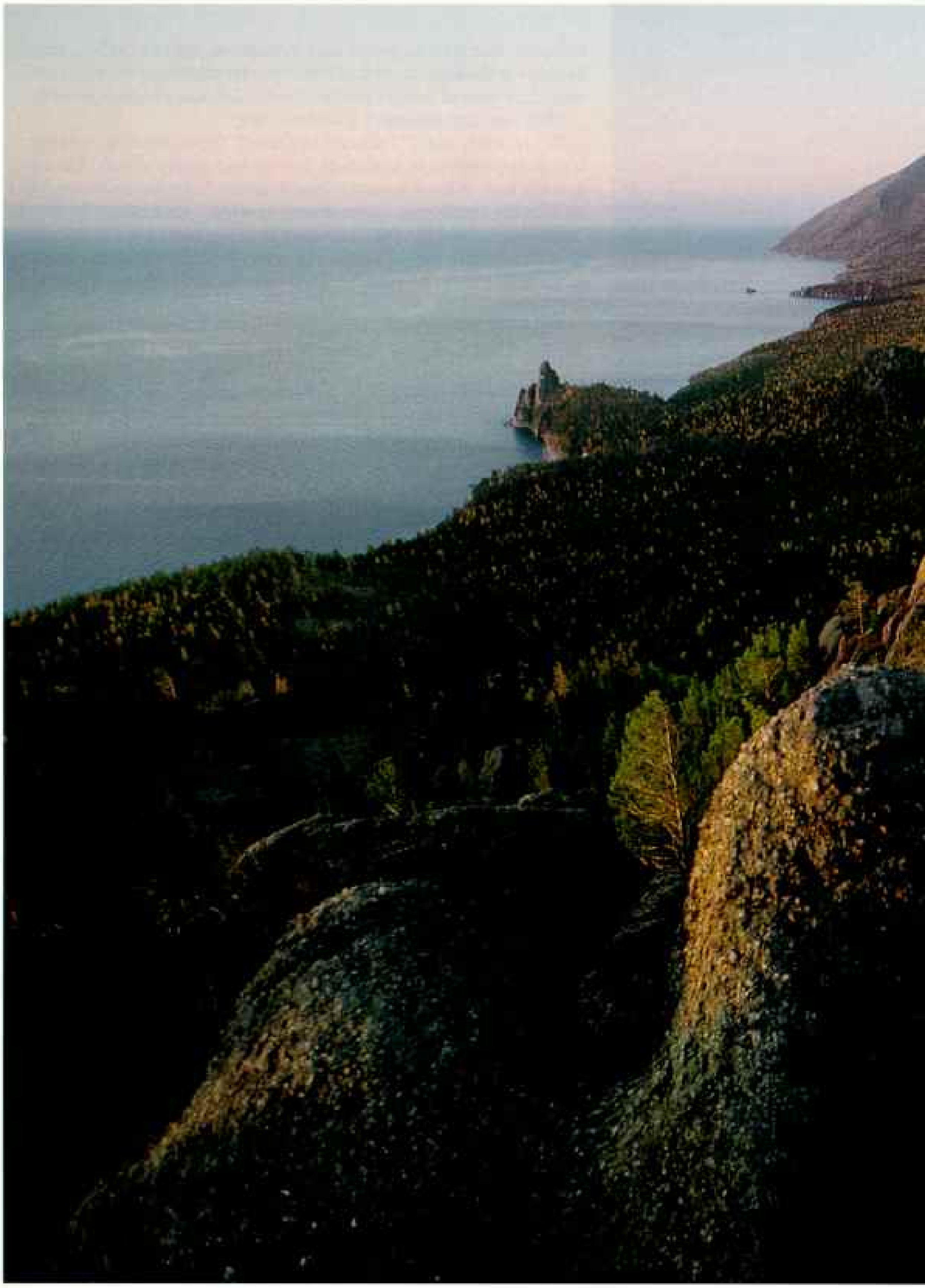
"What do you do in a situation like that?" I asked Victor. "Poopsik," he replied with a sheepish grin, pointing to the ship's talisman—a little plastic doll hanging by a string in the corner. "Poopsik took care of us." Below Poopsik there was a framed icon, Madonna and Child, and Victor followed my thoughts.

"We also said a prayer or two," he said.

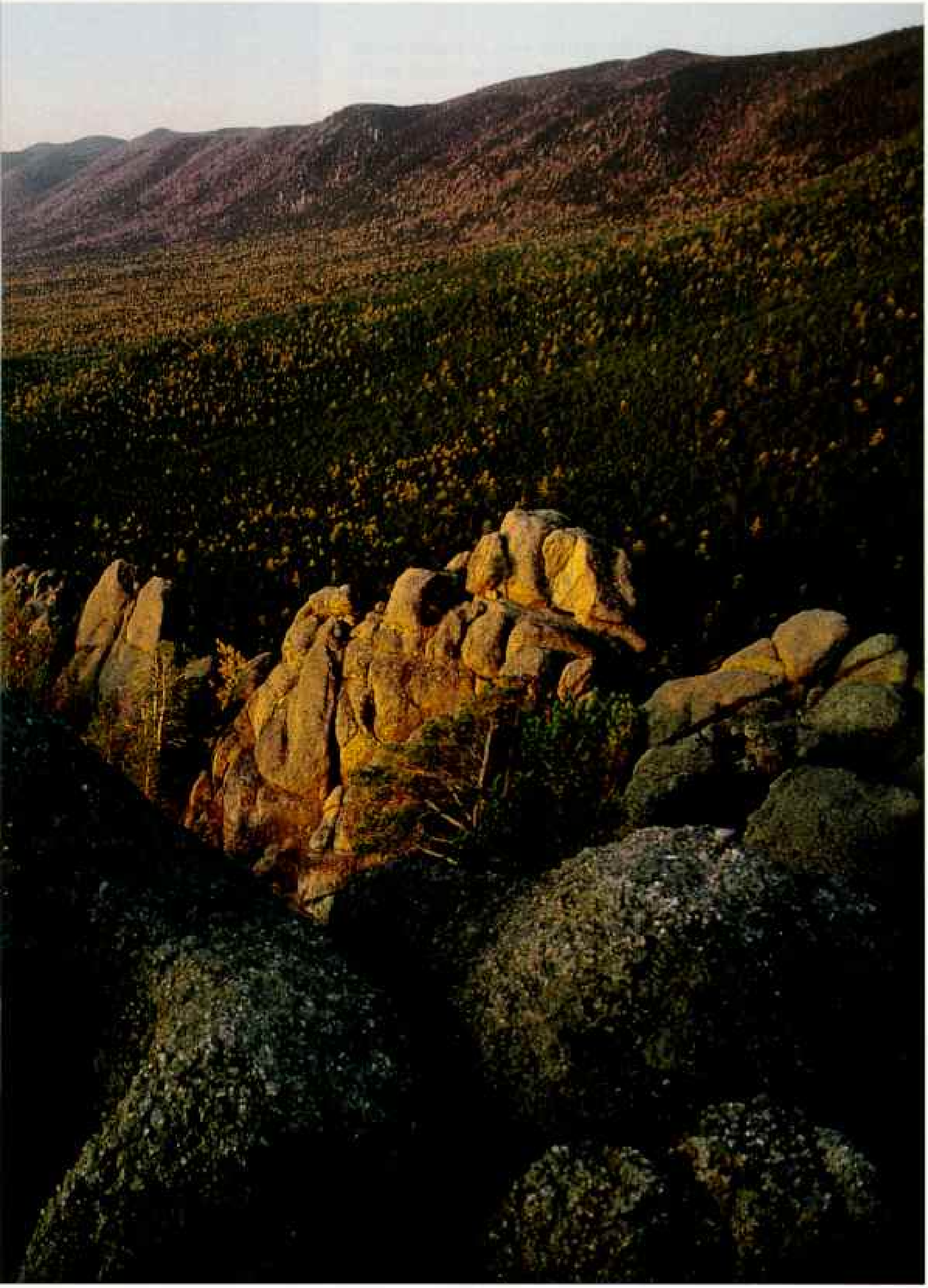
We anchored one night on the eastern side of Olkhon, a 70-kilometer-long island near Baikal's midsection, and built a campfire. As always, the minute we lowered the gangplank, Yuri bolted off to gather *bogorodskaya trava,* or "grass of God," from the meadow above. All month he had been collecting this wispy little herb in a plastic bag for his grandson back in Listvyanka. It cures colic, he explained, and helps to settle the nerves.

At moments like this, it was easy to think of Yuri, who is half Buryat and pushing 50, as a child of nature. He is one of the few people I saw who swam with enthusiasm in Lake Baikal, dog-paddling happily about in waters cold enough to wake the dead. In winter Yuri and Sasha, who is part seal, actually skinny-dip in Baikal through a hole in the ice, after being bathed in steam and lashed with birch branches dipped in scalding hot water—the traditional Russian *banya.* "Baikal makes you feel young again, like baby!" Sasha roars. "Like you have milk in blood!"

Back in May, when the big storm hit, *Obruchev* was several kilometers east of here, directly over Baikal's deepest, most treacherous waters, which are lashed by wild and erratic winds. This



The harmonies of Baikal call thousands of Russians yearly to Peschanaya Bay, a west coast resort area accessible only by boat. "It's hard to describe what



Baikal means to people in my country," says a young scientist from Moscow. "It's like a beautiful piece of music that everyone learned as a child."

is the region where Buryat legend says the gods of Baikal reside.

These were evil gods, the Buryat believed, and their main goal in life was to drown people. Chief among them is Burkhan, whose name appears throughout the curious mix of shamanism and Buddhism practiced by the Buryat. Equally feared is Doshkin-noyon, the god of storms, whose specialty is stealing away the bodies of the drowned. A man's best hope is to bribe these gods.

As we roasted fish over the fire that night, the vodka came out and made the rounds. Each member of our crew, before drinking, poured a little into his cupped hand and flicked it into the fire with his fingertips. This was not a joke, I realized, seeing the solemn faces around me.

"A little something for Burkhan," Yuri explained, his dark eyes calm and clear.

FROM THE HIGH CLIFFS on the north end of Olkhon Island, it is possible to make out the seal islands of Ushkani, 65 kilometers away across waters too deep to imagine. Turning east, you can sometimes see distant black tugboats towing the bundled rafts of logs called "cigars" from the valley of the Barguzin River. They creep southward to the huge timber processing yard at Vydrino, and to Baikalsk, where logs are ground up to make cellulose. Strung together, these cigars often stretch a kilometer behind the tugboat, moving so slowly in the distance they sometimes vanish in the bluish mists of Baikal—only to reappear an hour or so later in exactly the same place.

This promontory on Olkhon is considered holy by the island's Buryat, who adorn the trees and bushes with *semelga*, amulets made from colorful strips of cloth. It is said that here, in the high forest overlooking Baikal, the last of the Olkhon shamans was laid to rest a decade ago, his body lashed naked to a platform in the trees and burned: A soul buried in the earth will never see the sun.

Olkhon, close to the lake's western shore, is the largest of Baikal's 27 islands. And because rain clouds coming from the west usually drop their moisture on the windward slopes of the Primorskiy Range, it's also the driest. The island's one sizable town, Khuzhir, gets half the precipitation of stations directly across the lake, and most winters here are "black"—without snow. "Olkhon" is, in fact, the Buryat word for "dry."

Surrounded by dangerous waters except during winter ice, the 500 or so Buryat on Olkhon tend their sheep in relative peace and isolation. Their brethren on the lake's eastern shore were not so blessed in the early 1930s, when Joseph Stalin's war against the peasantry reached the area around Baikal. As it had done so brutally in western Russia, the Soviet state seized private property and forced all farmers, fishermen, and hunters into collectives, called *kolkhozy*.

Then in 1934 the Red Army began a systematic annihilation of the Buryat way of life, including the practice of Lamaist Buddhism. Throughout the Buryats' "autonomous" republic, the Buddhist *datsans*, or monasteries, were destroyed, and an estimated 10,000 people were murdered or worked to death during a two-year period the Buryat now refer to as the Red Barbarism.

In the valley of the Barguzin River, the region's principal datsan at Arshan lost 500 monks and young novitiates in the purge. The

Novitiates at the Buddhist datsan, *or monastery, near the Buryat capital of Ulan Ude enjoy a lighthearted moment between classes. Thanks to former President Gorbachev's reforms, this school for monks was reopened after decades of darkness that began in the 1930s when Stalin's Red Army declared war on the Buryat way of life. Throughout the*

Baikal region Buryat religion and language were repressed, and during a two-year period some 10,000 people perished, including most of the religious teachers.

Today the Buryat—ethnic Mongols living in Russia—are shaking off the effects of communist rule. In 1991 they claimed increased sovereignty as the Buryat Republic.

army also raided homes, destroying Buddhist relics and shrines, including the *krasniy ugolok*, or prayer corner, found in most Buryat houses.

Today the reforms begun by Soviet President Gorbachev have brought new hope to Buddhists here, who are beginning to emerge from their long, godless sleep.

"*Perestroika* changed everything," says Dashi-Nima Dondupov, a patriarch known to Buryat up and down the Barguzin River. He conducts services in the little house in Argada that once belonged to his father, a brave and learned man who not only hid the holy Tibetan texts from the Red Army in his barn—but also taught his son to read them.

Led by Dondupov, the Barguzinskiy Buddhists have successfully petitioned Moscow to let them rebuild the datsan razed in 1934. Already, young Buddhists have begun to reclaim the timbers from the datsan at Arshan. The Reds had used them, sacred carvings and all, to build a communist youth club.

"The communists said we didn't need God," Dondupov told me. "Well, now God has come back."

Sheep people, the 500 Buryat on Olkhon Island range their herds (above) over grasslands as dry as any in the region. Denied rains by mountains to the west, Olkhon is pounded instead by wind—including **sarma**, *Baikal's most treacherous, a westerly gale reaching 160 kilometers an hour that often blows up without warning.*

Site of a forced-labor camp during Stalinist times, Olkhon is home to 4,000 people, many of whom live in wind-sheltered Khuzhir, where omul is processed and shipped.

WE WERE RUNNING LOW on supplies and morale the morning we chugged into port at Ust Barguzin, a hardworking timber town on Baikal's east coast where the Barguzin River, one of Baikal's main tributaries, empties into the lake.

It was a day the color of wet cement, a cold Sunday in late July. Huge black tankers and tugboats lined the river channel—working vessels manned by hard-eyed Russian sailors who cast dark stares down upon us as we passed. *Obruchev*, painted white with a cheerful red deck, seemed positively dainty in contrast, like a debutante who'd wandered into a bad neighborhood.

Even at this early hour, an enormous platform dredge was laboring to clear the murky channel, and its twin derricks shrieked with the grinding of metal against metal, a terrible doomsday roar. Once in a while the dredge would stop, leaving the deep, menacing voice of Boris Yeltsin to rule the empty air, booming out across the harbor over loudspeakers on the ships. His speech to lawmakers in Moscow was being carried on state radio. The economy is in shambles, he was saying; it's time for something more radical.

Sasha, meanwhile, was working on a grocery list. He'd been trying to buy meat, eggs, milk, and other staples in every town we'd visited for the past week, with no success. The state-run grocery stores, called *produkti*, could barely feed the people who lived there, we were told, much less the crew of a passing ship. Sasha thought Ust Barguzin might be different. He had friends here, a few in high places.

The next morning we all went into town. Hours passed as we tromped the muddy streets from one bureaucrat's office to the next, collecting signatures on our grocery list. We hoped to buy food directly from warehouses—possible, Sasha said, only because we were affiliated with the Limnological Institute.

Showing our signed paper as we went, we were finally able to buy potatoes and eggs from the back door of a cafeteria; from the loading dock of a warehouse we bought several sausages and hunks of fatty beef. And our daylong search for milk ended in a small gray building with white metal display cases—a "special" food store attached to a warehouse.

To the shop manager—a dark-haired woman wearing a scowl and a white butcher's coat—Sasha presented our grocery list. It had been signed now by seven different officials, beginning with the mayor of Ust Barguzin, who some six hours earlier had enthusiastically outlined his plan to boost the town's sagging fortunes by making it a popular destination for foreign tourists, preferably wealthy ones.

I had heard this idea expressed before by civic officials in the towns around Baikal. And now, as I stood in line in the town's best grocery store, shooing flies away from a metal bowl full of stiff and desiccated fish, rubbing shoulders with a crowd of Siberians resigned to Moscow-style food queues ("waiting, waiting," the man next to me grumbled, "we spend our whole life waiting") while listening to Sasha argue with the sharp-tongued woman behind the counter about how many cans of milk the mayor's signature entitled us to buy, I wondered how many tourists would be willing to fly halfway around the globe to share the experience.

Near the end of our voyage, as we approached Baikalsk one

misty afternoon, the crew of *Obruchev* grew silent and withdrawn. "We call this part of the lake the 'rotten corner,'" Victor explained. "The weather's bad, the fish don't bite, and there's that damned factory."

We rounded a small peninsula and there, suddenly visible through a break in the fog, were a dozen or more smokestacks, a sprawl of buildings, columns of pale yellow smoke billowing up against a gunmetal sky.

Over breakfast that morning Slava had told me that our ship wasn't named for Obruchev until 1956, when the great geologist died. Before that it was called *Albatross*, and its commander was his friend, Sergei Vasiliev, greatest of the Baikal ship captains. In other words, I had been living for weeks on the ship that brought the cold warriors—and their industrial handiwork—to the shores of Lake Baikal. Super cellulose, by the way, never worked out. Synthetics made better aircraft tires.

RAIN WAS SLASHING across the windshield the morning I drove back to Baikalsk to tour the cellulose plant. There was an unseasonable nip of autumn in the August air, and Baikal itself was sleeping late, wrapped in a thick coastal fog.

Through the rain I caught quick flashes of color in the taiga, or boreal forest, along the road, and ghostly figures roaming among the trees. This was the beginning of berry-picking season, the sweetest time of year for Siberians, who love doing things that bears do. The rain-soaked woods were full of families out picking berries—raspberries, blueberries, bilberries, and buckthorn berries—with gentle, juice-stained fingers and placing them in big aluminum pails the men wore on their backs.

This was the kind of scene I'd come to expect during my weeks at Baikal, where the richness of this lake stands in stark contrast to the poverty of the people living around it.

All summer I had heard Russians speak with uncensored passion about the Baikalsk Cellulose-Paper Plant. I had heard the most humble desk clerk in Moscow call it "our national disgrace," a

Swimming in Baikal will keep you young, locals say, adding that you can also grow old building courage to plunge into those ice-cold waters (above left). "I've watched many people go for their first swim in Baikal," says a geographer in Irkutsk. "Most behave as if they had jumped into boiling water."

Of the thousands of tourists who visit Baikal each summer,

some 800 a week flock to Goryachinsk, a famous hot-springs resort on Baikal's eastern shore. Here Zinaida Shulgina (above) has been administering curative mineral baths for more than 30 years. The hot springs work wonders, she says, but cautions against a dip in Lake Baikal afterward: The shock is too hard on the heart.

conductor on the Trans-Siberian Railroad gleefully volunteer to level it with a sledgehammer, and an eminent Russian scientist refer to it in a calm, matter-of-fact way as "this monster" throughout our conversation. Because of this plant some even spoke of Lake Baikal in the past tense, as if its ecosystem were already dead.

Others, including most scientists, disagree with that dire conclusion. But there's no doubt that the plant pollutes the area. Its airborne emissions make Baikalsk one of the most polluted cities in Russia, and forests of larch and pine nearby show unmistakable signs of degradation. In 1989 the plant discharged 26,000 tons of minerals, 200 tons of suspended substances, and 2,500 tons of organic by-products into Lake Baikal. Still, cellulose making is a dirty business, and this effluent is exceptionally clean by international standards.

"If this plant were anywhere but Lake Baikal, we would call it a model for the way such plants should operate," said Genady Tikhonov, the factory's chief technologist, a bullish 35-year-old who repeatedly waved off my umbrella as he led me from one waste-purification basin to the next through the downpour.

Sharing a song of their Ukrainian homeland, five women from Baikalskoye—all honored veterans of World War II—picnic after a morning spent digging

potatoes by the lake. Life unfolds slowly here, at a distinctly Siberian pace, enhanced by memories and the smooth sound of water lapping at Baikal sand.

"We're always the first to be attacked," he said. "And always by people who wouldn't lose their jobs if this plant was closed."

More than 3,500 people work at the mill, producing Russia's second highest volume of bleached cellulose, used to make clothing. Ministry officials in Moscow, in fact, predict a nationwide shortage if this plant is closed to comply with the 1987 decree.

That now seems a remote possibility. Few seriously believe that, in the midst of the greatest economic and political upheaval since the 1917 Russian Revolution, the government is going to shut down a top-producing cellulose plant, fire or retrain thousands of workers, and come up with the millions of rubles it would take to turn this factory into something less objectionable. In the foreseeable future, Baikal's survival may depend, as it has for decades, on the great lake's recuperative power—and the will of its defenders.

On the outskirts of Baikalsk I met a small, ragtag, thoroughly waterlogged army of protesters on the highway, marching through the rain toward town. They had been on the road for three weeks, they told me, walking the 320 kilometers from Ulan Ude to air their grievance.

Vast as a sea, pure enough to drink, Baikal is an old friend to waterfront villages such as Kurbulik (above). It is the same to retired ship captain Vladimir Stepanov and his artist wife, Evgenia, of Ust Barguzin (opposite). Long ago she painted the great lake above their door for luck. Baikal, she says, is the most beautiful thing she knows.

Nearly every one of them was disabled in some way. Their hair, their clothes, and their wheelchairs were spattered with red paint, which was dripping from the rain-soaked banners they carried proclaiming "People for a Clean Baikal," and "Will We Wait While Baikal Is Dying?" They had come, they said, to stop the poisoning of their Sacred Sea.

"We're here for our children," explained one exhausted Buryat woman in a wheelchair. "We must save Baikal for our children."

Then I understood: How people who have had nearly everything taken away will fight to keep the one beautiful thing they have left.

Weeks before, Limnological Institute Director Grachev had described the situation this way: "It's as if a horse walks into church. You can convince yourself there's no problem using scientific evidence—if you analyze the smell, take dirt samples from the floor, note shadows on the wall. But all this obscures the obvious. The problem is, there's a horse in the church!"

Lake Baikal is a symbol, Sasha told me once, of all the things that give Siberian life its distinct sweetness—the natural beauty, the purity of open air, the hardy generosity of people and the poetry in their collective soul.

"This is what Russians mean when they talk about the Motherland," he said. "And nothing, nothing is more precious to us than that." □

The world beneath Baikal

BILL CURTSINGER (ABOVE AND RIGHT)

The deeps of an icy lake in Siberia may seem a hostile environment, but for a huge number of aquatic organisms Baikal is just the opposite. Its cold waters move vertically, carrying oxygen even to the 1,637-meter bottom, where golomyanka (right), one of some 1,500 endemic species, was spotted. Baikal, in fact, has more endemics than any other lake.

Its great age—more than 25 million years—also sets it apart from other freshwater lakes as a living laboratory of evolution. During its life, 30 species of sculpins (above) have evolved. In comparison, 10,000-year-old Lake Superior has but four species.

Baikal owes its longevity to the tectonically active rift it occupies, which may cause it to widen by as much as 2.5 centimeters each year.

In June 1990 a joint Soviet-American expedition sponsored in part by the National Geographic Society located hydrothermal vents—evidence of high heat flow beneath the lake. Remotely operated vehicles (right) and a research submarine were dispatched to the bottom of Frolikha Bay, 420 meters down, where cameras recorded a striking discovery—freshwater sponges (below) and other animals thriving around the warm-water vents. □

NATIONAL GEOGRAPHIC PHOTOGRAPHER EMORY KRISTOF (BOTH ABOVE)

STREET TO THE STARS

SUNSET

Getting wealthier as it moves west, Sunset Boulevard, at left, streaks through Hollywood on its way to Beverly Hills and the Pacific.

By RICK GORE SENIOR ASSISTANT EDITOR Photographs by STEVE McCURRY MAGNUM

BOULEVARD

High-voltage core of the L.A. scene, Sunset Strip—where diners at Grappa Restaurant endure noisy street traffic—thrives on the Hollywood obsession for being seen.

A glittering string of clubs and restaurants, once the hangout for gangsters like Bugsy Siegel, the 1.7-mile Strip counts itself the center of the universe for the latest trends.

Look at this street! All cardboard, all hollow, all phony, all done with mirrors. You know, I like it better than any street in the world.

DESCRIPTION OF A HOLLYWOOD SET,
FROM *SUNSET BOULEVARD*

IN THE SUMMER OF 1950 Paramount Pictures released a film called *Sunset Boulevard*. Named for the street where Hollywood movies were born, this fable remains a haunting allegory for life in Los Angeles. *Sunset Boulevard*. A young down-on-his-luck writer from the Midwest, Joe Gillis, is driving wildly down the boulevard, fleeing creditors who want to repossess his car. He evades them by veering into the driveway of Norma Desmond, a faded silent-movie queen.

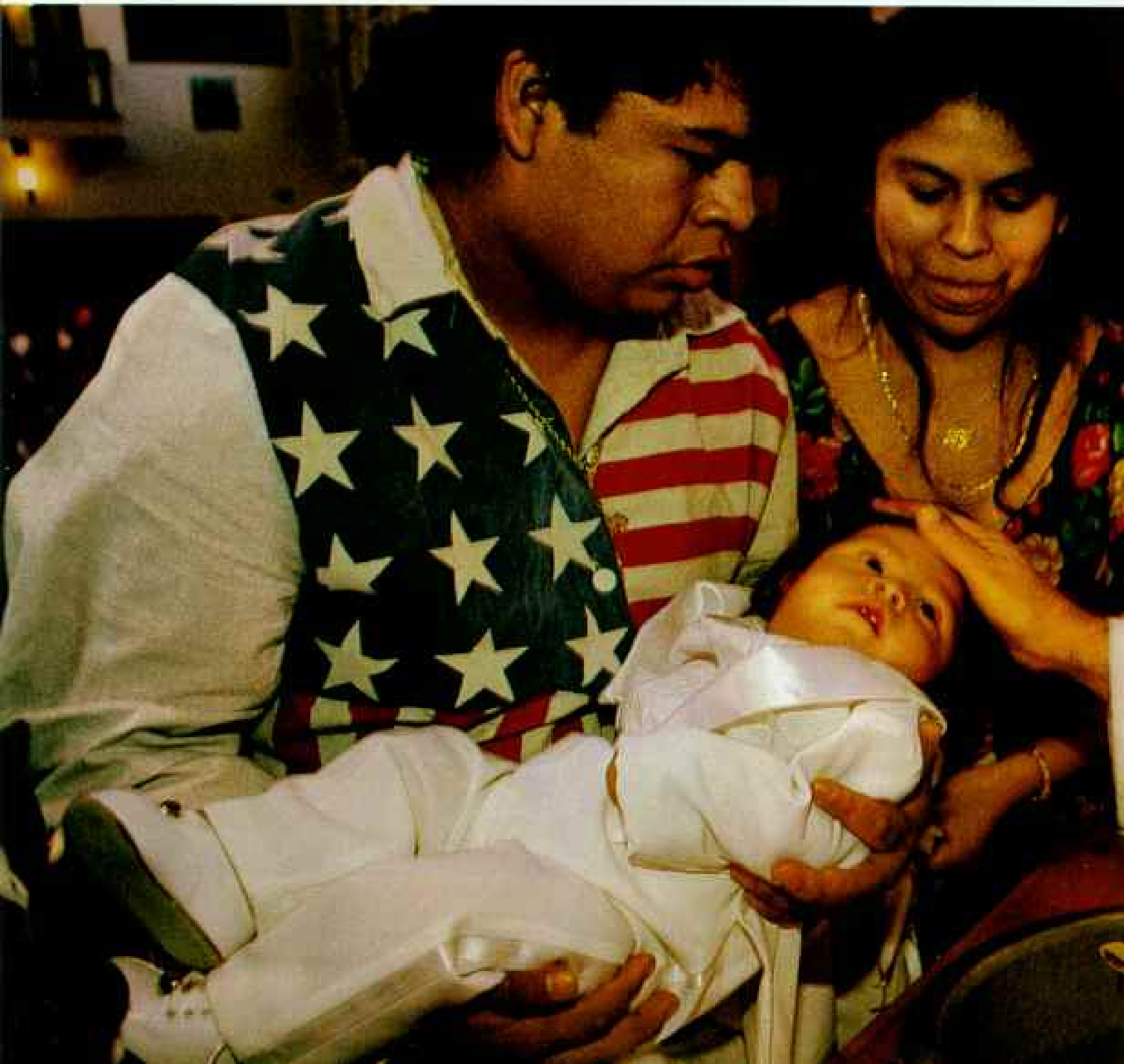
Joe, like so many hopefuls, had come to Los Angeles thinking he was special—and maybe he was. But the dreams he had brought across the country had been chewed up and spit out by the Hollywood film industry. As he puts it: "I talked to a couple of yes-men at Metro. To me they said no."

Norma too has a dream—to recapture her glittering youth.

"I know your face," says Joe when he meets her. "You used to be big."

"I *am* big," she snaps back. "It's the pictures that got small."

As I race across the desert toward Los Angeles on Amtrak's *Sunset Limited*, the celebrated obsessions of L.A. race through my mind as well. Eternal youth. Cars. Instant fame. Dreams come true. In short, the world Cecil B. DeMille bemoaned in *Sunset Boulevard*: "A dozen press agents working overtime



can do terrible things to the human spirit."

I am coming to L.A. to report on the real Sunset Boulevard, the street that dissects the city from downtown to the Pacific. Skirting the Santa Monica Mountains for about 24 miles, Sunset Boulevard cuts below Dodger Stadium and winds through the immigrant-rich communities of Echo Park and Silver Lake. It passes the often tawdry, faded facades of Hollywood. It curves through a canyon of nightclubs and towering billboards in West Hollywood known as Sunset Strip before hitting the manicured lawns of Beverly Hills. It weaves between the mansions of Bel Air and the University of California, Los Angeles, and heads toward the affluent village of Pacific Palisades. Then it plunges to the sea south of Malibu.

"It's the one street that most represents Los Angeles," a local journalist told me.

That's the real Sunset Boulevard. But the unreal boulevard won't let me sleep well tonight. I had a brother who wrote a movie called *Fame*. He moved to L.A. and became rich. I remember the expensive cars, the extravagant meals, the sparkling views from the Hollywood Hills. I remember the hot tubs, the gym with endless mirrors, the white powder, and his gnawing fear that the reel would suddenly break. But mostly I remember that my brother died, years too early, while living above Sunset Boulevard.

Just outside L.A. the conductor awakens me from my fitful sleep. I know there's a lot more to Sunset Boulevard than the movie industry. Twenty-four miles to the sea. It's time now to make sense of this seductive street.

Deacon at Our Lady Queen of the Angels, Rodolfo Sevilla estimates he has baptized 50,000 babies in his 15 years of service. In the Spanish-colonial heart of downtown Los Angeles, the church now serves a swelling population of Central American immigrants.

I STEP OFF THE TRAIN at Union Station. Here, at the base of Sunset Boulevard, L.A. looks like the boomtown it's always been. There's a new skyline twinkling in the purple dawn. Most of its towers have sprouted in the past decade as the city became America's financial capital for the prospering Pacific Rim. Beneath Union Station there's the hub of a new 3.4-billion-dollar subway, being built as Angelenos struggle to deal with their traffic and smog.

But the greatest boom in L.A. is a people boom. Drawn by the American dream of making it big and making it fast, immigrants are turning the east end of Sunset Boulevard into a new Ellis Island. Many newcomers make their first homes in the cheap, rent-by-the-week tenements of Echo Park, a working-class residential neighborhood almost in the shadow of the downtown skyline.

"We've got everybody here," says Jeb Brighouse, head of the Echo Park Renters and Homeowners Association. "It's the most American community in L.A. We're proud of that."

On corners Latinos sell ears of corn out of grocery carts. At neighborhood *botánicas* the pious buy rosaries, while others procure the

Ephemeral as twilight, a street mural resonates with the uneasy spirit of a complex Los Angeles community, Silver Lake. A cross section of minorities, its diversity enriches and

tests civic harmony. A wave of gay bashing by Hispanic gangs has been only partly eased by group conciliation. The mural was recently painted over, losing its chance for fame.

L.A.'s RAINBOW ROAD

Los Angeles' most famous street unites a series of communities of remarkably varied class and ethnic makeup. From Olvera Street, where the city was born as a Spanish pueblo in 1781, Sunset begins in Hispanic accents that gradually lessen as it passes through Echo Park and into Silver Lake. In Hollywood and West Hollywood the entertainment industry dominates. Then Sunset winds on through the canyons of Beverly Hills and Bel Air—where Hollywood's wealth has made itself at home—finally ending in the upper middle-class community of Pacific Palisades.

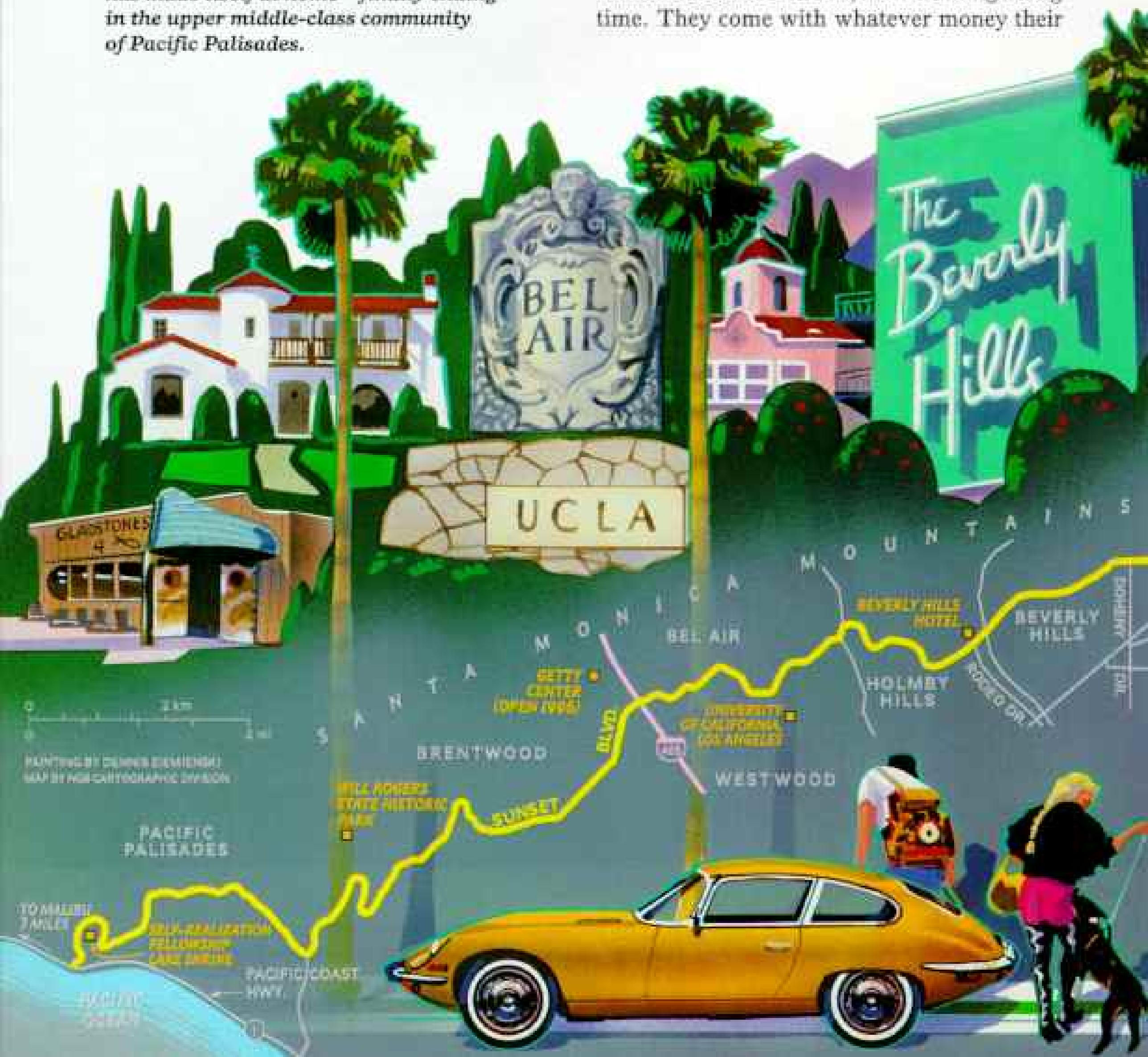
services of a *curandero*, or folk healer. In new mini-malls Filipino, Armenian, or Korean families struggle to pay the rent for small, but ambitious, storefront businesses.

This immigration—Asian, Mexican, Central American—is revolutionary. In Los Angeles County non-Hispanic whites are no longer the majority. They now constitute only 41 percent of the population. Hispanics have soared to 38 percent. Asians have risen to 10 percent; blacks have declined to less than 11 percent.

While enriching the city, the new demographics are shaking the board of education, headquartered on Sunset Boulevard west of Chinatown. Student populations are growing by 15,000 a year. "We just can't keep up," says retiring board president Jackie Goldberg.

Immigration presents other challenges.

"Often we get the child without the parent," says Goldberg. "How do they come? I think most come on a bus, after walking a long time. They come with whatever money their



parents can spare and a piece of paper with a name and address. We get kids of 11 or 12 who have never been to school."

Language creates further pressure.

"We have between 84 and 90 languages spoken by students in our district," says Amelia McKenna, director of bilingual education. "Nearly 40 percent of our students—242,000 children—are limited in English."

School is rapidly becoming meaningless for large numbers of L.A.'s next generation. "We don't have the family at home anymore," says Sandra Figueroa, director of El Centro del Pueblo, a social-action group in Echo Park that is dedicated to "youth-at-risk." "Gangs are increasing. We have seven-year-old kids in trouble with the police. This area has no recreational programs. No funding. Social services are being eliminated."

"Gangs aren't like they used to be," adds a colleague. "They're more violent. They drive by and shoot up places. When you can make $5,000 a week selling drugs, you will never understand what it means to work hard."

THE REALITIES along the east end of Sunset Boulevard can be harsh. But for six months out of every year Echo Park offers a reliable escape. I can feel the pressure lift as I turn off Sunset and drive up Elysian Park Avenue into the enormous parking lot of Dodger Stadium.

This sparkling baseball arena was the dream of one of L.A.'s most famous immigrants, the late Walter O'Malley, who in 1958 dismayed Brooklyn by bringing his Dodgers to L.A. For the past 22 years his son Peter has guided the helm of one of baseball's most successful franchises. Since coming to L.A., the Dodgers have won nine pennants and five World Series, and they regularly draw an enviable three million fans a year.

Peter's dream, he says, is to internationalize baseball. He lobbied

successfully to have the game made an Olympic sport. He is supporting baseball in China, Russia, and other countries. He sends scouts all over the world seeking promising players for the Dodger farm system, one of baseball's best. Developing more good players, he says, will ease a scarcity of talent that has driven top star salaries beyond five million dollars a year.

Eric Karros, on the other hand, doesn't see a shortage of competition. "There are so many guys who can play this game," says the 24-year-old, 6-foot-4-inch first baseman. The handsome Karros is one of the Dodgers' hottest prospects.

He played college ball at UCLA. "I'm just moving east along Sunset Boulevard," he tells me. "Hopefully, this is where I stop. It's been my dream to play for the Dodgers."

As we watch team regulars jog and bat, Karros talks about pressure. Just called up from Albuquerque, where he was named Dodger minor-league Player of the Year, he is locked in a battle to win the starting slot at first base. "I've got to hit," says Karros, who has batted as high as .352. "Swinging the bat will be my ticket." He grins. "You can't be obsessed with baseball, but you've got to be pretty close."

Boosting her self-image and announcing her arrival, aspiring "personality" Babydol rustled up cash enough to share space with the Marlboro man at the prime location of Sunset and Marmont. "I don't like the fact that he smokes," says the pop singer, who reckoned that the most important eyes in Hollywood would see her 25-foot-high image while cruising west to their homes in Beverly Hills.

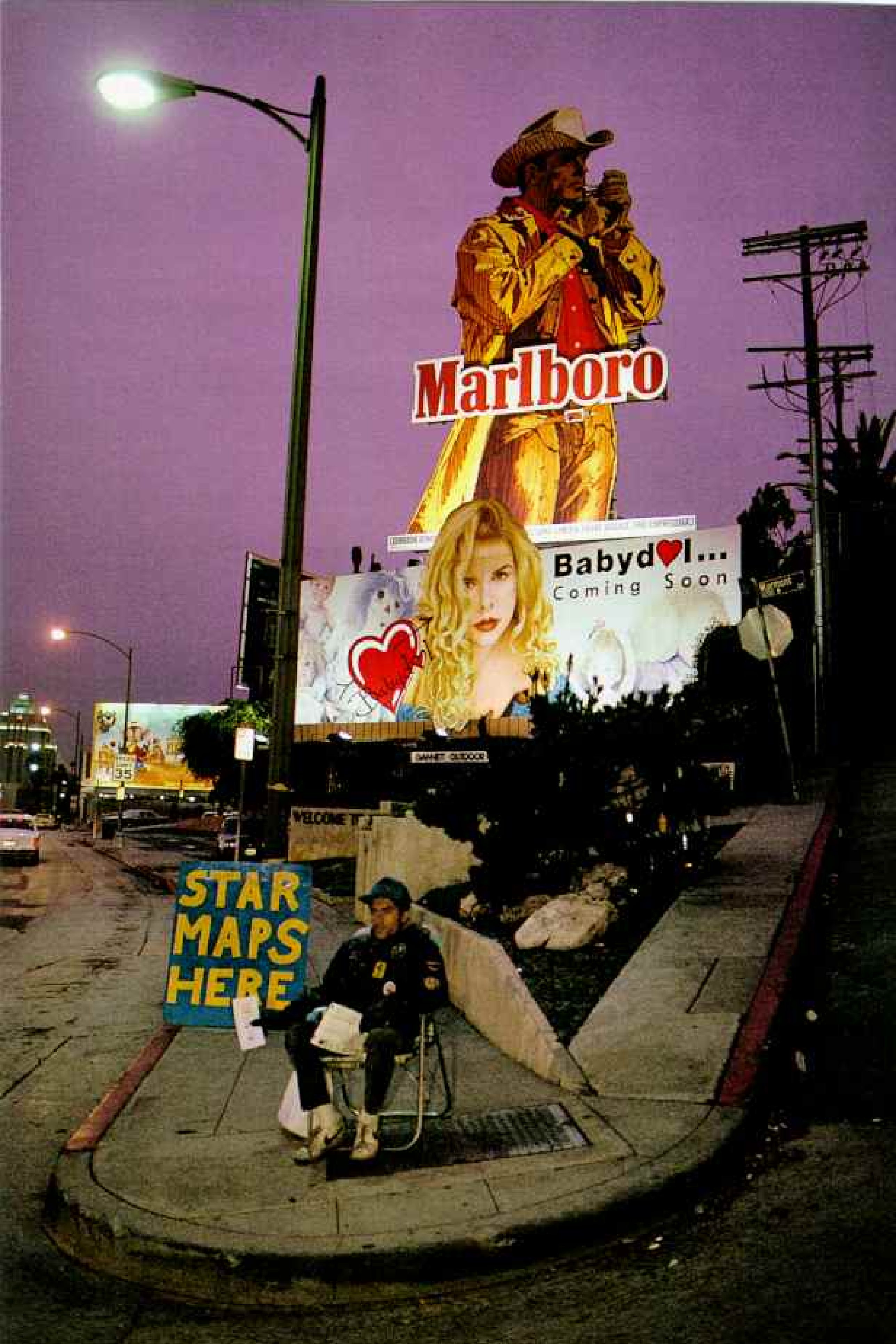
OBSESSION! As Sunset Boulevard heads on through Silver Lake—trendier and more prosperous than Echo Park—and enters Hollywood, the sense of obsession grows stronger.

"I have one dream in my head," says Lawrence Collins, a 23-year-old student at the Musicians Institute in the heart of Hollywood. "I want to be a singer-songwriter. And I want to go to the top."

Like 1,200 other students at the institute, Collins works full-time on his performance skills as a musician. The world's music industry is now centered here. The area between Sunset and Hollywood Boulevard is nicknamed Rock Block because of all the would-be stars living sometimes six-to-a-room and playing any gig they can.

"It's possible here—like nowhere else—if you're good," says Collins. "I know some guys who are guitar players only to get girls. Sunset Strip is loaded with girls looking for musicians. The flashier the better. But to me it's the music—playing the gig. When you really nail it, you're on a cloud. It's worth it. All the pain."

A few blocks away at Danny's Hollywood Diner a Hispanic waitress sings for anyone to hear in the style of pop artist Gloria Estefan and talks of a backup singing job she hopes to get. Almost every waiter or waitress, every hotel clerk or bellman along this street is really something else—an actor, a writer, a drummer. Everyone has written a screenplay or a song. Sometimes, looking out over Sunset


Marlboro
Babydol...
Coming Soon
WELCOME TO
STAR
MAPS
HERE

from the hills, I can almost hear a sigh of collective longing rising up from the basin. All those dreams and egos out there whirling in some frenetic dance, hoping to be chosen.

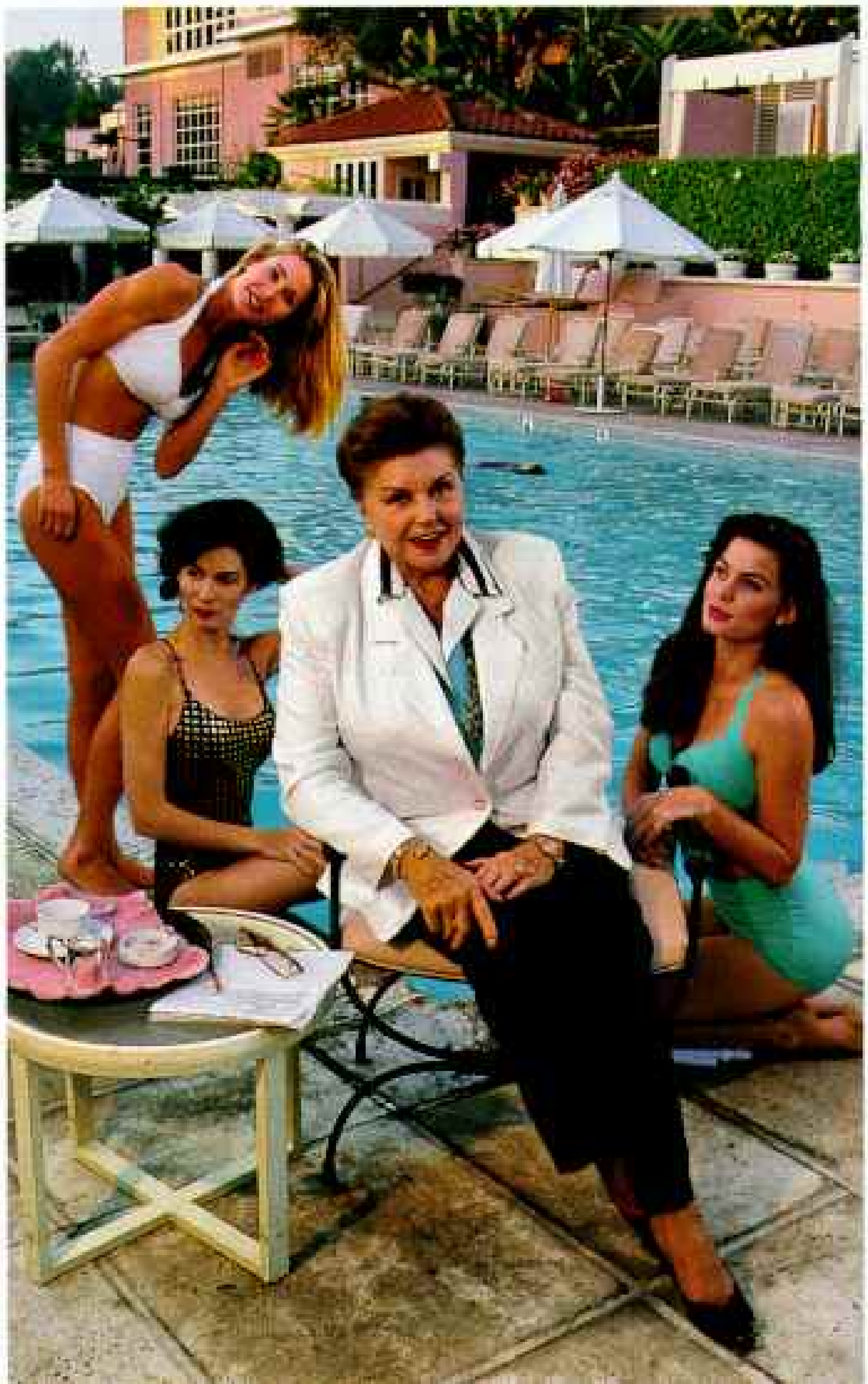
I befriend two actors—Paul Martignetti and Andrea Lane. They are rehearsing a scene in hopes of persuading an agent to represent them. Without an agent it's hard for actors to get auditions. Later they joke about "sleaze lunches" where agents have propositioned them. Yet they are determined.

"We're gonna make it, Andrea," says Paul. "We're good-looking but not formula. We're weird ducks. People will notice us."

ON THE OTHER END of Hollywood a run-down house is filled with a group of bedraggled kids. "Children of the night" they are sometimes called. On a couch a black girl cradles a sleeping white boy, while a pregnant teenager shows her swollen belly to friends. This is the Los Angeles Youth Network, a temporary shelter for the growing number of runaway children who flock to Hollywood.

"They keep coming—from every socioeconomic background," says program director Elizabeth Gomez. "Hollywood is nothing like it's portrayed on TV. But you don't know that till you get here. We figure we have about two weeks to reach a kid before he or she turns to prostitution. They find they are starving and cold, and it's a quick way to make money. The streets are horrible, but the kids are choosing to be there. So home had to be worse."

For Jennifer it was, even though she tried to be a model child. Her mother psychologically abused her. At 14 she was removed from her single-parent home in nearby Orange County by social workers and placed in a foster-care institution. She began running away. She met a lot of men.



A short drive from her home "in the hills of Beverly," movie star and swim-wear executive Esther Williams relaxes at the Beverly Hills Hotel with her favorite models—from left, daughter-in-law Kathleen Lamas, Jack Lemmon's daughter-in-law Gina, and Miss USA 1988, Courtney Gibbs. "You can't move in this town without running into at least the progeny of a movie star," says the champion swimmer, whose Olympic hopes were dashed in 1940 "because of the war."

"I made a lot of money, I spent a lot of money, and I had a lot of fun," says hundred-year-old Bel Air resident Hal Roach (above). The genius behind Laurel and Hardy and Our Gang, he made the most money, he says, from the Harold Lloyd comedies.

In the 1960s, when music began competing with the movies for Hollywood turf, Herb Alpert of Tijuana Brass fame (opposite) and Jerry Moss took over the old Charlie Chaplin studios at Sunset and La Brea for their A&M Records label.

"On the street you often felt love," she says. "Even if it wasn't the right kind of love." Then she found out that she was infected, like an increasing number of teenage girls in L.A., with the AIDS virus. No one wanted her—until she came to the GLASS House, one of the foster homes operated by the Gay and Lesbian Adolescent Social Services Center.

Jennifer is not gay, but many of the hundreds of runaway kids in Hollywood are. Her HIV status qualified her for a room at the GLASS House, where she has found a stabilizing family. She's struggling to pass her high school equivalency exams so she can attend college in Santa Cruz. Her housemates include Brett, whose parents had him jailed after he stole their credit card and ran up a $5,000 bill. After jail he ran away and became a prostitute. And Daniel, a Navajo boy, a recovering alcoholic who runs marathons and sometimes dresses as a girl. Then there's 17-year-old Deborah, who wears only boys' gang-style clothes. Her brain, says program director Sharon Kidd, has been fried by drugs. And while the GLASS House delivers tough loving care by the ton, Kidd worries that it may not be enough—especially for Jennifer, whose blood T-cell counts are low.

"I'm afraid she may not make it to Santa Cruz," says Kidd, tears welling up. "I'm going to have a lot of trouble dealing with that."

I WALK ALONG Hollywood Boulevard, just north of Sunset, where bronze-edged stars have been embedded in the sidewalk. Each has the name of an entertainment celebrity. But this is hardly the yellow brick road. It's noisy boom boxes, smarting smog, and cheap lingerie and leather shops. It's trying to find a pay phone that hasn't been broken by thieves. It's the smell of pizza wafting past souvenirs of Marilyn Monroe and

All life is a stage for performance artists like the guerrilla poet "bowerbird intelligentleman," who puts body and soul into his recitation at a Silver Lake launderette. At Sunset and Vine—which bills itself as the world's most famous corner—the Hollywood Walk of Fame mingles familiar stars with behind-the-scenes artists like television producer David Wolper.

James Dean and Mickey Mouse. It's a parade of the homeless, of bikers, crackheads, crazies, and punk kids with purple hair panhandling tourists. And everyone has "When You Wish Upon a Star" playing in their heads.

Hollywood, of course, is more. Away from Sunset and Hollywood Boulevards lie pleasant, sun-drenched middle-class apartments and bungalows. Here live the unsung workers in the entertainment industry—the carpenter who builds sets, the recording engineer, the struggling writer and actor.

Many treasure the town's faded ambience. "I love walking in the footsteps of those who have come before," says author Laurie Jacobson of the Hollywood Heritage preservation group. "Those footsteps are still warm." She also loves the famous "Hollywood" sign in the hills above her home: "I always wonder how many thousands of people have looked up at it with their dreams."

Residents have fought both a blight of tacky mini-malls and city redevelopment plans

Great expectations simmer and seethe along Sunset Boulevard, where "spokesmodel" Randi Tackett gets made up for the televised amateur show* Star Search. *After nine years no superstars head its alumni list. At Gazzarri's, on Sunset Strip, the rock group Forever Young performs on a stage that helped launch such supergroups as the Doors and Van Halen.

for mammoth, heavily subsidized shopping parks. Hard economic times, along with citizen fears that the old Hollywood will be overwhelmed by traffic and transformed into a mall, have stalled the big projects. Meanwhile, smaller, tasteful theater restorations and retail complexes have proceeded.

Still, I am wondering where the glamour of Sunset begins. I certainly don't find it riding with Sgt. Randy Litton of the Hollywood Vice Squad, the Los Angeles Police Department's largest. "Prostitution is our major emphasis," he tells me. He shows me a bulletin board full of pictures of prostitutes with warrants out for their arrest. "You'd think they'd be pretty, but they aren't," he says.

None of them look remotely like Julia Roberts, who played the Cinderella prostitute in the smash movie *Pretty Woman*. Moreover, he notes, 40 percent are male.

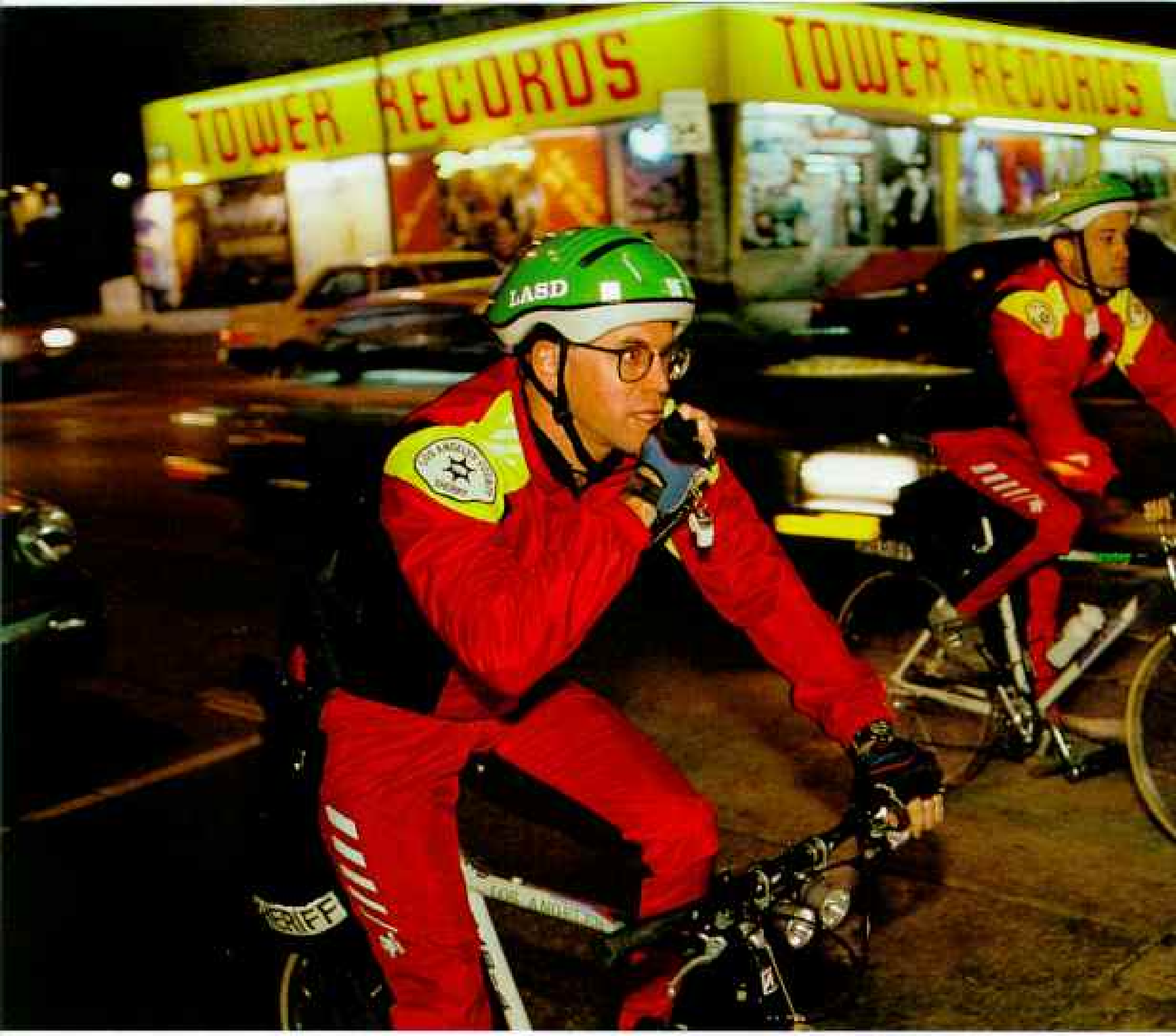
SO WHAT if *Pretty Woman* was all fantasy? I could use some now. So I head for Paramount Pictures, producers of *Sunset Boulevard* and the only big studio left near the street.

The gate Norma Desmond drove through in the film looks just the same. So do the low Spanish-style 1920s buildings. They are named for towering figures in Paramount history: DeMille, Billy Wilder, Mae West, Adolph Zukor, and Gloria Swanson, who played Norma.

I tour the back lots with studio vice president Harry Anderson. "Everything here was built to be used as a location," he says, stopping to tap on a brick wall. The brick sounds hollow. "Phony," he says.

We walk into a soundstage where a New York City diner has been meticulously replicated, down to the last greasy stains. It seems so real. Yet each wall can fly up and disappear so cameramen can get the desired angles.

I ask producer David Kirkpatrick how the industry has changed since Paramount made *Sunset Boulevard*. "In those days the studios controlled the talent—the stars, the directors. They were all under contract and played the roles you gave them. Now the talent tries to



control the studios. We have to develop scripts for them. They command outrageous salaries. Michael Douglas will get a 14-million-dollar package for his next film; Tom Cruise, some 12 million."

Containing costs is a priority for the industry. A typical movie in 1980 cost about nine million dollars; today it's 26 million. And box-office admissions are down. Yet the industry is profitable: Tickets cost more, while videos, cable TV, and the global appeal of American films have opened enormous new markets.

Japanese corporations have paid phenomenal prices to buy Columbia Pictures and Universal Studios. The American dream may be the last product we can still manufacture better than anyone else.

Hollywood has other media for disseminating dreams, and television is perhaps the most potent. In recent years, though, that industry has been shaken.

"The networks are running scared," says Bill Bruns, the L.A. bureau chief for *TV Guide*. "On a given night only 60 percent of the prime-time audience is watching network TV. It used to be 95 percent—before VCRs, cable TV, and remote controls that let people switch around. Besides, the networks can't come up with new hits. Few dramas are compelling. Most comedies aren't funny."

Being funny has never been a problem at Paramount's Soundstage 25, where I catch a rehearsal of the long-running *Cheers*. That familiar bar, I see, is just a stage-lit set inside a big dark building. Extras mill around as cameras and boom mikes move into position. Director Jim Burrows works on script changes with actor Woody Harrelson, who plays a naive bartender. Other faces emerge from the crowd at the bar—Cliff, Frasier, Norm. And, hey, there's Carla.

"Originally we were going to do a show

A new spin on law enforcement, cops on versatile mountain bikes patrol Sunset Strip, where substance abuse, including alcohol, normally poses the greatest threat to peace. In Hollywood, officer Mike Weiss of the L.A. Police Department checks a suspect for "mouth holding" drugs after he allegedly sold crack cocaine to a plainclothesman.

about a bar in Barstow, on the way to Las Vegas," says director Burrows. "We thought better and made it a sports bar in a great sports town—Boston. We decided to do a Tracy-Hepburn romance with the leads, create characters that feel like old shoes as soon as you meet them, and offer the best writing on TV."

After a dismal debut the *Cheers* chemistry ignited. Last season it was TV's top-rated show. Its success has made *Cheers* extremely expensive to produce. The characters we love demand ever higher salaries. Although NBC pays Paramount more than a hundred million dollars a year for *Cheers*, the network still makes a profit on the prime-time advertising the show generates.

How much longer will *Cheers* be around? "As long as it's fun," says Burrows. "As long as Teddy stays."

Teddy is, of course, the show's star, Ted Danson. *Cheers* has made the affable Danson one of TV's highest paid actors. He is reported to make $450,000 an episode—probably an

Lifting a curse from a distraught customer, members of a botánica, or folk-medicine shop, in Echo Park deluge her with smoke and water. The Latino shops are popular in the eastern communities of Sunset Boulevard.

On a free-spirited walkabout in Silver Lake, Mudpeople explore the world with childlike wonder. Contemplating objects, group members move slowly and never speak.

exaggeration. Even so, Danson is a new breed of star. "My father was an archaeologist," he tells me during a break. "He taught me that something came before us, and something will come after."

Danson thus dedicates himself to environmental causes, recently founding the American Oceans Campaign. "Celebrity energy is very powerful," he says. "If you don't deflect it onto something bigger than yourself, it can make you crazy. I chose the oceans."

As for the huge salary, part of which funds the oceans campaign, Danson says: "It's as frightening to me as it is to you. Don't stop liking me. I'm still a nice guy."

NICE GUYS ARE RARE in a business famous for blind ambition, backstabbing, and overnight firings. Power brokers, power snakes, and creative powerhouses—Sunset Boulevard is their main street. Many drive it daily between the studios and their homes up in the hills. That's why so many billboards promoting new movies and rock stars line Sunset Strip, the lively stretch of Sunset between Hollywood and Beverly Hills.

"If you put up a billboard for a month on the Strip," says publicist Dorene Lauer Martin, "it will be seen by virtually everyone in the entertainment industry."

For decades the Strip cut through an unincorporated piece of Los Angeles County, rather than the city of L.A. At that time the county sheriff was far less vigilant than the L.A. Police Department. Thus the Strip became famous in the 1930s and '40s for its fabulous nightclubs, movie stars, gangsters, and vices.

The Strip constantly reflects what's happening in society. In the '60s, music began to rule the Strip. Johnny Rivers sparked a frenzy at the Whisky à Go Go. Then came the Doors, Buffalo Springfield, Otis Redding, and Jimi Hendrix. Such artists created the music of a new generation along Sunset Strip.

"This little 1.7 miles has attracted the most talented, the most creative, the most beautiful, and the most dangerous people in the world," says author Laurie Jacobson. "People make and lose money very quickly here. The flashy cars and big houses are often rented. The Strip has always been the place to show off momentary success."

The affluent 1980s spurred a high-end pizzazz along the Strip. Elegant shops and restaurants sprang up. One of those restaurants, Spago, was founded by Barbara Lazaroff and a young chef named Wolfgang Puck. He celebrates what is now known around the world as California cuisine.

"People here are concerned about their appearance and health. More than any I ever saw," says Puck. "They don't drink hard liquor as much. They wear jeans and silk shirts. They like things simple but comfortable."

Thus Puck offers such choices as pumpkin ravioli with grilled baby chicken, pine nuts and rosemary sauce, all fashioned from the freshest ingredients.

Just east of Spago on Sunset resides another

innovator. This woman wears bows and scarves and talks in a sweet girlish voice. She paints her office black and decorates it with black furniture, black curtains, black rugs, and a black satin sofa.

"Black gives a cocoonish feeling," she says. "There's no competition from colors. You can get inside yourself and focus."

The lady knows how to focus. Almost every major stand-up comedian, from Richard Pryor to Robin Williams to David Letterman, has evolved in her spotlight. Her name is Mitzi Shore. In 1972 she and her comedian husband opened a club, the Comedy Store, on the Strip. They later separated, but she continued her work.

"I knew exactly where I was going," she tells me. "I wanted to give stand-ups respectability. On the road with my husband I saw that stand-ups were the bottom of the barrel. I think they are artists. They desperately need love and attention. Their well is deep. You can never fill it. But that was my thing in life—helping stand-ups."

In 1988 Mitzi established a foundation and later a halfway house to help comics with drug or alcohol problems. At the club, talents are honed by a savvy audience—and by Mitzi's frank critiques.

Rock music persists on the Strip, and on weekend nights traffic almost halts near the clubs. "If you're playing Sunset, it's still the top," says record pioneer Lou Adler. "The music here expresses the mood of the times."

Today the emphasis is heavy metal, described by one agent as "ugly, loud, intense, populist music. The things parents hate—long hair, leather jackets, and motorcycles."

The Strip no longer cuts through an unincorporated area. In 1984 the city of West Hollywood was formed, encompassing all the razzle-dazzle on Sunset. West Hollywood calls

Love's for sale along Hollywood's major boulevards: The girls claim Sunset, while the boys stake out parallel Santa Monica (left). Hollywood's gay population has lost many to AIDS, greatly affecting the entertainment industry. At the Chris Brownlie Hospice in Elysian Park an AIDS patient receives last rites.

itself the Creative City, but it is better known for its sexual preferences. About a third of its residents describe themselves as gay or lesbian. One of those is John Heilman, who has twice been mayor of the city.

"We actually have more senior citizens than gays," says Heilman. "Many came from Europe after World War II. We also have lots of Russian immigrants. I'm really proud of the money we spend on social services. We are in many ways a city of refugees, a place where people feel safe no matter what they believe, where there is compassion and caring."

THE LOOK OF SUNSET changes abruptly at Doheny Drive, where the boulevard enters Beverly Hills. From here the street curves through greenery and wealth.

"We have more trees than we do people," says Allan Alexander, a Beverly Hills entertainment-industry lawyer who has also served as mayor. "Our schools are our pride. We have a separate school district, and our


HOLLYWOOD
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city adds about five million dollars a year to what the state gives.

"We are a safe city. We have our own police force with a response time of three minutes. We do not have gangs. We have good weather. We have beautiful homes."

The least expensive of these homes costs about $600,000. A typical house goes for two million to four million dollars.

I spend a weekend at the famous Beverly Hills Hotel, Sunset Boulevard's pink palace, built in a bean field in 1912.

At poolside longtime pool manager Svend Petersen laments that far fewer stars stay at the hotel these days. So many have moved to their own homes. But the old days! When Ingrid Bergman would chat with him in Swedish. When Lucille Ball would play backgammon at her cabana. When Katharine Hepburn would backflip off the diving board after a game of tennis. When starlets would come down to the pool with producers and parade around.

"All that is gone," he says. "There's no calling for starlets any more. And people are more careful about sitting in the sun."

Farther down Sunset in the ultra-exclusive neighborhood of Holmby Hills, I turn into the most celebrated mansion since Norma Desmond's—the Playboy Mansion, home of that magazine's founder, Hugh Hefner. I tour Hefner's personal zoo. Lavish aviaries hold an enviable collection of tropical birds. In his hutches hop exotic rabbits—real bunnies, not the fantasy kind.

"I was born and raised in Chicago, but my dreams were made here," Hefner says, when I meet him in the 30-room Tudor mansion he bought in 1971 for a million dollars. "There were two important influences in my life. My mother and the movies. My life is all about being pulled between the puritan and the playboy."

A beautiful woman with a baby appears. Hefner takes the child and introduces me to his wife, Kimberley. "Life has changed around here," Hefner chuckles, alluding to the sybaritic parties for which the mansion is famous. I

At Sunset and Highland—where young Lana Turner played hooky and got discovered—an ROTC team from Hollywood High School drills. The children of recent immigrants now dominate the school's yearbook. High above Sunset, Hollywood still sells its dreams in 50-foot letters. Once an actress with broken dreams leaped to her death from the H.

Street physicals are Lillian Gelberg's research specialty. From UCLA, near the west end of Sunset Boulevard, the family physician directs a study on the health problems of the homeless. At Sunset and Doheny, plastic surgeon Richard Ellenbogen offers the cutting edge in face-lifts—tightening both muscles and skin—for patients from all over the world.

had already noted all the baby paraphernalia around the house.

I tell him I learned about female anatomy as a boy from his magazine. He chuckles again and says: "And I learned about female anatomy as a boy from *your* magazine."

AT ANOTHER MANSION to the west in Bel Air, I look out over Los Angeles with Doug Cramer, an executive producer of TV's *Dynasty, Love Boat*, and many others. Profits from those shows helped him become one of the city's leading art collectors. He tells me how culture has improved in L.A.

"Some say Los Angeles will become the world's next great city," he says. "It's not there yet. People are isolated in enclaves. It takes hours to get anywhere. There's a lack of singular focus. Maybe there's so much emphasis on personal success that we lose the kind of leadership it takes to make a city great."

Bringing the pieces together is the dream of

Charles Young, chancellor of UCLA, whose lushly landscaped campus Sunset Boulevard meets as it winds westward. Since 1968 Young has directed the transformation of UCLA from basically a big commuter and sports campus into one of the country's top ten research universities. It has also become one of the country's most selective schools. Each year about 23,000 students apply for the 3,600 slots in the freshman class. Young has watched the complexion of the students change.

"Sixty percent of our freshman class is either Hispanic, Asian, or black," he says. "Non-Hispanic whites are now second in admissions to Asians. Increasingly UCLA is educating the future leadership of Los Angeles."

Sunset weaves on through wealthy Brentwood. On a hill 200 feet above the boulevard, construction is under way on the new Getty Center, scheduled to open in 1996. Oil magnate Jean Paul Getty left 700 million dollars to diffuse artistic and general knowledge, says Harold M. Williams, president of the J. Paul Getty Trust. The endowment has grown to 3.5 billion dollars, which will fund the center's museum, research facility, and conservation institute.

Beyond Brentwood lies Pacific Palisades, Sunset Boulevard's last—and perhaps L.A.'s most independent—enclave. The community enjoys gorgeous views of the Pacific and cooling sea breezes that spare it from the smog that plagues L.A.

Like many communities Pacific Palisades joined an expanding Los Angeles early in the century in order to have city water. "Now a lot of us here want to form our own city," says Jack Allen, president of the local residents association. "We're not really part of L.A. We're off on an island. We don't see why people downtown should tell us what we can do."

Most residents reject secession but still side

with Bobbie Farberow, co-owner of Mort's Palisades Deli, a local gathering spot. "We're a little village, and we fight to keep that feeling," she tells me.

One of those fights is against city zoning that allows mansions to be built on the village's small lots. Another is over widening Sunset to eliminate dangerous twists. "A lot of lives are lost on Sunset," argues one resident. Opponents fear the impact of increased traffic.

AS I TAKE SUNSET BOULEVARD down to the sea, I pass an intriguing sign outside a garden gate. It reads, "Self-Realization Fellowship Lake Shrine." Self-realization seems fitting for the end of the road.

The fellowship, a panreligious organization, was established in L.A. in 1925 by a celebrated guru, Paramahansa Yogananda. Two monks, Brother Paramananda and Brother Tyagananda, lead me to a bench on a lake. They have the aspects of angels, a tranquillity that transcends the longings that lay along the road to the east.

Brother Tyagananda, whose name means "bliss by renouncing the temporal world," tells me that more than 100,000 people visit the shrine each year. Their numbers are growing. "The country is on the move spiritually. There's a tremendous searching."

"You have your own garden within yourself," says Brother Paramananda. "You can always find it when you calm yourself."

"Self-realization means discovering who you really are," adds Brother Tyagananda. "All the noise and confusion and turmoil out there are the antithesis of the soul, but they are the forging place for realization."

On my last afternoon in L.A. I drive west down Sunset again, for a final look at the sea. I think of the two modern monks. Will all the

With Sunset Boulevard and Century City as backdrops, a patio party in Holmby Hills—where multimillion-dollar homes are the rule—captures the rarefied air of the street's western environs. Winding through Brentwood and Pacific Palisades, Sunset ends at a parking lot, whose sign rings one true but woeful note in the boulevard's siren song.

noise and turmoil I've been exploring forge a new reality for this city of boundless energy? Will all these glimpses of my brother's street help me let go of my own sorrow?

The sun gleams in the windows and off the billboards of the Strip. The western sky turns golden. But I am caught in rush-hour traffic. By the time I reach the Pacific, the sunset's glow is gone. The stars are coming out. As they do, I think about all the stars in this city, famous and infamous. But what about all those other people I've met along this street? The underpaid social worker. The unpaid blues singer. The immigrant boy selling maps of the stars on the boulevard in Beverly Hills.

The ocean rolls, its dark waves ushering in another night. And a self-realization crystallizes: I came here obsessed with the fatal glitter of fame, but the true reality of this street is something else. It's the struggle. You don't have to be a star to belong on Sunset Boulevard. You just have to have a hope, a passion—and, above all, a story. □

IN BIKINI LAGOON LIFE THRIVES IN A NUCLEAR GRAVEYARD

Text by JOHN L. ELIOT
NATIONAL GEOGRAPHIC SENIOR WRITER

Photographs by BILL CURTSINGER

Blasted to the bottom like a steel guinea pig, the U. S. submarine Pilotfish *was among 21 vessels sunk during two atomic tests at the end of World War II. This nuclear ghost fleet belongs to the people of Bikini, still marooned far from their radioactive Pacific island. Could these longtime symbols of destruction become a marine park to attract sport divers and aid the Bikinians?*

As if worshiping a higher power, sailors drill on the flight deck of the U. S. carrier *Saidor* (opposite) for a momentous test: code name, Able. Later that day, July 1, 1946, a B-29 would drop an experimental weapon over a fleet of ships moored amid the tranquil waters of Bikini Lagoon.* These support personnel practice protecting their eyes from the ungodly incandescence to be created by an explosion equal to 20,000 tons of TNT.

Less than a year earlier, the first wartime atom bombs had laid waste Hiroshima and Nagasaki. Now, military analysts wanted to know, what would happen to a navy attacked by this seemingly irresistible force? So a massive exercise called Operation Crossroads brought some 42,000 men, 242 ships, and 10,000 instruments to Bikini. There two nuclear blasts were unleashed, the first of 23 such tests performed at Bikini through 1958. The first, Able, was detonated in midair. Three weeks later a second test, Baker, was touched off underwater.

To permit the dawn of the nuclear age there, a painful sacrifice had been made earlier by the 167 Bikinians who lived on that tropical atoll. A devout and trusting people, they agreed to give up their home for a project that they were told was for the good of mankind. Thus began their woeful saga as nuclear nomads repeatedly relocated to other Pacific islands, where they have found only unhappiness.

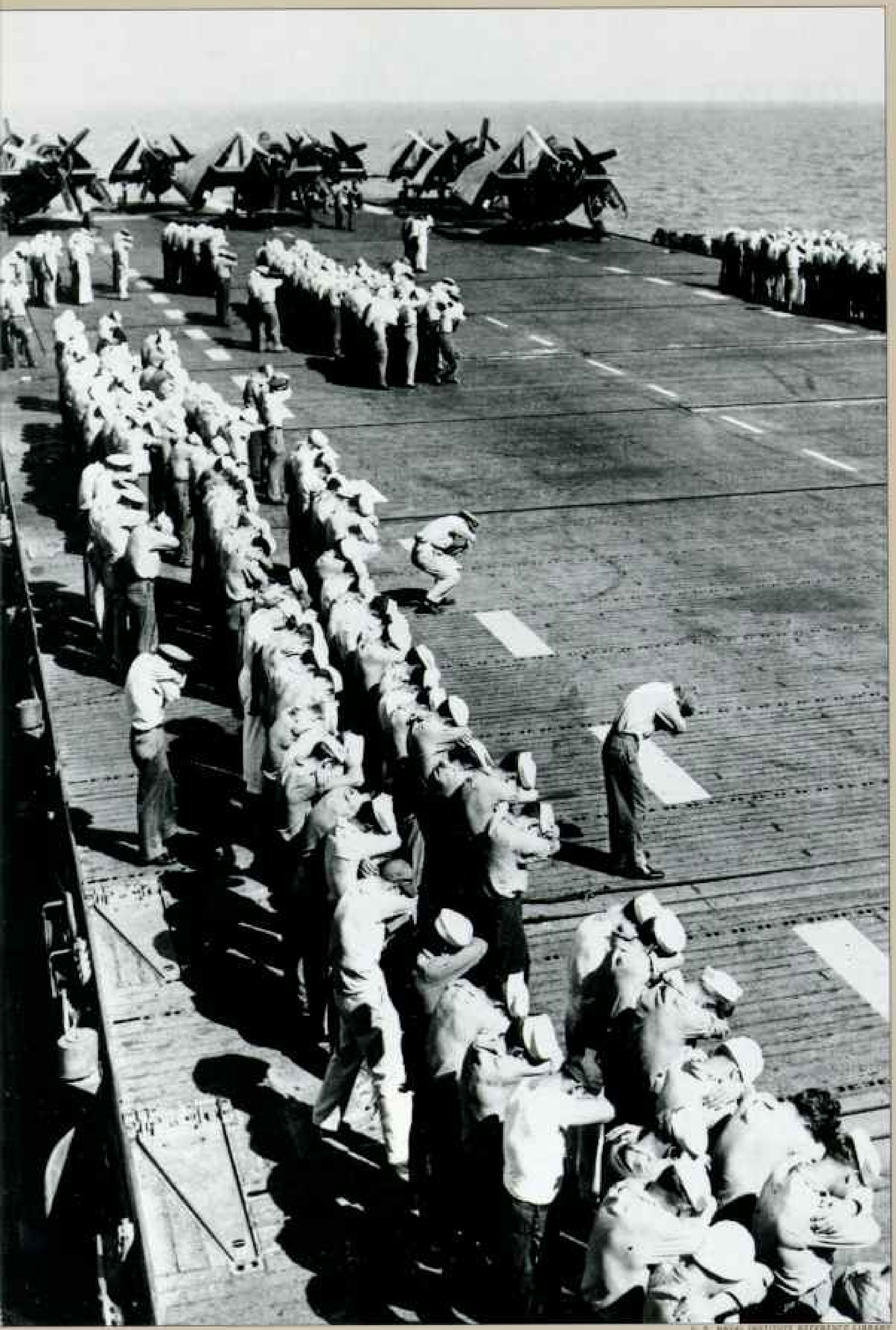
With the Bikinians removed, the military assembled more than 90 vessels, including landing craft, as targets. Many of the ships, among them a few Japanese and German war prizes, had fought crucial battles in the just ended war, and a few had served in the previous one.

The five battleships included *Arkansas*, a World War I veteran. In 1944 she supported the Allied invasion of Normandy, as did *Nevada*, heavily damaged at Pearl Harbor but raised and repaired to fight again. *Nagato*, the Japanese battleship that coordinated the Pearl Harbor attack, was berthed at Bikini out of vengeance. A dozen destroyers and eight submarines with Pacific battle scars from Midway to Guadalcanal were added.

Of four cruisers, Germany's *Prinz Eugen* had sortied with the famed battleships *Bismarck* and *Scharnhorst*—both sunk in the Atlantic theater—before being surrendered to the U. S. But the sentimental star was *Saratoga*, completed in 1927, one of the first U. S. carriers. She survived Able but was doomed by Baker. Its bomb hangs suspended 90 feet under a landing ship (below) between *Saratoga*, background, and *Arkansas*, both nearly in final position.

*William Ellis wrote of "Bikini—A Way of Life Lost" in June 1986.

NATIONAL ARCHIVES



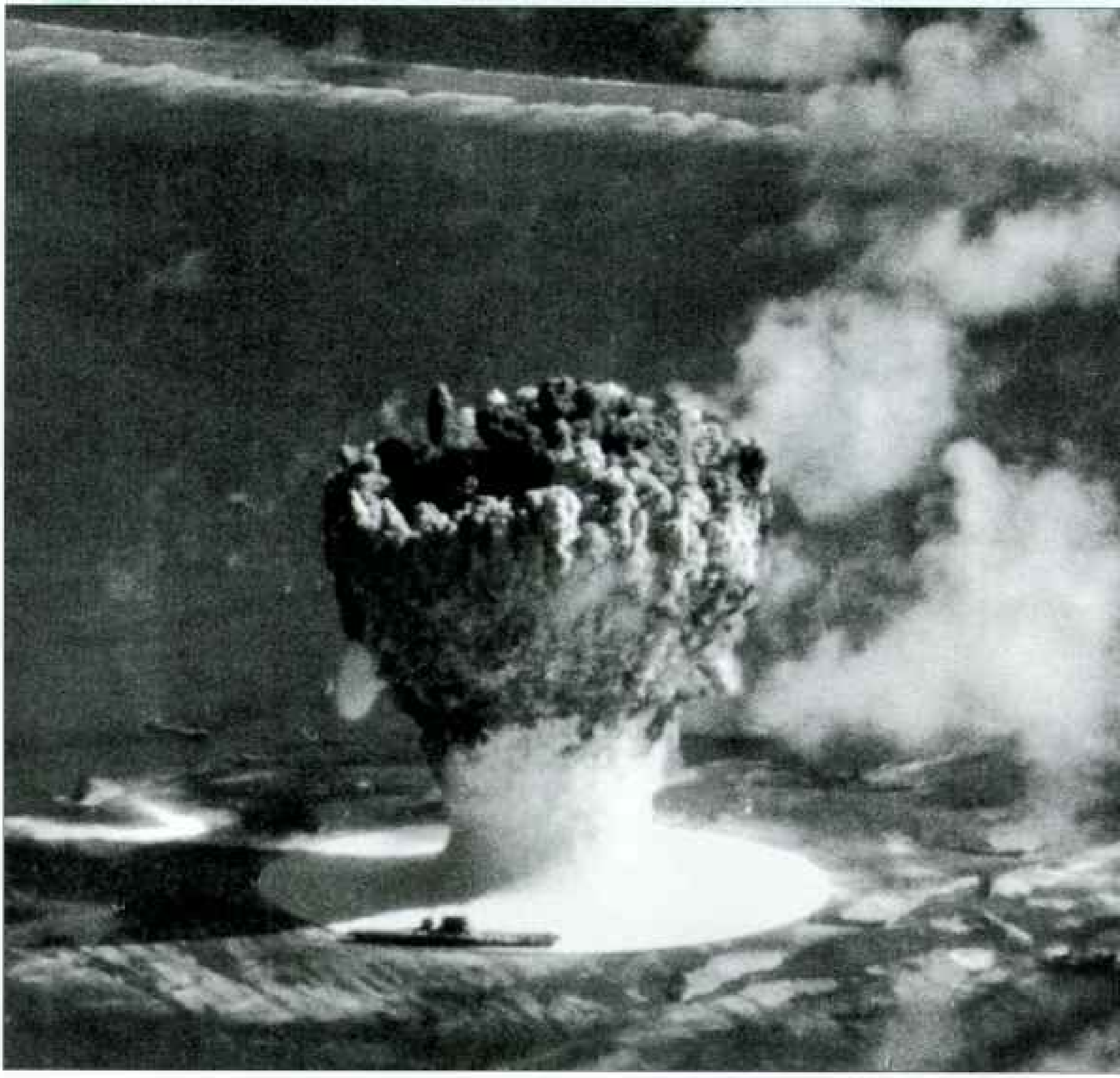
U.S. NAVAL INSTITUTE REFERENCE LIBRARY

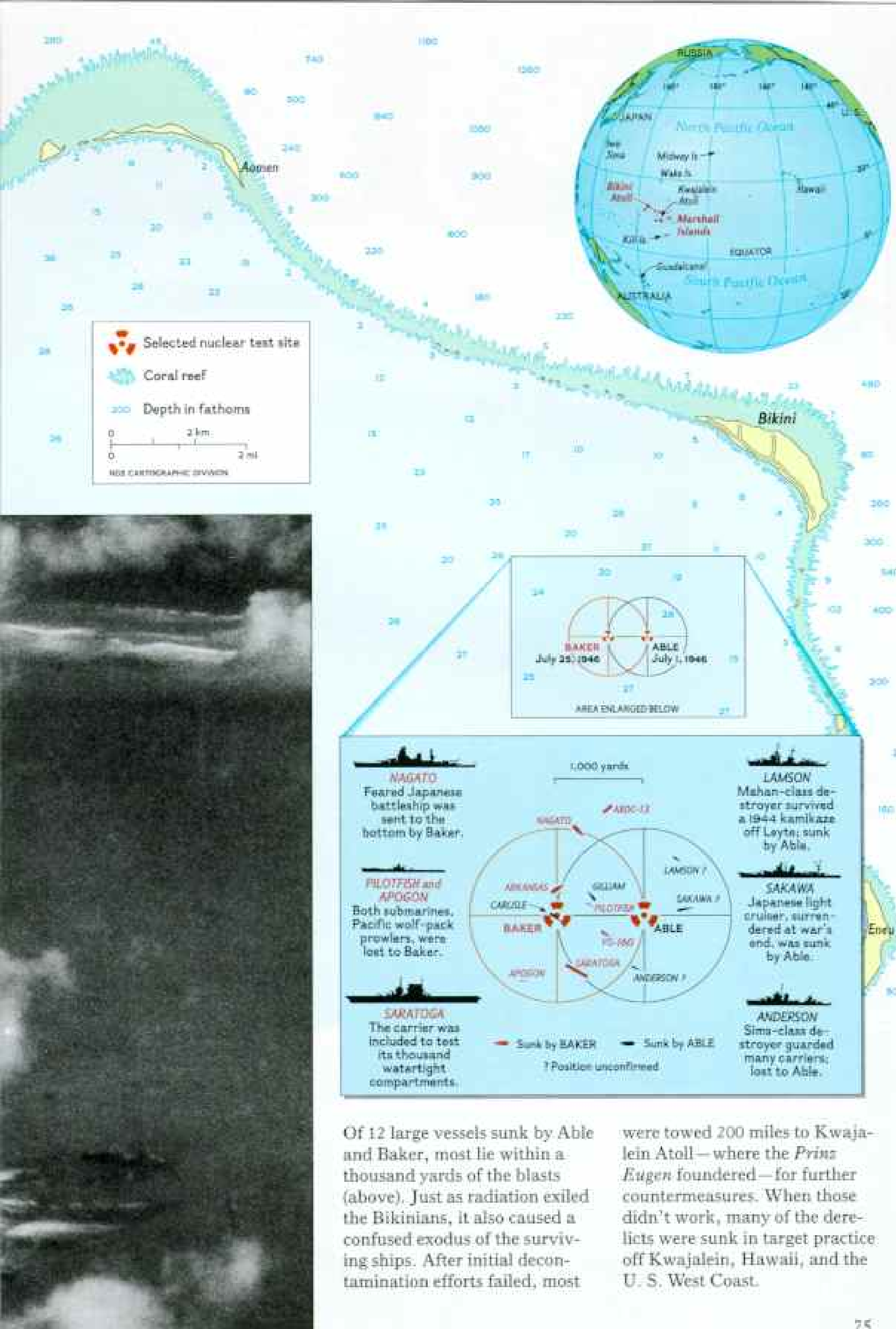
BIKINI LAGOON

In the path of a staggering force that would blow her 800 yards away atop a 43-foot wave, *Saratoga* sits at the edge of the Baker blast a half second after detonation.

Seven and a half hours later "she died like a queen—proudly," eulogized a *New York Times* correspondent. Six other large ships were also lost, including the battleships *Arkansas* and *Nagato* and submarines *Pilotfish* and *Apogon*. Some were sunk by the two million tons of water and sediment that was hurled more than a mile upward, then fell to batter the ships.

Yet the bombs' most insidious danger was revealed in the ships that remained afloat or were salvaged: They seethed with radiation. Bewildered men improvised decontamination efforts against an invisible enemy. Permitted aboard some ships for only minutes, sailors washed, scrubbed, foamed, and painted "hot" steel, with little effect. "In the end the Navy . . . is going to feel a lot like Br'er Rabbit when he got mixed up with the Tar Baby," physician David Bradley, a Crossroads veteran, observed at the time.





U. S. NAVAL HISTORICAL CENTER

Of 12 large vessels sunk by Able and Baker, most lie within a thousand yards of the blasts (above). Just as radiation exiled the Bikinians, it also caused a confused exodus of the surviving ships. After initial decontamination efforts failed, most were towed 200 miles to Kwajalein Atoll—where the *Prinz Eugen* foundered—for further countermeasures. When those didn't work, many of the derelicts were sunk in target practice off Kwajalein, Hawaii, and the U. S. West Coast.

SARATOGA

SAN FRANCISCO MARITIME NATIONAL HISTORICAL PARK

She had survived two torpedoes and five kamikazes and had served in bloody Pacific campaigns at Wake Island, Guadalcanal, and Iwo Jima, but *Saratoga* could not survive nuclear fission. In 1945, before the Bikini tests, the beloved carrier took part in Operation Magic Carpet (left), ferrying 29,204 veterans home from the Pacific.

Nearly 50 years later *Saratoga*'s massive bow dwarfs the U. S. National Park Service divers who invited me along. Their team, the Submerged Cultural Resources Unit (SCRU), spent several weeks drawing the ships in great detail and evaluating their park potential. *Saratoga* would be the centerpiece.

The world's only aircraft carrier accessible to divers, the ship's depth ranges from 50 feet at the top of its island—the tallest structure, which includes the bridge—to 180 feet on the

lagoon's bottom. In between lie fascinating relics such as a Navy Helldiver aircraft (left) and 500-pound bombs (below) 130 feet deep on the hangar deck.

Although much ammunition is live, both Navy experts and SCRU team leader Dan Lenihan feel that the risk to divers is minimal—"unless they attack the ordnance with a hammer," says Lenihan. And there is essentially no danger from radiation in the water, according to William L. Robison, a scientist at the Lawrence Livermore National Laboratory in California.

Some of the atomic violence is shocking. *Saratoga*'s starboard side, which faced the Baker blast, is dented six feet deep in places. The gargantuan funnel, as tall as a four-story building, collapsed and spewed sections writhing with internal pipes. Even more amazing is the aft half of the flight deck. It is no longer flat. Through it runs a canyon 200 feet long, 70 feet wide, and 12 to 20 feet deep, probably created by seawater and sediment hurtling back down from the sky. Said my diving partner, naval historian Jim Delgado, "It's like Godzilla stomped on the flight deck."

NAGATO

U. S. NAVAL INSTITUTE REFERENCE LIBRARY

Dreaded warlord of the Pacific, *Nagato* (left) was the only Japanese battleship still afloat when the war ended—nine others had been sunk. "In less than four years, this great war machine fell from glory to oblivion," wrote naval historian Masanori Ito. After Japan bowed in 1945, U. S. forces symbolically captured *Nagato* in Tokyo Bay to mark the final surrender of the Imperial Japanese Navy. She was taken to Bikini—her death sentence.

In 1941 *Nagato* served as flagship for Adm. Isoroku Yamamoto, who planned and directed the attack on Pearl Harbor aboard the battleship from distant Japanese waters. Pacing her bridge on December 7, Yamamoto heard one pilot's electrifying radio transmission—*to ra, to ra, to ra!*—surprise achieved.

Nagato, the first battleship

armed with 16-inch guns (below), may have played an additional role at Pearl Harbor. Some of Yamamoto's carrier-launched aircraft were equipped with *Nagato*'s 16-inch shells, specially modified to be dropped as bombs—and some historians believe that one of them sank the battleship *Arizona*.

If so, then the Baker bomb repayed *Nagato*. Upside down on the bottom, she raises one of her four screws as if in capitulation.

A frenzy of gray reef and other sharks feed near photographer Bill Curtsinger's boat. Such dizzying numbers of predators suggest that, despite man's worst efforts at annihilation, marine life has returned to normal.

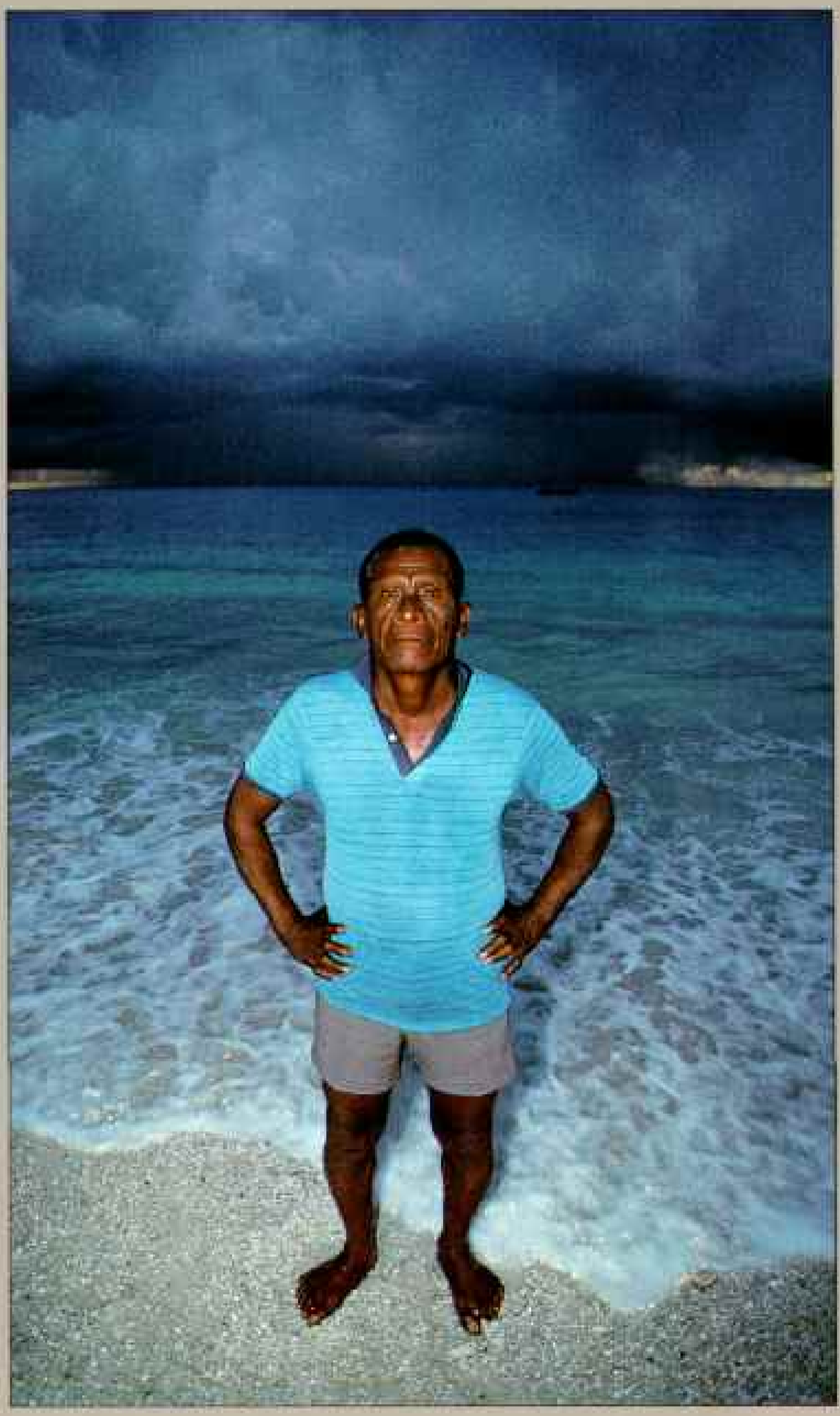
It was not so after the tests. "Our first netful of sand . . . proved to be so radioactive that in a panic I had the whole catch thrown overboard," wrote Crossroads physician David Bradley in his best-seller, *No Place to Hide*. "Small reef fish feed on coral . . . predatory fish eat more and more of the smaller fish who are sick with the disease of radioactivity."

Within weeks most radiation had dissipated from the lagoon. But in the topsoil of Bikini Island, the fallout remains, especially a dangerous substance called cesium 137. Little of it actually came from the Crossroads bombs. They were nuclear popguns compared with Bravo, a 1954 hydrogen explosion 750 times stronger, set off on the lagoon's northwest side. A wind shift rained fallout on Bikini, including cesium. Its levels remain too high for the Bikinians to return permanently, because it is absorbed by the coconuts and pandanus they grow for food. However, a test using potassium compounds to block cesium uptake by plants on the island has been successful.

Could a marine park of warships draw recreational divers to Bikini? Not all the diving would be deep—shallow reefs laden with giant clams and coral (left) beckon even snorkelers. In recommending the concept, Dan Lenihan of SCRU says, "We hope that the Bikinians someday can take the source of their problems—the ships—and make them a source of income."

The Bikinians have expressed some interest, but their main concern is to escape Kili, the island 500 miles to the southeast where they were relocated in 1948. Many, like Joji Laijo (right), visit Bikini to work at its field station, operated by the Department of Energy. But there has long been a cloud over these people, and they have heard many conflicting stories from many different experts. Last November they declared their intent to have all 1.3 million cubic yards of radioactive topsoil scraped from Bikini, somehow disposed of, and somehow replaced.

Liabilities and logistics may well dim that plan, but not their desire to return. Visiting his father's grave on Bikini, Kilon Bauno, an aged *iroij lablab*, or paramount chief, said, "I don't want anyone to stay on Kili. If we hear this island is safe to live on, we will *swim* from Kili to the big boats to take us back." □



Modeling traditional Palestinian finery, this young woman studied in London and now teaches dance in Amman, Jordan. Proud of their past while striving to shatter old stereotypes, Palestinians—teachers and taxi drivers, doctors and lawyers, farmers, shopkeepers, and refugees—still look for recognition of their national identity.

WHO ARE THE

By TAD SZULC Photographs by JOANNA B. PINNEO

PALESTINIANS

If the stones of this hillside could speak, they would tell of Persians, Romans, Ottoman Turks, British, and Jordanians—rulers of the land once called Palestine. Today Israeli control includes the West Bank, where Palestinians cling to villages like Ras Karkar. Nearby, Israeli settlements

have sprung up, in right background, on territory that some Jews claim as their biblical home. From decades of turmoil have come countless Palestinian refugees. "We have a big problem," says a West Bank resident. "Israelis and Palestinians claim the right of return to the same land."

"Palestinian" is a term nearly all of us recognize yet few really understand. A distinguished author and foreign correspondent, Tad Szulc, explores the history and unique character of a people vital to the future of the Middle East. —THE EDITOR

BY FIVE IN THE MORNING, thousands of Palestinians are lined up to cross the border from the Gaza Strip into Israel for day jobs. The workers must wait at the Erez checkpoint to have their papers examined, to ensure that jobs are waiting for them on the other side and to confirm that their travel permits are valid.

Erez is already hot and damp on this September dawn, with hopeful workers pressing toward the checkpoint in a mass, like figures in a scene of biblical judgment, bathed in the portentous glow of yellow arc lights. Buses and taxis packed with bleary-eyed Palestinians creep to the border, watched over by Israeli soldiers armed with submachine guns.

With an Arabic-speaking friend I watch a field known locally as the "slave market," on the Gaza side of the checkpoint, where Israeli employers come to hire day laborers. A Palestinian man with white hair and a weathered face shuffles over to us, in the mistaken belief that we can give him a job.

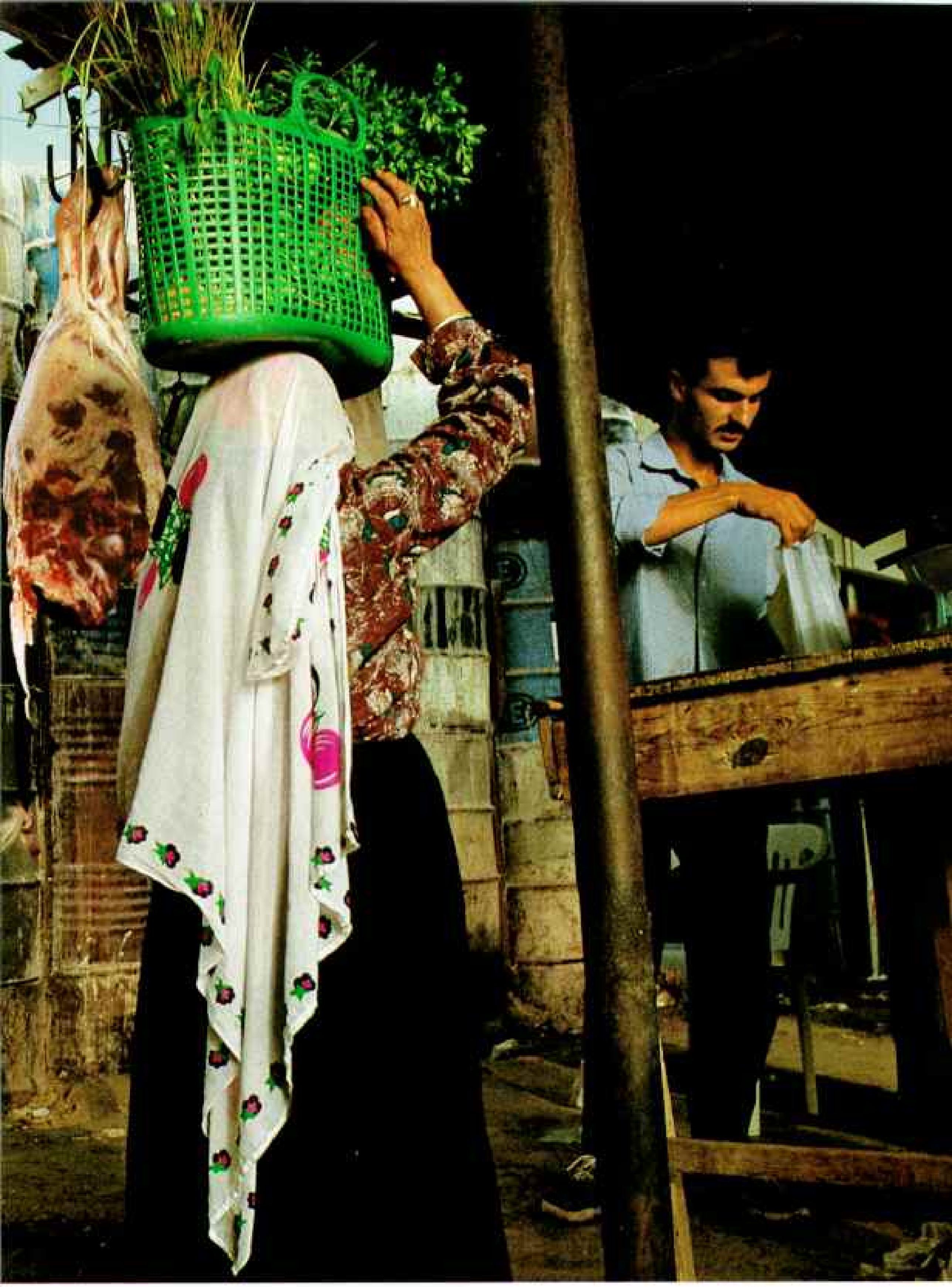
"I am old, but I am strong and I want to work," says the man, who announces himself as Deeb Matar. He straightens up to his full height. But when I tell him I'm sorry I cannot help, he seems to shrink again. "I have a wife and six children," he says desperately, "and I haven't worked in such a long time. Why won't anyone help me?" I have no answer for him. All I can do is stammer another apology and walk away. Matar goes his way too, leaving for home again. But he will return tomorrow from a Gaza refugee camp more than five miles away, just as he has every morning for the past six months to look for a job.

These days more and more Palestinians are in the same category—eager for any kind of work but unable to find it. On top of increasing unemployment in Israel, security measures taken since the Persian Gulf war of 1991 have made it more difficult for Palestinians to travel within the region for work. As many as 40,000 Palestinians have lost their jobs in Israel for lack of work permits. Many have lost their jobs because Israelis fear Palestinians as a

Fainting at the feet of an Israeli policeman, Kifayah Shafi couldn't bear to watch a bulldozer raze her home in East Jerusalem. The residence, the authorities reminded her, had been built without a permit. South of Jerusalem, the concrete cisterns of Muhammad Hamdan Abu Sarhan (right) were demolished for the same reason. Seeking redress, Sarhan retained a lawyer and enlisted his village mukhtar, or leader. No one could help, leaving Sarhan's farm high and dry.


משטרה

Carrying on despite Israel's looming military presence, Palestinians shop at a market in the Gaza Strip town of Rafah. Soldiers strategically positioned these concrete-filled barrels to stop demonstrators from throwing stones and to block escape. Surrounded by fences and barbed wire,



the Gaza Strip has been under a nighttime curfew for more than four years. That takes its toll, especially on Gaza's huge population of children. One boy dreams of becoming a rubbish collector because he believes they are permitted outside after dark. In truth, they are not.

result of the violence brought by the *intifada*, the Palestinian uprising against Israeli occupation, a resistance now in its fifth year. In addition, Jews from the former Soviet Union have flooded the country, competing for jobs that once went to Palestinians.*

Like millions of other Palestinians, Matar lives in a sort of limbo, a man without a country. For most of his life, since the State of Israel was established in 1948, Matar has been a refugee, dependent on international organizations and Israel for his livelihood but with none of the privileges of citizenship.

Although Middle East peace talks launched late last year have raised hopes that tensions between Palestinians and Israelis will lessen, many Palestinians like Matar wonder if they will ever have a homeland. The dispute is not over ideology, money, race, or even religion. It is a feud over soil that has been a battlefield, off and on, for 37 centuries. It remains so today—with the added element of nationalism.

PALESTINE, THE REGION that once stretched from the shores of the Mediterranean eastward beyond the Jordan River, exists as a nation only in the imagination of six million Palestinians scattered throughout the Middle East, North Africa, Europe, and the Americas. Nearly two million chafe under military control in the Israeli-occupied Gaza Strip and West Bank. Another 750,000 Israeli Arabs who live inside Israel consider themselves Palestinian, but they try to walk the line between Israeli citizenship and their Arab heritage.

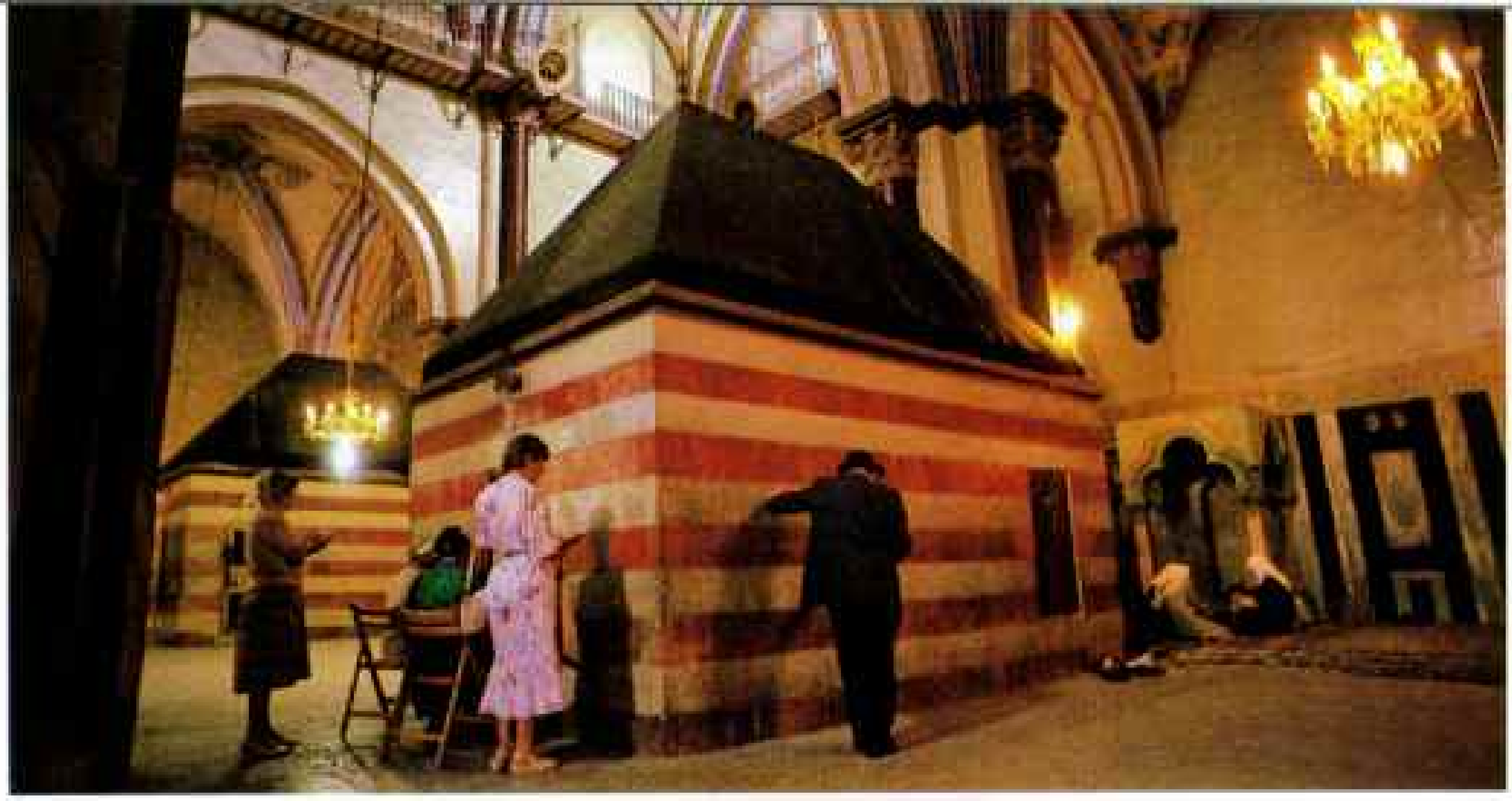
The ancestors of today's Palestinians appeared along the southeastern Mediterranean coast more than five millennia ago and settled down to a life of fishing, farming, and herding. But they also endured wars with Israelites; domination from Assyrians, Chaldeans, Persians, and Romans; and eventually 400 years of rule by the Ottoman Turks.

By 1918, during World War I, Britain had conquered the region and indicated support—in its Balfour Declaration—for the establishment of a Jewish homeland within Palestine along with a provision that the rights of the region's Arabs must be respected.

In May 1948, after the United Nations had voted the previous fall to partition Palestine between Jews and Arabs (the Jews accepted

*See "The Great Soviet Exodus," by Tad Szulc, NATIONAL GEOGRAPHIC, February 1992.

Jews and Arabs share a common ancestor at Hebron's Tomb of the Patriarchs (right), where Judaism's first families—Abraham and son Isaac, their wives Sarah and Rebecca—are said to be buried. Abraham fathered another son, Ishmael, from whom Arabs claim descent. Nearly all Palestinians are Arab, and most are Muslim. A small minority are Christian, such as Father Abdullah Sumrein, a Greek Orthodox priest, who celebrates Communion in an ancient West Bank church.



PALESTINE DIVIDED

We are distinct; we are a people, insist Faisal Husseini and Hanan Ashrawi (right), Palestinian strategists for the Middle East peace talks.

In 1947 the United Nations voted to divide Palestine into separate Jewish and Arab states, a plan the Arabs did not accept. The following year Israel declared its independence, and Arabs attacked. They lost. Four wars and 44 years later, a Palestinian homeland still does not exist.

"With immaculate hindsight," says Ashrawi, "the worst blunder we made was not to accept the partition of Palestine." But, she adds, prevailing passions made that compromise impossible. Today many Palestinians accept a two-state solution. Says Ashrawi, "We have made the imaginative leap."

the plan; the Arabs rejected it), Israel proclaimed its independence. Arab states immediately attacked, but Israel won the war. That conflict, combined with confiscation of Palestinian homes and land, left hundreds of thousands of Palestinians as refugees in the neighboring Arab lands.

In the Six Day War of 1967 the conflict deepened. At the conclusion of the hostilities, Israel occupied Arab East Jerusalem, as well as land formerly held by Egypt (the Gaza Strip), Syria (the Golan Heights), and Jordan (the West Bank of the Jordan River). Today the West Bank and Gaza Strip are widely known as the occupied territories. Arab maps call these occupied territories Palestine, while the Israeli government refers to the West Bank as Judaea and Samaria, a biblical reference.

As a result of the 1948 and 1967 wars, some 2.5 million Palestinians—almost half the world's total—live in Jordan, Syria, and Lebanon, most of them as refugees. But many others have made their way in the world, as doctors in London and Stockholm, as international businessmen darting about the globe in private jets, and as distinguished scholars in American universities.

During months of traveling among the Palestinians, I found that the old stereotype—of the scruffy rebel in a checkered Arab *kaffiyeh*, with a gun in one hand and a Koran in the other—fits a few well-organized extremists

West Bank (1,200,000)
Gaza Strip (700,000)
Israel (150,000)
Jordan (1,850,000)
Lebanon (350,000)
Syria (300,000)

Each symbol represents 100,000 Palestinians.
Figures are approximate.

but does not accurately describe most Palestinians. They are an immensely varied and sophisticated people, with the highest rate of literacy—along with the Lebanese—in the Arab world. Many are solidly middle-class. They are Christians as well as Muslims. Among the Palestinians, in short, I discovered an array of successes, surprises, and tragedies.

In the Gaza Strip, I meet Ahmad Abu Nasir, who fled his home in Jaffa, Palestine (now Yafo), in 1948, settling in a refugee camp not far from the Mediterranean, where he once worked as a fisherman. Now 69, he still lives in Gaza, in a two-room shack with no running water. "This is where I raised my family," he tells me, "and this is where I'll die. I'll never see my home again." But another exiled Palestinian, Hasib Sabbagh, who fled his home in that same crucial year, made his way to Lebanon, where he had earlier earned an engineering degree from the American University of Beirut. In exile, he went on to a spectacular career in construction. Today he is one of the wealthiest Palestinians, contributes generously to hospitals and schools around the world, and has homes in seven countries.

Like Sabbagh, many Palestinians put a premium on family, hard work, and education. "Just as with the Jews, adversity leads Palestinians to education and knowledge as a way to salvation," says Hanna Siniora, the editor in chief of an Arabic newspaper in East

Jerusalem and an adviser at the peace talks.

Indeed, Palestinians and Israelis are often more striking for their similarities than for their differences. Both peoples trace their origins to the same Semitic roots, both come from a pastoral tradition, both have languished in diaspora, both have endured persecution, humiliation, and torture. By all normal standards, they should get along famously. But both groups have resorted to violence in pursuit of their dream, an independent homeland.

I AM DRIVING OUT OF ISRAEL and into Jordan, intent on meeting Palestinians in diaspora. For Palestinians as for Israelis, a central question of their identity is their history of exile, and no country has more Palestinians in exile than the Hashemite Kingdom of Jordan. To get there, photographer Joanna Pinneo and I must cross the Jordan River. The storied river, so prominent in song and biblical history, runs thin and shallow in its sandy bed below the Allenby Bridge. In this dry region with its booming population, water shortages are but one more source of tension.

On the other side we transfer our gear and luggage into an ancient Hudson, drive into the capital of Amman, and meet Sari Nasir, a Palestinian born in Jerusalem. Dr. Nasir, a sociologist, views his time in Jordan as a waiting period, one that has lasted more than 40 years. Like many Palestinians in Jordan, Nasir moved there with his parents, just after Israel was founded in 1948; a second wave of Palestinians came in 1967, after the Six Day War.

"We use the time to prepare for the future," says Nasir, who receives me in his spacious, well-appointed home. "I live here of necessity, and my allegiance is to the system where I live. But I can't change my emotional identity. I wait to go home to Jerusalem."

Other Palestinians, he assures me, share that view. "Many of them never saw Palestine, but they identify with it, and they would give their lives to go there." Even Nasir's sons, who were born in the United States and pursue successful professions there, keep asking, "When do we go home?"

"Meaning Jerusalem," he explains.

In Jordan's refugee camps, I see paintings of Jerusalem by children who have never set foot there. And I know a multimillionaire born in Gaza, now in exile in London, who keeps his mansion decorated with art from Palestine—reminders of home.

The hope of a homecoming is kept alive by more than 1.8 million Palestinians living in Jordan. A precise count is impossible because the Jordanian government considers all its citizens Jordanian, including those who are Palestinian. And the numbers shift with each new travail in the Middle East; for instance, a huge flood of Palestinians with Jordanian passports—perhaps 300,000—were forced out of Kuwait after the Persian Gulf hostilities as suspected Iraqi sympathizers. They returned to Jordan because they had no other place to go.

One of them, a construction worker named Daud Muhammad, now lives in Amman. Nobody in Kuwait ever explained the exact nature of his alleged crime—but he spent six

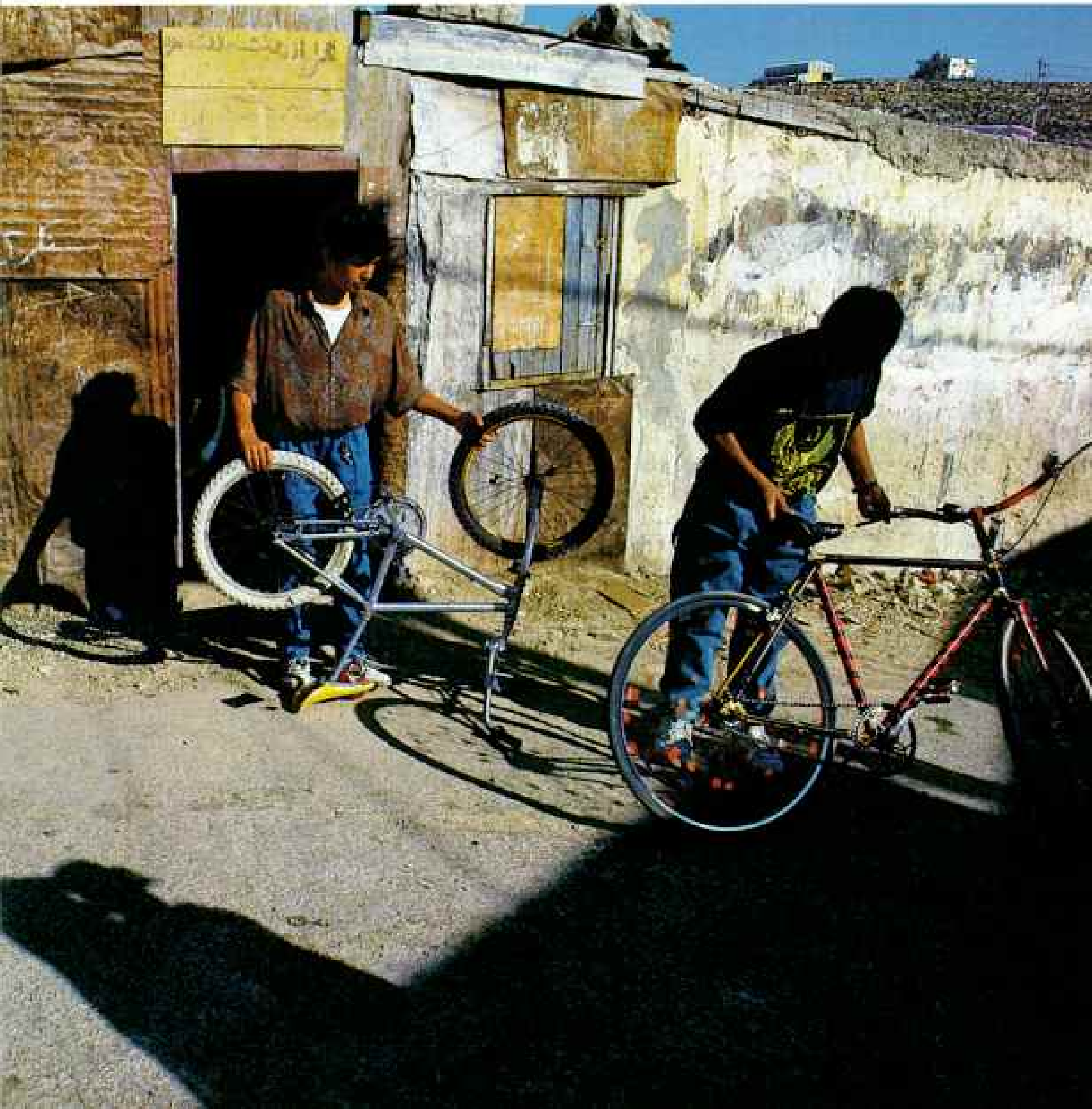
months in Kuwaiti jails, where he was beaten and tortured, before the International Committee of the Red Cross secured his release. He pulls up a pant leg to show me his burns, put there with a cattle prod by his captors.

"Why did they hate us so?" he asks quietly. "Didn't we build their country for them?"

Muhammad, who is unemployed, lives with his wife and four children in a two-room basement apartment he shares with his sister's family of 11. All use the same tiny bathroom, where a plastic Mickey Mouse shower curtain guards the door.

But I also find many Palestinian success stories in Jordan. Now making up somewhere between one-third and two-thirds of Jordan's population (depending on whose figures you use), Palestinians have become a force in the whole life of the nation, with influential roles in business, politics, and education.

Blowouts and breakdowns sometimes stop 14-year-old Muhammad Abd al-Rauf al-Balawi, far right, but he's not planning to ride far from the West Bank's Dheisheh refugee camp, where he was born. "If you live in a place, you can't easily leave, because you have friends and family there," he says. "I prefer to stay here because this is my home."



Taher Masri, born in the West Bank to a prominent Palestinian family, was until recently the prime minister of Jordan, the first Palestinian to hold that post. When I meet him, Masri displays the impeccable manners of his comfortable upbringing. But like others in the Jordanian government, he worries about how this country's fragile economy will absorb the newest wave of Palestinians.

One might think that young countries like Jordan would welcome as many Palestinians as possible, with their love of learning and capacity for hard work. But it is no secret that Jordanians view the latest arrivals as a mixed blessing. While they have much to contribute, there is also the fear that they will take jobs and benefits away from native Jordanians.

"The Palestinians want it both ways," says Jordan's Crown Prince el-Hassan bin Talal, King Hussein's brother. "They want to stay in the camps as refugees and to have the government provide services to them."

He is at the wheel of his Mercedes-Benz, showing me around Amman. "They should accept the permanency of their stay in Jordan," he says, while acknowledging their right of return. We stop to chat with many Palestinian shopkeepers, who are happy to see the prince and, to my untrained eye, seem well blended with Jordanian society.

Walking through the Baqaa camp ten miles northwest of Amman, I find it to be a well-run, bustling city of more than 60,000. Many Palestinians have come here, made a go of it, and moved on to live elsewhere in Jordan. But most stay, to be with friends and neighbors and to take full advantage of the refugee services, like health and education, provided by the United Nations Relief and Works Agency.

The reigning religious elder of Baqaa is Sheikh Habeeb al-Wheidi, a Palestinian who has lived here since 1968. At 77, he is an imposing man with a sweeping white mustache and the white headdress that marks him as a Bedouin. He invites me to sit on the floor with him, on a carpet surrounded by pillows, and he looks me in the eye when he speaks.

"You know we Palestinians are civilized people, but we are treated like aborigines," he says. "This is a grave mistake."

Like other Palestinians, he sees international peace talks as an important turning point in his people's history. The world is taking Palestinians seriously for a change, and it would seem to be just in time.

IN THE ISRAELI-CONTROLLED West Bank, the visitor senses that violence is brewing just beneath the surface of things. Residents of Dheisheh, a refugee camp near Bethlehem, come and go under the gaze of soldiers manning machine guns in watchtowers, and military jeeps kick up dust in the unpaved streets. There's hardly a tree or shrub in sight; the alleys are open sewers; and youths mill about, looking sullen. There's no spring in their step. Little wonder: Most of the working-age people in this camp are unemployed, and almost everyone else is very young. Some 60 percent of the population is under 18. They have known nothing but camp life. They live under frequent curfews, their homes are subject to unannounced searches or even bulldozing, their free speech is limited, they can be arrested and held without trial, they cannot travel without proper permits, they rarely get to see their families in Jordan or elsewhere, and many have friends and relatives in jail.

But it must also be said that the troubles stem, at least in part, from the Palestinians' intifada. Some Palestinians, armed with knives, have killed Israelis in the cities, and others have fired upon Jewish settlers in the occupied territories. Among the most militant Palestinians are followers of the fundamentalist Islamic group Hamas. Palestinian kids throw rocks and gasoline bombs at patrols in a show of defiance. And the Israelis answer all this with further violence and repression.

"The children become radicalized early," a Palestinian friend tells me as we walk around Dheisheh. "They never have a chance to play. When they go to school, they have to confront the army on the way." I almost trip over an unexploded tear-gas grenade. "They're all over the place, so be careful."

Dheisheh, like 27 other camps in the occupied territories, has been active in the intifada. Since 1987, when it began, close to 900 Palestinians and some 85 Israelis have been killed throughout the region. At any one time, as many as 12,000 Palestinians are imprisoned.

As night falls, I set out into the alleys with Joanna and some Palestinian friends. The youths of Dheisheh begin to gather, ready to taunt Israeli soldiers on patrol. Huddled against the plaster walls in a side street, suddenly the youths look sinister in the failing light, and I try hard to convince myself that they are the same friendly boys I saw kicking soccer balls in the neighborhood earlier.

No card, no clearance: At Gaza's Erez checkpoint, Palestinians must present their magnetic transit permit cards for scanning by Israeli soldiers. Desperate for jobs, Palestinian laborers will even build homes for Israeli settlers in the occupied West Bank (below). "People criticize me—and I criticize myself," says one worker, "but there is no alternative."

We turn the corner and come face-to-face with an Israeli Army patrol, four soldiers in helmets, protective visors over their faces, M16 rifles clutched in their hands. They advance slowly, their helmets swiveling this way and that, ever watchful. The patrol stops. I greet the leader in English, explaining that I am an American journalist here for the night.

The Israeli corporal raises his visor, revealing the fresh face of an 18-year-old. In an instant he looks lost and defenseless despite his formidable weaponry. He tells me pleasantly that he cannot give his name—Israeli Army regulations—but he reveals that he went to high school in New Jersey. He leaves me with some advice. "Be careful around here," he says, clamping down his visor and motioning for the night patrol to resume.

In that moment, the reality sinks in. This is a war between children, all scared of one another but determined to show their mettle.

"Kids talk about who was arrested," says Saeb Erakat, a Palestinian professor of political science. "Teenagers talk about how many times they were in jail and how good they were with the Israeli interrogators."

The troubles even reach down to scar younger children. One day I see a picture of a Palestinian child, no more than seven or eight years old, his leg ripped by a stray bullet, his tiny mouth twisting in pain. Another day I meet a mother in Gaza who talks about her eight-year-old daughter, hit in the head by a rubber bullet four years ago. The child has since been unable to speak, the mother tells me.

Erakat describes a game his kids invented, based on their lives in the occupied town of Jericho. "They block my way with a piece of furniture. I must give them a kiss to get by." He offers a sad smile: "They call it checkpoint."

THE CONFLICT LEAVES SCARS on both sides, of course. I arrange to meet privately with a 22-year-old Israeli lieutenant who speaks about his army duty in the territories.

"You can walk up to someone, punch them in the face, and they'll just stand there. You can see the hatred, but they can't do anything," says Myron, who asks that his real identity be concealed. For several hours the stories pour out of Myron, as if the talking is therapeutic. As an army officer, Myron says, "you feel that you're strong, you're in control. You can walk into a house at two o'clock in the morning, take someone out, and arrest them. The only thing you can do is prove to him you're stronger. Slap him once, slap him twice. He gets the idea."

Most of the soldiers aren't looking for trouble and try to avoid it, Myron says, but they become hardened and jumpy in the territories, where nothing happens for long spells, then everything explodes in a single incident.

"They have perfected throwing stones," says Myron, referring to the Palestinian youths. "They know exactly when to throw the stone so it hits the windshield of the car, and if the car is going fast enough, it will kill the driver."

Between the White Mosque and the Mediterranean Sea sprawls Gaza's Beach refugee camp, where 50,000 people crowd into small concrete dwellings. Although the United Nations Relief and Works Agency provides health care, education, and welfare services to Palestinian refugees, UN officer Rick Hooper says, "Living conditions are bad, and they're getting worse."

As in all wars, soldiers make mistakes. Myron recalls how a colleague's life was threatened and how the colleague responded. "He saw a guy aiming a gun at them in the middle of the street. What do you do? You shoot." Only when the soldiers got closer did they see they had shot a 13-year-old. "The gun wasn't a gun, it was a broomstick painted black. You're still killing a child. But what are you going to do? The kid wants you to think it's a gun. He is playing around with you.

"I hate it. In a war you can be idealistic and fight for a cause. But here we're fighting children and women. I believe the Palestinians are sick of the intifada too. The same way we're sick of it, they're sick of it."

On another day I hear almost the same lament from the other side. "We're tired.

We're frustrated," says Khalil Mahshi, a Palestinian who serves as principal of a Quaker boys school in Ramallah, a city of 24,000 in the West Bank. "We want to go back to normal life, which means we want to get rid of the occupation. There's a whole generation of young people without a future."

Ramallah, which used to be predominantly Christian and claims to have the best-educated citizens in the Palestinian world, now sees many of its brightest citizens emigrating, many of them to the United States.

Those remaining seem depressed about the future, as I learn during a visit with a middle-class family in a traditional Arab neighborhood in East Jerusalem. I sense a growing rift between the father, who seems moderate and somewhat optimistic, and his son, who is willing to take risks in confronting the Israelis.

The father is a soft-spoken man in his 50s whose clan has lived in the same neighborhood through four generations, not far from where King David established his capital in the tenth century B.C. after battling the Philistines, among the forefathers of the Palestinians, for lands to the south.

A bit wistfully, the father recalls how Jews and Arabs once coexisted easily, doing business with one another, helping out as neighbors do from time to time. "Now we don't visit each other or even say hello," he says, pointing to the Jewish side of the street. The man, a clerk who wishes to keep his identity secret, wants no trouble from Palestinian extremists, who often harass those expressing sympathy for Israelis.

When I ask for his view of the intifada, the older man turns to a slender 16-year-old sitting quietly beside us on the enclosed porch. "Ask my son," the father says. "He can answer."

The youth, whom I will call Samir, is articulate and well educated, having attended private school in Jerusalem. But his smile vanishes when I ask about his future plans.

"I have no future here," he tells me. "I can't go to any university. My education is going lower and lower because of the situation in the schools, where classes have been canceled or interrupted because of strikes and civil disturbances. And you can't find jobs. We feel lonely all the time because we have nothing to do or see. I need to go to another country."

Samir believes the intifada is working, wearing down the resolve of the Israeli military and pushing them to talk peace. "We

Torching tires and trash, Palestinians in the West Bank town of Ramallah try to provoke a confrontation with Israeli soldiers.

Since December 1987 such showdowns as well as work stoppages have been the Palestinians' primary tactics in a grass-roots uprising known as the intifada—Arabic for "shaking off."

In the streets of the occupied Gaza Strip and West Bank, stone-throwing youths have battled well-armed Israeli soldiers—sometimes with fatal results.

While border policemen in the Muslim Quarter of Jerusalem's Old City keep an eye out for trouble (below), many Palestinians believe the troubles began with the troops.

think the intifada is the only hope," he says. "There's nothing else that can help us."

Although Samir used to be afraid of throwing rocks at Israeli soldiers, now he isn't. "You don't think you're going to be caught. You think you are on the good side. It's now routine," he tells me.

"What happens when you get caught?"

Samir lowers his voice and tells me about a classmate who was sent to an Israeli prison. "He was beaten and left without food for nine days. He had to give 18 names of his friends who were with him. Some are in prison now for a month, and they are under torture. One of them is my cousin."

His reports of torture are confirmed by human-rights organizations, which have criticized the Israeli Army's treatment of Palestinians in detention, and by a report from the U. S. State Department describing how prisoners are slapped around and subjected to "hooding; deprivation of food, sleep, and sanitary facilities; forced standing; and confinement in a narrow, small space."

Could such a fate befall Samir, this engaging kid whose future would be bright in other circumstances? As I leave him, I wonder if he will ever pursue his dream of writing poetry, learning political science, and traveling.

ARIEL, ONE OF THE LARGEST Jewish settlements in the occupied territories, sits atop a well-defended hill in the ragged country of olive groves and dusty poplars an hour's drive north of Jerusalem. With its tiled roofs, watchtowers, and heavily guarded entrance, this modern town of 15,000 reminds me of a medieval castle reigning over the peasant countryside.

Such settlements now ring Jerusalem and are spread all over the West Bank. Their presence is particularly galling to Palestinians, who claim that the new building is in violation of international law. By encouraging construction in the occupied territories, where some 120,000 Israelis have settled in recent years, Israel's administrations have made it very unlikely that this real estate will be yielded to Palestinians in any exchange for peace.

The supreme irony is that many of the new houses, in Ariel and elsewhere, are being built by the Palestinians themselves. This I learn from a 20-year-old bricklayer in Salfit, a Palestinian village a few miles from Ariel. Muhammad is clean-shaven and slight,

Brandishing guns and the outlawed Palestinian flag, masked members of the fugitive Black Panthers demonstrate defiantly in the West Bank. Some militant Palestinians believe that national liberation requires violence, even against their own people.

One young girl from Gaza saw her father beaten and older sister killed, perhaps by fellow Palestinians as punishment for collaborating with the Israelis. Eyad Sarraj, a psychiatrist (right), treats her for headaches, insomnia, anorexia, and nightmares. "The fear is there all the time," says Dr. Sarraj, "the feeling that there is no safe place, no sanctuary."

الله اكبر
في القدس قد نطق الحجر

a man with the sinewy look of one who has spent many hours at harsh labor. He sounds resigned when I ask how he can bear to build houses in the hated settlement on the hill.

"You have to live," he says, shrugging, "and there are no other jobs around. The authorities send us to work on construction because no Israeli is willing to do it."

Chatting with him and other youths in Salfit, I come to see how quickly they slip from one life to another, from the Israeli world to the Palestinian world and back again. On the afternoon when we meet, Muhammad and the others tell me about how they had clashed with the Israeli Army the previous night.

"This happens a couple of times a week," says Muhammad, drawing on another cigarette and speaking nonchalantly, as if he is discussing a soccer match. Tonight he and the others will probably wave the Palestinian flag again, paint anti-Israeli graffiti on Salfit walls, and throw rocks at the army. And tomorrow they will get out of bed and go back to work, building new houses for Israelis.

It is just this fear—that troublemakers are at work among Israelis—that leads to frequent army curfews and to restrictions on free movement, which makes it hard for Palestinians to earn a living. Moreover, Palestinian underground leaders order frequent one-day strikes, further undermining the economy.

When I ask Israeli officials about Palestinian unemployment, they say there is little hope for improvement until the intifada ends, removing a perceived threat to Israeli security.

Moshe Arens, Israel's defense minister and the man in charge of administering the occupied territories, explains. "The violence has brought about a situation in which Israelis are concerned that some guy who may be coming for dinner is actually coming in to knife somebody in the streets of Israel," he tells me. "Whatever restrictions we have imposed are to give Israelis a sense of security. Women are being knifed at bus stops. People come in to work and knife their bosses."

At Qiryat Arba, a new settlement next to the mostly Arab town of Hebron in the West Bank, Jewish settlers patrol the streets with submachine guns slung over their shoulders.

Arrested by Iraqi soldiers during their invasion of Kuwait last year, this Palestinian was accused of being a Kuwaiti sympathizer and then tortured. At war's end, he was refused reentry into Kuwait, where Palestinians were accused of being Iraqi sympathizers. He kneels at the border—stranded, scarred, and stateless. In Jordan's Baqaa refugee camp, ten-year-old Khulud Ghunaym (left) draws and dreams about living in Jerusalem, although she has never been there.

They are a self-appointed security force, and three armed young men approach me to ask for identity papers as I alight from my car. I ask them why civilians need to carry weapons in broad daylight. Their leader, who wears an embroidered yarmulke on his head, says that "we have to defend our families from Arab terrorists . . . they're all around us."

Such talk infuriates Palestinians like Rita Giacaman, a native of Bethlehem educated in the United States, who complains that she is treated like a second-class citizen.

"I cannot go out of the house without an ID card," she says. "If I am caught without it, I am liable to be charged and tried, or fined. One day you wake up and there's a total curfew in Ramallah. Another day there's no curfew. You're on your way to Nablus, and then you find there is a curfew in Nablus. They send you back. Nothing is clear. You go out, never knowing if you'll get beaten, shot, or killed. This randomness gets to your nerves, because you never know what will happen."

IN THIS REGION, where tensions and despair press in from every side, I am gratified to find a few groups working to build bridges between Palestinians and Israelis. Shmuel Toledano, former deputy director of the Mossad, Israel's intelligence agency, and adviser on Arab affairs to three prime ministers, heads a group of reserve Israeli generals and senior intelligence officers, ambassadors, and academics who have urged their government to freeze Jewish settlements in the occupied territories until a peace plan is adopted. His group, the Peace in Stages Council, even accepts the long-range possibility of a separate Palestinian state, anathema to many Israelis.

"You must understand," Toledano says, "that all of us have fought Arab wars for 40 years, and we know very well what war brings in the end. Sooner or later, we must live in peace with the Palestinians, and they with us."

Although such groups are still in the minority, I find other signs of encouragement that Israelis, as well as Palestinians, are trying to break the barriers that separate them. There is an active human-rights association, run by Israelis, that monitors abuses by government authorities; a group of Israeli physicians who work closely with Palestinian doctors to provide health care in the occupied territories; a handful of Israeli lawyers who labor to defend

Palestinian children in trouble; and a few religious leaders of the Muslim and Christian Palestinian community who work with rabbis to defuse tensions in their neighborhoods.

But even more touching—and perhaps more important—are the nameless individuals, Palestinian and Israeli, who somehow maintain their friendships, performing small acts of kindness for one another. I hear of an Israeli who helps a Palestinian neighbor get across town to the hospital, past the army patrols who might ask questions. And I meet a Palestinian who takes his own car to drive an Israeli friend to the occupied territories, where the Israeli has business but cannot go safely because his yellow license plates would announce him as an outsider.

Such incidents seem insignificant, but I am amazed at the number of people who shy away

Construction mogul Jaweed al-Ghussein, chief financial executive for the Palestine Liberation Organization, relaxes with his daughter in his London home.

Hanneh Ahwal (left) moved to Michigan in 1974 and now makes salads at a local McDonald's. She and her family are among some 200,000 Palestinians living in the U. S.

from giving their names for fear of reprisals from the Israeli government or Palestinian extremist groups. Among the most hard-line Palestinians, such friendly gestures toward Israelis are viewed as "collaboration," which often results in assassination.

Most Palestinians I know deplore such violence, and yet it continues. According to B'Tselem, a private Israeli human-rights group, 571 Palestinians have been killed by other Palestinians since the intifada began.

At his office in Tunis, the capital of Tunisia, where the Palestine Liberation Organization is headquartered, Bassam Abu Sharif hands me a photograph in a silver frame. A handsome young man with a neat mustache smiles out at me. It's the way he looked nearly 20 years ago, before a book bomb arrived in the mail at his office in Beirut, blew up, tore part of his face away, ripped fingers from his right hand, and partially blinded him. He believes the book was mailed by Israelis.

After many painful operations and much time for reflection, Sharif began to question the PLO's stance on terrorism. Today, like other mainstream PLO leaders, he is "eager to achieve peace." This is a dramatic shift for Sharif and others, once aligned with the PLO factions that bombed planes, hijacked ships, and assassinated hundreds in the name of Palestinian nationalism in the 1970s. But that approach earned more scorn than sympathy. Now the PLO, which functions as the Palestinian government in exile, is willing to recognize Israel in hopes of gaining a homeland in the occupied territories. Though radical factions throughout the world still engage in terrorism against Israelis, Palestinian moderates disassociate themselves from such acts.

Sharif is symbolic of new Palestinian leadership—scarred from the old battles but relying more on reason than force in pursuit of the Palestinian dream. While most Palestinians still look to people like Yasser Arafat, chairman of the PLO, for leadership, the lines are gradually shifting—away from Tunis, toward a newer generation of leaders from Jerusalem and the occupied territories. But for now, Arafat still makes the final decisions.

Sophisticated and soft-spoken, Hanan

Wedding belle Hayat Tawil was born and raised in the U. S. but met and married her husband, Eyad, during a visit to the West Bank. Her grandmother played matchmaker for this arranged marriage. Unfazed, Hayat says, "That's the way I was brought up." The couple now reside in Riverside, California. Despite the modern kitchen in her West Bank home, Nihad al-Tarifi sits on the floor to prepare dinner—not because her mother did, but because it's more comfortable.

"I thought they wouldn't speak to me," says center-of-attention Abed Keshawi, one of many Palestinians with Israeli citizenship who joined Jewish children at an Interns for Peace summer camp. Reflecting on his personal breakthrough, Abed says "many adults need a camp like this."

Ashrawi is in the new mold of Palestinian leaders. Born in Jerusalem, she holds a Ph.D. from the University of Virginia and emerged as one of the stars of the peace talks, with her charm and command of diplomacy. "We shall continue to make the point that we do exist," she says simply but with great firmness.

"We have learned self-reliance the hard way," says East Jerusalem editor Hanna Siniora, "through calamities, exile, and suffering. We have been tempered by this to accept our enemy—Israel."

While the new leaders are gaining recognition internationally, people like Rita Giacaman in Ramallah are working at home to help put the institutions in place that will make Palestinians more self-reliant in the future.

"It is we who have to do something about saving ourselves," Giacaman says. "We've learned that nobody would save us, no Arab

country, no international brother, nobody."

While the youths of the intifada were throwing rocks at Israeli soldiers, Giacaman and others of an older, well-educated group of Palestinians began a quiet uprising of their own, setting up local committees to provide for health care, agriculture, education, garbage collection, and other services in occupied regions. When Israeli authorities closed schools during the early years of the intifada, Palestinian teachers began giving underground classes in homes. University professors set up local training courses for young teachers who could not get permits to travel and study elsewhere. Experts on farming advised locals on how to improve production. And Giacaman, a clinical pharmacist with a graduate degree in sociology, helped Palestinian health professionals organize a traveling medical service in the West Bank.

"It is illegal to have a meeting of more than ten people, but we did it anyway," she recalls. "We would go down to the village on our days off and use our own stethoscopes and help people," often with the medical team driving in their personal cars, examining people in homes, dispensing drugs from car trunks.

Now the medical group—which includes doctors, nurses, technicians, microbiologists, immunologists, and many volunteers—numbers hundreds of professionals who have purchased vans and established some regular clinics in neglected West Bank villages.

I VISIT SUCH A PLACE with Giacaman's husband, a physician named Moustapha Barghouthi, who drives us through the narrow streets of Salfit, heading toward a school auditorium where he has set up a temporary clinic.

"We are going to take care of ourselves," he tells me. "Even though a Palestinian state looks very far from reality now, I believe these infrastructures are very important for us. We need them for survival," he says, pulling up at the clinic. Already the patients are lining up, old and young from the surrounding countryside. They will get blood tests, eye exams, and dental work—whatever is needed—and Barghouthi will make certain each patient completes an extensive questionnaire, so there are medical histories for future reference.

I watch the doctors and technicians, each one gentle and caring, as the many patients file through—a 65-year-old woman with cataracts on both eyes, another woman who needs new dentures but cannot afford them, and, later, youths who were scuffling with Israeli troops the night before.

Watching the Palestinians come and go, I find myself wondering how their story will end. Under indefinite Israeli occupation? In an autonomous region of Israel? In their own homeland?

One can only hope that Dr. Barghouthi's prediction comes true, a prediction he made toward the end of his long day at the Salfit clinic: "It will reach that moment when all of us, Israeli and Palestinian alike, realize that we have to live together." □

Cuttyhunk

Time takes a stroll on Cuttyhunk, a tiny island world off mainland Massachusetts,

Seasons

By JUDITH BROWN ASSISTANT EDITOR

Photographs by
DICK SWANSON

where Wye Garfield and two of his grandchildren while away an early autumn afternoon.

IN MY RENTED ROOMS one night on Cuttyhunk Island, I listened to the sounds of winter: Plastic sheeting flapped furiously against the house under construction next door, and the bell on Number 6 buoy off Copicut Neck clanged an accompaniment to the whistling of the wind. Outside, only darkness, save for the flashing of a distant navigation light. I poked at the logs in the wood stove, turned the electric heat up full blast, and thought how I had come to share this winter's night with some 30 souls on a tiny island off the coast of Massachusetts.

I had first glimpsed Cuttyhunk a decade earlier, on a sunny August day. I was crewing on *Shearwater*, a 38-foot sloop, as she threaded the Elizabeth Islands between Martha's Vineyard and the coast of Massachusetts. I marveled at the almost untouched landscapes of these islands with magical names—Uncatena, Nonamesset, Weepecket.

Then suddenly, at the western end of the chain, I spied the gray shingle houses and white-steepled church of a proper New England village—Cuttyhunk.

That afternoon *Shearwater* joined the dozens of pleasure boats that filed into Cuttyhunk Pond, the island's inner harbor, and jockeyed for anchoring space (map, page 121). Ashore, I mingled with sailors lugging canvas bags of groceries and day-trippers from the mainland clutching ice-cream cones. Boisterous mini-crowds swarmed over the village.

That was Cuttyhunk "in season," as nearly all its visitors see it, and I was as enchanted as any of them. But the next day, as *Shearwater* sailed and I watched the little island shrink on the horizon, I wondered what life was like there the rest of the year, when the harbor was empty of sailboats, the streets bare of sightseers—when Cuttyhunk again became one of the lonely Elizabeths.

It wasn't until recently that I had a chance to find out, visiting the island throughout the year. I returned to Cuttyhunk one bright November morning on *Alert II*, the ferry that makes the 28-mile round-trip from New Bedford on the mainland twice weekly in the off-season, carrying mail, a few passengers, and whatever supplies the islanders have ordered.

The mooring lines were scarcely secured before the mail was handed off to one of the waiting villagers, who sped up the hill to the post office while the rest of the cargo was distributed. Ginger Cooper, owner of the island's freight service, helped load my supply of groceries into her pickup truck—a dollar a bundle, I had been told, "so pack big bundles"—and I tossed my duffle in beside them. With Ginger's toddler on my lap, we headed up narrow Broadway past the little Frog Pond, with its watchful great blue heron, and through the tight cluster of houses to my rented quarters "in town."

My landlady, Low Taylor—who winters in Brookline, Massachusetts—had come over a few days earlier to ready my cottage. She hastily

"I'm a hermit," says lifelong Cuttyhunker Wilfred Tilton. "A nice hermit." The 71-year-old Coast Guard pensioner, potter, and feeder of waterfowl is one of only 30 year-round residents.

Come summer, part-time residents and vacationers from the mainland swell the population to about 300.

At Church's Beach, Miranda Forte of Easton, Connecticut, pokes out from boulders that form secret chambers perfect for games of fantasy.

explained the basics: The library would open for two hours on Thursday. Trash must be separated into six containers for recycling. There was no key to the front door, since there was no lock. Then, confirming that I had enough food for my stay, she hurried off to catch *Alert*'s return to the mainland.

The next morning I set out to meet the islanders. The streets seemed deserted. At the weathered schoolhouse, just across from the small clapboard church, I found teacher Ellie Seifert giving a computer lesson to 14-year-old John Paul Hunter, valedictorian, captain of the basketball team, leading debater—the entire student body, in fact (page 128). By himself, he represents the last graduating class for the foreseeable future. The one-room schoolhouse, once filled with a dozen or more pupils from grades one to eight, had no candidates for the following year.

The situation has some advantages for John, a husky, dark-haired lad in a baseball cap. He must put in the state's standard 900 hours of school attendance a year—but he and Ellie can schedule them as they like. Said Ellie, "If it's rainy on Saturday, we'll go to school, then take off a sunny Monday."

Ellie was a fortunate catch for the island. She is in her 50s, has a Ph.D. in education, taught at City University of New York, and was teaching in Massachusetts when the recession hit and she lost her job. She took the Cuttyhunk post at a bargain price.

Ellie had things to learn when she came to live "on island" in 1989. She was filled with ideas for her new student. She proposed that John publish an island newspaper. He retorted: "Are you kidding? If my dog gets sick, everybody on Cuttyhunk knows about it already!"

John confided to me that Ellie was his best friend; after all, there were no other kids his age on the island. Besides, he said, "She's the only teacher I ever had who played basketball with me."

Ellie has insisted on the best for her student, and the Cuttyhunk taxpayers have backed her unstintingly. The price tag has been some $50,000 a year. To begin with, Cuttyhunk School and one on the mainland make up a state school district. Islanders must help pay the salaries of the district superintendent and his secretary. In addition, islanders have supported such extras for John as trips to choose a mainland high school and field trips to acquaint him with the world outside his island—including Epcot Center at Walt Disney World.

Thus prepared, John would be going to high school in New Bedford the following year. Under state law, Cuttyhunk must pay for his room and board—$300 a month. Islanders have also alotted $5,000 a year for tuition, if needed. How does John feel about the move? He shrugged his shoulders: "It'll be a little bit of a change, I guess."

As for Ellie, she'll be looking for a job.

The ice-cream shop is the place to be for teenagers on a summer's eve. With no night spots, no movie houses, and no video-game arcades, Cuttyhunk is not for the easily bored. The island has only one inn and restaurant, and no liquor sales. Says one resident: "You have to know whose houses have the well-stocked bars."

ONE DAY I CALLED ON Nina Brodeur at her house on Broadway. I knocked and knocked; perhaps she wasn't home, I thought. Then she appeared at the front door, looking a little perplexed. "I couldn't figure out what I was hearing," she laughed. "Nobody *ever* knocks here!" Cuttyhunk etiquette dictates, I learned, that a visitor call out his name loudly, while at the same time throwing open the door.

Nina, in her early 30s, with billows of dark hair, shared more island secrets. She is the managing owner of the Allen House, the island's only inn and restaurant, and puts in long hours during the summer. "Outsiders always ask what we do during the winter. Some people here get

real defensive about that. I'm not. When people ask me, I say: 'As little as possible.' We do puzzles, watch soap operas, and make absolutely no excuses for it!"

We talked for a while about the 14-mile ferry ride between the island and the mainland and how islanders come and go for things they need. Nina, seven months pregnant, crossed over each Tuesday to attend a childbirth class.

Her husband, Mark, commutes to his machine shop in New Bedford five days a week in his 27-foot Boston Whaler, *Main Event*. He leaves early each morning and returns, with luck, before dark. With their baby due in two months, Mark is apprehensive about leaving the island these days. He has made sure that the telephone numbers of mainland helicopter and seaplane services are in the hands of several residents as well as with Nina.

As Nina and I talked, a marine radio sounded a weak chirping. She rushed to it. "*Main Event*, Base. Go ahead, Mark." We hear fragments of Mark's voice and distinguish "Go to 10, babe," but get nothing

A fisherman's chore absorbs charter-boat captain Jim Nunes, whose shadow falls against his shack as he unsnarls line on a reel.

The shallow waters and rocky bottoms around Cuttyhunk make it a haven for striped bass and their pursuers. Says Nunes, who fishes only for stripers, "They're hard to catch. I've been working at this for 29 years, but every time you think you know something about them, they do something different."

on channel 10. Nina looks frustrated as she switches back and forth between 10 and 16, the hailing channel. Bad reception isn't uncommon, but she remains anxious on this foggy evening until Mark arrives home safely.

Nina has known Cuttyhunk since she was a teenager and has lived here year-round for six years. But she isn't sure about the future. In recent years more and more couples have moved to the mainland as their children approached school age. The Brodeurs haven't decided whether their child will one day be enrolled at the little school on the island. "If there are a couple of other kids. . . ." There might be. Another child had been born two months before. Perhaps the couple could stay, after all, on this side of that 14 miles of sea.

ON A BITTER FEBRUARY DAY, with a light snow falling, no one is out walking but me. It is the kind of day Wilfred Tilton, the hermit, is likely to be abroad. I set out in search of him. He is, I have heard, not an unfriendly hermit, merely wary. "He's a funny guy," one island woman told me. "He writes me nice notes and mails them!" And Ellen Veeder, the postmaster, explained, "It's only at certain times that he's a hermit."

Finally I spot 71-year-old Wilfred hurrying up Bayberry Hill Road toward the house overlooking Cuttyhunk Pond that he calls his hermitage. He's a short, plump man in a fisherman's cap, with apple cheeks and a short white beard. He seems glad to have company. "My swans are back!" he exclaims. The pair he has kept for years sometimes disappear to the neighboring island of Nashawena. Today they have returned to join the Canada geese, Rouen ducks, mallards, and chickens at the hermitage.

I follow Wilfred to the side of the house, where he erupts in a decrescendo of *quacks* to summon his pet fowl. Soon there are more than 50, jostling one another for the cracked corn he broadcasts over the crowd.

Cuttyhunk Island

Offspring of the Ice Age, Cuttyhunk was born from leavings of glaciers retreating 12,000 years ago. In 1602 Englishman Bartholomew Gosnold landed but failed in his attempt to form a colony, leaving only his name behind. Cuttyhunk and the other 15 Elizabeth Islands now make up the Town of Gosnold; most of the homes huddle next to Cuttyhunk Pond. Bayberry bushes and witchgrass predominate on the island's hills, stripped of forest for lumber in the late 17th century.

A cradled workboat shelters a gaggle of day-trippers who arrived on the ferry this rainy morning and will leave in the afternoon. The boat's owner, Alan Wilder, works several jobs, as do most islanders. His include caretaker and handyman. "Here, anyone who can rub two wrenches together can make a living," he says.

Wilfred's living room is cluttered with magazines and mail. He searches through stacks of old clippings and photographs for items to show me, concerned that I get an accurate view of island history.

"You'll hear the wildest stories about pirates luring ships aground with false lights and murdering the crew. There may have been some pirates in the area," Wilfred allowed, "but they weren't Cuttyhunkers."

He doesn't seem to mind my curiosity about his hermit's life. Wilfred cooks and sews for himself, he tells me, and lives on a small pension from the Coast Guard, from which he was discharged in 1945 because of health problems.

He is a fifth-generation islander. His mother died when he was an infant, and he was raised by his grandmother, Mother Eva.

When I asked how a man so sociable could be an authentic hermit, he reassured me: "My grandmother raised me properly. She said, 'Always look for the best in people.' I love people. The thing is—they consume you, they smother you."

As I leave, the hermit scoops up three freshly laid eggs from a bowl on a table by the front door—for my lunch, he says. When I tell him where I'm staying and ask if he will return the visit, he smiles: "I never say I will, and I never say I won't. Good-bye, dear."

FEBRUARY IS HIGH SEASON FOR OYSTERS. On Sunday morning I joined oyster farmer Seth Garfield at the West End Pond, a 30-minute hike from the village. Seth is 35 years old, with the clean-cut good looks of a successful young entrepreneur. He wore a sweatshirt emblazoned "Cuttyhunk Shellfish" and great, padded gloves as he sorted through his two-year-olds. These are French Belon oysters, for which gourmets will pay a premium—but which are difficult to grow. His five-year aquaculture permit is nearing a second renewal date, and he still hasn't made a go of the Belons. As for his domestic crop, "They grow like crazy!"

The pond was dotted with 1,200 white buoys, each supporting an underwater net shaped like a Chinese lantern. Seth buys two-inch "seed" oysters from a hatchery on Fishers Island, New York, places them in the nets, and waits for the animals to fatten on phytoplankton. Two to three years later they are served in the raw bar at New York's Grand Central Terminal. Seth holds up a mesh bag of oysters that he'll put on a refrigerated truck in New Bedford by noon. "They'll be in New York by six o'clock!" Last year he sold a record 56,000 oysters.

Seth's energy is legend. He is the fire chief, manages the town landfill, serves on the First Aid and Rescue Team and the Council on Aging. He is a founding director of the Coalition for Buzzards Bay. This group

As pure and simple as it gets, democracy rules at the annual Gosnold town meeting in May. When their names are called, residents approach to vote for town selectman.

Matters can get testy between summer-only residents, who hold most of the votes, and the year-rounders, who fear

that their island may become a sterile resort for the rich.

Summer or winter, the mail gets sorted by postmaster Ellen Veeder (left, at center) with help from Mary Sarmento. Running the post office, now attached to Veeder's house, has been a family affair for most of the past century.

was started in 1987 after the U. S. Environmental Protection Agency cited Buzzards Bay—which separates the Elizabeths from the mainland—for poor water quality due to bacterial contamination from land-based and marine waste-disposal systems.

"It's frustrating to see the old Yankee attitude—we've been here a hundred years, so we can keep polluting." Seth is outraged that the town sends raw sewage into the ocean and that visiting boats find no pump-out facilities in the harbor. The revenue from harbor fees—more than $250,000 a year, the town's greatest source of income—would go a long way toward paying for an advanced sewage-treatment plant, he says. "Our problems are all do-able!" he concludes. "The town just has to make some decisions, apply some money!"

But then, to some, Seth is not really an islander. A teacher at a private school in Dartmouth, Massachusetts, he lives there with his wife and three children. But he spends an enormous amount of time on Cuttyhunk, where his parents own a house at Church's Beach.

"I've spent every summer here since I was a child," Seth explained, "and I come over twice a week in winter. This is my home base. I don't have the same ties in Dartmouth. Cuttyhunk is the place I care about."

"GOD MADE THE COUNTRY, and man made the town," one islander reminded me. "But it was the devil who made the small town—and the devil was at his worst when he put a moat around it." Broken friendships are nothing new on Cuttyhunk, where individual rivalries can turn into family feuds lasting generations. One selectman said of his office: "It's not a question of how many friends you gain, but of how many you lose."

I attended the annual town meeting, that quintessentially New England phenomenon, one Monday in May. The ferry, on a special run, brought the summer people who would attend the meeting. Private boats arrived with a handful more voters from the "down islands"—caretakers of summer estates on the otherwise uninhabited Elizabeths, which, with Cuttyhunk, make up the legal entity known as the Town of Gosnold.

Eighty voters file into Town Hall, filling it to overflowing. (Among them, to my amazement, the hermit, who shuns most gatherings.) The gavel pounds at 10 a.m. A moderator is chosen by acclamation.

There has been a long-standing struggle between year-round residents and summer people who own homes on the island and declare these their legal residences. The part-time islanders hold the most votes, but shifting alliances among the citizens can lend suspense to any issue.

A selectman's post is up for election. The incumbent, a summer person, wins handily. Then comes a proposal to change the time of the biweekly selectmen's meeting from 7:00 p.m. to 11:30 a.m. This would make it possible for a selectman from the mainland to catch the ferry to the island, attend the meeting, and return home the same day. "Out of order" is the ruling.

Appropriations for budget items are more time-consuming. Some 30 items are approved, including funds for the town cemetery, for the powerhouse, and for deer-tick control. A proposal to dredge the entrance to the West End Pond draws fire from the owner of the surrounding land and is tabled for further study. By noon $536,000 has been appropriated, and the meeting is over.

Memorial Day weekend brings opening day at the Allen House,

Hurricane Bob railed at the wharfmaster's shack and attracted young thrill seekers until authorities shooed them away. Winds of the August 1991 storm exceeded a hundred

miles an hour, but the worst lasted only about an hour. Later that year, back-to-back northeasters did heavier damage with weaker but more sustained assaults.

which since the turn of the century has provided not only food and lodging for visitors but also wives for the island men. Half the inn's 12 guest rooms are in the Annex—an old lifesaving station bunkhouse transported from the tip of the West End. For the young islanders who once manned that station, the inn was where the girls were.

The tradition continues. Today's year-round residents include four young women who came to work at the Allen House and stayed to make their homes here with island men. "Thank God for the Allen House girls!" said the mother-in-law of one.

Ann Jenkins came to Cuttyhunk five years ago, a New Hampshire college student looking for "something different to do." She signed up as a summer maid at the Allen House. Two years later she and islander Bill Jenkins were married.

They have several incomes. Bill serves as police chief, heads the electric department, and charters his 30-foot fishing boat, *Kodiak*. Ann is the town clerk and an Allen House waitress. But because of the demand for summer homes by outsiders, land values have soared so high that the couple can't even consider buying a place on Cuttyhunk. Recently a five-and-a-half-acre site on Copicut Neck came up for sale for $900,000 —without electricity. With prices like that, Bill's parents, Bette and Dave, are converting their own house into a duplex to share with the couple.

Ann and Bill want to stay on the island. She likes the fact that she knows everyone, and everyone knows her. "You can be somebody here," she says. "You matter. You can make a difference."

IN AUGUST the ferry brings day-trippers every morning and twice on Friday and Sunday. Sailboats file through the narrow channel well before sunset to assure a mooring in Cuttyhunk Pond. "I bet there were a thousand people on the street," an islander says of one weekend. "It was just unbearable."

Police Chief Bill Jenkins keeps order with three other officers recruited from the mainland to work on weekends. Crime is rare. The island is "dry"; the occasional drunk-and-disorderly sailor gets that way with his own provisions. And there are almost no arrests. "An arrest is a pain," says Bill. "The closest jail is on Martha's Vineyard, seven miles away."

August was interrupted by Hurricane Bob, the most destructive hurricane to hit New England in 37 years. Bob blew three sailboats in the harbor onto the rocks, as well as Seth Garfield's *Payday*. A dozen of Cuttyhunk's scarce trees were toppled. And the island's shape changed somewhat: The south shore lost a little land, the north gained a bit—the natural trend for all the Elizabeths throughout this century.

At the far eastern tip of the island, I hiked over the cobbles of Canapitsit Neck to the old Coast Guard station boathouse that is now the summer home of Mel and Barbara Dorr of Southborough, Massachusetts. Mel seemed to have memorized every square yard of their 14 acres, and as we toured the shoreline he pointed out each of Hurricane Bob's modifications. "We lost about 30 feet there. . . . We have two new points here."

Mel, 58, has the weathered, muscular look of a seaman, but his business is aircraft mortgages. He has a small airstrip, and he commutes to his office in Marlborough, a half hour's flight in his Cessna 180. The Dorrs spend four months a year on island.

Their living room overlooks Canapitsit Channel; two sailboats ran

The light of learning at Cuttyhunk's one-room schoolhouse has gone out—at least for now. Stretched out with his dog, Kimble, for a reading session, John Paul Hunter—the school's only student—graduated in 1991.

Islanders appropriated $50,000 a year for John's education. When he entered high school on the mainland, his teacher, Ellie Seifert,

lost her job and is still looking. "I miss it terribly," said Seifert, who has moved back to Cape Cod. "If they said, 'We have another kid,' I'd be right back there."

Life on an island of less than two square miles can lead to an almost smug isolationism. "If we don't want to know what's happening in the outside world," says one lifelong resident, "we don't have to."

The sheer joy of childhood propels Kelly Kimball and her younger sister, Jessie, toward their grandparents' summer home. Mindful of the sun, Dianna Garfield and Kate Lund sport wide-brimmed hats.

For island kids, summer brings a daily circuit: mornings at the yacht club for sailing or

rowing lessons, then lunch at home followed by stops at the beach and the library, then a break for ice cream.

Many of the adults who rent on Cuttyhunk can only dream of buying an island house. Nearly every location has an ocean view, and a one-acre lot with utilities can fetch $250,000.

aground as we talked. Mel said he and Barbara see lots of groundings. In fact, he chuckled, many of their friends are sailors they met while helping them off the shallows.

For Mel and Barbara it is this view and their friends that make the inconveniences—the airplane commute, the occasional hurricane, the semi-isolation—all worthwhile.

They have put in moorings for guests. Mel said, "We sit here and get a call on the radio: 'This is so-and-so, we'll be in for dinner,' or 'Come out to our boat for drinks.' And that's our summer. That's what it's all about. Barbara can hand me a martini half an hour after I've left the office, and we can watch the deer running around. That's what the island is to us."

AS LABOR DAY APPROACHES, Cuttyhunk begins its annual transition from resort to village. A few of the summer houses will be crammed with guests for the holiday weekend, but most of the families with school-age children have already returned to the outside world. The hermit remains in seclusion.

At the big summer home of 86-year-old Eleanor Moore of Concord, Massachusetts, four generations are gathered. Young people shuttle between beach and house, while adults worry over packing up the

paraphernalia of summer. On the day of my visit, Granny Moore is preparing for a houseful of 20 guests. "We go to sleep counting heads and beds, and sometimes there are more heads than beds!" she says, laughing.

On Sunday morning I call at Union Methodist Church just in time for the Roman Catholic service. Father Philip Kelly has arrived on the seaplane, as he has nearly every summer Sunday for the past 25 years, at the invitation of the Methodist pastor, the Reverend John Ward of Boston University. Dr. Ward will conduct his service—the last of the year—that evening but now follows the Mass attentively from the front pew. His wife, Carmen, plays the organ.

That afternoon when I board the ferry for the last time—at least for a while—the dock is filled with people saying good-bye to friends. High school-bound John Paul Hunter is among the passengers, embarking on the hour's voyage that will change his life. In a few weeks Cuttyhunk's transition will be complete. The harbor will have emptied of visiting yachts. Only *Kodiak*, *Main Event*, and the other working boats will stay. Deer will wander unafraid into the village again, and the great blue heron at the Frog Pond will have to watch intently for signs of life on Broadway.

I remember how I first saw Cuttyhunk with its harbor full of sailboats and its main street crowded with tourists. Now I cherish it in winter. The strange, other-century aspects of the isolated island have caught me; so have the everyday facets and frictions of this small town, a town like any other.

When in my daydreams I return to Cuttyhunk, the scene is always the same. It is a February day when the wind bites and a light snow falls. And there is no one on the street but the hermit and me. □

A grand panorama lies before Eleanor Moore at her home, a former fishing club built by 19th-century business tycoons. A geometric toy stands ready for her eight great-grandchildren.

For year-rounder and summer resident, for renter and day-tripper, Cuttyhunk remains, as one observer said, "an experience entirely surrounded by water."

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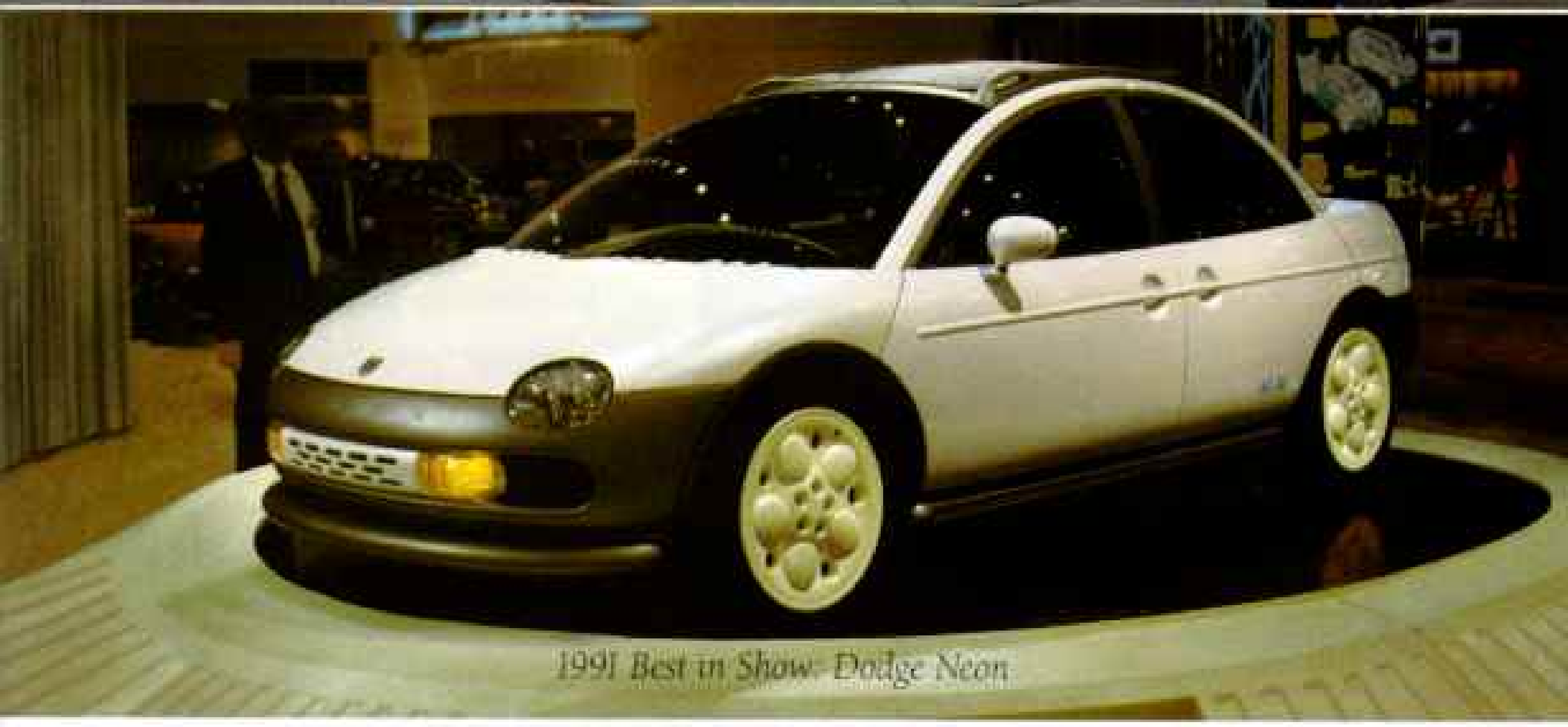
1989 Best in Show: Chrysler Millenium



1991 Best in Show: Dodge Neon

IN THE CAR BUSINESS, YOU LEAD,

To be named "Best in Show" by AutoWeek Magazine at the North American International Auto Show–

the most significant show of the year–is indeed an honor. To capture this prize back-to-back is an exceptional accomplishment. To win "Best in Show" four years in a row–a first–is just short of phenomenal. We're pitting our design and engineering wits against the giants–BMW, Mercedes, Porsche. Plus the most innovative efforts of Ford, GM, and the ever-pressing Japanese. And we're winning. There is no question, Chrysler is in the midst of a design renaissance. AutoWeek Magazine summed up our achievement quite clearly. "...The 1992 Show might be remembered as the point at which Chrysler turned the

1990 Best in Show: Eagle Optima

1992 Best in Show: LH's

FOLLOW, OR GET OUT OF THE WAY.

corner...The much-anticipated LH series bowed. They did not disappoint." Chrysler's new LH series features the revolutionary Cab-Forward design. A new automotive architecture that will define the way cars are designed into the next century–by giving more room to the passenger and less to the machine. Now the good news. The LH cars–Chrysler Concorde, Dodge Intrepid and Eagle Vision–are not fantasy machines. Not concept vehicles for the year 2000. But real, live cars that will be ready and waiting for you in our showrooms this fall. In the car business, you lead, follow, or get out of the way. With Chrysler's new LH series, scratch the last two.

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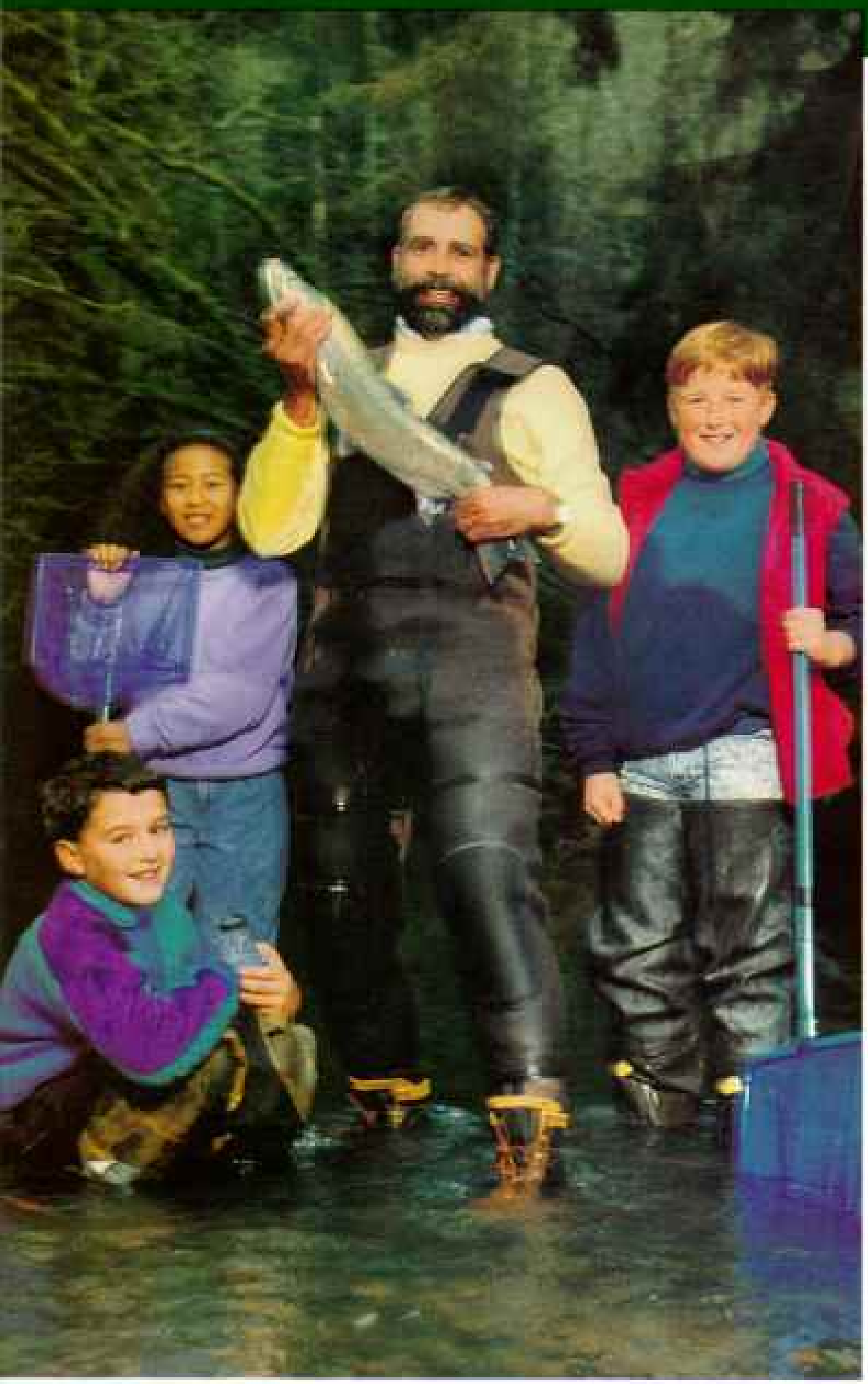
Mr. Self's Students Are Hooked On Science.



There's something fishy going on at Washington Elementary School in Eureka, California.

Literally.

For five years, Jeff Self and his students have run a fish hatchery that spawns salmon and a lifelong fascination with science.

"In essence," explains Jeff, "our fish hatchery is our school laboratory. It's a great way to tie the physical, earth and life sciences together for our students in a relevant way."

Every January, Jeff brings adult steelhead fish and spawns them at a school assembly. Thus begins a four-month process in which the students first incubate the eggs in the hatchery. Once hatched, the steelhead fry are cared for by the students until it's time to release them in their native river. It's a process that never fails to install a sense of wonder in the students.

"Seeing their bright, inquisitive eyes as they watch a salmon egg being hatched makes all the effort worthwhile," says Jeff.

State Farm is honored to present Jeff with our Good Neighbor Award. We are also delighted to make a contribution of $5,000 to Washington Elementary School in his name.

Jeff Self. Thanks to his innovative science teaching, his students really get into the swim of things.

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THE PRESIDENT'S REPORT ON THE

Education Foundation

KLAUS REISINGER, BLACK STAR

Kids Network Sends Data to Russia, With Love

"We won!!!!!!" That triumphant message from Moscow, following last summer's aborted military coup against democratic reformers, flashed on computer screens in classrooms across the U. S. Students and teachers alike were thrilled to learn their foreign partners in the National Geographic Kids Network were safe and sound.

Using telecommunications technology and computers, Kids Network links students in more than a thousand U. S. schools with each other—and with children in 28 other nations. The main goal is to help kids share data from science experiments they perform as part of a set curriculum, but hearts as well as minds are joined.

A special bond has been forged for students at nine Russian schools, who have been teamed with youngsters at schools in Iowa and other states. During the summer, there was concern about the survival of the Kids Network in Moscow. Happily, when school started again in the fall, the Russian students were on-line. Moscow School 1173 teacher Alexander Kuznetsov (above) can still show students how to measure local acid rain levels and compare their readings with those of youngsters in Iowa and elsewhere.

Iowa is home to the single most comprehensive Kids Network support program. The Roy J. Carver Charitable Trust has funded the purchase of computers and Kids Network instructional kits for 28 schools, training for 56 teachers, and access to America Online, another computer link that enables teachers nationwide to share ideas.

In an essential follow-up, the trust also sponsored an exhaustive evaluation of Iowa's Kids Network effort, highlighting the program's strengths and providing valuable suggestions.

I recently visited Barbara Hyman's fourth-grade class in Muscatine, Iowa (below), where along with Carver Trust chairman William Cory I tried my hand at a Kids Network lesson. Believe me, this is no shoot-'em-up video game! Besides learning science and geography, these youngsters also begin to see themselves as part of a worldwide community.

Heartening words about our success came from Elena Migunova, a Moscow biologist and head of Kids Network teacher training there. Even as Russia sank into economic chaos this past winter, she said in one message, "It is a consolation to think that life will be a little brighter for some of our kids, thanks to Kids Network."

I couldn't agree more—and it is my hope that thousands more schools will join this remarkable, globe-shrinking program.

DAVID C. PETERSON

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Forum

Alcohol

At last, a credible scientific article that calls alcohol what it really is—a life-threatening drug (February 1992). It is time society focused as much concern on alcohol abuse as it has on street drugs.

KARL N. BURDEN
Scarborough, Ontario

I have been working to bring about the posting of warning labels on alcoholic products for Canadian consumption. Now Canada puts such warnings only on alcohol for export to the U. S.

JOY E. GILMORE
South Burnaby, British Columbia

The benefits of alcohol consumption in moderation were mentioned only briefly. In our society vascular disease, especially heart attack, is the single biggest cause of mortality, and it is significantly reduced by moderate alcohol consumption. Dr. Rodney Jackson of Auckland University has postulated a short-term anticoagulant effect from moderate use similar to taking half an aspirin a day to prevent stroke. Wine is man's oldest medicine and should be respected, not abused.

PHILIP NORRIE, M.D.
President, Australian Medical Friends of Wine
Elanora Heights, New South Wales

When you report 20,000 deaths a year in Italy due to cirrhosis of the liver, it implies that all these deaths are alcohol related. However, about one in fifteen Italians has thalassemia minor, an inherited disorder characterized by hemochromatosis (iron overload), a direct contributor to cirrhosis. It is upsetting to explain premature family deaths to people who, with uplifted eyebrows, doubt there is any cause for cirrhosis other than alcohol abuse.

DOROTHY SCANLON
Westfield, New Jersey

As a junior in high school, I see the effects of alcohol nearly every Monday morning. Yours is a message that needs to be sent out before a youth can make a truly conscious decision about drinking.

TREVOR SELBY
Seattle, Washington

In mentioning Alcoholics Anonymous, you fail to tell how to join. It is as easy as looking it up under *A* in the phone book. This may sound obvious, but remember we are talking about a mind-fouling substance. To get to a meeting, call to locate one,

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then show up. It might change your life and how you see yourself, family, job, and situation. It has for me—age 32⅔ years, sober 5⅓ years.

CLAYTON H. HEWITT
Needham, Massachusetts

Fetal Alcohol Syndrome

Most patients are unaware of the severity of the effects of prenatal alcohol consumption, and they may not receive appropriate counseling because they are reluctant to discuss the extent of their drinking. Wide dissemination of George Steinmetz's article would help obstetricians counsel against harmful behaviors prior to conception.

J. DAVID LESSER, M.D.
American College of Obstetricians and Gynecologists, Armed Forces District
Travis AFB, California

Our ten-year-old daughter was glancing through the poignant pictures of children affected by extreme alcohol consumption. It made an impact on her that will likely last a lifetime.

GEORGE and KAREN SANDERS
Fort Worth, Texas

Michael Dorris has written a book, *The Broken Cord*, that gives much factual information on FAS/FAE along with the agonizing story of his adopted Native American son.

JUDITH RAETHER
Rubicon, Wisconsin

Soviet Exodus

My family has been making *aliyah* (immigration to Israel) since before World War I—first from Lithuania, then from Byelorussia in the 1920s, from America since 1967, and from Kiev in 1989. Each new immigrant had his difficulties according to the times and his individual resources, but we have established a place for ourselves in our ancestral homeland and welcome our Russian brethren to join in that endeavor. Kudos to Tad Szulc for his insightful article.

HANNAH KLEMPNER
Hod-Hasharon, Israel

I arrived in Israel on February 4 just as a planeload of new immigrants arrived from Russia. The warmth of welcome and the helping hand that I witnessed awaiting them from fellow Jews renewed my faith in the human species.

ROGER B. MARKS
London, England

Nowhere in your article is it made clear that all settlement activity in the West Bank and Gaza has been consistently condemned since 1967 by the U. S. and the United Nations and is considered illegal by most of the world community.

DONALD A. KRUSE
Vienna, Virginia

STONEHENGE, WILTSHIRE, ENGLAND. 7:53 A.M. STILL GOING.

You do not acknowledge several major points that have been widely reported. Israel has been the first-choice destination for few emigrating Soviet Jews; most have expressed a preference for North America. Israel demanded nonstop flights from Moscow to Israel because at intermediate points emigrants were choosing other destinations.

The Israeli government has also imposed severe restrictions on the ability of Soviet immigrants to leave Israel. To obtain emigration documents, the applicant has to repay in full the expenses of absorption.

STEVE GOLDFIELD
Oakland, California

Eastern Wildlife

James Conaway's article on wildlife restoration in the Northeast deserves much credit for pointing out that most money for conservation derives from licenses and taxes paid by hunters. I disagree, however, that nongame animals are "second-class citizens." The habitats saved for game species also provide homes for hundreds of species of songbirds, mammals, reptiles, and rare plants.

JOHN F. TURNER
Director, U. S. Fish and Wildlife Service
Washington, D. C.

Black bears have been sighted much farther south in Connecticut than your map shows: Recently a driver in Redding hit one, killing it. Also, you omitted an animal that is appearing ever more frequently; I looked out my kitchen window just this week to see a coyote trotting past. A neighbor found one in his barn.

DAVID N. JOHNSON
Woodbury, Connecticut

The GEOGRAPHIC should start educating the public about how to restore wildlife populations without hunting, with human population planning, immigration controls, land-use laws that leave habitat untouched, and, importantly, the reintroduction and protection of natural predators.

EDWARD S. LOOSLI
The Wildlife Trust
New York, New York

I was surprised that the article had not a single word about reforestation, a major cause of the proliferation of wildlife. Something over 50 million acres of forests have been restored in the East in the past few decades. In New York State alone there has been a 24 percent increase in forest cover since 1950. While good game management is a factor, without the expanded habitat there would be little game—or other wildlife—to manage. I live in and thoroughly enjoy the new woods and all they contain. I do not consider the success "bittersweet"; it's great!

JAMES R. DUNN
Albany, New York

Another problem with the white-tailed deer is its role in the life cycle of the Lyme disease tick, *Ixodes dammini*. Increased incidences of the disease are directly related to the rising herd populations.

MICHAEL CURI
Goshen, Connecticut

Pizarro

John Hemming's historical account of Francisco Pizarro is excellent but left out an important legacy for today's Peru: a ruling oligarchy versus a large Indian population with little access to the privileges of full Peruvian citizenship. I do not agree that there will be little celebration of the fifth centenary of Columbus because Peruvians are busy trying to rebuild a great nation. At least those Peruvians who are of Indian descent may feel they have nothing to celebrate. They have had little opportunity to participate in the rebuilding of their own country, and I doubt that they will in the near future.

MANUEL R. GUARIGUATA
Balboa, Panama

Your article states that in 1977 Pizarro's remains were found beneath Lima's cathedral and placed in a glass-fronted tomb in a chapel. An earlier article on the Inca (February 1938) had a photograph

Comparing a used Dodge Spirit to a new Honda Accord seemed a little ridiculous. Until we saw the results.

Put a brand new Spirit up against a new Accord, and you've got a pretty fair contest. After all, Spirit comes in at just $12,682 – even when it's loaded with an automatic transmission, air conditioning, electronic speed control, a four-speaker stereo, tilt steering column, and more.†

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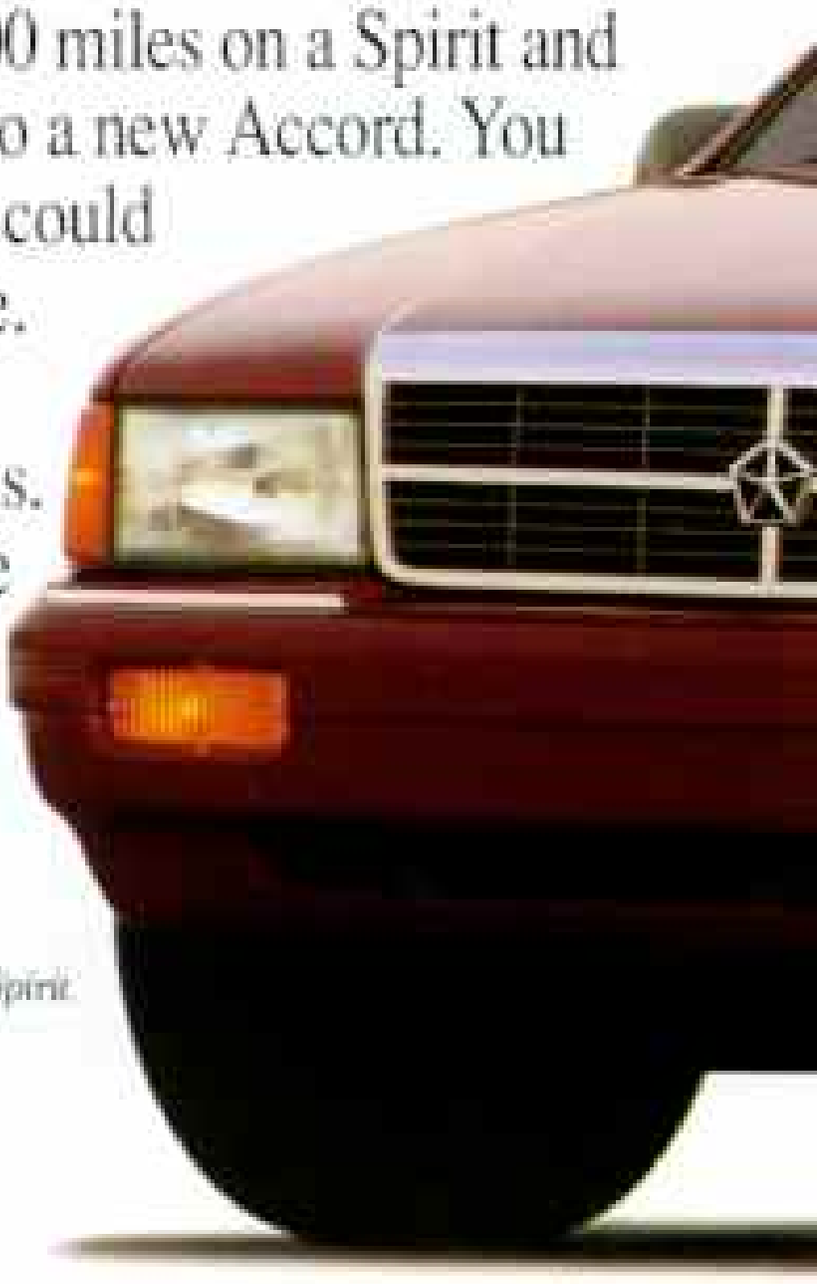
But put 70,000 miles on a Spirit and *then* compare it to a new Accord. You wouldn't think it could possibly compete. But it not only competes...it wins.

The fact is, we recently asked 100 people to



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area likely to buy an import compared '92 5-passenger models. †MSRP comparisons of 1992 Spirit with 22D Pkg. and available 6-passenger seating vs. 1992 competitive

of Pizarro's mummified body in such a tomb.

ARTHUR A. GARNER
Grimsby, South Humberside, England

Scientists determined that the earlier remains were not Pizarro's; the bones found in 1977, many bearing sword wounds, are.

Spain in the Americas Map

As detailed as it is, the map remains incomplete without Spain's presence in the North Atlantic. Spanish Basque fishermen were among the first to exploit rich fishing grounds near Newfoundland in the 1520s. By the 1560s Spain and Portugal were sending 200 to 300 vessels annually. After the collapse of the Spanish fishery in the late 16th century, Spain was an important market for British and American vessels carrying Newfoundland fish, which were exchanged for Iberian wines, cork, fruit, nuts, and even silver from American mines.

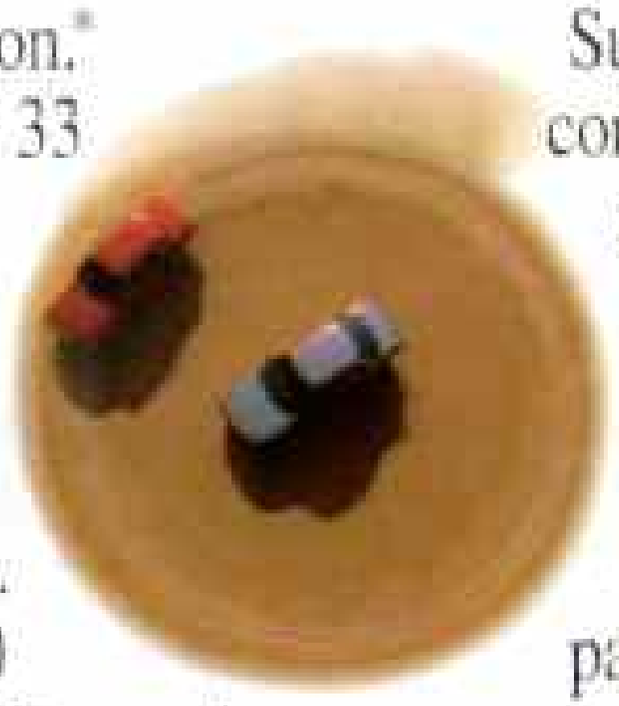
OLAF JANZEN
Memorial University of Newfoundland
Corner Brook, Newfoundland

Letters should be addressed to FORUM, National Geographic Magazine, Box 37448, Washington, D. C. 20013, and should include sender's address and telephone number. Not all letters can be used. Those that are will often be edited and excerpted.

make just such a comparison.*

They rated both cars on 33 different counts, covering driving and handling ease, smoothness on the road, comfort and convenience, roominess and appearance.

Overall, 58 of those 100 drivers chose the used Spirit over the new Accord.



Surprising? It was, even to us. But the comparison proved to be anything but ridiculous. Because in Spirit, Dodge clearly has what it takes to go head-to-head with its most serious competition. And what's more, Spirit is still the lowest priced six-passenger car in the world.**

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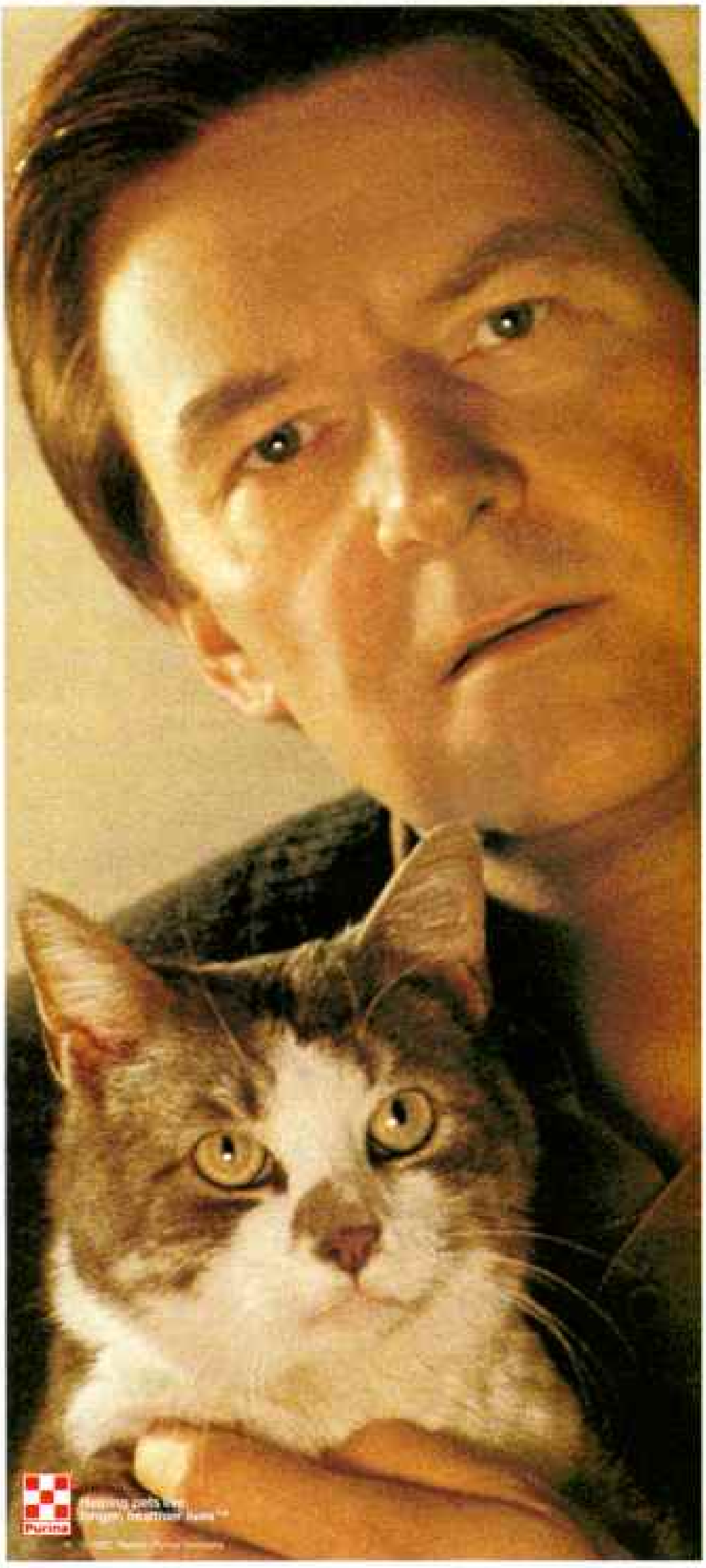

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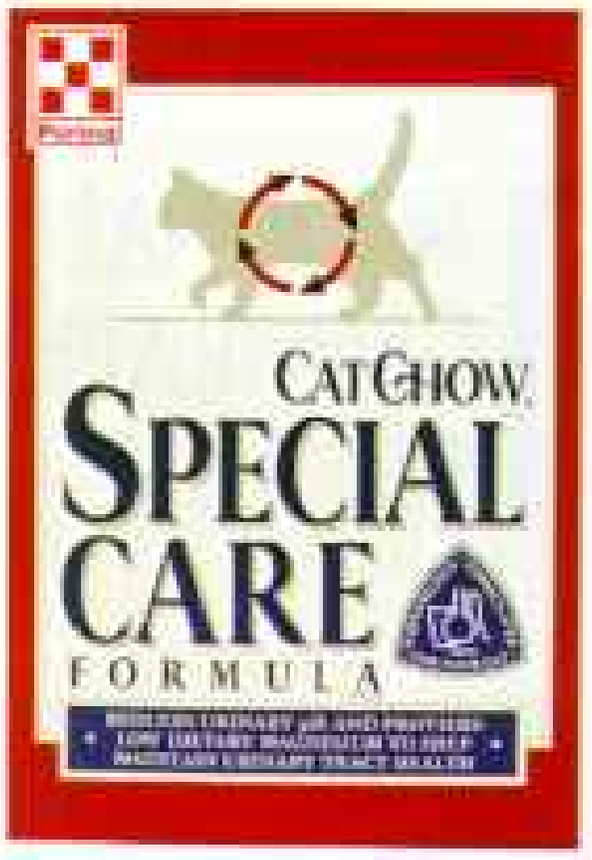

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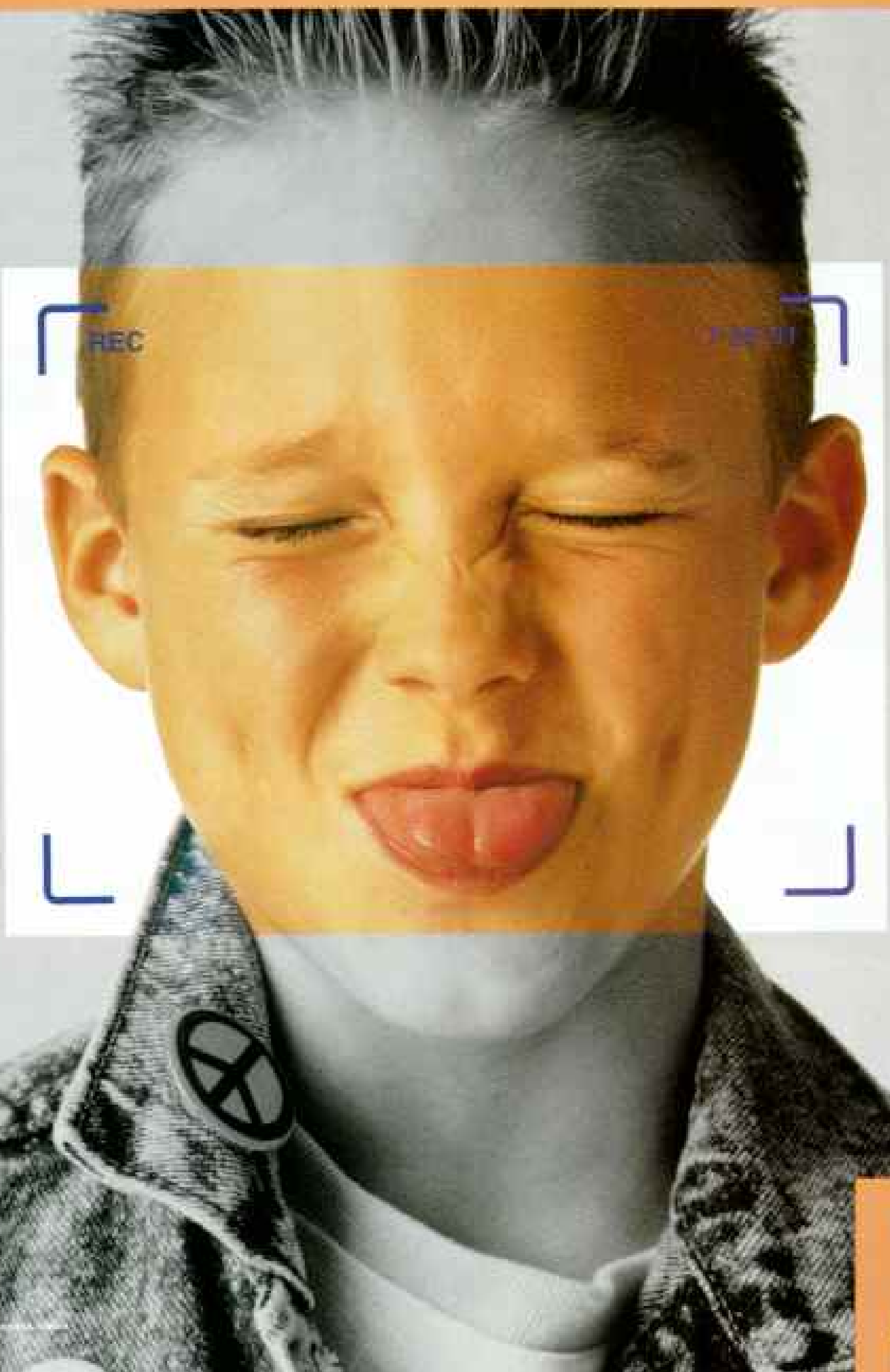

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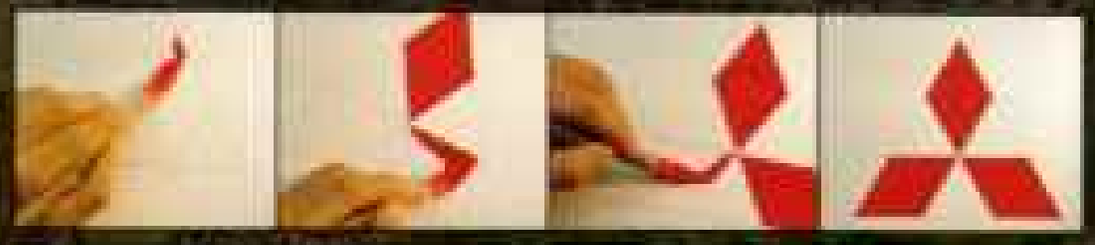

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*Optional equipment. Models shown: Diamante LS.

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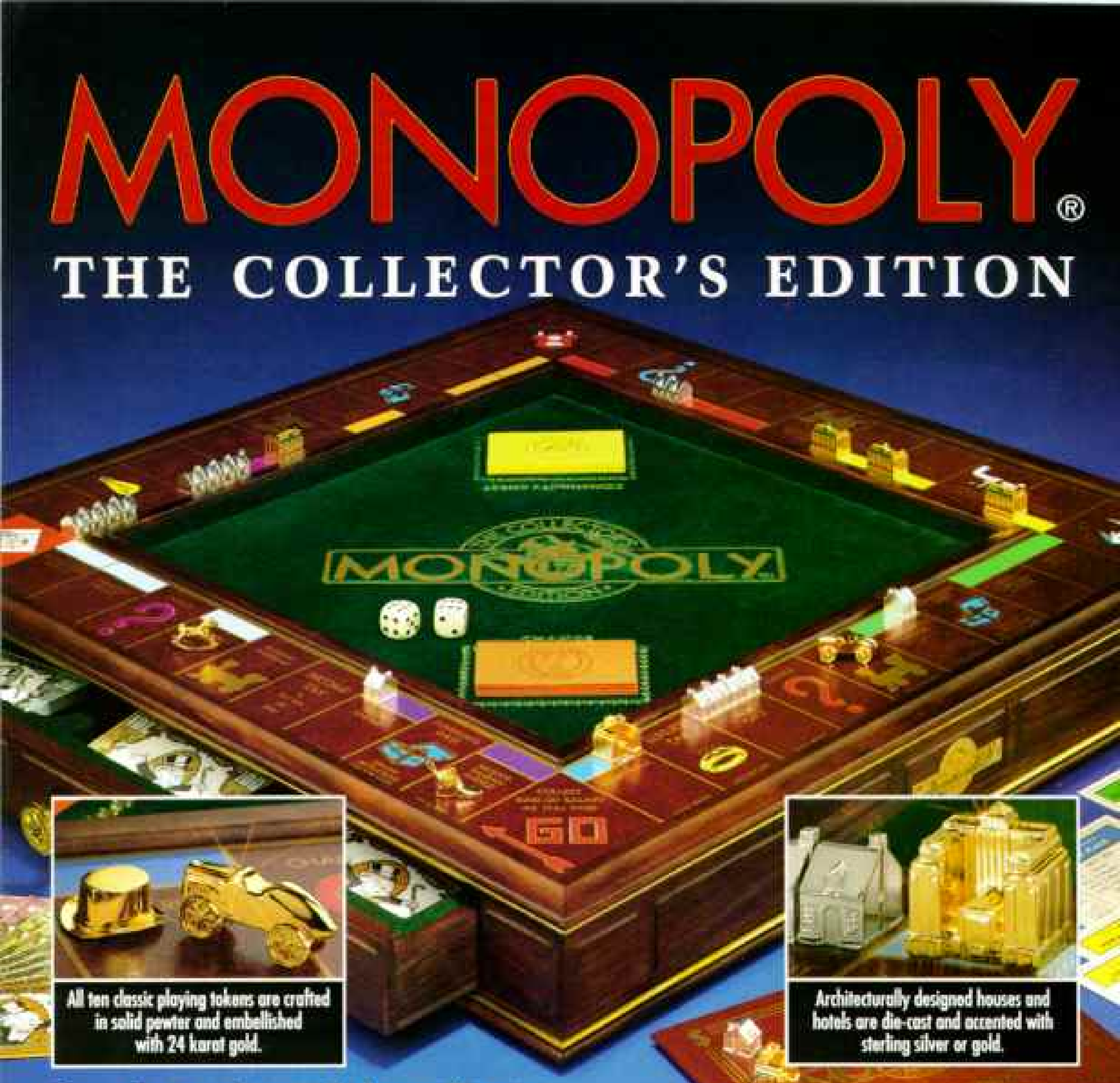

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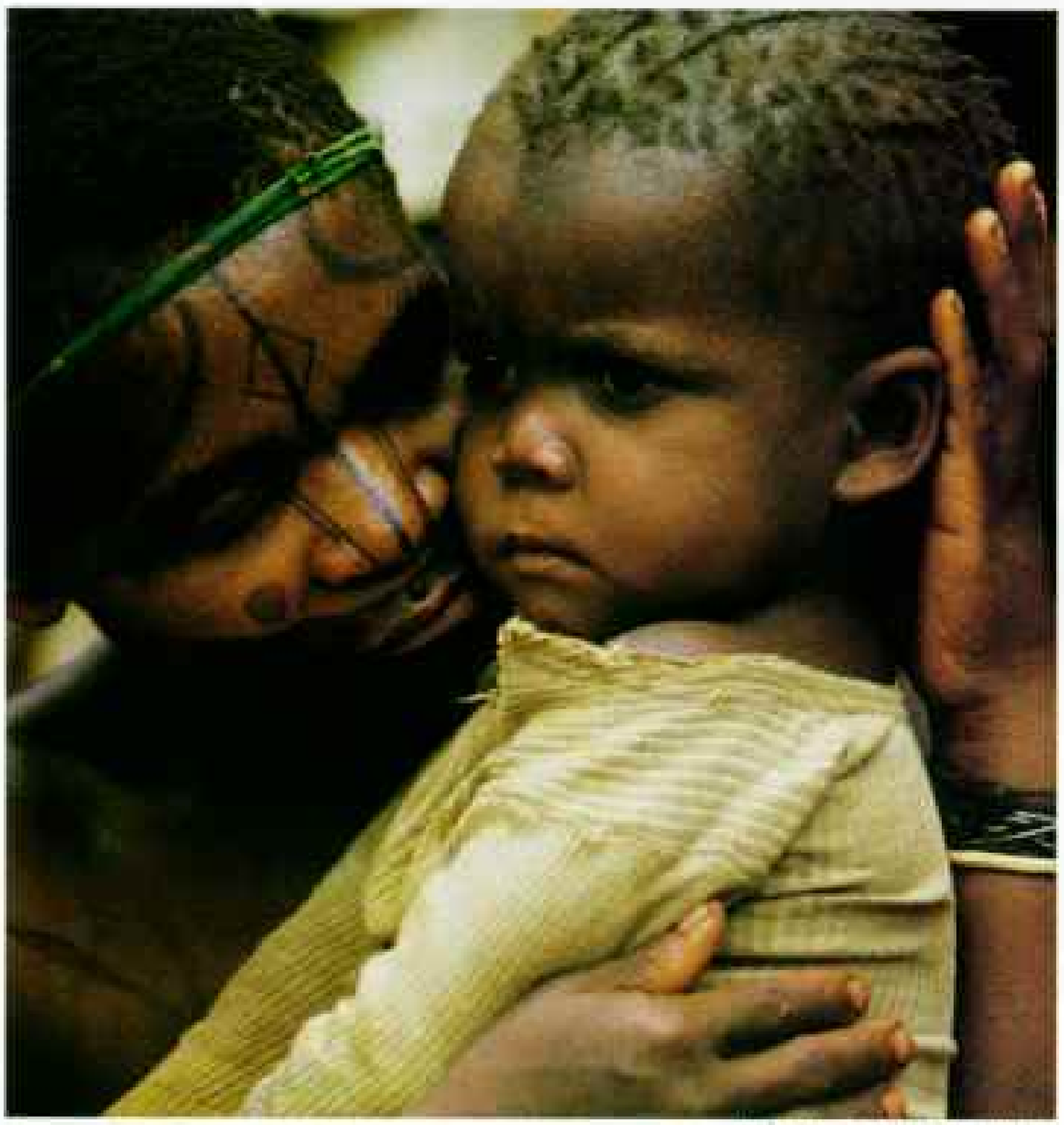
Geographica



JOSÉ AZEL, CONTACT PRESS IMAGES

Zaire's Efe People: Small From the Start

Researchers long thought that African Pygmy children grew much as other children do until they failed to have an adolescent growth spurt. A study of Zaire's Efe (NATIONAL GEOGRAPHIC, November 1989) shows, however, that the typical child (above) starts out smaller and falls further and further behind on the growth chart in the first five years of life.

Preliminary results of the study, by Robert C. Bailey of the University of California, Los Angeles, are based on seven years of measuring Efe children at birth and every six months thereafter. Unlike earlier researchers, who encountered their subjects only briefly, Bailey and his team recorded every Efe birth and thus did not have to use physical appearance to estimate age.

The average Efe newborn was 17.6 inches long, significantly shorter than their rain forest neighbors, the Lese. By age five, an Efe child is the size of a 2½-year-old American girl.

Undernourishment may play a role in why the Efe are so short. But Bailey also cites natural selection, which may favor small people who need less food and are better able to keep cool in the hot, humid forest than larger individuals.

JOHN SOLO

Tales of Climate Change Held Deep in the Ice

This spring, two separate drills—one operated by U. S. scientists, the other by a European team—began to reach down nearly two miles to the bottom of the Greenland ice sheet to bring up the final sections of ice cores they have been extracting since 1989 (below), ice that formed about 200,000 years ago.

As scientists from the American Greenland Ice Sheet Project 2 (GISP2) and the European Greenland Ice Core Project (GRIP) analyze the cores, which they hope will be the oldest and most detailed ice samples ever obtained, they will have an incomparable history of world climate and how it has varied over time.

They will analyze temperature changes from year to year—in some cases, from season to season—and find out if the modern increase in greenhouse gases many scientists think will lead to global warming had parallels earlier in history.

GISP2, funded by the National Science Foundation, and GRIP, whose scientists come from eight nations, will help determine if recent changes in climate were caused by human activity. They can track ice chemistry, wind strength, humidity, and changes in the composition of the atmosphere across the ages. "Each measurement has a host of stories to tell," says Paul Mayewski of the University of New Hampshire, GISP2's chief scientist.

National Geographic, June 1992

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Geographica

ERIK BUSCH

From Civil War Camp to Resort Community

Palmetto Hall Plantation is a golf course and residential community on South Carolina's Hilton Head Island. But where sand traps collect wayward balls, archaeologists first collected bottles, buttons, and animal bones—the remains of Camp Baird, where the Union Army's 32nd U. S. Colored Infantry stayed in the fall of 1864.

Its 539 men were sent to Hilton Head to build an earthwork fort, Fort Howell, and thus strengthen the headquarters of the Union Army's Department of the South.

"Black regiments at the time still weren't used much as fighting units but mostly for backbreaking work like this," says Christopher Espenshade, who led an Atlanta archaeological firm's excavation of the site.

The 32nd Colored Infantry apparently kept to itself during its six weeks at Camp Baird, not associating with the island's population, which included both blacks and whites. Food remains, for example, consisted primarily of beef bones with no shells of oysters, a basic local food.

Excavators also found medicine bottles (above) discarded by the camp physician when the troops moved on; one, which showed traces of a salve, even retained fingerprints. Kenneth Busch of the Georgia Institute of Technology analyzed the bottles and says they contained sulfur, zinc chloride, and other compounds used to combat infection.

Maps for the Blind Have a Different Feel

In the Washington, D. C., subway system, large maps posted in each car and at every station show routes and transfer points. But what if a traveler is blind?

Joe Wiedel, a University of Maryland professor, has created a complete map of the Washington metro for the blind (below), as well as a series of smaller maps, all available free from the Columbia Lighthouse for the Blind.

Wiedel, who heads an international commission on low-vision mapping, has produced such maps since the 1960s. They range from guides of hotel lobbies to maps of the Persian Gulf and make use of Braille and differing symbols and textures to convey data. A subway station with a center platform, for example, has one symbol, a station with outside platforms has another.

"A blind person reads a map in a different way," explains Wiedel. "I can see the whole picture and then pull out the details I need. But the blind have to start with details and bit by bit build up the picture."

KAREN KASMAUSKI

VANUATU NATURAL SCIENCE SOCIETY

Photographic Debut for a Pacific Starling

The Santo mountain starling makes its home at elevations above 4,200 feet on the island of Espiritu Santo in the South Pacific nation of Vanuatu. Until last summer there had been only two recorded sightings, in 1934 and 1961.

Now the first photographs of live *Aplonis santovestris* (above) have been made by a 12-person team from the Vanuatu Natural Science Society, who climbed Peak Santo last summer in search of the high-living bird.

"It was very inquisitive, more so than we expected," says Thorkil Casse, leader of the multinational expedition. "We had nine sightings in five days but could net only one bird." It was examined and freed.

Because its home is so remote, the starling apparently has few competitors or predators. "We saw no other birds," Casse says, "and no snakes."

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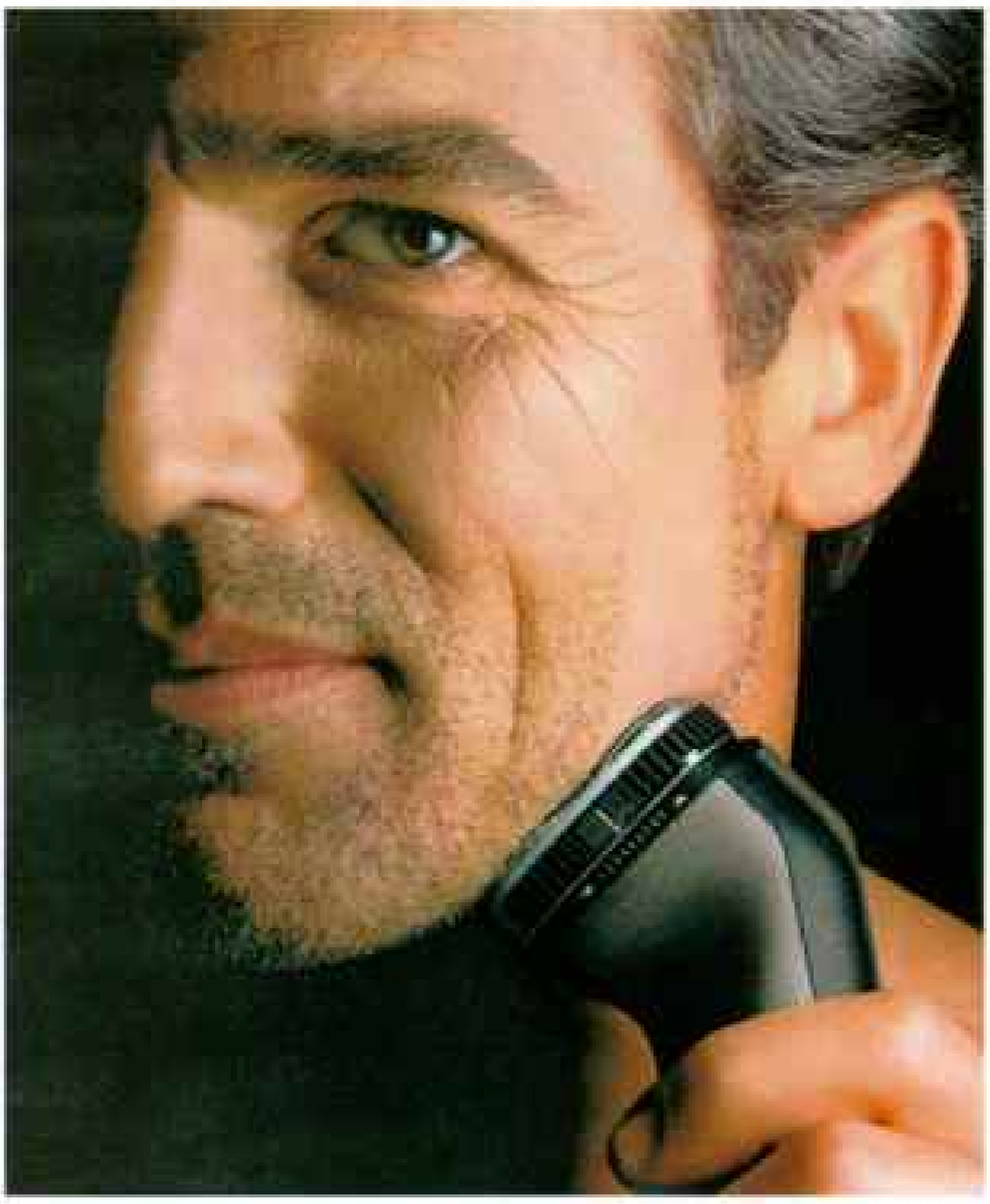

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Geographica

An Open-air Textbook: Lessons in Stone

MARIA STENZEL

Little did highway engineers know as they blasted away the top of a mountain that they were about to open a geologic textbook.

When they cut through Sideling Hill, six miles west of Hancock in western Maryland, to build Interstate 68, they exposed a perfect example of a syncline—a U-shaped pattern of rock strata—laid down 330 to 345 million years ago when the area was alternately part of an inland sea, a marsh, and a river floodplain. The syncline formed when the North American and African continental plates collided, folding the strata in the course of making the Appalachian range.

The state has built a visitors center at the site, where rangers and naturalists explain the geologic processes that created strata of sandstone, conglomerate, and shale. The center includes exhibits and a slide show, as well as a walkway for close-up views of the 340-foot-high road cut. Staffers say they are surprised by the center's popularity. More than 250,000 people dropped in during the first five months after it opened last August.

GILBERT VAN RYCKEVORSEL

Deep Research Reveals Cod "Highways"

Each March, cod by the millions spawn far off the coast of Newfoundland. In June, they suddenly appear on the coast (GEOGRAPHIC, May 1986) to feast on smelt-like fish called capelin. But no one has known where they go in the meantime, or by what route. Now George Rose knows.

A research scientist with Canada's Department of Fisheries and Oceans, Rose used shipboard echo sounders to track the cod from their spawning areas 100 to 150 nautical miles off the northeast coast of Newfoundland. The effort confirmed his theory that cod migrate en masse along preferred pathways. He found one such school at a depth of a thousand feet about a hundred miles out.

"It seems to be the middle of nowhere, but the ocean's topography and its cold temperatures explain why they're there," says Rose, noting that cod prefer 36°F water.

The schools are enormous, covering areas up to 10 by 20 miles, and exhibit social structure as they move and feed. Leading the way are large fish Rose calls scouts, which may know the route. "The cod move together and stay together," says Rose. "We saw them all come up from the bottom at the same time, over miles and miles."

In the Azores, a Volcano Makes the Cooking Easy

The recipe for *cozido*, a popular dish on the isle of São Miguel in the Azores, is simple: wrap beef, chicken, pork, sausages, and vegetables together in a cloth, bury it in a hole in the ground near Lake Furnas, and let it steam naturally for nine or ten hours.

The lake was created when the Furnas volcano erupted 12,000 years ago, blowing away the mountaintop. The surrounding soil reaches temperatures of 208°F (98°C).

An eruption may be overdue, warns Richard Moore of the U. S. Geological Survey, who has studied São Miguel. Furnas has erupted five times since A.D. 850; the last eruption, in 1630, killed 200 people.

Meanwhile, the use of the "natural kitchen" goes on. Cozido isn't the only dish cooked there. "Personally," says local hotel manager Mario Oliveira, "I prefer fish."

—BORIS WEINTRAUB

D. LOUIS MAZZATENTA, NGS

National Geographic, June 1992

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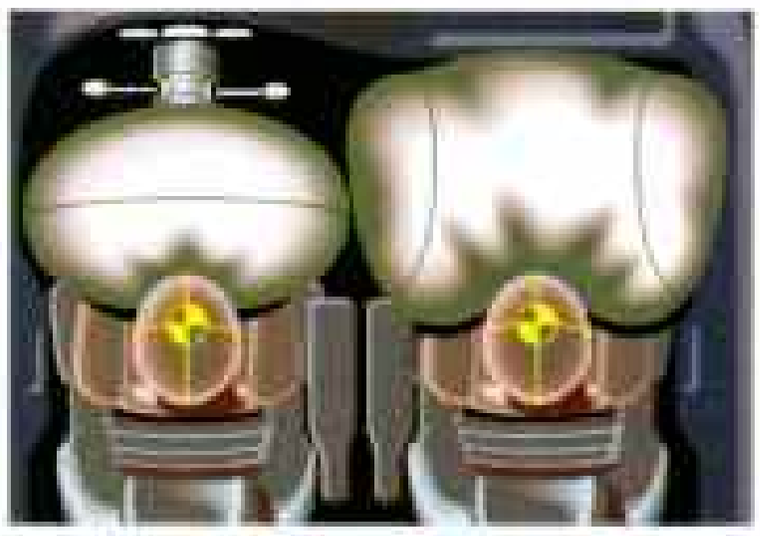

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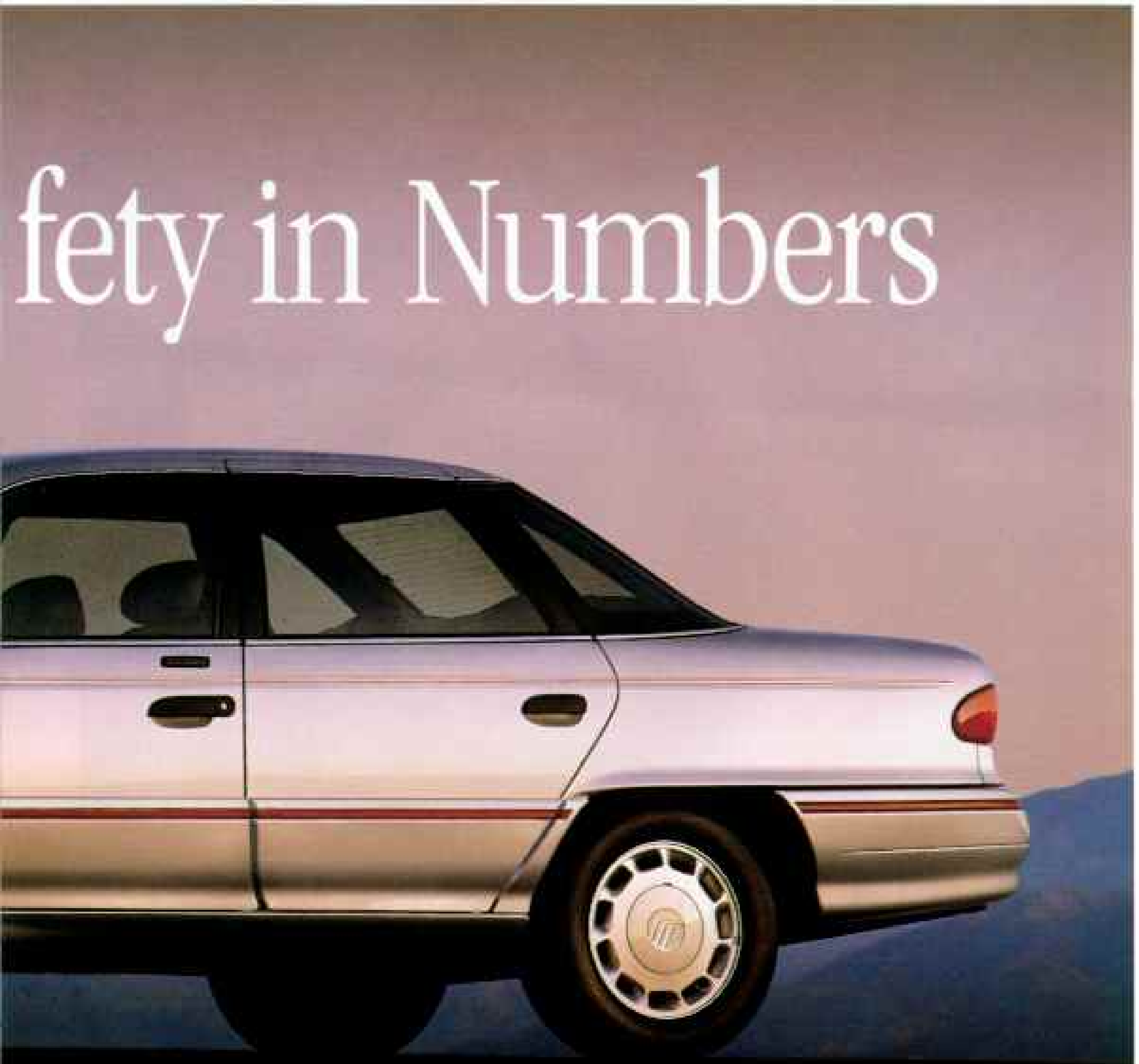

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WILDLIFE AS CANON SEES IT

Buffy-tufted-ear Marmoset

Genus: *Callithrix*
Species: *aurita*
Adult size: Length, 22–25 cm; tail, 30–35 cm
Adult weight: 400 g
Habitat: Atlantic coastal forests in Brazil
Surviving number: Unknown
Photographed by Luiz Claudio Marigo

A buffy-tufted-ear marmoset watches from a cecropia tree where it has been feasting on fruit with its family group. Marmosets also eat flowers and a variety of animal prey, as well as tree gum and sap exuded from tiny holes gouged with their large incisors. The future of this diminutive primate rests on the preservation of its remaining forest habitat. To save endangered species, it is essential to protect their habitats and understand the vital role of each species within the earth's ecosystems. Photography, both as a scientific research tool and as a means of communication, can help promote a greater awareness and understanding of the buffy-tufted-ear marmoset and our entire wildlife heritage.

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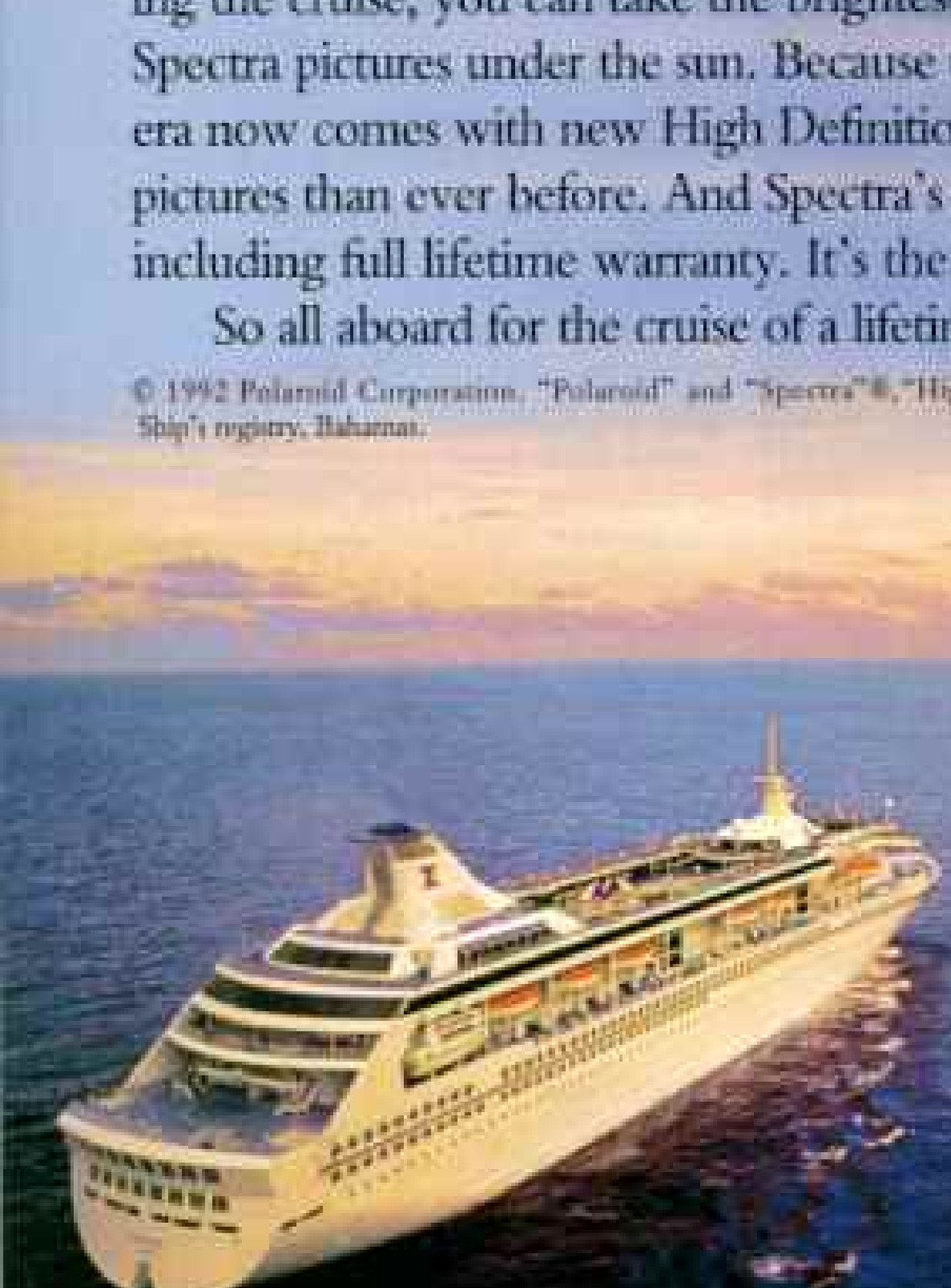

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On Television

GEORGETTE DOUWMA, BBC ENTERPRISES

PHILIP NICKLIN

Bubble Helmets Sound Ocean Depths

"How about a nice close look?" Mike deGruy asks fellow marine biologist Martha Holmes, after placing a crown-of-thorns starfish on her helmet.

"It's extraordinary. Must be what a coral sees when it's under attack," Martha says, 35 feet down on Australia's Great Barrier Reef.

This conversation, natural as it seems, is possible only because of an advance in diving technology—the modified bubble helmet. Fed by scuba tanks, this acrylic dome enables divers to transmit crystal-clear speech by cable in water as deep as 100 feet and as far as 650 feet from the boat. Suppressor devices filter sounds of breathing; weights counteract the helmet's buoyancy.

"Bubble helmets let TV viewers see the divers' expressions. Clear sight and clear sound bring the experience of diving close to the audience. Now if we could only transmit the smell of the sea," says Robin Hellier, producer of "Sea Trek."

Co-produced by the BBC and the National Geographic Society, the five-part "Sea Trek" is the first series to feature two-way communication between divers. DeGruy and Holmes also use snorkels and a deep-sea submersible to explore five distinct ocean habitats.

In the cold waters that well up around the tropical Galápagos Islands, they look at contrasts—penguins at the Equator, for example. A stroll through California's kelp forests (above) uncovers the fish and sea otters that live amid these 15-story plants. In the Caribbean, the divers probe the lunar-like depths off the Cayman Islands. Their visit to Australia coincides with the mass spawning of the corals, a spectacular annual display of synchronized reproduction. In Hawaiian waters they work with scientists studying humpback whales.

Thanks to the bubble helmet, divers and viewers alike can now share close encounters with creatures of the sea.

"Sea Trek" airs on June 7, 14, 21, 28, and July 5 on Explorer, cable network TBS, 9 P.M. E.T.

America's love affair with the original minivan continues. Introducing the new 1992 Plymouth Voyager with a money-saving optional Family Value Package that gives you automatic transmission; power liftgate release; light enhancement in the map and cargo area; lockable storage drawer; dual horns; body-side moldings; and air conditioning at no charge; plus over 60 other standard features.* All for $14,266!† We think you'll also value the available all-wheel drive, available anti-lock brakes and our new Owner's Choice Protection Plan: 7 year/70,000 mile powertrain warranty, *or* 3 year/36,000 mile bumper to bumper warranty.‡ No other automobile manufacturer in the world offers you this level of flexibility in choosing the warranty protection that's exactly right for you. So make a visit to your local Chrysler-Plymouth dealer today for a test drive. Or call 1-800-PLYMOUTH now for purchasing or Gold Key Plus/leasing information.

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USA

Earth Almanac

MICHAEL NICHOLS, MAGNUM

Using Recycled Paper, NGS Cover Goes Green

With this issue NATIONAL GEOGRAPHIC's covers will be printed on recycled stock consisting of 50 percent waste paper and containing 10 percent "post-consumer" waste, mostly computer printouts from offices—including the Society's, if analysis permits. A recycling symbol (below) will appear on the contents page.

The recycled paper for this cover was produced by Westvaco in Tyrone, Pennsylvania. Just to turn out the covers for almost ten million monthly issues requires 180 tons of it. What are the chances that the entire magazine, which uses some 4,200 tons of paper a month, could roll off the presses on recycled paper?

"Using recycled fiber for coated magazine stock is a complex issue," says Hans Wegner, director of printing and production control. "The cover can be done fairly easily, but recycled-content paper is not available yet in the quantity and quality needed for the magazine."

Amazon's Gold Rush Spills Deadly Quicksilver

About half a million miners seek their fortune in the Amazon, continuing Brazil's biggest gold boom, which began around 1980. Their search for treasure is leaving a perilous legacy—mercury, used to bind with gold and separate it from river silt. Perhaps 1,500 tons of mercury have been dumped into the Amazon River system, contaminating fish and endangering villagers who eat them. Another hazard: breathing mercury vapor, created when a blowtorch heats gold-mercury alloy to burn off the mercury and reclaim the gold.

Since 1986, Brazilian physician Fernando Branches has treated more than 50 victims of high levels of mercury. The disease attacks the nervous system and kidneys, can cause birth defects and even death. Though no mercury fatalities have yet been reported officially in the Amazon, some fear a tropical Minamata, the infamous bay in Japan where mercury discharged by a chemical plant during the 1950s has now killed more than 1,200 people.

Alien to Olympic Park, Mountain Goats May Go

They look as if they own the place, regal and exalted mountain goats amid the peaks of Olympic National Park. But officials say that the animals were introduced to the Olympic Peninsula as recently as the 1920s, that they scar hillsides, and that they may have to be eradicated.

Now some 400 strong, the non-native goats have made a thousand dust wallows, endangering endemic plants that evolved without the presence of a high-country herbivore, says the Park Service's Cat Hoffman. For years planners have tried helicopter drug darting, nets, trapping, even birth control. Soon, a final plan may include shooting.

DAVID C. FRITTS, ALLSTOCK

National Geographic, June 1992

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Skies to Become Quieter, Cleaner—and Costlier

Teeth-rattling blasts of Boeing 727s and other aircraft will settle down to a milder roar by the year 2000. Rules issued last September by the Federal Aviation Administration call for replacing or modifying nearly 2,100 planes in the U. S. to cut by half the noise they now create. Quieter engines also emit 50 percent fewer hydrocarbons and burn 25 percent less fuel.

The old noisy group includes about 1,100 727s, 400 737s, and 400 DC-9s. Two thousand eardrum friendlier planes, such as 757s, 767s, and MD-80s, already ply the skies. More peace may be found up yonder than at ticket counters. By 2000, airlines will be passing on to travelers most of the new fleet's price tag—a hundred billion dollars.

Swan's Way Lost—Can Trumpeters Return East?

Largest of all waterfowl, with an eight-foot wingspan, trumpeter swans once ranged across North America (map). The majestic birds were wiped out east of the Rockies by settlers. Now 15,000 trumpeters summer in Alaska, Canada, and the western U. S. But efforts to reestablish the birds languish because the old migration patterns have been forgotten—in winter some swans even stay put.

To the rescue eventually may come an improbable navigational aid—an ultralight flown by Ontario waterfowl lover Bill Lishman, who has trained Canada geese to follow him. "We're hoping he can lead some trumpeters 360 miles down here to winter in Virginia," says wildlife researcher Bill Sladen. On a 3,000-acre site he has 35 resident swans, convivial company for a trumpeter homecoming.

—John L. Eliot

ART WOLFE, ALLSTOCK

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On Assignment

"We belly crawled about 200 yards through the most ant-infested wilderness I'd ever seen." GEOGRAPHIC writer DON BELT was moving across Tonkiy Island in Lake Baikal behind Sasha Timonin, a Russian biologist who served as guide and all-around troubleshooter. He led Don and photographer Bill Curtsinger down a cliff face to observe endemic Baikal seals as they sunned themselves on rocks in the shallows.

"We saw that one had gotten tangled in a seal hunter's net," Don recalled. "It was digging deep into her neck; she was going to either strangle or bleed to death." The team mounted a rescue. Splashing through waist-deep water, Don grabbed the seal and, kneeling, held her (right) as Sasha cut the net and then gently examined the wound.

For Don, who has written about the twisting glories of the Chattooga River and the sere beauty of Baja California, the friendship with the unflagging Sasha confirmed his sense that it is people who make the most remote places memorable.

BILL CURTSINGER (ABOVE); TANNEN MAURY, ASSOCIATED PRESS

Standing out in a crowd once terrified free-lancer JOANNA PINNEO. "I was painfully shy in college." As an aspiring photojournalist, she knew that being bashful was no blessing.

After graduation she attended public events just to watch professional photographers at work. Landing a job with a Christian magazine, she soon was shooting pictures of missionaries in Asia, Africa, and South America. More confident, she covered sports and politics for the Associated Press, then did a stint on a news magazine.

On her first GEOGRAPHIC assignment, Joanna entered Kuwait City two weeks after the Persian Gulf war to meet local Palestinians. She found a crowd standing grimly in a breadline where their ration was half that of Kuwaitis. Despite the bleak circumstances, Joanna says, "When I focused on the people, they seemed incredibly beautiful. And that's a miracle to me."

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